



## Infrastructure and Resource Development in India: Issues, Challenges and Approaches

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One of the important parameters of society's growth and progress is its level of resource development and nature of infrastructure that it has created to meet the needs of its members. Infrastructure is popularly categorised into two segments, physical and social. The physical infrastructure primarily comprises of assets like transport network (roads, railways, ports etc.), electricity access and network, water availability (for drinking, irrigation and industry). The social infrastructure primarily consists of education and health care available to the members of a society. The ability to develop the infrastructure of a society is largely dependent on the availability of the required resources accompanied by its rational and optimal utilization keeping in mind the needs of a society.

Some of the countries leading in creditable infrastructure network are Switzerland, Denmark, Finland, Norway, Canada, Singapore, Netherlands and other European countries. It seems logical to find the economically developed countries of the world leading the way. However, it is not merely the physical infrastructure that sets these societies apart from the rest but more the social infrastructure which make these societies unique and more liveable.

According to the [worldpopulationreview.com](http://worldpopulationreview.com) the overall infrastructure score of the leading ten countries

estimated out of 100 is above 80. As per this website India's score is 36.4 and stands 51<sup>st</sup> in the list of countries evaluated for the purpose. India is currently one of the leading economies of the world and is rapidly taking strides towards developing an enviable infrastructure in the coming years.

India's road network is currently the second largest in the world with more than 63 lakh kms of road network as of 31<sup>st</sup> March 2025. In the last one decade the budget for road highway and transport has increased by 570% indicating of the social thrust being provided to this segment of infrastructure. Govt. of India approved an ambitious project to connect the length and breadth of the country through a project Bharatmala Pariyojana. Out of 34,800 kms of proposed road length in this project, almost 20,000 kms has already been completed.

The road network complements the large network of railways which though introduced in 1853 during the British Raj was massively extended and expanded after independence. Indian railways is the largest rail network area in Asia and the world's second largest under one management. Few new trains like Vande Bharat, Amrit Bharat Train and Namoo Bharat Rapid Rail aim at raising the level of ease and standards of travel in rail transport for the passengers. Introduction of metro rails in almost 23 cities of

the country speak of the convergence of urban planning and transport infrastructure.

Supporting the road and rail networks is the water transport connectivity in the country. Government's Sabarmala Programme aims to make best use of India's coastline and waterways. Supplementing the roadways, railways and the waterways is the network of airways. India currently has approximately 160 operational airports which have nearly doubled in the last one decade.

The communication networks in India has evolved rapidly in the last three decades to match the increasing demands of communication across the country and the globe. The telecom sector is rapidly expanding with the rise of smartphones and 5G connectivity. India is the second largest telecommunications market in the world with over 108 billion telephone subscribers achieving an overall teledensity of 84% by the end of 2024. The phenomenal growth of digital media in the last five years has trumped the revenue growth of traditional media like television, print and radio.

Coming to the social infrastructure one finds the Indian education system catering to one of the largest populations of the world. Around 14.72 lakh schools in India caters to around 24.8 crore students across the country with the help of around 98 lakh teachers with govt schools accounting for almost 70% of the total schools supporting almost 50% of the total students and teachers in the country at school level. The higher education system is among the largest in the world with 4.33 crore students enrolled in the year 2021-22. The last two decades have witnessed tremendous growth in this sector with increased emphasis on accommodating more and more students in higher learning.

India's healthcare system is also one of the largest in the world catering to more than 1.4 billion people in the country. Government has launched National Health Mission, AYUSH and

allied programmes to make health infrastructure more and more accessible and affordable to the people of the country.

While India has been constantly working on developing its infrastructure across all the segments, it continues to face persistent challenges of demography and geography. India is host to the world's largest population with diverse needs and skills. Despite being blessed with a wide range of resources in the country, the diversity of conditions and circumstances of its people has posed a challenge to distribute the resources to all. As per Census of India 2011, around 68.8% of India's population resides in rural areas. Coincidentally, most of the resources required to be harnessed for the development fall in the rural areas only but ironically the fruits of development have been largely concentrated in the urban centres of the country. It is a widely known fact that most of the infrastructure in the country is concentrated in the urban centres catering primarily to the needs of the urban population where economically and politically more privileged segment of society resides. The needs of the urban elite are more easily attended to than the needs of the rural poor. Internal migration in the country for the last few decades is witness to this trend of urban centres becoming preferred destinations for labour and capital across the country. Even in the urban centres it is the leading urban centres like Delhi, Calcutta, Mumbai and Chennai that have become centres of attention for the aspiring millions and the policy makers too. The high cost of living in the urban centres coupled with demand of high skilled labour often makes such centres less practical for the rural masses. The urban centres typically suck up resources from the surrounding rural areas but do not contribute in return in the development and growth of its rural neighbours. The need to extend the infrastructural facilities to the rural population is therefore an important challenge before the

Indian state in order to reduce regional disparities in the country.

Another important challenge is to address the needs of the poor. Firstly, most of the infrastructure is concentrated in the urban centres, secondly, the cost of using most of the infrastructure is much higher than what a majority of India's population can afford. Even today the government in India has to make special concession in medical and educational field to make the infrastructure accessible to more and more people. There is an increasing tendency of the state to withdraw from the welfare measures as the demands of capital growth in globalised world requires capital intensive programmes and market driven economy. With changing rules of economy the dice is heavily loaded against the interests of the poor. The challenge gets compounded further due to the widening gap between the rich and the poor in the country. The poor are devoid of their access to some of the basic amenities of life. The cost of health facilities in the country have increased continuously for the last few years making the life of the poor even more tenuous. The cost of education at primary level is being subsidised by the state but the higher education is gradually becoming out of bounds for the economically disadvantaged. Access to health, education, finance, employment, land and housing makes the poor more and more vulnerable in a rapidly expanding infrastructure in the country.

Another important challenge for developing resources and infrastructure remains attending the needs of women. Public places in India are more accessible to men than women in India, not only in traditional rural areas but also the so called modern urban centres. Moving out of households in India still remains challenging for women who often find crime against women a cause of major concern. Safety and security of women in public spaces remains a grave

challenge that needs urgent attention if the society has to harness its human capital. Better connectivity in urban centres, better lighting of streets and market during night, better system of policing and lesser social restrictions on their physical movement makes urban centres preferred centres of living. However, urban centres are not where most of the women are living. Ironically urban centres also pose different kind of security risk to women where crime against women is more frequent. As the job opportunities of educated urban women have increased over the years, the challenges of gender bias and harassment at workplace have also increased. It is a common knowledge that public facilities in rural and urban India remain highly neglected for women. While we develop improved infrastructure, it is imperative to ensure that it attends to the emerging needs of women in public spaces as more and more women move out of home for education, employment and other social activities. Improvement in women's social condition is healthy sign for our society but it requires corresponding changes in development of physical and social infrastructure to ensure that the dividends of women empowerment are not lost due to gender blind spot.

The diversity of Indian society poses another significant challenge where the socially marginalised segments of scheduled castes and scheduled tribes, which form almost one fourth of total society, remain significantly disadvantaged, stigmatized, impoverished and oppressed. The hierarchized character of Indian society makes the challenge of inclusion of such marginalised groups in public spaces even more challenging. The focus on inclusive policies will ensure that the marginalised sections feel equally involved and participant in the development of the infrastructure. The tribal areas of the country are home to most of the important minerals that are mined for economic development of the country

yet the fruits of development do not get percolated to their land and people in most of the cases.

Another major challenge for developing infrastructure lies in the need to make accessibility of physical structures and inclusiveness of social policies for the disabled population a norm. Indian policymakers have duly recognised the need to upgrade existing infrastructure and create disabled-friendly facilities in transportation and communication.

The challenge of marginality and deprivation in India is very intricately linked with disempowerment and poverty. Often the above mentioned marginalised sections of society also

gravitate towards economic vulnerability much more than other social groups. Hence, the infrastructure that is economically, socially and politically more accessible and inclusive will have a multiplier effect on development of the country. The past experiences have often indicated that merely developing physical infrastructure does not necessarily translate into development for all. The logic of market may lead to skewed development of the resources catering only to the privileged few. The active role of state cannot be overstated in ensuring the social dimension of infrastructure development that will go a long way in elevating society to a higher level of social change and progress.