

WHITE PAPER



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Foreword

Inclusive growth of infrastructure in India is the need of the hour rather than individualistic growth

Sustainable infrastructure development is the key to unshackle and to remove any constraints on the economic growth of the country. The approach for holistic development of the infrastructure in the country can help increase output and productivity, generate employment, boost international trade, industrial growth while reducing inequalities within and among countries.

Infrastructure growth in sustainable way always promotes sustainable consumption, production and resource utilisation to ensure a resilient habitats and settlements.

The need of the hour is to come up with real solutions and action points that can help the government so that lives of citizens of the country is benefitted through better infrastructure.

This report aims to help support the Government in its mission to build a world class infrastructures in a sustainable way.

- "Rajaneesh Dasgupta, Director General"



Observations and Insights

Sustaining our Ecosystem & Building Healthy Cities:

Sustainable development is complex and very unique to India and hence the management techniques will need to be tailored as per the country's requirements. With a growing urban population, the country requires Smart Cities to be developed. 'Smart' refers to how an objective can be attained with least resistance, short time period, sustainable manner and low cost options. In the context of cities, problems are well known however, developing smart measures to tackle these problems have been a challenge.

Active Mobility - Road map for the future:

With the development of urban cities in the country and population growth, India has a high demand for efficient and good connectivity to various areas in a city. To meet this, the Government, in the past, has mainly focused on constructing new roads and expanding existing ones. However, this process leads to reduction in pedestrian paths thus leading to an increase in accidents/ incident involving pedestrian fatalities.

In addition to road development, public transport systems must be made accessible to pedestrians and last mile connectivity needs to be improved allowing for direct access by a pedestrian. This will in turn reduce the frequency of occurrence of pedestrian accidents. Infrastructure needs to be developed for other modes of transport including cycling, metro, rail and walkways and not only focus on roads.

Major barrier in India for the development of on demand urban transport facilities is attributed to the fact that they are managed by different regulatory bodies and there is no integration between them. An institution must be set up to integrate all modes of transport within a particular city to be authority that deals with planning, define services to be provided etc.

Opportunities & Challenges of Renewable Energy:

Long held fundamental premises of the energy industry are changing with the development of renewable energy. Development of new technologies such as battery energy storage has made it possible for people to shift their consumption and production needs. In order to maximize the efficiency of energy usage, Indian citizens are demonstrating a paradigm shift in their choices.

Though India has made tremendous growth in the past few years in the renewable energy industry, further development of the evacuation and transportation infrastructure for energy needs to be built to allow for the transport of bulk power from a resource rich state to an area where there is high demand for

power. Another challenge faced is the mismatch between the time required for the development of a power plant and development of the transmission infrastructure. As the latter takes more time to be developed, connection of power plants to the grid is not planned and may lead to issues in the future.

With the increase in number of renewable energy plants being developed and connected to the grid, the industry may be forced to schedule a dispatch regime. However, as the discrepancies are larger in a renewable energy plant, the transmission infrastructure developed must be stronger and more efficient.



Rural Development:

As per a recent World Bank study, 3.5% of the rural population has migrated to urban locations in India over the past few years. However, due to this, the supply of agro-based products has reduced and the demand for the same grows higher on a daily basis. Hence it is important to focus on rural development by the provision of good education, infrastructure, connectivity and employment.

National Rurban Mission is a program developed by the Ministry of Rural Development with a vision to develop a cluster of villages to preserve and nurture the essence of the rural community life, and provide the facilities perceived to be urban.

Though we are a fast developing nation, 68% of the population resides in rural areas and hence there is a requirement for the development of rural areas in addition to urban infrastructure development.

As parts of the mission, cluster of villages are identified, approved by the Ministry and undergo development in the form of land use planning, city planning, road planning etc. Some of the activities undertaken as part of the development will include:

- Skill development;
- Gas connection in every household;
- Solid waste management;
- 24x7 water supply;
- Toilets in every household;
- Covered drains;
- Street lights;
- Solid waste treatment plant at the cluster level;
- Good connectivity between clusters;
- School;
- Agro-processing centres;
- Health unit;
- E-gram centre.

Roof for the Masses:

Growing demand for housing for the masses has been further emphasized by the launch of the mass housing mission which has an objective for the development of housing for all by 2022 through the development of over 4 crore houses in India.

IFC and World Bank have launched a set of guidelines for the sustainable development of large group housing structures called EDGE rating system. The system focuses on 3 aspects – water, energy and embodied energy.

The IFC-EDGE Green Building Certification System provides a simple, inexpensive and reliable way to generate cost-effectiveness on utility bills irrespective of a client's earnings or the kind of building they live or work out of. These could be Domestic Utilities such as houses, apartment buildings etc. or Commercial Utilities such as office buildings, malls etc. and even go on to include Public Utilities such as airports, hospitals, schools etc.

The tool can thus be used effectively to create a new paradigm for sustainable built environment's future in India.



Clean Cities – Wastewater Treatment and Sanitation:

Through the Swach Bharath Mission, infrastructure is being provided for solid and liquid waste management in rural locations in India. However, it was observed that the major challenge in the implementation of good sanitation habits is the requirement of behavioural changes in the local population and proper education and communication of the same.

Decentralized waste management is a concept that is growing in many parts of the country that involves the management of waste at the household level through segregation, recycling and other concepts such as composting etc.

Community engagements must be encouraged for the successful implementation of large scale waste management strategies and should be approached as a resource recovery solution.

Wastewater treatment technologies must be designed as a resource efficiency solution where more value is obtained from the treatment process. *For example:* energy can be obtained from water treatment technologies leading to a self-sustainable system. Additionally, it should be ensured that only the required amount of water needs to be treated and the process needs to be optimized to meet the existing demand.

Sustainable Finance:

Sustainable Finance refers to any form of financial service integrating ESG criteria into the business or investment decisions of relevant stakeholders including the society at large. These are triggered by mergers and acquisitions, project finance and private-equity investments where international financing standards and guidelines are to be met.

The global financial sector is undergoing a radical shift in focus from short-term profitability to longer-term success. Development Finance Initiatives (DFIs) are increasingly

looking at mainstreaming environmental, social and governance (ESG) factors and business growth through their direct investments and through financial intermediaries.

In the Indian context, sustainability in the financial sector is gradually evolving beyond conscious capitalism or corporate social responsibility. Financing institutions are now adhering to international responsible banking frameworks, standards and guidelines to promote sustainable enterprises thus investing in a low carbon future for India.





Sustainable

INFRA GROWTH



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