INFRASTRUCTURE

GREEN HIGHWAY | SMART CITY | INFRASTRUCTURE PIPELINE

NATIONAL INFRASTRUCTURE POLICY

INTRODUCTION

INFRASTRUCTURE is an enabler for growth. We expect India's GDP to recover in the five years beginning fiscal 2021 (2020-21 to 2024-25). The growth will be supported by the following factors:

- With the clean-up of financial sector balance sheets, banks and financial institutions will be in a much better position to provide credit.
- With the end of deleveraging phase, the corporates will start leveraging and this will push growth up. The corporate tax cut is allowing the companies to de-leverage faster and they will be primed up for undertaking investments when the economic cycle turns.
- Capacity utilization will catch up and result in an improvement in the investment cycle
- Infrastructure thrust by the Government of India through creating the NIP.

OVERVIEW AND EVOLUTION

AT the end of the debt phase, companies will start to take on debt, which will stimulate growth. Reducing corporate tax allows companies to deleverage more quickly and prepare them to invest when the economic cycle turns. According to the Global Infrastructure Outlook published by Oxford Economics, it is estimated that global infrastructure investment needs between 2016 and 2040 will be US$94 trillion. Of these planned infrastructure investments, Asia alone will require around 50% (China, India and Japan being the main contributors), with the roads and power sub-sector accounting for around 67% of these investment needs.

Another study estimated that while the demand for infrastructure increased by about $4 trillion per year, the supply of infrastructure increased by only $2.7 trillion per year, resulting in a gap from 1 to 1.5 trillion dollars per year. It is estimated that India will need to spend $4.51 trillion on infrastructure by 2030 to achieve its vision of a $5 trillion economy by 2025 and continue its growth momentum to 2030 essential of the PIN is efficient.

MILESTONE

ROAD CONNECTIVITY:
Undergone a complete overhaul. The highspeed national highways, better road planning. Now the roads have undergone change from 2 to 4 , 4 to 8 lanes.

RAILWAY CONNECTIVITY:
Government focused on regional connectivity with speed and better facilities like Regional Rapid Rail Transport System (RRTS).

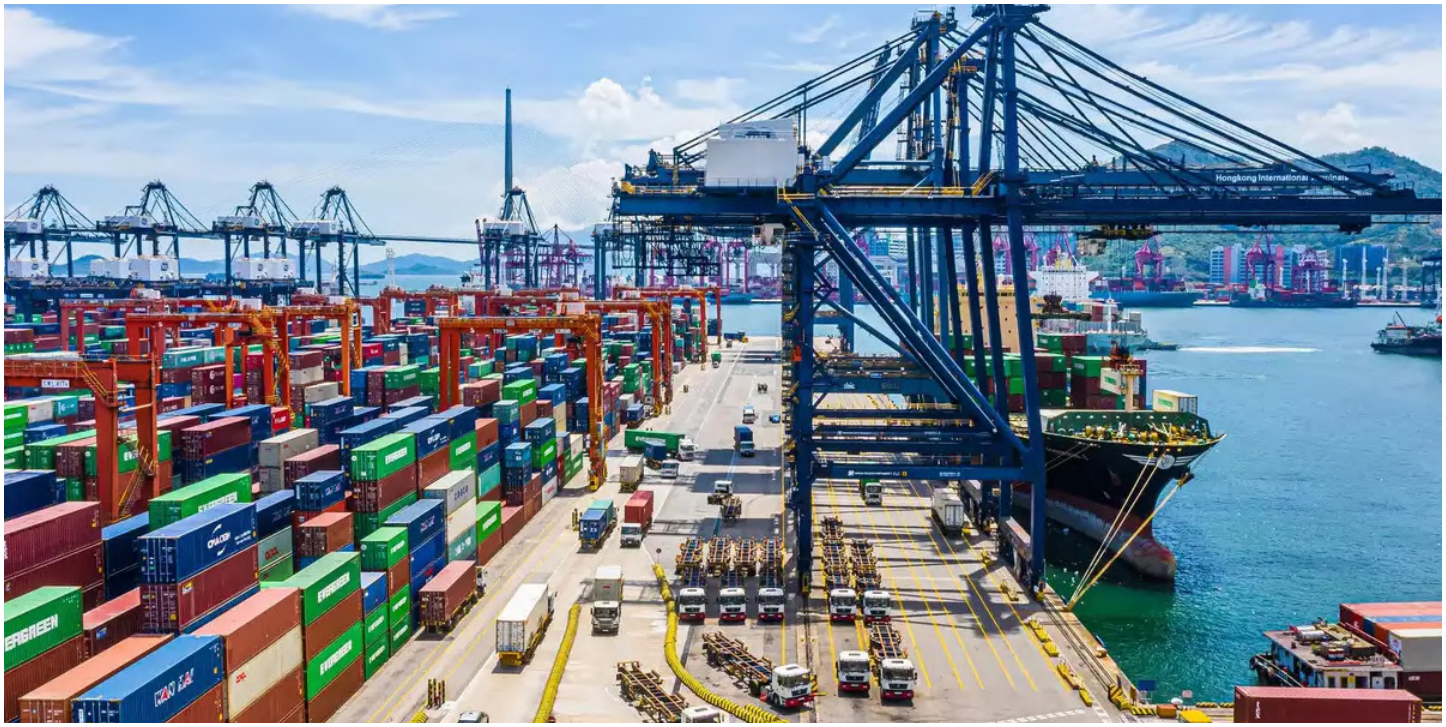
AIRPORTS:
Udaan scheme is a milestone of regional connectivity.
423 routes under regional connectivity scheme. RCS UDAN have operationalised as on 05-06-2022.

PORTS:
Capacity of the major ports have installed capacity of 1534.91 MTPA as on march 2022

ROADS

- 30 major works spanning a length of 1,637 km worth Rs. 14,506 Cr are in progress.
- Total length of NH reaches 7,118 km.
- Investments worth Rs. 1 lakh Cr in total have been planned for development of NH.
- Length of NH increased from 1,695 km in 2014 to 2,584 km in 2018.
- Number of NH increased to 14.
- Over 969 km of new NH declared in the State.
- 4 State Highways spanning 400 km upgraded to

The Delhi-Mumbai Highway is a 1,350 km long, 8 lanes wide, access-controlled motorway that connects Mumbai with New Delhi, the nation's capital of India. This project includes the Vadodara-Mumbai Expressway, which is still under construction.



PORTS

- IWAI is targeting 140 million tons per to transit the national waterways network by 2030.
- Planning to develop and modernize 5000 km of Inland Waterways network coverage.
- Focused on Cargo shipping.

AIRPORTS

- Consists of 450 airstrips across the country with only 100 fully operational.
- Project have been announced in locations such as Indore, Raipur, Amritsar.
- AAI (Airports authority of India) operates majority of airports through ongoing privatisation efforts.

RAILWAYS

CHINAB RIVER RAILWAY BRIDGE

To connect Kashmir Valley with the rest of India, the Udhampur-Srinagar-Baramulla Rail Link project includes the 1.3 km long Chenab River Railway Bridge. The bridge is a joint venture between three engineering firms, namely Afcons Infrastructure (India), VSL India, and Ultra Construction and Engineering Company from South Korea, with a USD 92 million budget.

RAILWAY PROJECTS WORTH RS 7.33 TRILLION BEING EXECUTED

Indian Railways is in various stages of planning and execution of 452 projects with a total length of 49,323 km costing approximately Rs 7.33 trillion. These include 183 new lines, 42 gauge conversions and 227 doublings.

Of 49,323 km, 11,518 km length has been commissioned and an expenditure of about Rs 2.35 trillion has been incurred, railways minister Ashwini Vaishnaw informed Lok Sabha on Wednesday.

RATIONALE

The national infrastructure pipeline aims to boost the economy to create more employment opportunity in different sectors, provide better infrastructure for all sectors, enhance ease of living for its citizens and make growth more inclusive. The pipeline will enable better project preparation, reducing aggressive bids/failure in project delivery and ensuring enhanced access to sources of finance as a result of a boost in investor confidence. In the past, infrastructure funding has proved to be a challenge. The national infrastructure pipeline hopes to build investor confidence by actively monitoring projects, bring needed reforms and resolve any potential issues. In order to sustain its growth rate and increase its competitiveness, India aims to focus more on well-developed infrastructure that enhances the level of economic activity. More institutional funding will also give the government bandwidth to invest more in other areas essential for the economies growth.

OBJECTIVES

- For the Economy: A well-planned National Infrastructure Pipeline will enable more infrastructure projects, business growth, job creation, and inclusive growth. Investment in infrastructure is a good strategy to overcome the current slowdown as it helps reactivate it and increases demand in other sectors, leading to an increase in fund flow to these sectors besides creating valuable assets.
- For the Government: Well-developed infrastructure improves the productivity of the economy, leading to the creation of additional fiscal space for improving the revenue base of the government and ensures the quality of expenditure focus in productive areas.
- For Developers: It gives a better view of projects that are being undertaken, provides time to be better prepared for project bidding, and reduces aggressive bids or project delivery failures. It will also improve access to sources of financial resources due to increased infrastructure confidence.
- For Banks/financial institutions: NIP will increase investors' confidence as identified projects are likely to be more prepared and are less likely to suffer stress due to active monitoring of the projects. This reduces the probability of NPAs.

METHODOLOGY

The study was done using secondary research methodology, for the infrastructure structure policy in India. We reviewed the studies; and reports on infrastructure policy.

CRITICAL ANALYSIS OF CURRENT POLICY

National Infrastructure Policy refers to a set of guidelines and measures that a government implements to develop and maintain essential infrastructure in a country. The infrastructure policy covers a wide range of sectors, including transportation, communication, energy, water, and sanitation, among others. In this analysis, we will look at the pros and cons of national infrastructure policy.

PROS:

Economic growth: Infrastructure investments create job opportunities, and the projects themselves provide economic benefits. It boosts economic growth and contributes to the overall prosperity of a nation. Adequate infrastructure leads to increased productivity, which ultimately leads to higher economic growth.

Improved living standards: Infrastructure development leads to improved living standards for the people. For instance, good transportation infrastructure can help reduce traffic congestion, making it easier for people to get around. Better water and sanitation systems can improve public health, and improved energy infrastructure can provide more reliable and affordable electricity.

Enhanced competitiveness: Countries with well-developed infrastructure are more competitive in the global market. National infrastructure policy ensures that the country's infrastructure is efficient, reliable, and cost-effective, which makes the country more attractive to foreign investors.

Innovation and modernization: National infrastructure policy encourages innovation and modernization in the infrastructure sector. It encourages the development of new technologies and infrastructure systems that are more efficient, sustainable, and cost-effective.

CONS:

High costs: Developing and maintaining infrastructure is expensive, and the cost can be a significant challenge for some countries. Infrastructure projects require a significant amount of capital investment, and if not done correctly, they can lead to budget deficits and unsustainable debt.

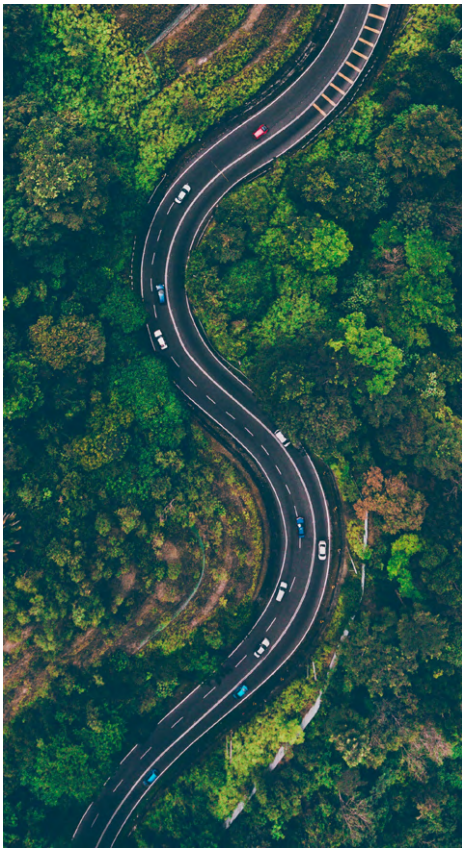
Political interference: Infrastructure policy can be subject to political interference, and politicians may prioritize projects that benefit their constituents or party instead of the most critical infrastructure projects.

Environmental impact: Infrastructure development can have significant environmental impacts, such as deforestation, habitat destruction, and increased greenhouse gas emissions. The policy needs to consider the environmental impact of infrastructure development and make sure that they are sustainable.

Corruption: Infrastructure projects are often susceptible to corruption and mismanagement, leading to the misappropriation of funds and poor-quality infrastructure.

CHALLENGES

- Funding: National infrastructure projects are expensive and require significant investment. Finding the necessary funds to finance these projects can be a challenge, especially in times of economic hardship.
- Political Support: Infrastructure projects often require support from multiple levels of government, as well as from the private sector. Securing this support can be difficult, especially when there are competing interests or political divisions.
- Environmental Impact: Infrastructure projects can have a significant impact on the environment, and must be carefully planned and managed to minimize any negative effects.
- Public Opinion: Infrastructure projects can be controversial, and public opinion can be a major factor in determining whether or not they are successful.
- Technology: Infrastructure projects often require the use of new and emerging technologies, which can be difficult to implement and manage. 6. Maintenance: Once an infrastructure project is completed, it must be maintained and kept up to date. This can be a challenge, as it requires ongoing investment and resources



SOME UPCOMING CHALLENGES

- First, 70% of the global population will be living in urban centres, some in cities of more than 100 million people, infrastructure will determine their quality of life
- The second great challenge relates to energy. As more people demand greater levels of energy to fuel consumption, there are challenges of supply, sufficiency and sustainability. Infrastructure must support this growth, but should do so responsibly
- Third is the vital challenge of fresh water. Already, 20% of the population lacks clean drinking water and 40% lacks basic sanitation. As this global divide becomes even more acute, it will drive radical changes in awareness and behavior around water usage and management, and the energy intensity of our consumption. Infrastructure is vital in addressing this challenge
- The fourth great challenge relates to social infrastructure and the question of how we – collectively and as individuals – will finance the cost of more people living longer and having fewer children. Therefore, the emerging economies need to enhance their institutions and their infrastructure significantly if they are to realize their long-term growth potential.

ROADMAP

- To implement an infrastructure program of scale of Rs.100 lakh crore it is important that projects are adequately prepared and launched.
- Thus an annual infrastructure pipeline would be developed.
- Out of the total expected capital expenditure of Rs. 102 lakh crore, projects worth Rs 42.7 lakh crore (42%) are under implementation, projects worth Rs 32.7 lakh crore (32%) are in conceptualization stage and rest are under development.
- The funding of the National Infrastructure Pipeline will be jointly made by the Centre, states and the private sector in the proportion of 39:39:22 (39 % each by the centre and states and 22% by the private sector).
- It is expected that projects of certain states, who are yet to communicate their pipelines, would be added to the pipeline in due course.

SMART CITY POLICY

INTRODUCTION

- The Smart metropolises Mission is an innovative and new action by the Government of India to drive profitable growth and ameliorate the quality of life of people by enabling original development and employing technology to produce smart issues for citizens.
- Smart city is a city equipped with introductory structure to give a decent quality of life, a clean and sustainable terrain through operation of some smart results.
- It includes introductory structure like acceptable water force, electricity force, sustainable sanitation and solid waste operation, effective civic mobility, affordable casing and icing robust IT connectivity and e-governance.
- Smart metropolises concentrate on their most burning requirements and on the topmost openings to ameliorate lives.
- They tap a range of approaches – digital and information technologies, civic planning and policy change – to make a difference. They always put people first.

OVERVIEW OF SMART CITY

Smart Cities Mission was launched by the Government of India in 2015 with the aim of transforming 100 cities in India into Smart Cities, providing them with essential infrastructure, modern amenities, and a high quality of life for their citizens. The project aims to create sustainable cities that use digital technologies, such as IoT, Big Data, and Cloud Computing, to optimize their operations and enhance the well-being of their residents.

As of February 2023, 100 cities have been selected as part of the Smart Cities Mission, and several initiatives have been implemented to make them smarter. Here are some examples of Smart City initiatives in India:

- Smart Transportation: Smart transportation initiatives in Indian Smart Cities include intelligent traffic management systems, real-time monitoring of public transportation, bike-sharing systems, and electric vehicle charging stations.
- Smart Waste Management: Smart waste management initiatives include RFID tagging of garbage bins, smart waste collection vehicles, and waste-to-energy plants.
- Smart Energy Management: Smart energy management initiatives in Smart Cities include smart grids, smart meters, and renewable energy projects such as solar power plants.
- Smart Water Management: Smart water management initiatives include the installation of smart water meters, leak detection systems, and rainwater harvesting systems.
- Smart Healthcare: Smart healthcare initiatives include telemedicine services, e-health records, and remote monitoring of patients.
- Smart Education: Smart education initiatives include the use of technology in classrooms, digital learning platforms, and smart libraries.
- Smart Governance: Smart governance initiatives include e-governance services, citizen engagement platforms, and online services for various government functions.

Overall, the Smart Cities Mission in India has the potential to transform urban areas and improve the lives of millions of people by making their cities more efficient, sustainable, and technologically advanced. However, the success of the project depends on effective planning, implementation, and citizen participation.

EVALUATION OF SMART CITIES

Smart cities have evolved significantly over the past few years. Initially, the focus was on the integration of technology into a city's infrastructure in order to make it more efficient. This included things like better traffic management, improved public transportation systems, and better communication networks.

More recently, the focus has shifted to encompass a range of issues such as sustainability, public safety, health and well-being, and economic development. This has been driven by an increased appreciation of the importance of urban design and the need to ensure that cities are livable and equitable.

In addition, cities are now using technology to create a better quality of life for citizens. This includes initiatives such as smart grids, connected transportation systems, and automated waste management systems. These technologies are helping to reduce energy consumption, improve air quality, and provide more efficient public services.

Finally, smart cities are now embracing the Internet of Things (IoT) to create an interconnected ecosystem of sensors, devices, and services. This is allowing cities to collect and analyze data in real-time to better understand the needs of their citizens and optimize their city operations.

MILESTONE

SMART MOBILITY:
Smart cities in India have implemented various initiatives to improve mobility, such as the introduction of electric vehicles, intelligent traffic management systems, and smart parking solutions.

SMART HEALTHCARE:
Improved healthcare, such as the introduction of telemedicine, remote monitoring systems, and digital health records.

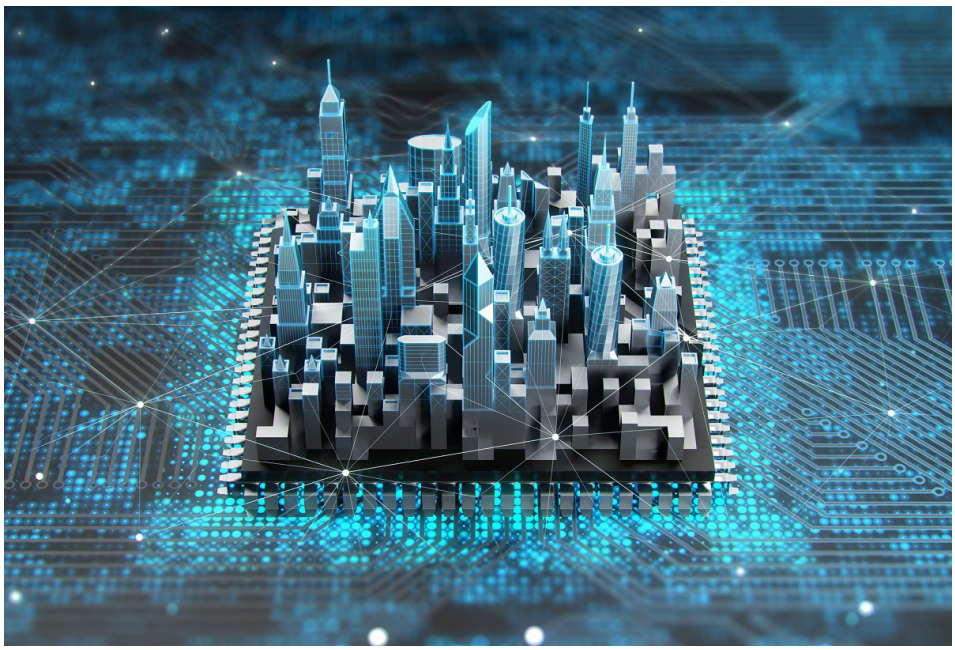
SMART GOVERNANCE:
Improve governance, such as the introduction of e-governance platforms, digital payment systems, and citizen engagement platforms.

SMART ENERGY:
Improved energy efficiency, such as the installation of smart meters, renewable energy sources, and energy storage solutions.

SMART INFRASTRUCTURE:
Improve infrastructure, such as the installation of smart street lighting, intelligent water management systems, and smart waste management solutions.

NEED FOR THE MISSION

Cities accommodate 31% of India's current population and contribute 63% to the GDP(Census 2011) By 2030, civic areas are anticipated to accommodate 40% of India's population and contribute 75% to the GDP. Population growth in metropolises leads to structure operation and service delivery challenges. The Smart city Mission in India is an action that aims to efficiently and effectively attack these challenges.



SMART CITIES MISSION

The purpose of Smart Cities in India is to improve the quality of life of its citizens through the deployment of innovative and sustainable solutions that leverage technology, data, and other resources. Smart Cities aim to use advanced technologies and data analytics to make urban services more efficient, sustainable, and citizen friendly.

IMPROVE INFRASTRUCTURE:
Smart Cities aim to provide high-quality infrastructure and services, such as water supply, sanitation, solid waste management, public transport, and internet connectivity

FOSTER CITIZEN PARTICIPATION:
Smart Cities aim to promote citizen participation and engagement in urban planning and decision-making to ensure that the needs and priorities of citizens are considered in the development of urban solutions.

PROMOTE ECONOMIC GROWTH:
Smart Cities aim to create an enabling environment that fosters economic growth by attracting investments, creating jobs, and improving the ease of doing business.

PROMOTE SUSTAINABILITY:
Smart Cities aim to promote sustainability by reducing energy consumption, lowering carbon emissions, and adopting green and eco-friendly technologies.

ENHANCE THE QUALITY OF LIFE:
Smart Cities aim to improve the quality of life of citizens by providing better living conditions, improved public safety, and better access to essential services.

OBJECTIVE

The objective of the smart city action is to promote sustainable and inclusive cities that give core structure to give a decent quality of life, and a clean and sustainable terrain through the operation of some smart results similar as data-driven business operation, intelligent lighting systems, etc.

- Adequate water supply
- Assured electricity supply
- Sanitation including solid waste management
- Efficient urban mobility and public transport
- Affordable housing, especially for the poor
- Robust IT connectivity and digitalization
- Good governance, especially e-governance and citizen participation
- Sustainable environment
- Safety and security of citizens, particularly women, children, and the elderly
- Health and education

The focus is on sustainable and inclusive development and the idea is to look at compact areas, produce a replicable model to serve as a lamp to other aspiring cities.

METHODOLOGY

The study was done using secondary exploration.

- Methodology for the preparation and implementation of the Smart Cities the conception of the position of cities, cosmopolises, and regions.
- The Smart Cities concept methodology must concentrate not only on our large cities, but also in lower and medium-sized towns, while being reasonably applicable to domestic units of all sizes.

POLICIES

- Smart Governance: This policy focuses on the use of technology to improve the efficiency of urban governance. This includes initiatives such as e-governance, online services, and real-time monitoring and analytics.
- Smart Mobility: This policy focuses on improving public transport, reducing traffic congestion, and improving the accessibility and safety of urban transportation. It involves initiatives such as intelligent traffic systems, last-mile connectivity, and public bike sharing.
- Smart Infrastructure: This policy focuses on developing efficient and reliable infrastructure in cities. This includes initiatives such as smart grids, water management systems, and intelligent waste management systems.
- Smart Economy: This policy focuses on promoting economic growth and job creation. This includes initiatives such as digital payments, e-commerce, and digital skills development

CRITICAL ANALYSIS OF POLICY

PROS:

- Economic development opportunities: Investing in smart cities will lead to improving their indigenous and global competitiveness and attracting new residents and ameliorating business. Since the entire megacity will have access to an open data platform, information, etc. companies will flourish. They can make informed opinions with the available technologies and lead to profitable development.
- Improvement of infrastructure: old roads, structures, roadways, and bridges require massive investments to maintain their state and increase their useful life. But, with the help of smart technologies, metropolises will have the capability to analytically forecast and identify the areas that can cause structural failures before it occurs.
- Job openings: A smart city will have numerous businesses and job openings since people will get equal access to introductory resources similar as transportation, internet connection, and job offers.
- Improved Quality of Life: Smart cities offer an advanced standard of living, with better structure, healthcare, and education installations.

CONS:

- High perpetration Costs: Developing a smart megacity requires significant investment, which can be challenging for numerous governments, especially in developing countries like India.
- Dependence on Technology: A reliance on technology can lead to specialized issues and a lack of adaptability in case of power outages or system failures.
- Social & Political Control: With government officers penetrating public information, the data gathered is prone to abuse for particular or political interests. Someone behind the database has to have access to all the mountainous information and, thus, has the authority to misuse the data to manipulate the public.

CHALLENGES

India has been working towards building smart cities to provide better infrastructure, services, and overall quality of life to its citizens. However, there are several challenges that smart cities in India are facing, including:

- Funding: Developing smart cities requires significant financial resources, and India's cities often struggle to secure the necessary funding to build the required infrastructure and implement smart solutions.
- Infrastructure and Logistics: Many of India's cities are facing significant infrastructure and logistics challenges, including inadequate road networks, inadequate public transportation, and limited access to basic amenities such as clean water and sanitation.
- Cybersecurity: As cities become increasingly connected and rely on technology to improve their operations, cybersecurity becomes an essential concern. Smart cities in India are susceptible to cyber-attacks, and there is a need to ensure the safety of critical infrastructure and sensitive data.
- Public Participation: Developing smart cities require active involvement from the public to understand their needs, preferences and to ensure that the proposed solutions meet their requirements. However, in many cases, public participation has been limited or non-existent, leading to a lack of ownership and challenges in implementation.
- Cultural and social barriers: The cultural diversity of India poses challenges for the development of smart cities. The needs, preferences and attitudes of different socio-economic groups and communities need to be understood and considered in the development and implementation of smart city solutions.
- Sustainability: Smart cities must be sustainable in the long run, which is a significant challenge in a country like India. The solutions implemented must consider the environmental impact, such as energy consumption and carbon footprint. Addressing these challenges requires a coordinated effort from multiple stakeholders, including the government, private sector, and the public. With the right strategies and approach, smart cities can be a significant driver of economic growth and an improvement in the quality of life for Indian citizens.

ROADMAP

The Smart Cities Mission in India has a detailed roadmap that outlines the steps required to transform 100 cities into Smart Cities. The roadmap consists of the following stages:

- City Challenge: In the first stage, cities compete against each other to be selected for the Smart Cities Mission. The cities submit their proposals, which are evaluated based on their vision, goals, and potential impact.
- City-level Plans: The selected cities develop their own Smart City plans that identify their specific needs and priorities. The plans should be developed through a participatory process, involving citizens, local stakeholders, and experts.
- Capacity Building: The capacity building stage involves building the necessary capacity within the city government, including training of officials, improving institutional systems, and strengthening financial management.
- Implementation: The implementation stage involves the actual execution of Smart City projects. The projects are carried out in a phased manner and may include smart transportation, smart waste management, smart energy management, smart water management, and smart healthcare, among others.
- Monitoring and Evaluation: The final stage involves monitoring and evaluating the impact of the Smart City projects. This includes regular monitoring of project progress and impact and conducting periodic reviews to identify any areas of improvement. The Smart Cities Mission is expected to be completed by 2023. However, the success of the Smart Cities Mission will depend on effective planning, implementation, and citizen participation.


GREEN HIGHWAY

INTRODUCTION

A green highway is a roadway constructed per a relatively new concept for roadway design that integrates transportation functionality and ecological sustainability.

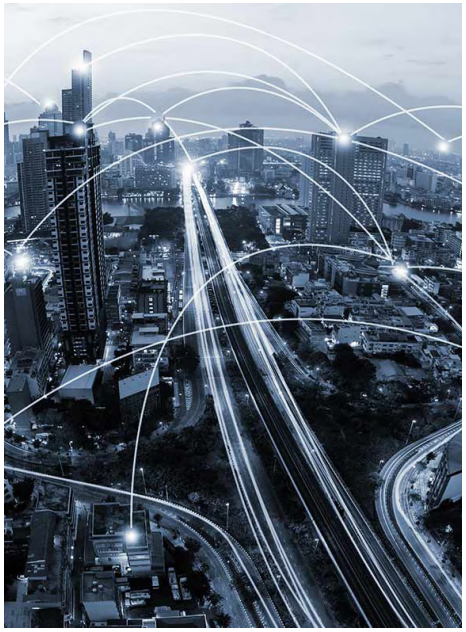
An environmental approach is used throughout the planning, design, and construction.

As a result, the highway will benefit transportation, the ecosystem, & urban growth.

OVERVIEW

These initiatives often focus on reducing air pollution, conserving resources, and reducing waste. Common green highway policies include the use of alternative fuel sources, the incorporation of green infrastructure, and the implementation of green transportation systems

Other green highway initiatives include increasing public transit options, encouraging carpooling, and implementing road tolls to reduce traffic.



EVOLUTION

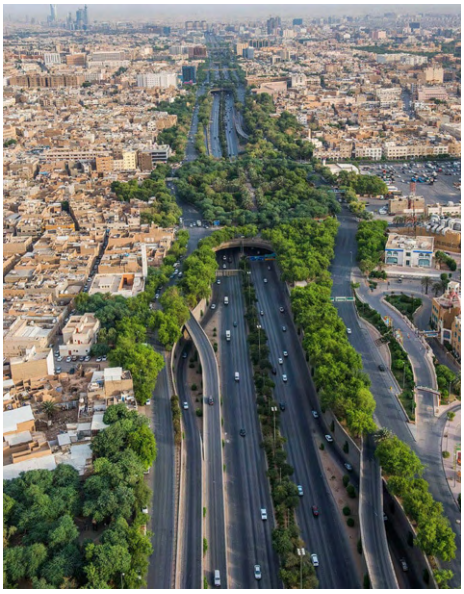
GREEN HIGHWAY

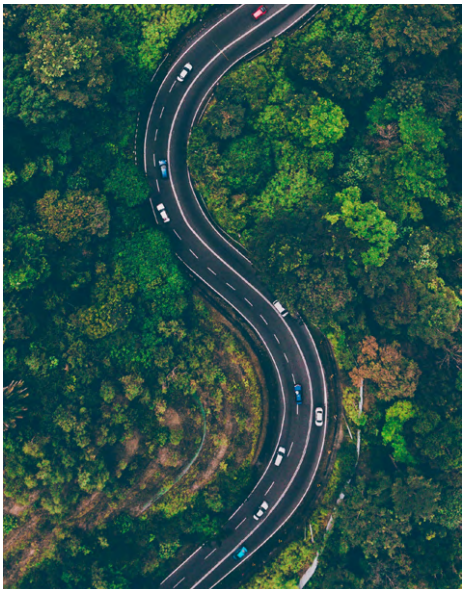
The green highway policy of 2015 has certainly been an achievement to be proud of. With this policy, a marked improvement in both infrastructure and the levels of air pollution across the country.

For instance, with the construction of new and improved roads, the ease of transportation drastically improved.

GREEN ROADS®

This has further aided in bringing down the carbon emissions which were adversely affecting the air quality in our cities: moreover, it has led to the promotion of other clean energy sources like wind and solar, which further helped to improve air quality.





MILESTONES

Rajasthan got its first partially funded expressway world bank it was a joint venture project by the indian govt world bank in december 2020, enter signed an agreement to the south with world bank to develop affrays 481 tons

COST OF PROJECT

27000 Cr (л, of which the world bank contributed 3000 crores.)

MILESTONES

Upto dec 2021 244 cpl tuss planted green highway policy, 2015 covers all the national highways of the country with aim to promote greening of raced comidoors, under these 2.4L plants 've been planted acer 809 n 14 having lenght of 51,178 kms. Where most plants were planted across nh-of up

MILESTONES

CHAMBAL EXPRESSWAY GAME CHANGER

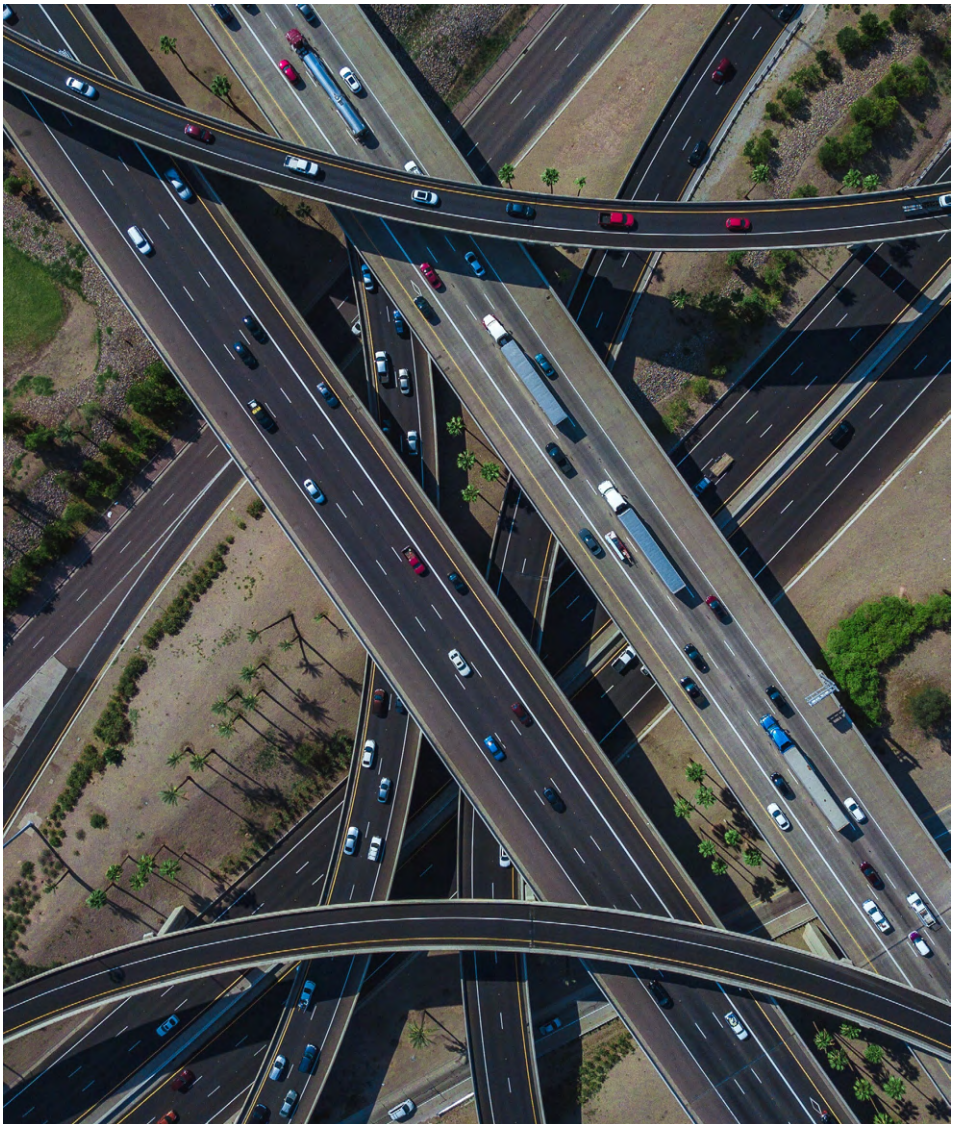
Rajasthan, especially of the chambal region is considered one of the most backward regions of the country formers of these regions will be the biggest beneficiaries as they can send their produce goods to delhi and mumbai expressway, in markets. Also, chambal known as chambal bez is situated near the chambal river.

RATIONAL

The national highways are the arterial roads of the country for inter- state movement for all

The national highways authority is entrusted with the national highways development project (nhdp), along with other minor projects.

The total length of national highways in the country is 132499 kilometres.



OBJECTIVES

To evolve a policy framework for plantation along national highways

To reduce the impact of air pollution and dust as trees and shrubs are known

To be a natural sink for air pollutants.

METHODOLOGY

The study was done using secondary research

Methodology, for the infrastructure structure policy in india. We reviewed the studies and reports on infrastructure

CRITICAL CHALLENGES OF CURRENT POLICY

The green highway project in india aims to develop environmentally sustainable highways using various measures such as tree plantation, solar lightning & rainwater harvesting system while the project has the potential to positively impact the environment it has several potential drawbacks that require critical analysis.

1) EMPLOYMENT GENERATION

We mostly understand good infrastructure means highways etc.

As you have seen the goal of 26 green highways therefore, it generates employment in large part because it requires both expert and unskilled labor

2) IMPROVED AIR QUALITY

Green highways can help to reduce air pollution by incorporating features such as tree planting, grass verges, and roadside gardens, which can absorb pollutants and improve overall air quality.

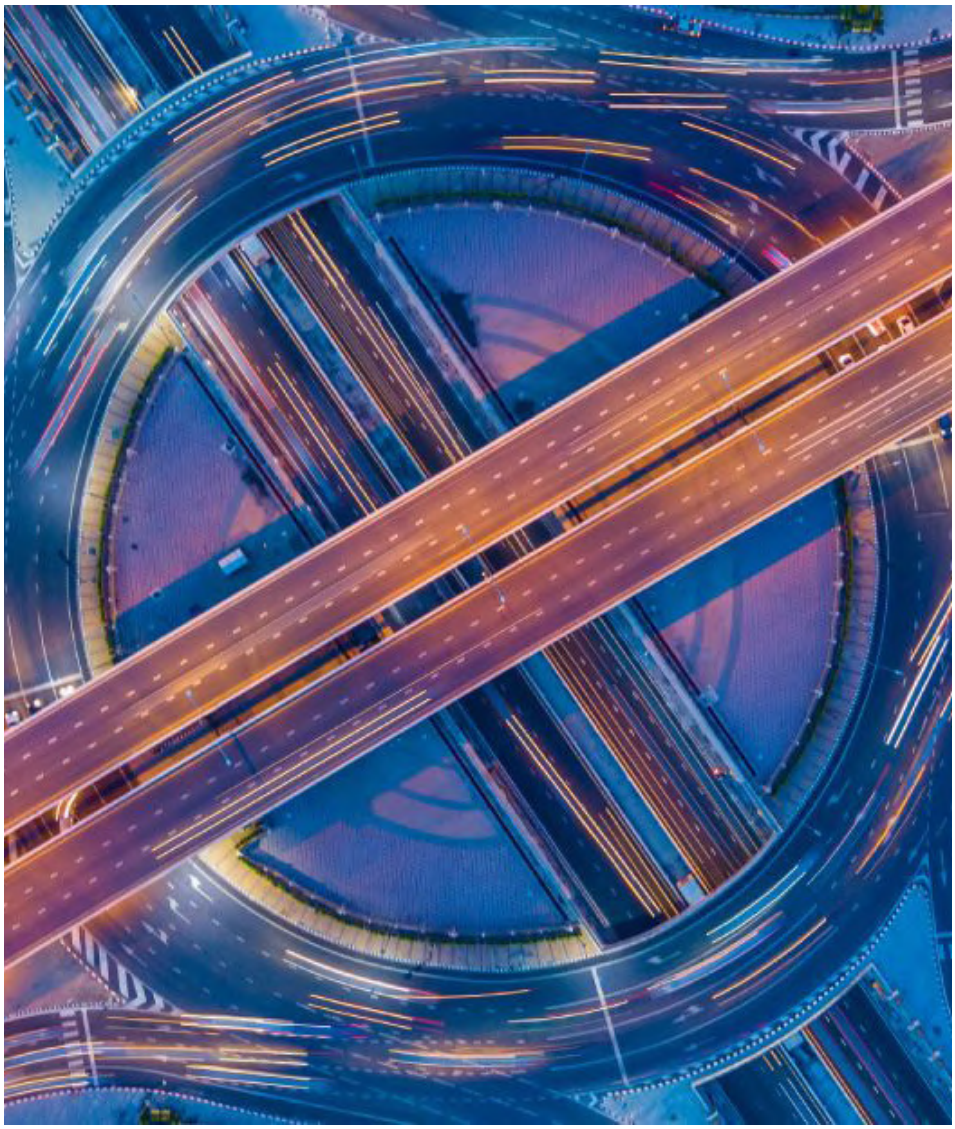
3) REDUCED NOISE POLLUTION

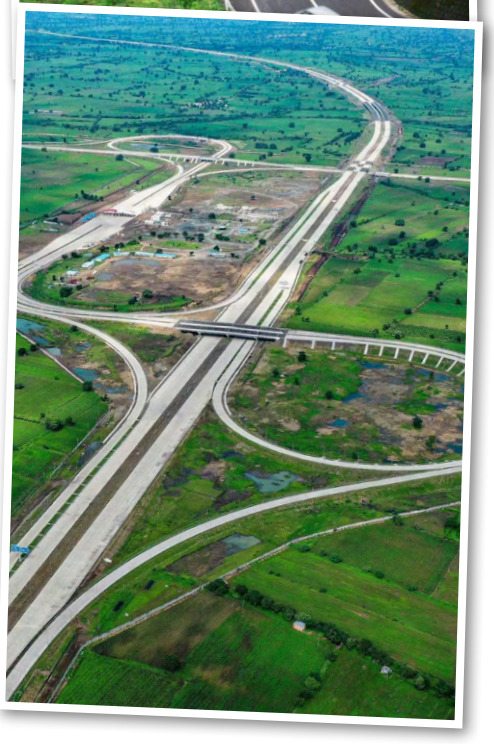
Green highways can also help to reduce noise pollution by incorporating features such as sound barriers and green walls, which can absorb and deflect traffic noise.

Delhi's latest green highway a new 2.1Km elevated road opened in the capital today and the delhi government claims it will help save 7,665 kilolitres of fuel (rs 46 crore at today's price) annually, bring down carbon dioxide emissions and reduce noise pollution.

4) CLIMATE CHANGE MITIGATION

Green highways can help to mitigate the effects of climate change by absorbing carbon dioxide and other greenhouse gases, and by reducing the heat island effect.





LEGAL AND REGULATORY BARRIERS

1) LACK OF CLEAR GUIDELINES:

There is a lack of clear guidelines and regulations for the development and maintenance of green highways in india, which can pose a legal and regulatory barrier

2) ENVIRONMENTAL CLEARANCES:

Obtaining environmental clearances and adhering to environmental regulations and standards can be a challenge for green highways.

CHALLENGES

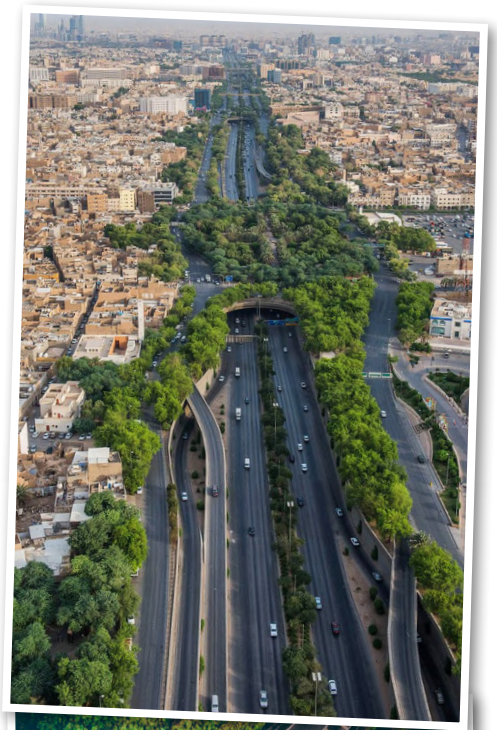
Financial barriers while constructing green highways in india

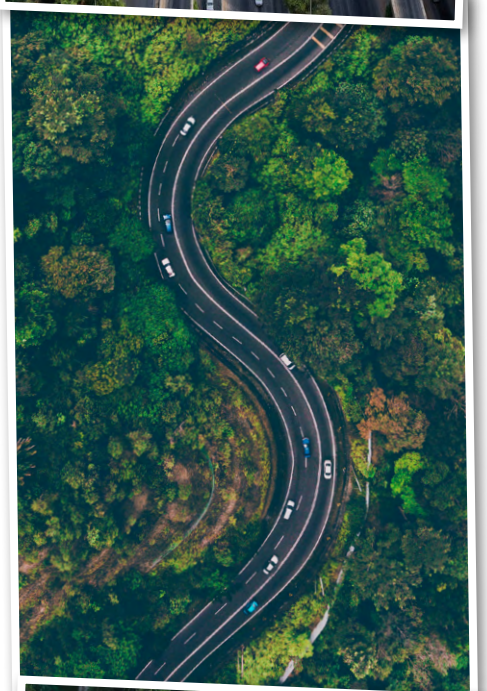
1) HIGH INITIAL COSTS:

The initial costs of constructing green highways can be high due to the need for specialized materials and techniques, which can pose a financial barrier.

2) LIMITED GOVERNMENT FUNDING:

Limited government funding for green highway projects can pose a financial barrier, especially in rural or remote areas.





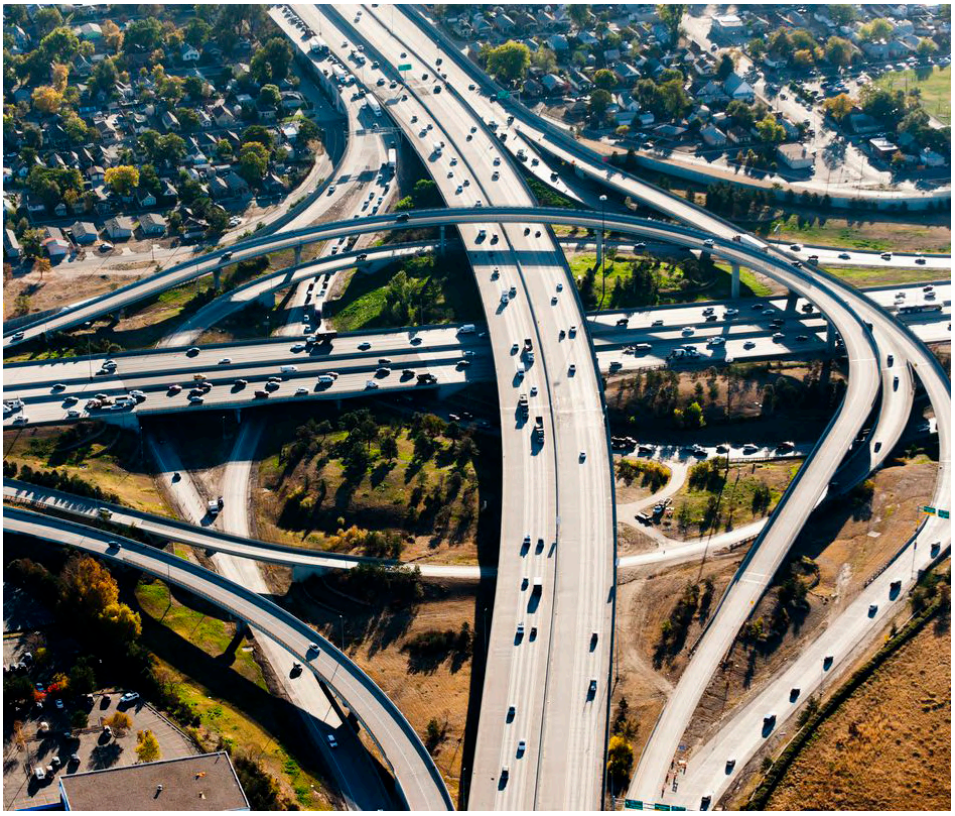
ROAD MAP

PROMOTE THE USE OF ELECTRIC VEHICLE [EVS] HYBRID

Government should introduce incentives for the purchase of evs and hybrids, such as tax credits and subsidies, and provide access to public charging infrastructure

INTRODUCE GREEN TAXES

The government should introduce taxes on vehicles that are not fuel-efficient or are polluting. This will encourage people to buy more fuel-efficient vehicles



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