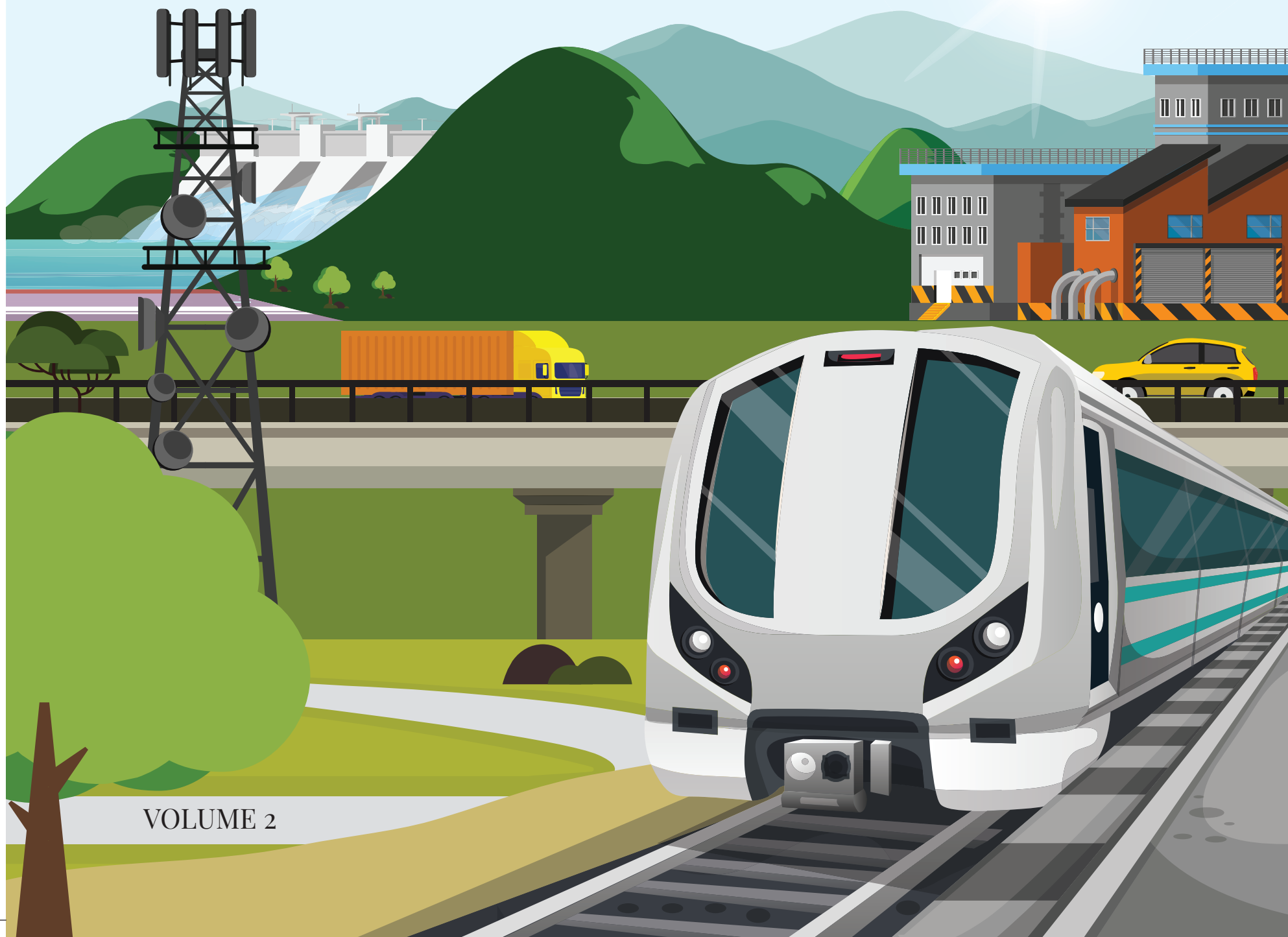


Compendium of PM GATISHAKTI



VOLUME 2



“

Infrastructure has always been important in the sustainable development of any country. Those who study the history of infrastructure know this very well. GatiShakti Master Plan will rejuvenate India's multimodal infrastructure. The results of the PM GatiShakti Master Plan are becoming visible.

”

- Hon'ble Prime Minister of India, Shri Narendra Modi



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Executive SUMMARY

PM GatiShakti represents the embodiment of the age-old saying 'Seeing is believing.' It stands as India's groundbreaking Geographic Information System (GIS)-based National Master Plan portal, a technological marvel that empowers public authorities across diverse Ministries and Departments to navigate the intricate federal hierarchy. This innovative platform serves as a conduit for planning, synchronizing, and prioritizing their respective developmental agendas for infrastructure development in the country.

At its core, a GIS functions as a comprehensive framework, enabling us to collect, analyze, and visually represent data tied to specific geographic locations. It empowers users to grasp spatial correlations, discern patterns, and make swift, well-informed data-driven decisions. Both Central and State-level public authorities are harnessing this collaborative visualization tool, enabling them to seamlessly juxtapose demographic intricacies, ecological nuances, and crucial infrastructure elements such as roadways, railways, waterways, airways, ports, production units, and telecom assets—all within a comprehensive, bird's-eye perspective.

The intuitive prowess of this platform amplifies through its three-tier administrative mechanism—EGoS (Empowered Group of Secretaries), NPG (Network Planning Group), and TSU (Technical Support Unit)—which intricately aligns with the “Whole of the government” approach. This fusion of technology and administrative effectiveness empowers a holistic, government-wide strategy, elevating the effectiveness of the entire system.

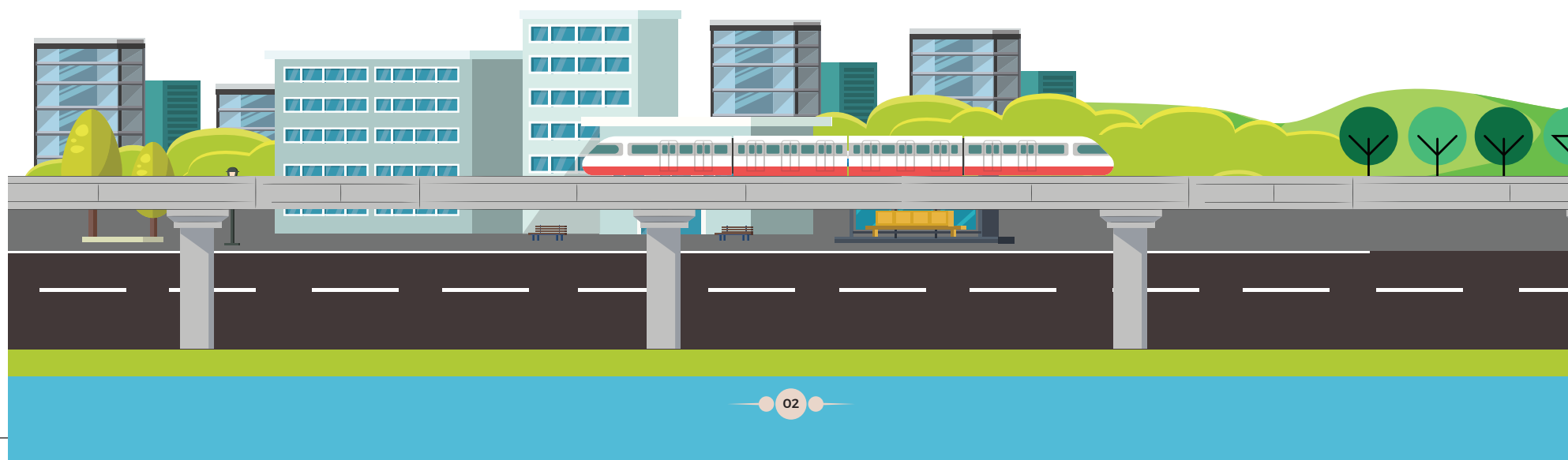
The first Compendium of use cases of PM Gati Shakti was launched in October 2023, on completion of two years of the launch of PM GatiShakti National Master Plan. Continuing the tradition of an evidence-based approach to policy making, in the present Compendium of PM Gati Shakti use cases, we share another 11 cases. These range from infrastructure projects giving multimodal connectivity to economic zones, to infrastructure planned to decongest urban areas of the country, and include projects on tourism aimed to empower communities. An ‘Area Development Approach’ under PM Gati Shakti is leading to holistic, multi-sectoral planning, aimed at the socio-economic development of the region.

Each case study presented here aims to capture the essence of the PM GatiShakti mechanism, showcasing its comprehensive, holistic, synchronised approach to enhancing planning efficiency, while evaluating the success of each project in terms of its contribution to both Ease of Living and Ease of Doing Business.

GatiShakti APPROACH

PM GatiShakti orchestrates a symphony of technology-driven decision-making and a collaborative, all-encompassing Governmental strategy, harmonizing the entire journey of infrastructure development from inception to realization. This section delves into the intricate workings of the GatiShakti methodology that facilitates this holistic progress.

The backbone of our nation's economic and social advancement lies in the logistical infrastructural pillars: railways, roads, ports, waterways, airports, mass transit, and logistics networks. PM GatiShakti emerges as a groundbreaking, technology-fuelled innovation, ingeniously uniting these pillars to unleash a cohesive and profound impact.



ROAD INFRASTRUCTURE



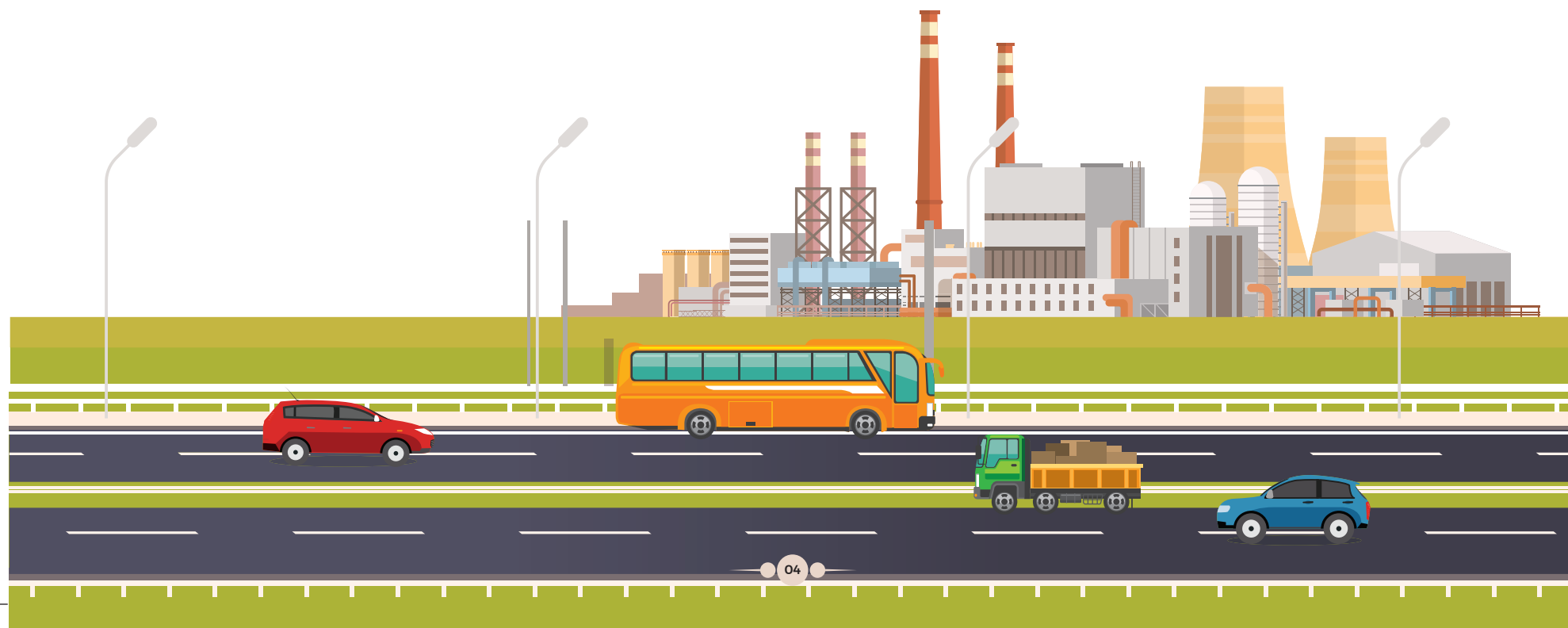
Case Study 1

Enhancing regional connectivity of Mandi Dabwali – Panipat Corridor

Background and **VISION** for the **PROJECT**

Starting from Mandi Dabwali, a town located at the State borders of Punjab and Haryana, the envisioned corridor unfolds as a critical artery poised to enhance connectivity across Northern parts of India. It aims to seamlessly link inter-state economic nodes such as the Ambala – Kotputli Economic Corridor and Amritsar – Bhatinda – Jamnagar Expressway, to facilitate the smooth movement of freight in Haryana, Punjab and Gujarat.

However, the significance of this corridor transcends its immediate connections, as it holds the potential to further enhance regional integration. The corridor further improves connectivity with the Northern and Eastern parts of India via the Gorakhpur – Bareilly and Gorakhpur – Siliguri corridors.



The GATISHAKTI EDGE and APPROACH

Alignment optimization was done using GIS-based data layers available on the National Master Plan (NMP) platform by systematically identifying intersections with various infrastructure and geographical features. Diligent assessment and minimization of overlaps with existing assets, such as railway lines, forests, wildlife sanctuaries, powerlines, and telecom infrastructure, were integral to the process.

A meticulous examination through the NMP revealed thirteen strategic intersections with the well-established National Highway network and five points of convergence with existing railway lines. Notably, the alignment steered clear of forested and eco-sensitive areas.

To ensure holistic accessibility, the alignment was refined for first and last-mile connectivity by precisely superimposing economic nodes mapped on the NMP platform.

The corridor enhances connectivity with twelve PM GatiShakti economic nodes.
These economic nodes are listed below:

 Mega Food Parks, Hisar, Haryana	 NICDC Node, Hisar, Haryana	 SEZ, Budena, Haryana	 SEZ, Bhagan, Haryana
 Fishing Cluster, Karnal, Haryana	 Mega Food Parks, Karnal, Haryana	 Pharma and Medical Clusters, Karnal, Haryana	 SEZ, Tikri, Haryana
 SEZ, Sarai Kohand, Haryana	 SEZ, Sewah, Haryana	 Textile Clusters, Panipat, Haryana	 Fishing Cluster, Mansa, Punjab

THE EXPECTED IMPACT

The initiative improves connectivity through an optimized alignment, reducing travel time and fostering fuel savings. This, in turn, results in a substantial decrease in Greenhouse Gas emissions, effectively addressing environmental concerns.

Case Study 2

Inter-state High-Speed Highway Bareilly-Gorakhpur-Siliguri

GORAKHPUR
TO BAREILLY



WELCOME TO
GORAKHPUR



GORAKHPUR
TO SILIGURI



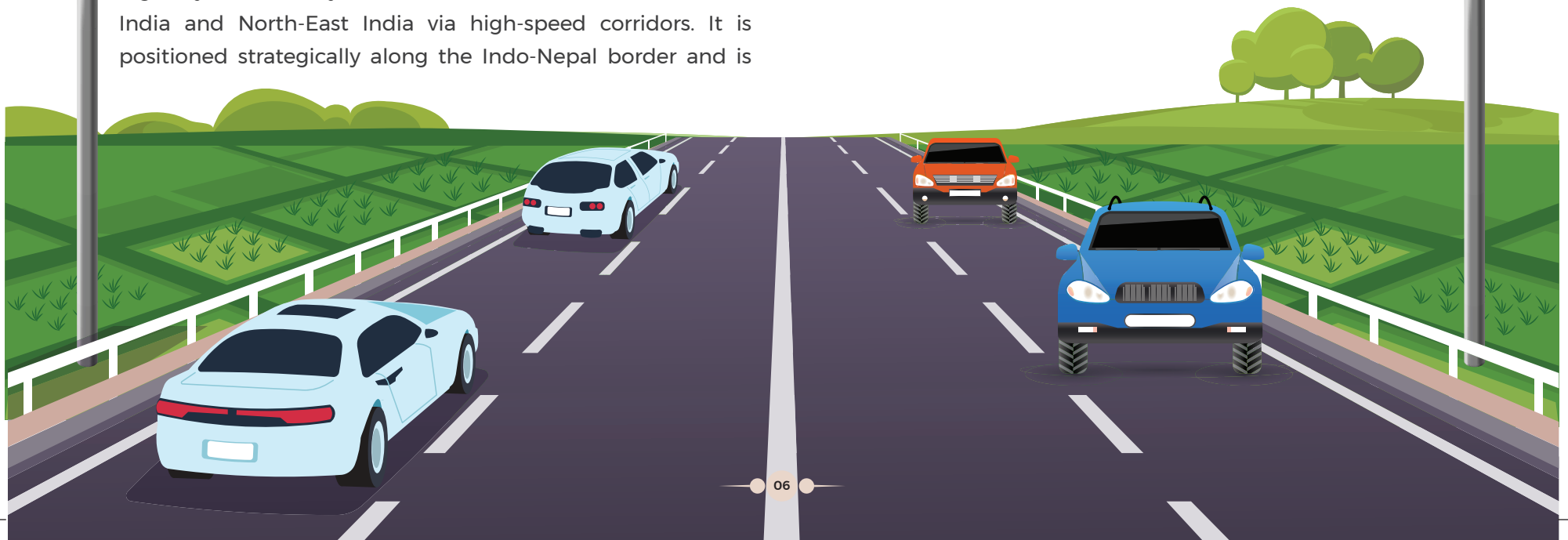
Background and **VISION** for the **PROJECT**

Efficient and rapid road connectivity to the eastern region from northern India is essential to accelerate economic growth in underdeveloped areas. The Gorakhpur-Siliguri greenfield corridor, spanning 520 kilometres, will originate from Gorakhpur ring road and culminate at Dhakpara village in Darjeeling, traversing through three states: Uttar Pradesh, Bihar, and West Bengal. This corridor is positioned to provide streamlined and fast-tracked connectivity to the Eastern region from Northern India.

The Gorakhpur - Siliguri Corridor will facilitate uninterrupted highway connectivity between the economic hubs of North India and North-East India via high-speed corridors. It is positioned strategically along the Indo-Nepal border and is

close to significant Nepalese cities such as Biratnagar, Janakpur, and Birgunj.

Furthermore, the corridor acts as a catalyst for multimodal connectivity, seamlessly integrating with railway stations such as Gorakhpur, Jayanagar, and Siliguri, airports including Gorakhpur, Kushinagar and Bagdogra, as well as waterways. This strategic initiative elevates regional connectivity, fostering economic development throughout the interconnected landscape.



The GATISHAKTI EDGE and APPROACH

GIS-based data layers on the NMP platform have enhanced the alignment optimization by identifying intersections with existing infrastructure and geographical features, including railway lines, forests, wildlife sanctuaries, power lines, and telecom networks. The superimposition of the alignment on the platform has enabled a comprehensive assessment of the connectivity to economic nodes, encompassing first and last-mile links.

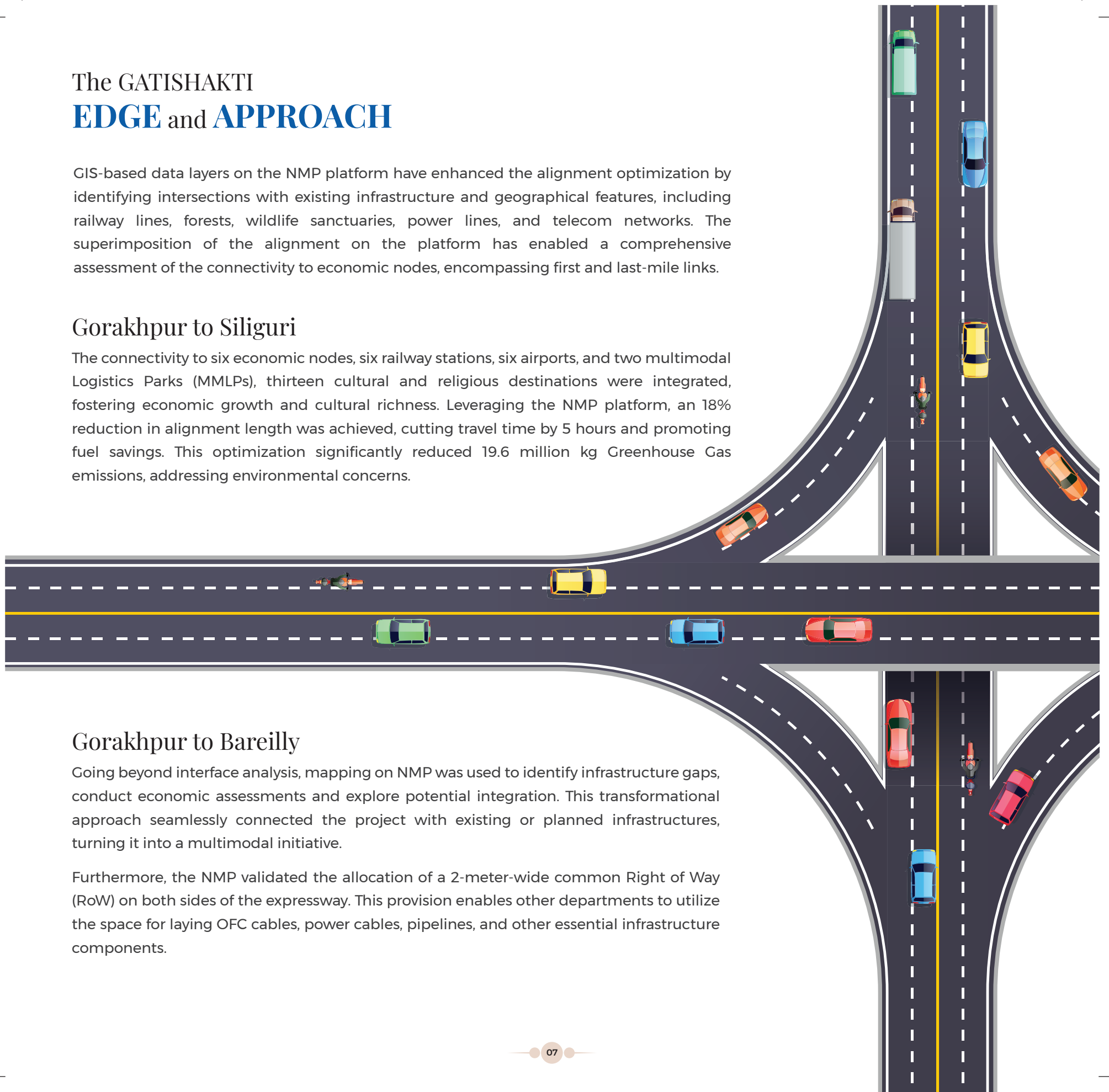
Gorakhpur to Siliguri

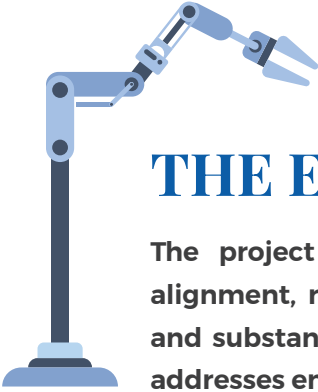
The connectivity to six economic nodes, six railway stations, six airports, and two multimodal Logistics Parks (MMLPs), thirteen cultural and religious destinations were integrated, fostering economic growth and cultural richness. Leveraging the NMP platform, an 18% reduction in alignment length was achieved, cutting travel time by 5 hours and promoting fuel savings. This optimization significantly reduced 19.6 million kg Greenhouse Gas emissions, addressing environmental concerns.

Gorakhpur to Bareilly

Going beyond interface analysis, mapping on NMP was used to identify infrastructure gaps, conduct economic assessments and explore potential integration. This transformational approach seamlessly connected the project with existing or planned infrastructures, turning it into a multimodal initiative.

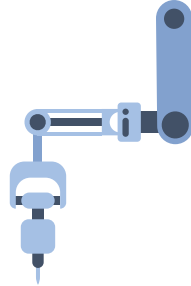
Furthermore, the NMP validated the allocation of a 2-meter-wide common Right of Way (RoW) on both sides of the expressway. This provision enables other departments to utilize the space for laying OFC cables, power cables, pipelines, and other essential infrastructure components.





THE EXPECTED IMPACT

The project enhances connectivity through an optimized alignment, reducing travel time, encouraging fuel efficiency, and substantially decreasing Greenhouse Gas emissions. This addresses environmental concerns effectively.



Case Study 3

Connecting Economic Nodes through Ghazipur-Ballia Highway

Background and **VISION** for the **PROJECT**

Ghazipur, nestled near the capital city of Uttar Pradesh, seamlessly blends historical charm with the vibrancy of contemporary life.

However, amidst the natural splendour and cultural richness, Ghazipur faces a pressing need for improved connectivity. The operational 2-lane highway spanning 131.200 km from Ghazipur in Uttar Pradesh, till the Ballia border (old National Highway (NH)-19), is grappling with the challenges posed by the growing volume of traffic.

Unfortunately, the expansion of this road to a 4-lane highway is challenging as the existing road winds through densely populated areas and major towns like Ghazipur, Ballia and Bariya. Further, the geometric conditions are not ideal.

To upgrade the current National Highway to modern standards, the alignment finalization process for the new highway is aimed at bypassing built-up city locations while minimizing time-consuming interactions with various stakeholders, departments, and ministries.

This will lead to streamlining highway development while adhering to the National Highway standards.

The GATISHAKTI EDGE and APPROACH

Utilizing the PM GatiShakti NMP, an exhaustive process of iterations was undertaken to determine the most suitable and optimized alignment for the project.

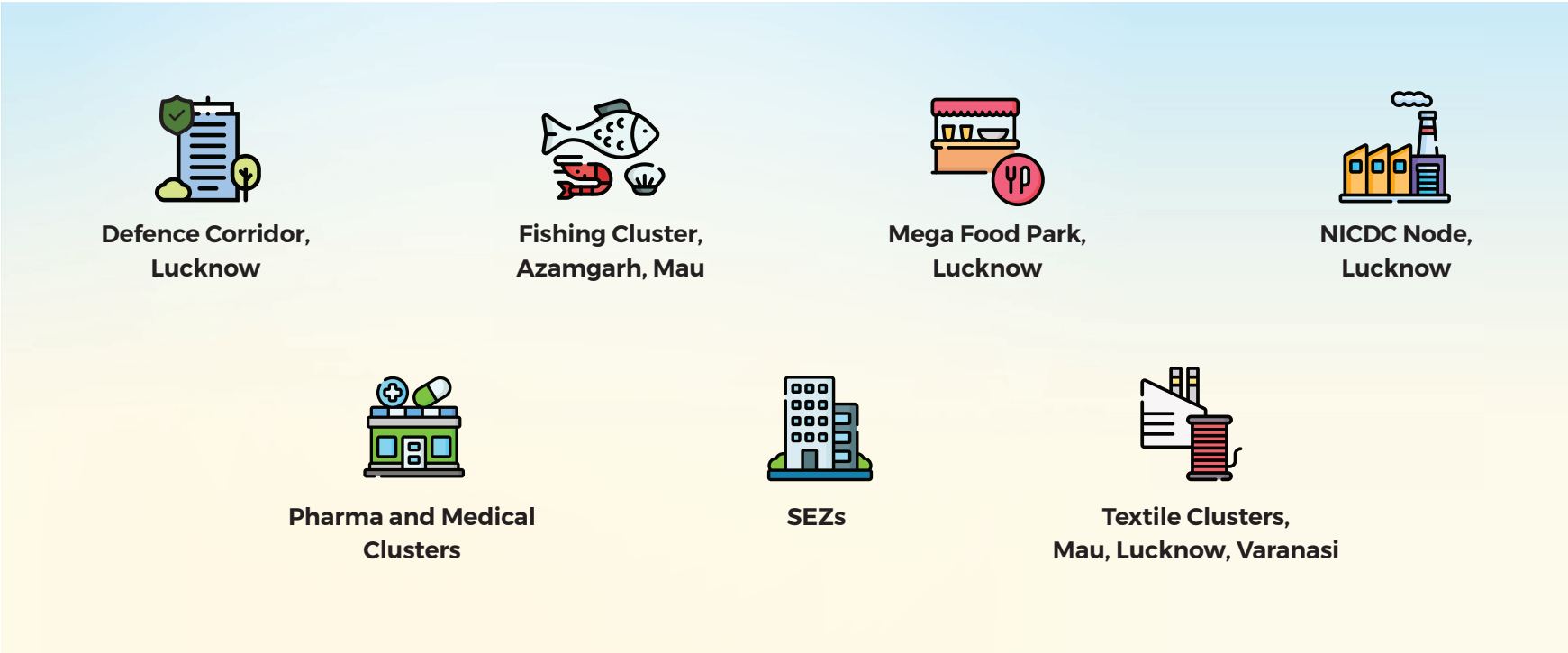
This involved a comprehensive analysis using GIS-based data layers from Central Ministries, States/UTs, and various sources, encompassing trunk and utility infrastructure, social sector assets (such as tourism sites), State-wise land revenue records, mining lease areas, water bodies and public utilities.

The alignment's draft was meticulously scrutinized on the NMP to ensure minimal interference with Forests, Wildlife Sanctuaries, Eco-Sensitive Zones, and upcoming/proposed projects, achieving an ideal geometric alignment.

Beyond interface analysis, the NMP mapping played a pivotal

role in identifying infrastructure gaps, conducting economic assessments, and exploring opportunities for multimodal integration with existing/planned infrastructures.

Notably, the project analysis on the NMP revealed a significant infrastructure gap, leading to the proposal of a Spur Road connecting the Ghazipur-Ballia highway to Janeshwar Mishra Setu. This addition establishes a crucial link between National Highway (NH)-120 Gaya-Bikramgarh-Dumraon section and the project via a State Highway, creating enhanced connectivity between Central and South Bihar.



THE EXPECTED IMPACT

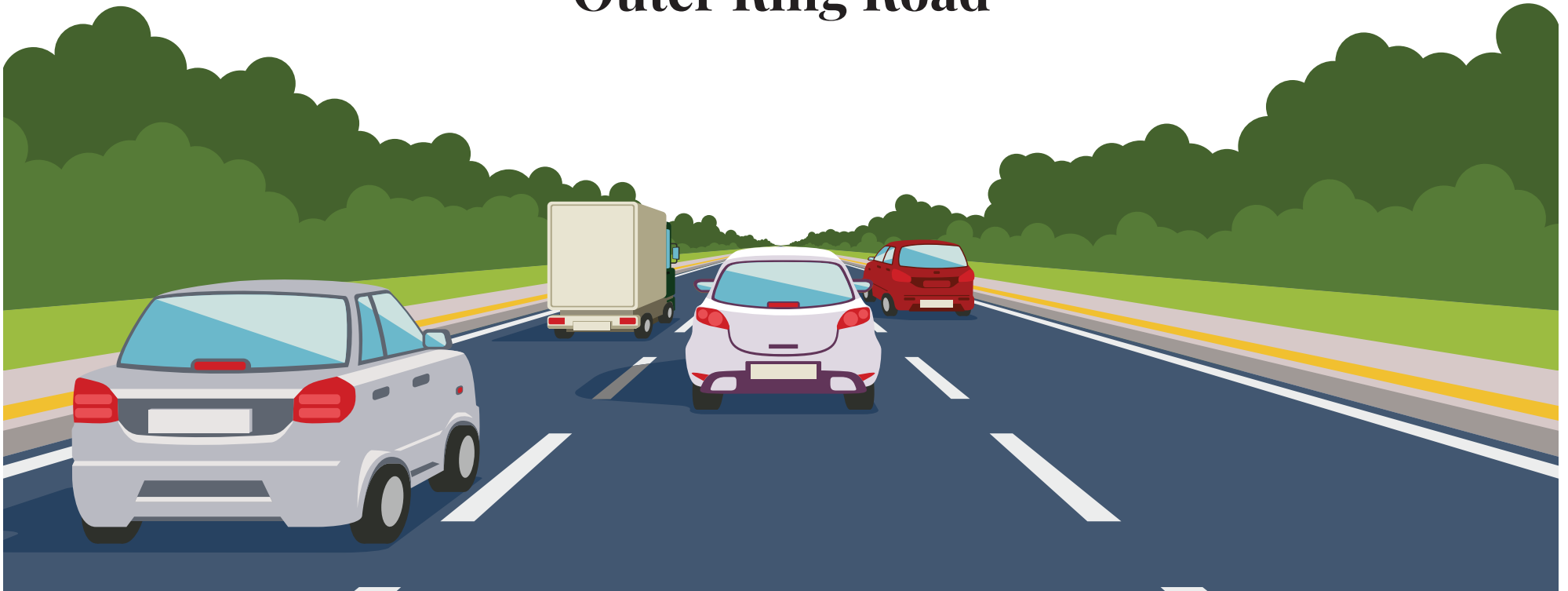
This project shall elevate existing National Highway to contemporary standards while adhering to ecological concerns.

URBAN TRANSPORT



Case Study 4

Decongesting Bengaluru through Outer Ring Road



Background and **VISION** for the **PROJECT**

Bengaluru, often called the 'Silicon Valley of India', is India's third most populous city and fifth most populous urban agglomeration.

Bengaluru, the bustling tech hub of India, is also a home for several start-ups in automobile, electrical, machinery, food processing, and many other industries sectors.

With adequate employment opportunities, the city attracts a significant migrant population leading to the major problems of traffic congestion causing plight of delays in movement of goods and people.

The National and State Highways pass through the city of Bengaluru, congesting both commercial and passenger traffic within urban limits and causing hindrances to traffic movement.

A Satellite Town Ring Road is proposed to decongest the city and improve movement of goods and people. The road will span about 180 km, connecting 12 towns and 331 villages.

The GATISHAKTI EDGE and APPROACH

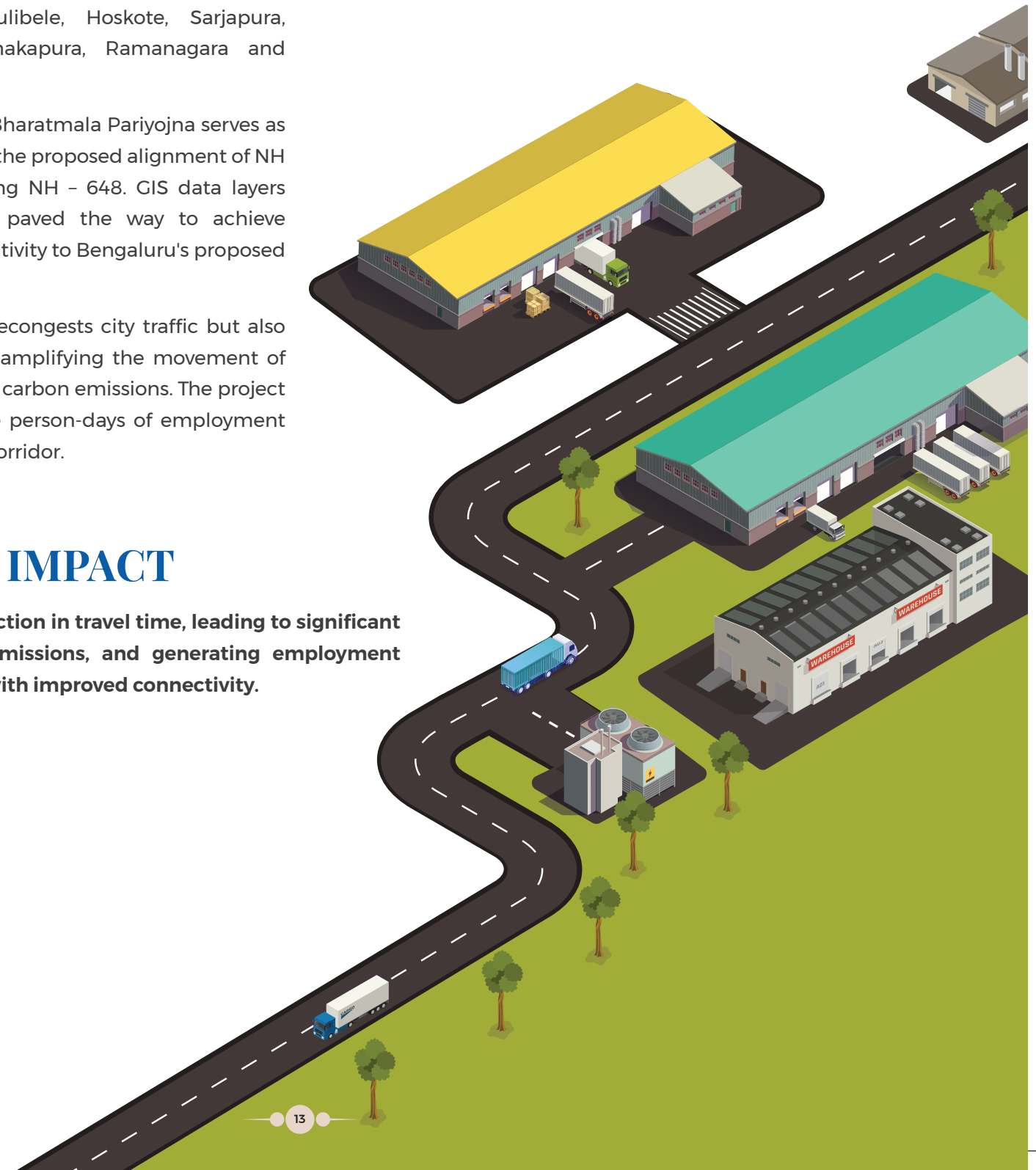
The PM GatiShakti NMP has played a major role in identifying the suitable alignment for the proposed 6-lane expressway by optimizing the connectivity to 12 economic centres Dobbasapete, Doddaballapura, Devanahalli, Sulibele, Hoskote, Sarjapura, Attibele, Anekal, Tattakere, Kanakapura, Ramanagara and Magadi.

This greenfield expressway under Bharatmala Pariyojna serves as a bypass around Bengaluru city by the proposed alignment of NH - 948A and realignment of existing NH - 648. GIS data layers available on the platform have paved the way to achieve multi-modality by enabling connectivity to Bengaluru's proposed multimodal Logistics Park (MMLP).

The present alignment not only decongests city traffic but also reduces travel time by 20%, thus amplifying the movement of goods and services while lessening carbon emissions. The project also helps generate about 2 Crore person-days of employment during construction of the whole corridor.

THE EXPECTED IMPACT

The project emphasises on a reduction in travel time, leading to significant fuel savings, reducing carbon emissions, and generating employment opportunities for local residents with improved connectivity.



Case Study 5

Planning of Metro Rail Alignment across multiple cities

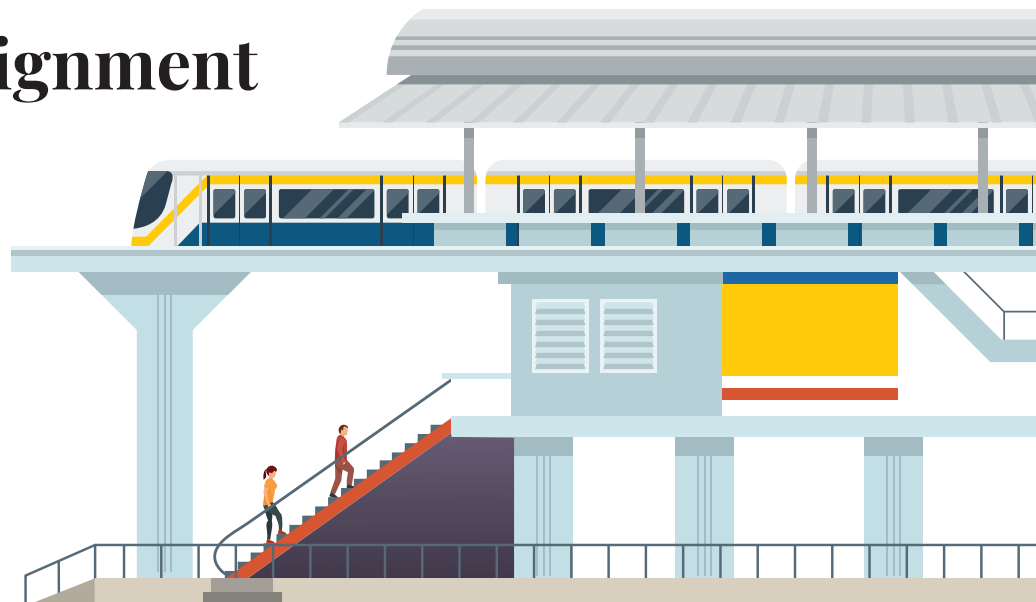
Background and **VISION** for the **PROJECT**

Urban mass transits are imperative for improved passenger experience. The explosive population growth coupled with rapid urbanisation has pushed most of the existing transportation network to their limits.

Mass Rapid Transit Systems (MRTS) such as Metro facilitate quick, safe and easy movement of people and promote economic activities, social equity and an enhanced quality of life for the people, providing last mile connectivity up to 5 km on both sides of the Metro. It can be assumed that the growth of Metro network may be considered for infrastructure growth and, thereby, economic growth.

Owing to the possibility of seamlessly traversing underground, over ground (via ducts) or at-grade (on surface), the metro rail system connects congested areas with the rest of the city, thus relieving congestion and reducing the usage of personal transport.

On the economic side, MRTS facilitates the equalisation of property values across their influence zone and provides a huge scope for transit-oriented development (TOD). In the TOD framework, metro stations could be developed into hubs for shopping complexes, hotels, cafes, multiplexes, etc. which, in turn, improves the financial viability of the metro project.



The GATISHAKTI **EDGE** and **APPROACH**

Millennium City Centre to Cyber City (Gurugram)

Gurugram is a hub for multinational companies, industries and commercial activities with modernised infrastructure. The PM GatiShakti National Master Plan has played a pivotal role in finalizing the alignment with optimizing the ridership and connecting the most congested areas in the city.

The planned alignment is a project with 27 stations and 5 interchange stations which was made easy with the availability of GIS data layers. The platform also helped integrate with other modes like Gurugram Railway Station and Bus stand, Rapid Rail Transport System (RRTS) and the Indira Gandhi International Airport, making for a suitable example of a multimodal project.

Noida Aqua Line Extension (Noida)

Noida is a hub for software and manufacturing companies. This led to larger movement of citizens for their daily work, resulting in traffic congestion.

PM GatiShakti National Master Plan has enabled the Metro Corporation in identifying the suitable alignment for extension of the existing Aqua Line to Knowledge Park V. The planned alignment is with 9 stations that will have an estimated daily ridership of 1.25 lakhs by 2037.

Swargate - Katraj Metro (Pune)

The project is the extension of the existing Pune Metro. With the primary survey data and the data layers of PM GatiShakti National Master Plan, the alignment was finalised.

The platform helped avoid interface with privately-owned land parcels to the maximum extent possible. Also, it helped integrate with the Market Yard at Gultekdi and with the Katraj Bus depot, thus enhancing multimodal connectivity.

Thane Integral Ring Metro (Mumbai)

Thane is the third industrialized district in Maharashtra and is mostly dependent on the local rail and bus services for mobility.

PM GatiShakti NMP has played a pivotal role in planning of the metro rail alignment and eased the process of land acquisition of 28.65 hectares. The alignment of 29 kms is 26 kms elevated and 3 kms underground, with 22 stations and an estimated daily ridership of 7.61 lakh (year 2035).

The project serves as an Integral Green Public Transport within the City Area and is integrated with existing modes like Mumbai Metro, railway station at Thane, and city bus terminus at 6 stations.

The use of PMGS mechanism sped up the process of land acquisition and clearances like Coastal Regulation Zones (CRZ) and Forest-related clearances.





THE EXPECTED IMPACT

With the modal shift of passenger trips from road to metro, reduced fuel consumption would lead to reduced carbon emissions while providing a reliable, safe, fast and convenient mode of movement for people.

The metro network would also enhance the area's economic growth.



INDUSTRIAL CORRIDOR



Case Study 6

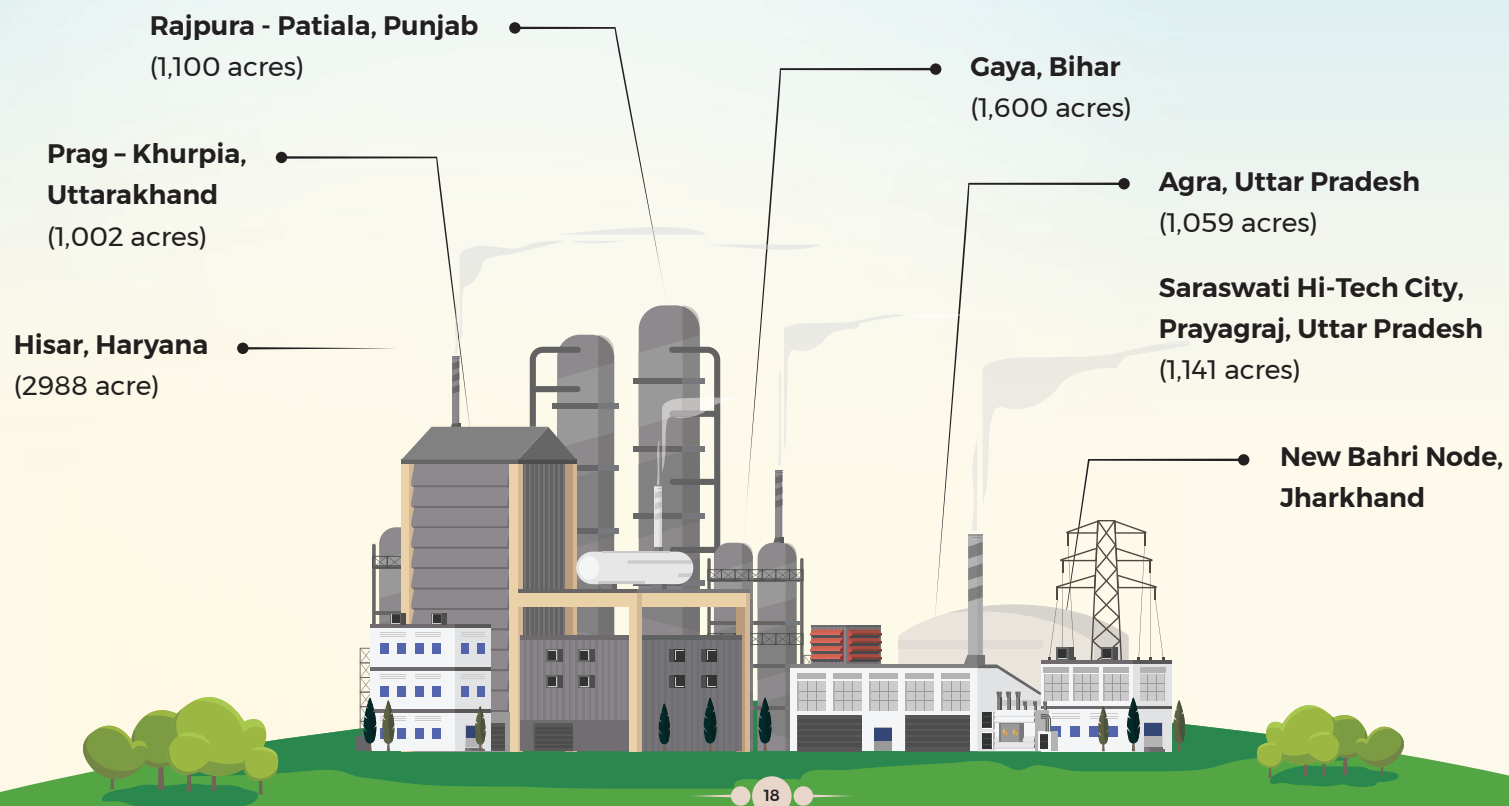
Development of First mile Connectivity to Industrial Nodes

Background and **VISION** for the **PROJECT**

India's manufacturing sector contributes to 17% of the GDP and plays a critical role in employing a significant portion of the workforce.

The Amritsar Kolkata Industrial Corridor (AKIC), along the alignment of the Eastern Dedicated Freight Corridor (EDFC) traversing a route length of 1839 km, intends to facilitate the development of world-class infrastructure enabling investments for manufacturing and industrial activities.

In the first phase of the AKIC, 7 Integrated Manufacturing Clusters (IMCs) are identified for development



The GATISHAKTI EDGE and APPROACH

Prag-Khurpia Integrated Manufacturing Cluster, Uttarakhand

The proposed Integrated Manufacturing Cluster (IMC) site at Khurpia Farm, Udham Singh Nagar covers an area of 1,013.39 acres (410.10 ha). The site is abutted by State Highway 41 (SH-41) which is the last mile connectivity route to the site. The nearest National Highway to the site is NH-9 at a distance of 4 kms.

With the help of PM GatiShakti National Master Plan platform, following connectivity gaps were identified, which would enhance the connectivity of the region:

- ◆ Widening of NH-9 to
 - ▶ 4-lane divided carriageway by 2026
 - ▶ 6-lane divided carriageway by 2031
- ◆ Widening of SH-41 to 4-lane divided carriageway between Nagalla & Kiccha
- ◆ Widening of Kichha bypass to 4-lane divided carriageway by 2026.

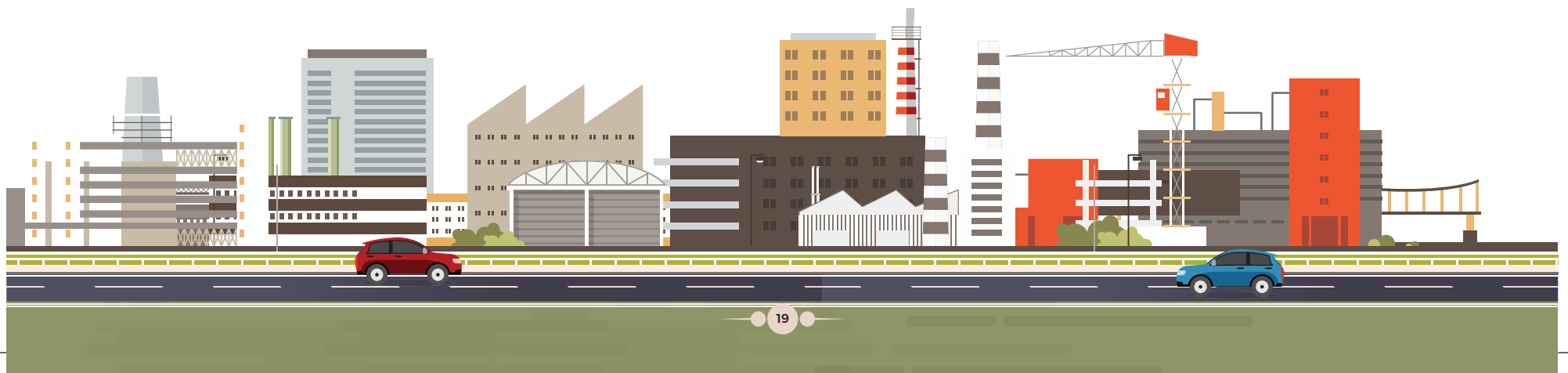
Rajpura – Patiala Integrated Manufacturing Cluster, Punjab

The project envisages to develop Industrial Manufacturing Cluster in the vicinity of Eastern Dedicated Freight Corridor (EDFC) and NH-44 under Amritsar Kolkata Industrial Corridor at Rajpura in Patiala district. It is being established in an area of 1098.25 acres (444.45 ha). The identified site is about 15 kms from State Highway-8 (SH-8) & National Highway-7 while 13 kms from National Highway-44 (NH-44).

The PM GatiShakti National Master Plan has enabled in identifying optimized route for direct connectivity to the site. The optimized route alignment of 5.6 kilometers was planned and the required land parcels for acquisition were identified on the GIS platform.

THE EXPECTED IMPACT

With the identification of connectivity gaps, freight movement will be improved thus giving a boost to the manufacturing sector, and de-risking investments in the region.



PORT INFRASTRUCTURE



Case Study 7

Optimizing Rail-Road Alignment for Port-led Growth



Background and **VISION** for the **PROJECT**

India's EXIM volume through ports constitutes 70% of its trading value. This means as the GDP of the country grows, it will be necessary to increase maritime trade. To address this growth, ports have to increase their handling capacity. The Deendayal Port Authority (DPA) in Gujarat's Kutch district is a Gateway Port to the Gulf regions, strategically located closest to the northwestern hinterland. To address the need of its increased cargo growth, DPA is undertaking construction of two additional terminals, one for container handling and the other for multi

cargo handling, at a place near the existing Tuna Tekra port. The project involves creating offshore berthing structures for multiple vessels, fostering economic growth and generating employment. The project requires extensive reclamation efforts at Tuna Tekra, setting the stage for constructing terminals with substantial handling capacities. This strategic development is expected to positively impact landlocked states, fostering more inclusive economic growth and trade opportunities.



The GATISHAKTI EDGE and APPROACH

The need for a modern container terminal in Tuna Tekra faced a major challenge due to the requirement for extensive reclamation in the coastal area. This effort involved a careful evaluation of the necessary volume and area for the ambitious reclamation.

PM GatiShakti National Master Plan (NMP) portal facilitated integrated planning of the project. It involved a comprehensive assessment of linkages to nearby infrastructure and the alignment of Road and Rail connectivity with the existing regional network. GatiShakti emphasized the critical examination of waterfront areas essential for the project and the evaluation of the required reclamation area.

The NMP, provided a strategic compass for the project proponents. This systematic blueprint not only aligned the waterfront area precisely with road network, but also ensured optimal land reclamation. Besides this through the NMP, the

Rail-Road connectivity to the region for freight movement was aligned with the integrated planning principles of GatiShakti through adequate consultation with Ministry of Railways and Ministry of Road Transport and Highways.



THE EXPECTED IMPACT

- **The terminal will have a draft to accommodate vessels of larger sizes like container vessels of 21,000 TEUs . This will result in efficiency in port handling higher volumes of cargo with more efficiency with an impact on cost of handling the cargo by minimizing port congestion.**
- **Through the capacity augmentation facilitated by these mega projects, DPA aims to realize its vision of handling over 200 million metric tons of cargo per annum by 2030. This strategic development positions DPA as the leading major port in cargo handling, fulfilling its ambition for substantial growth and prominence.**



Case Study 8

Strengthening Industrial Infrastructure around Dighi Port

Background and **VISION** for the **PROJECT**

The Government of India is actively advancing various Industrial Corridor Projects under the National Industrial Corridor Development Programme, envisioning it as a global manufacturing and investment hub. Utilizing the extensive Western Dedicated Freight Corridor (WDFC) as its backbone, NICDC prioritizes trunk infrastructure investment for establishing a smart industrial city. The overarching goal is to create Indian cities capable of competing on a global scale in manufacturing and investment. The proposed Dighi Port

Industrial Area (DPIA) within Delhi-Mumbai Industrial Corridor (DMIC) in Maharashtra strategically occupies a location 170 km south of Mumbai at Raigad district.

As a pivotal node in Maharashtra's industrial landscape, DPIA is integral to DMIC's developmental strategies, aligning with broader goals such as industrial strength, investment attraction, service sector growth, export revenue generation, and socio-economic integration.



The GATISHAKTI EDGE and APPROACH

In Maharashtra's Raigad District, under the Delhi-Mumbai Industrial Corridor (DMIC), a need was felt to enhance the road connectivity. This was driven by the anticipation of increased demands, particularly for improving last-mile access from the Dighi Port Industrial Area (DPIA). Under the GatiShakti framework, a structured process unfolded, involving detailed master planning and preliminary design engineering for Raigad District. The seamless integration of the National Master Plan (NMP), a vital element of PM GatiShakti, played a crucial role in conducting a comprehensive assessment of infrastructure gaps and identifying areas for improvement.

In the operational phase, the GatiShakti Portal became instrumental, in systematically identifying road networks. A meticulous analysis informed strategic interventions, proposing enhancements for the overall regional connectivity of DPIA. These interventions included realigning the gas pipeline network, telecommunication cables, and other utility infrastructure.

As an outcome of this comprehensive assessment through PM GatiShakti, following major interventions were identified-

1. Road

- i. Widening of 14km stretch (crucial for DPIA) from 2/4 lane of NH753F from Pune to Margaon.
- ii. Strengthening of Margaon-Dighi Port road section under Comprehensive Port Connectivity Plan (CPCP).

2. Railways

Connectivity of DPIA to proposed Roha-Dighi Port Rail project under Railway GatiShakti Cargo Terminal Policy.



THE EXPECTED IMPACT

- **The development of the Dighi Port Industrial Area is poised to stimulate demand for various ancillary businesses, expected to significantly contribute to employment generation, value addition, and exports for the entire state of Maharashtra. the project aims to attract high-growth industries, potentially generating approximately 1,15,000 direct and indirect employment opportunities, with an anticipated 60,000 direct industrial jobs.**
- **Considering the existing infrastructure opportunities and future proposals for DPIA, strengthening and revamping its infrastructure can enhance integrated connectivity, ensuring efficiency for pedestrian, freight, and logistical movements. This project is expected to have a positive multiplier effect on the entire regional economy.**



Stimulate demand
for businesses



Contribution to
employment generation



Value
addition



Increase in
exports

RAILWAYS



Case Study 9

Reducing Traffic Disruptions Through Elevated Rail Corridor in Kanpur

Background and **VISION** for the **PROJECT**

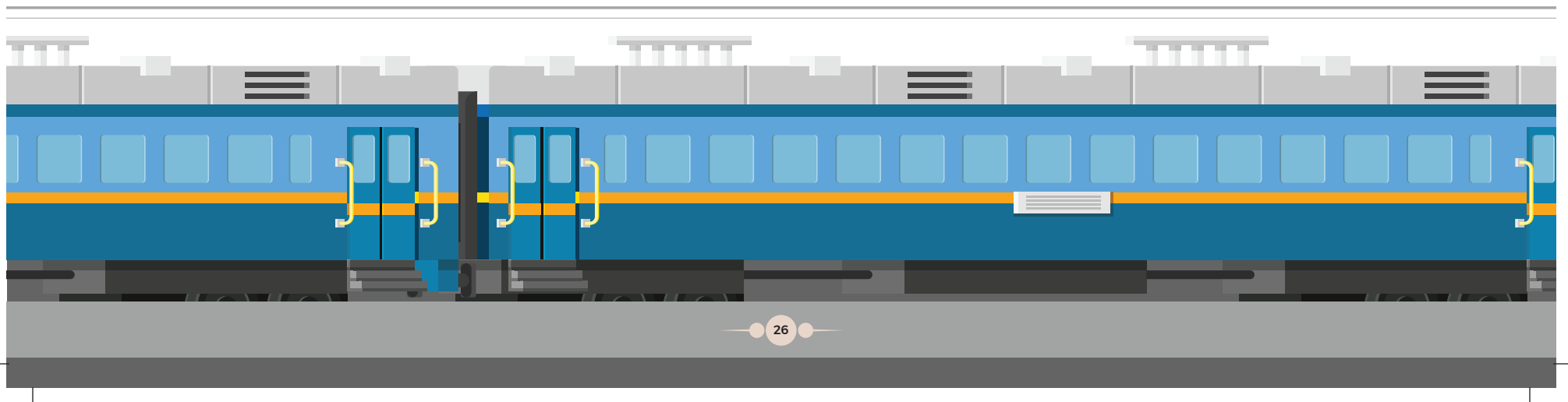
Kanpur is a pivotal hub for commercial and industrial activities in Uttar Pradesh. The Kanpur Central Railway line serves as one of the busiest junctions between Howrah Junction and New Delhi in the Northern Central Railway.

The Kanpur Anwarganj - Mandhana rail section, also known as the city divider, poses a significant challenge with 15 main crossings and a train passing every 10 minutes, causing persistent roadblocks and frequent traffic snarls in the vicinity.

To tackle this issue, the Ministry of Railways has formulated plans to transform the Kanpur Anwarganj - Mandhana rail section into an Elevated Rail corridor, aiming to mitigate traffic disruptions within the city.

The proposed Elevated Rail corridor, a Broad Gauge double-line spanning 16.25 km through densely populated urban areas of Kanpur, introduces a cost-effective solution. The project envisions a box-like elevation for level-crossings and an embankment elevation for the remaining sections, contributing to a reduction in the overall project cost.

Overcoming a significant hurdle, the project successfully conducted Final Location Surveys (FLS) and prepared the Detailed Project Report, paving the way for the implementation of this crucial infrastructure development in Kanpur.



The GATISHAKTI EDGE and APPROACH

PM GatiShakti National Master Plan (NMP) platform, supported by GIS data, has been instrumental in meticulously planning the Elevated Rail Corridor, enabling minimal disruption to public life, existing infrastructure, and other facilities. This platform played a pivotal role in pinpointing the locations of the Final Location Survey (FLS) to develop detailed plans, sections, and other necessary drawings for the comprehensive development of the Detailed Project Report (DPR).

PMGS mechanism significantly facilitated the identification of additional requirements for the Elevated Corridor project. Moreover, it has proven instrumental in data-based decision making pertaining to the existing Road over Bridge (RoB) and two stations, namely Kalyanpur and Rawatpur, to streamline the implementation of the elevation project. Simultaneously, the proposal includes the development of a new station, named

Atal Bihari station.

The innovative concept of an elevated route in a densely populated urban area not only provides accessibility but also integrates seamlessly with proposed metro stations through a skywalk. This forward-thinking approach enhances the overall connectivity and convenience for commuters.

The NMP platform has streamlined the process of obtaining clearances and approvals from various stakeholder Ministries/Departments, ensuring minimal disruption and fostering coordinated development. This integrated and technology-driven approach demonstrates efficiency and effectiveness in executing complex urban infrastructure projects.

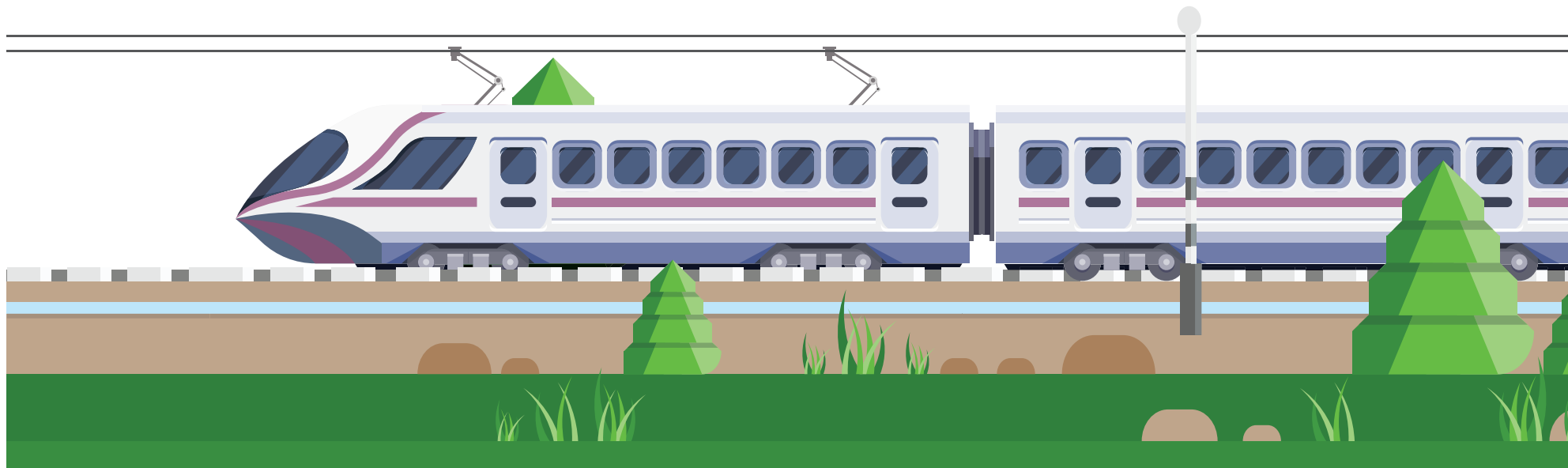
THE EXPECTED IMPACT

The proposed Elevated Rail corridor in Kanpur aims to facilitate smooth movement of passengers, goods and services within the urban area, enhancing connectivity and prioritizing both the Ease of Living and the Ease of Doing Business, contributing to overall urban development and efficiency.



Case Study 10

Strengthening Rail Connectivity for Industrial Growth



Background and **VISION** for the **PROJECT**

Merta Road Railway Junction is in the Rajasthan district of Nagaur. It is a major junction for both passenger and goods traffic, with one line heading towards Bikaner and another heading towards Ratangarh-Hisar-Bhatinda establishing connectivity to the northern part of Rajasthan, Punjab, Haryana, Himachal Pradesh, and Jammu and Kashmir.

The proposed new broad gauge lines between Merta and Pushkar, as well as Merta and Ras, play a strategic role in improving connectivity for the movement of goods and people.

The proposed greenfield railway projects are a strategic link to spur industrial development in the mineral-rich Pali and Nagaur regions.

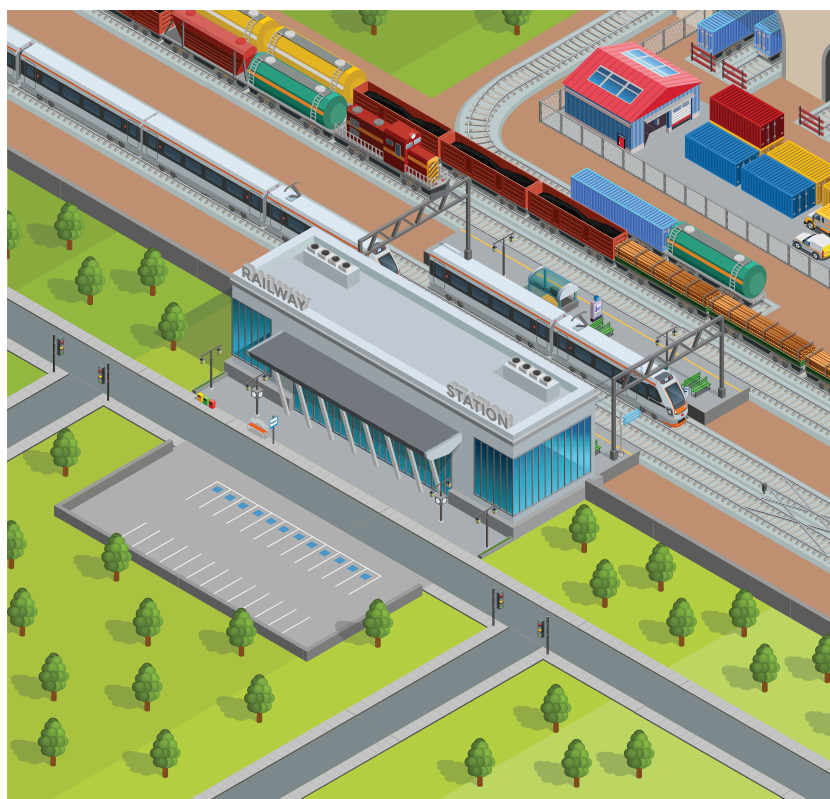
The GATISHAKTI EDGE and APPROACH

Merta – Ras

The new broad-gauge railway line spanning 55.90km between Merta and Ras will enhance the swift movement of goods and promoting industrial and enable overall development in the Pali and Nagaur districts. At present, direct connectivity between Merta and Ras is via road (NH-158).

The project aims to establish direct connectivity on the North Western Railway network and bridge the gap, reducing the distance of travel to 51.4 kms and providing direct connectivity.

An Integrated Planning Approach has been adopted, addressing the missing link from Pushkar to Merta, Data layers on the National Master Plan (NMP) were utilized to identify the best alignment, ensuring minimum disruptions in forest lands, telecom networks, water bodies, etc.



The NMP has helped in identifying the optimal alignment of rail route, incorporating a comprehensive analysis of its multimodal impact. Various factors such as transportation efficiency, environmental impacts, connectivity to existing transport networks and potential regional development benefits have been considered with the aim to ensure seamless connectivity.

Merta –Pushkar

The proposed Pushkar – Merta railway line serves as a vital link for transporting military and defence materials from places like Neemuch and Nasirabad to Jodhpur, Bikaner, Barmer and Jaisalmer.

The proposed railway line establishes connectivity to Ajmer Junction on the Ahmedabad-Delhi trunk route with the potential for future demands, benefiting the industries and public.

The Integrated Planning Approach with the use of data layers on the PM GatiShakti NMP, ensured optimal routes that leverage different modes of transportation, ensuring uninterrupted connectivity.

The selected alignment avoids interference with telecom networks, water bodies, and reserved forest land, as assessed through data layers from the National Master Plan (NMP).

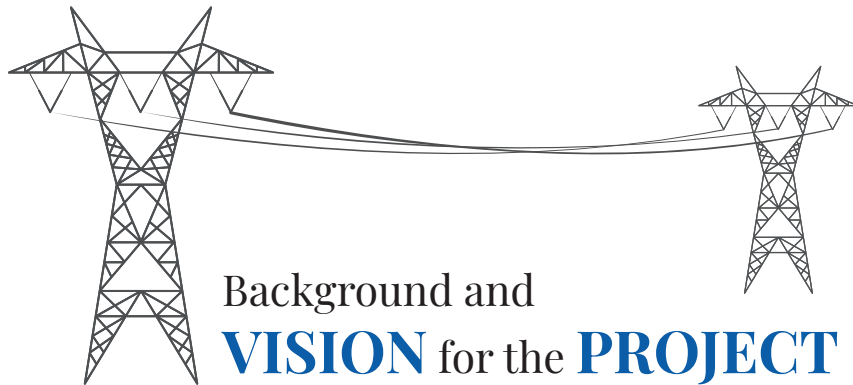
THE EXPECTED IMPACT

The proposed greenfield projects shall result in the hassle-free movement of passenger, goods and people aiming to enhance freight movement and reduce congestion with a comprehensive approach to fostering economic development, and streamlining transportation in the region.

TOURISM DEVELOPMENT PLAN

Case Study 11

Bichom: Unleashing Tourism, Enhancing Connectivity, and Empowering Communities



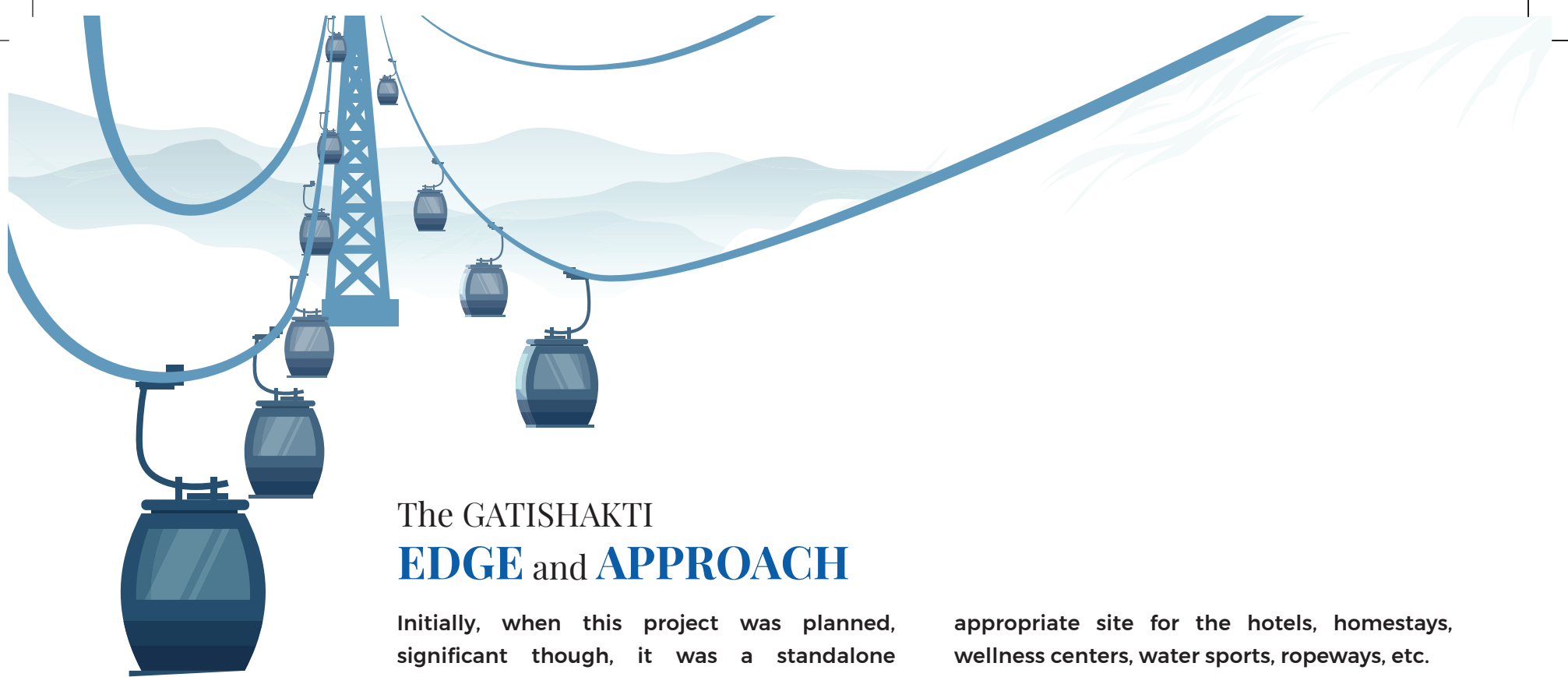
Background and **VISION** for the **PROJECT**

Amidst the lush green mesmerizing landscape lies the untouched nature's pristine beauty in this West Kameng district in western Arunachal Pradesh beside the Bichom River basin, a major tributary of the Kameng River. The Kameng Hydro Electric Project is a run-of-the-river project in the remote hinterlands of the West Kameng district of Arunachal Pradesh. This one is a kind of developmental behemoth rearing to accelerate the state's economic development also presenting an unique opportunity to nurture a tourism hotspot.

This project has two dams and a powerhouse with four 150 MW units with a total installed capacity of 600 MW. The project stretches over more than 80 kilometres. The project utilizes the flows from Bichom and Tenga rivers over a gross head of 536 meters available downstream of the confluence of the River Bichom with Kameng.

This natural paradise is advantageously located in the middle of **Pakke Tiger Reserve, Nameri National Park, Sonai Rupai Wildlife Sanctuary, Sakteng Wildlife Sanctuary, and many more picturesque valleys.** Hence, the area needs greater accessibility and integration with the social and economic infrastructures given this immense potential.





The GATISHAKTI **EDGE** and **APPROACH**

Initially, when this project was planned, significant though, it was a standalone development with limited or no connectivity to the region.

The PM GatiShakti National Master Plan (PMGS NMP) has comprehensively, drawn the holistic mapping viz., habitations, schools, health centers, logistics and digital connectivity networks, various tourism hotspots, commercial centers, handicraft parks and many more attributes. Leveraging the PMGS NMP platform that provides visualization of the region's geographical attributes facilitating the identification and implementation of over 190 developmental projects.

The project includes a multi-sectoral approach to connectivity & socio-economic development. Unconnected villages were identified and the optimized road alignments and the site for telecom towers were mapped. The water bodies, roads, other infrastructures, and habitation were triangulated to identify the

appropriate site for the hotels, homestays, wellness centers, water sports, ropeways, etc.

The handicraft parks, cold storage, and aggregation centers/mandis were also planned with adequate and appropriate connectivity with logistics infrastructures using PM GatiShakti NMP.

To plan and execute these projects effectively, various tools such as proximity analysis, detailed project reports (DPR), and shortest distance were used in tandem with the cadastral map with various data layers available on the State Master Plan (SMP) portal. Some of the other critical layers were sourced from the State Remote Sensing Application Centre (SRSAC) outlining the geological faults, wetlands, streams, and other allied data that helped in a robust master plan and implementation strategies.

THE EXPECTED IMPACT

Comprehensive area-based planning leading to saturation of the area with adequate multimodal connectivity, promoting tourism, livelihood, business opportunities, etc., facilitating people-centric development.



CONCLUSION

PM GatiShakti National Master Plan (NMP) symbolizes India's technological leap and inter-ministerial collaboration, housing a robust repository of data layers contributed by Central Ministries and State/UTs Logistics Division. Ministry of Commerce and Industry vigilantly oversees stakeholders' roles, ensuring stringent compliance through a meticulous three-tier quality mechanism.

In the course of 62 meetings of the Network Planning Group, 123 high impact infrastructure projects, valued at INR 12.08 lakh crore (145 Billion USD), have been evaluated aligning seamlessly with PM GatiShakti's principles. These evaluations notably include railway connectivity initiatives for energy, minerals, and industrial corridors. The focus on EXIM logistics improvement and streamlined coordination with Major Port Authorities underline the platform's comprehensive impact. The NPG's innovative ethos integrates comprehensive area development into project blueprints, prioritizing socio-economic upliftment for regions surrounding pivotal project sites.

Central Ministries have adeptly harnessed PM GatiShakti's prowess, streamlining planning processes via its unified digital platform. This innovative approach has expedited activities such as route optimization and final location surveys, empowering Ministries to expedite crucial infrastructure projects by using these electronic reports, significantly contributing to modal shifts, viz., toward roadways to railways to waterways for more efficient logistics ecosystem. While several Ministries have embraced NMP with enthusiasm, a few, like Ministry of Power could further showcase the platform's potential through additional use cases.

All 36 States and UTs have instituted State-level mechanisms,

actively leveraging GIS data layers for infrastructure planning. DPIIT's regional workshops and collaborations with the Capacity Building Commission (CBC) fortify training modules via webinars and workshops showcasing exemplary adoption. Encouraging broader adoption, Logistics Division continues to guide States and UTs through directives for workshops and infrastructure planning based on PMGS principles.

The integration of 22 Social Sector Ministries onto PM GatiShakti marks a significant stride, with a repository of over 200 data layers devoted to critical social infrastructure. Collaborative meetings have spawned innovative tools, emphasizing last-mile connectivity for crucial social infrastructure like Anganwadi Centers, aligning with 'Mission Poshan 2.0.' All of this bodes well with the Prime Minister's vision of 'Area Development Approach' encompassing holistic planning focused on major infrastructure, industrial areas, and greenfield projects.

As PM GatiShakti marks its two-year milestone, its transformative impact resonates through socio-economic growth and international collaborations showcased at prestigious platforms like G20 and B20. These strategic alliances align with the country's initiatives, fostering technological ties and regional connectivity. PM GatiShakti's multifaceted journey underscores India's commitment to technological innovation, collaboration, and holistic socio-economic growth, driving a transformative wave in infrastructure development."

ABBREVIATIONS

AKIC	Amritsar Kolkata Industrial Corridor	MMLP	Multimodal Logistics Park
CBC	Capacity Building Commission	MRTS	Mass Rapid Transit System
CPCP	Comprehensive Port Connectivity Plan	MW	Megawatt
CRZ	Coastal Regulation Zone	NICDC	National Industrial Corridor
DPA	Deendayal Port Authority		Development Corporation
DMIC	Delhi-Mumbai Industrial Corridor	NMP	National Master Plan
DPIA	Dighi Port Industrial Area	NPG	Network Planning Group
DPIIT	Department for Promotion of Industry and Internal Trade	OFC	Optical Fibre Cable
DPR	Detailed Project Report	PMGS NMP	PM GatiShakti National Master Plan
EDFC	Eastern Dedicated Freight Corridor	RRTS	Rapid Rail Transport System
EGoS	Empowered Group of Secretaries	RoB	Road over Bridge
EXIM	Export Import	RoW	Right of way
FLS	Final Location Survey	SEZ	Special Economic Zone
GDP	Gross Domestic Product	SRSAC	State Remote Sensing Application Centre
GIS	Geographic Information System	TEU	Twenty-foot equivalent unit
IMC	Integrated Manufacturing Cluster	TOD	Transit-oriented Development
Km	Kilometres	TSU	Technical Support Unit
		WDFC	Western Dedicated Freight Corridor



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