



# CROWNING THE EAST COAST

## ANDHRA PRADESH, THE LOGISTICS CAPITAL OF SOUTH ASIA

From ports to performance —  
building India's ASEAN-facing  
logistics hub by 2047

The Honourable Chief Minister Nara Chandrababu Naidu outlined his vision of positioning Andhra Pradesh as the Logistics Hub of the East. As part of this vision, the Chief minister has committed to developing marine infrastructure such as ports, fishing harbours and fish landing centres at every 50 kms of the state's 1053 km of coastline to create a dense maritime network that can support inter-national trade and empower coastal communities.

## ACKNOWLEDGEMENTS

This strategy paper draws on multiple reference sources that have guided its analysis. National frameworks including the Logistics Ease Across Different States (LEADS) Report, the PM GatiShakti Master Plan, and the Comprehensive Logistics Action Plan (CLAP) have provided essential benchmarks. International case studies, and academic research, have further enriched the perspectives and recommendations presented.

## Disclaimer

This strategy paper has been jointly prepared by the Global Forum for Sustainable Transformation (GFST), in association with the AP Economic Development Board (EDB) and AP Maritime Board (APMB) as a knowledge resource to inform policy and stakeholder discussions. The analysis and recommendations are based on available data and independent interpretation. While care has been taken to ensure accuracy, neither GFST, APEDB nor APMB assumes responsibility for any decisions made based on this document. The report does not constitute official government policy or financial advice.

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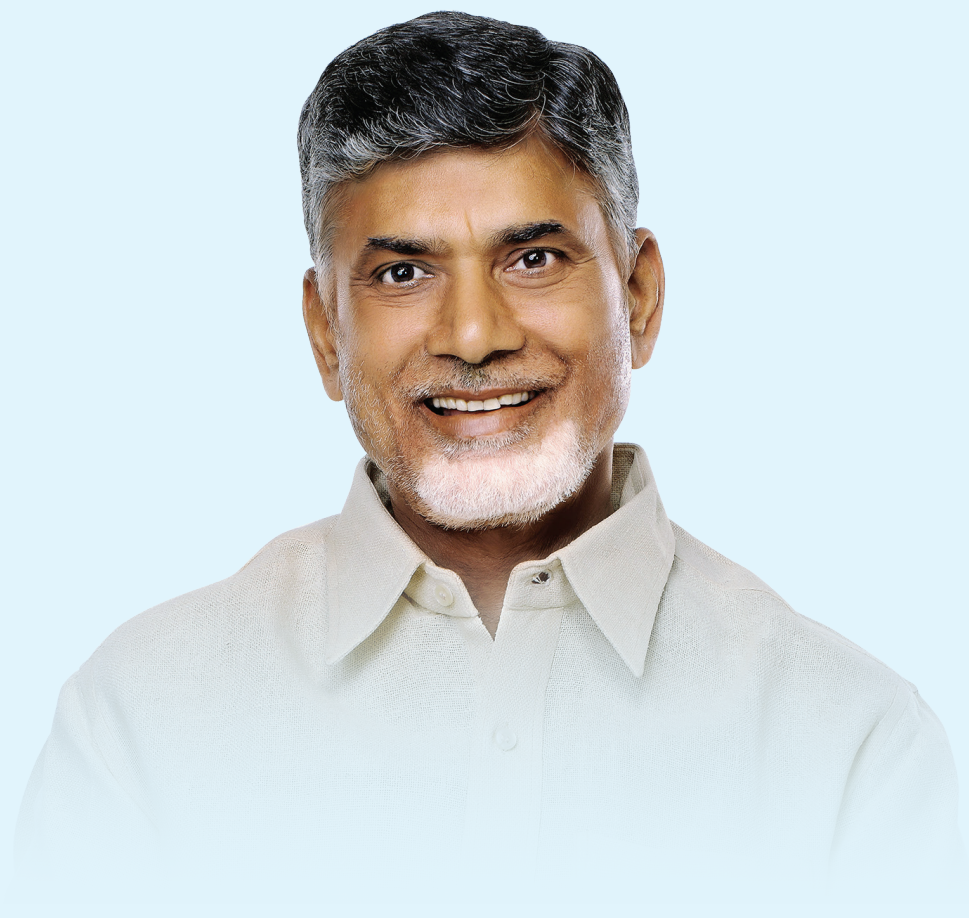
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“ Logistics is the backbone of economic growth. Andhra Pradesh is committed to building world-class multimodal systems, efficient governance, and resilient infrastructure to position our state as the logistics capital of South Asia. By lowering logistics costs, expanding port capacity, and adopting green and digital solutions, we will ensure that Andhra Pradesh becomes the most trusted gateway between India and ASEAN. ”

**- Nara Chandrababu Naidu,**  
*Hon'ble Chief Minister of Andhra Pradesh*



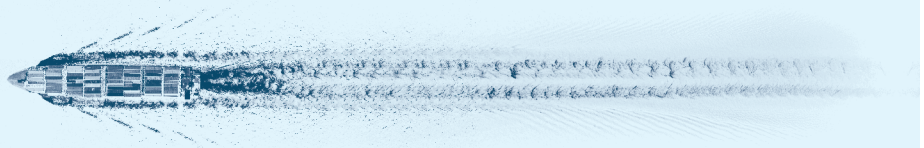
# MESSAGE



“Logistics is at the core of Andhra Pradesh’s infrastructure and investment strategy. Our focus is on building world-class multimodal systems that enhance efficiency, reduce costs, and expand global trade linkages. The state’s strategic approach is anchored in integrating infrastructure planning with investment promotion to create a logistics ecosystem of international standards. This Conclave provides a strategic platform to align government, industry, and knowledge partners in shaping a logistics ecosystem that positions Andhra Pradesh as a front-runner in South Asia’s growth story.”

**B. C. Janardhan Reddy,**

Hon'ble Minister for Infrastructure & Investments,  
Government of Andhra Pradesh





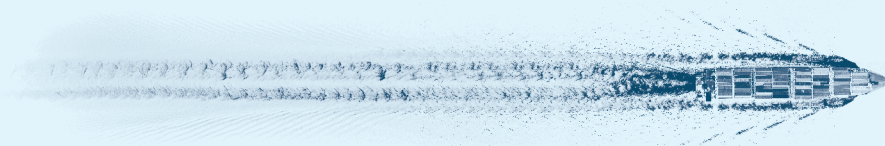
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A robust logistics framework is indispensable for industrial growth and competitiveness. Andhra Pradesh's integrated approach, linking ports, industrial corridors, and investment hubs, offers unique opportunities for businesses to scale and connect with global markets. Our strategic approach combines industrial policy with logistics development, ensuring that supply chains are strengthened in tandem with industrial expansion. The deliberations of this Conclave will guide us in strengthening industrial value chains and reinforcing the state's position as a preferred destination for commerce and innovation.

**T. G. Bharat,**

Hon'ble Minister for Industries & Commerce,  
Government of Andhra Pradesh





# FOREWORD



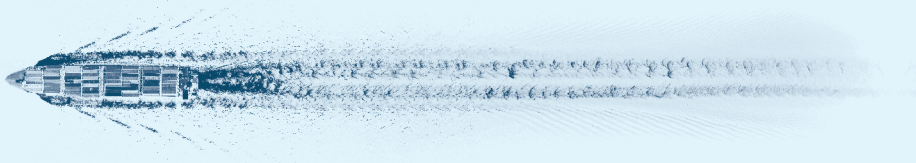
Logistics will play a defining role in shaping Andhra Pradesh's economic future. With its coastline, ports, and expanding industrial base, the state has the assets to become a logistics hub for South Asia. The challenge lies in converting these natural advantages into lower costs, reliable multimodal connectivity, and resilience that can sustain growth through 2047. At the heart of this ambition is Andhra Pradesh's vision to emerge as the leader of coastal corridors in South Asia, linking India more seamlessly with ASEAN and the Indo-Pacific.

This report provides a structured reference framework to guide that transformation. It identifies priority reforms, benchmarks performance against national and global standards, and translates them into measurable targets. Policymakers, investors, and practitioners can use it as a resource to align strategy with execution, ensuring that logistics becomes not just an enabler but a driver of Andhra Pradesh's competitiveness and regional leadership.

## **S.P. Tucker, IAS (Retd.)**

Vice Chairman and Director

Global Forum for Sustainable Transformation (GFST)







# MESSAGE



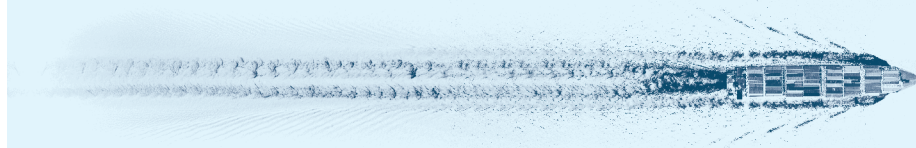
Logistics is central to Andhra Pradesh's industrial and trade strategy. It determines the competitiveness of our farmers, manufacturers, and exporters, while shaping investor confidence in the state. The government is committed to reducing logistics costs, strengthening port-led development, and building climate-resilient, digitally integrated supply chains. Our ambition is unambiguous: to make Andhra Pradesh the leader of coastal corridors in South Asia and a trusted hub for global trade flows.

Logistics influences every sector of our economy. This report highlights the gaps that need to be addressed and the opportunities that can be realised through reform. It will serve as a useful reference for policy implementation and institutional action.

## **N. Yuvaraj, IAS**

Secretary to Government,

Industries & Commerce Department, Government of Andhra Pradesh





## MESSAGE

As global supply chains diversify, Andhra Pradesh is uniquely positioned to seize the moment. Logistics is not merely a support sector but the backbone of economic growth, directly influencing our ability to attract investment and integrate with ASEAN and Indo-Pacific markets. By driving reforms in multimodal integration, green financing, and human capital, we will transform Andhra Pradesh into South Asia's logistics bridge. The EDB remains committed to aligning strategic investments with this vision of leadership.

The report provides clarity on the strategic role of logistics in attracting investment and supporting industrial growth. By linking reforms to measurable outcomes, it offers policymakers and stakeholders a structured resource to guide development.

### **C. M. Saikanth Varma, IAS**

Chief Executive Officer, AP Economic Development Board



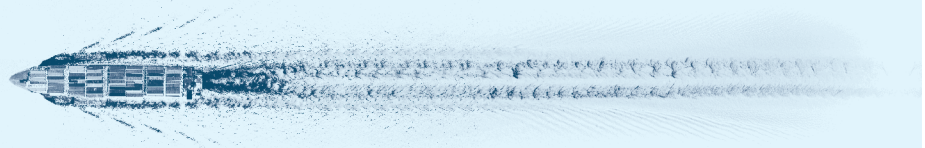
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The strength of Andhra Pradesh lies in its coastline, and the future of that coastline is logistics. Our ports—major, minor, and emerging greenfield—are gateways that will define how the state connects to global value chains. The Maritime Board is advancing a strategy that combines infrastructure expansion with digital systems, climate resilience, and world-class service standards. Our goal is clear: to establish Andhra Pradesh as the preeminent leader of South Asia's coastal corridors, setting benchmarks in efficiency, sustainability, and reliability.

Maritime infrastructure is central to Andhra Pradesh's logistics vision. This report sets out the priorities for strengthening port capacity, connectivity, and governance. It will serve as a practical reference for advancing the state's logistics agenda.

### **C. V. Praveen Adhithya, IAS**

Chief Executive Officer, AP Maritime Board





## MESSAGE

Logistics today is more than the movement of goods—it is the architecture of competitiveness and resilience. Andhra Pradesh, with its strategic coastline and expanding port base, stands at the cusp of a transformation that can redefine India's role in South Asia. The vision to position Andhra Pradesh as the leader of coastal corridors requires disciplined execution, innovation, and global partnerships. This report is a call to action for stakeholders to align investments, technology, and governance with that ambition. This report addresses logistics as a central pillar of Andhra Pradesh's economic transformation. It provides a structured assessment of the state's current performance, identifies areas for reform, and sets out a roadmap for making Andhra Pradesh a leading coastal logistics hub in South Asia.

**Sanjay Gupta, IFS (Retd.)**  
Chief Executive Officer, GFST



## MESSAGE

The logistics sector is entering a decisive decade, where technology, data, and sustainability will set new benchmarks. Andhra Pradesh has the opportunity to lead by integrating foresight-driven innovation into every node of its logistics ecosystem. By embedding digital traceability, climate resilience, and future-ready skills, the state can convert its natural advantages into enduring leadership across South Asia's coastal corridors. The pathway is clear: vision anchored in today's reforms will define tomorrow's global competitiveness. The significance of this report lies in its ability to translate vision into actionable strategies. By focusing on multimodality, digital systems, and resilience, it offers a reference point for policy and investment decisions that will shape Andhra Pradesh's logistics future.

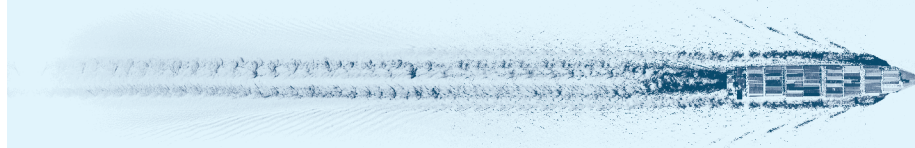
**Sridhar Sheshadri**  
Director, Global Foresight & Innovation



## MESSAGE

Ports and shipping are no longer stand-alone assets—they are the gateways through which economies compete for global trade. Andhra Pradesh has the maritime strength to become a logistics powerhouse, provided it focuses on seamless multimodal integration, investor confidence, and world-class port services. The ambition to become South Asia's coastal leader is both timely and achievable. This report demonstrates the discipline required to move beyond intent, creating a logistics ecosystem that matches global standards and attracts long-term investment. Ports and logistics define Andhra Pradesh's economic interface with the world. This report provides a clear framework for improving connectivity, efficiency, and competitiveness, making it an important guide for strengthening the state's maritime and logistics leadership.

**Ravi Ramprasad**  
Editor & Publisher, Maritime Gateway





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# 1

## STRATEGIC OUTLOOK: ANDHRA PRADESH AT THE HEART OF INDIA'S LOGISTICS FUTURE





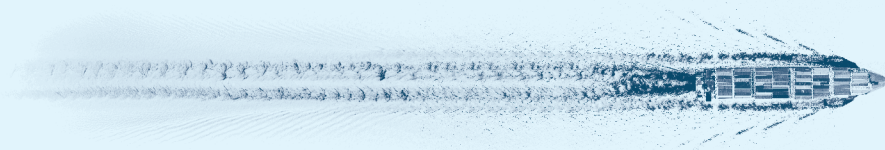
*Andhra Pradesh enters this decade with a unique opportunity to redefine its logistics architecture and position itself as South Asia's most competitive and resilient logistics hub by 2047. With a strategic 974 km coastline, deep-draft ports, and proactive governance, the state has laid strong foundations. Yet, national benchmarking (LEADS 2024) highlights critical gaps: overdependence on road freight, weak multimodal integration, limited digital visibility, and absence of grievance redressal mechanisms (Ministry of Commerce & Industry, 2024). These are not structural constraints but reform opportunities that, if addressed with urgency, can convert Andhra Pradesh's natural advantages into global competitiveness.*

**The strategy is anchored in six pillars of reform:**

1. *Rail-Led Multimodal Integration – expanding port–rail connectors, commissioning PPP terminals, and introducing time-definite services to cut costs and improve reliability.*
2. *Digital and Safety Backbone – building a unified logistics data platform, mandating real-time cargo visibility, and embedding risk management protocols.*
3. *Responsive Regulation and Redressal – codifying a sector-specific single window, institutionalising grievance mechanisms, and standardising contracts.*
4. *Green and Climate-Resilient Logistics – scaling renewable-powered operations, low-emission corridors, and climate-risk screening.*
5. *Human Capital and Operational Capability – establishing a Logistics Skills Academy, linking apprenticeships to MMLPs, and embedding operator certification.*
6. *Coordination, Data, and Performance Management – creating a state logistics performance unit, publishing quarterly scorecards, and conducting annual independent reviews.*

**To reinforce these pillars, the strategy integrates cross-cutting enablers:**

- i. *A Financing and Investment Framework to diversify capital through PPPs, green bonds, blended finance, and multilateral partnerships.*
- ii. *A Climate Financing and Resilience Framework to fund green infrastructure, generate carbon credits, and reduce climate-induced disruptions.*
- iii. *A Gender and Inclusion Agenda to expand the logistics workforce, increase women's participation, and integrate MSMEs into supply chains.*
- iv. *A Monitoring and Evaluation Architecture linking each reform to a KPI–target matrix, quarterly dashboards, and independent annual reviews.*





**The roadmap is sequenced in three phases:**

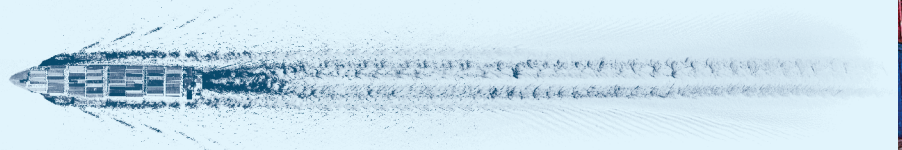
- i. *Near Term (2025–27): Close first/last-mile fractures, operationalise single-window SLAs, launch the data platform, and pilot green logistics at priority ports.*
- ii. *Medium Term (2027–30): Scale rail-served MMLPs, expand digital visibility to general cargo, enforce audit-backed SLAs, and professionalise workforce certification.*
- iii. *Long Term (Post-2030): Consolidate Andhra Pradesh's role as a maritime–industrial hub, align with ASEAN and Indo-Pacific supply chains, and mainstream green corridors across the state.*

*Strategically, this transformation positions Andhra Pradesh not only as a national Achiever in LEADS rankings but also as a regional logistics bridge to ASEAN and the Bay of Bengal, consistent with India's Act East and Indo-Pacific frameworks. By combining infrastructure with digital systems, regulatory credibility, inclusive human capital, and climate-resilient financing, Andhra Pradesh will set new benchmarks for reliability and investor confidence.*

*The bottom line: If executed with discipline, Andhra Pradesh can reduce logistics costs to 8% of GSDP by 2030, achieve global credibility in supply chain governance, and emerge as South Asia's most trusted maritime–industrial gateway by 2047.*

## STRATEGIC TAKEAWAY:

*Andhra Pradesh's logistics system is at an inflection point. Success will hinge less on new ports and roads, and more on execution discipline, empowered institutions, digital transformation, and resilience standards. If pursued with urgency and accountability, Andhra Pradesh can reclaim "Achiever" status in LEADS by 2030 and emerge, by 2047, as South Asia's leading logistics capital anchoring India's east coast growth story.*









# 2

## WHY LOGISTICS MATTERS: CONTEXT AND RATIONALE FOR ANDHRA PRADESH

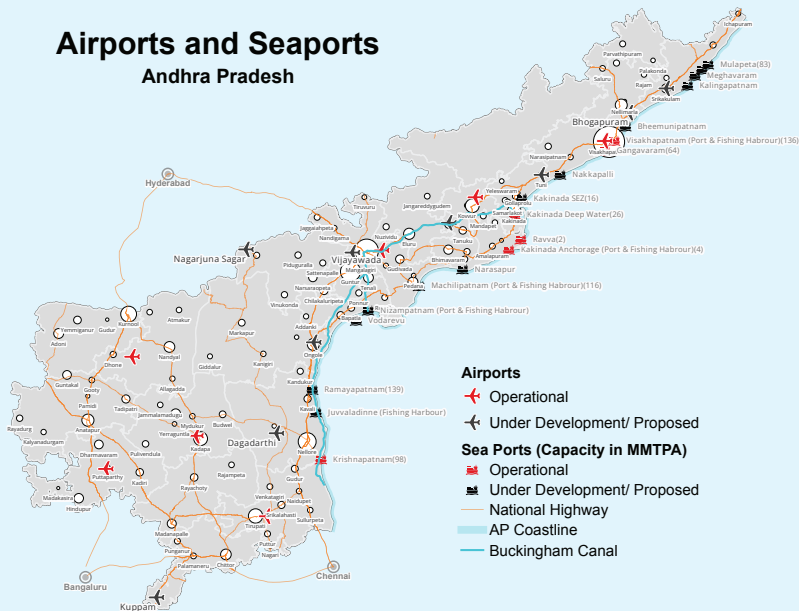




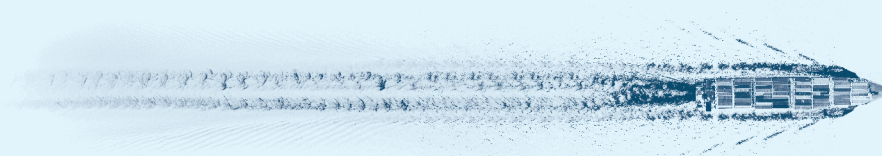


## Airports and Seaports

### Andhra Pradesh



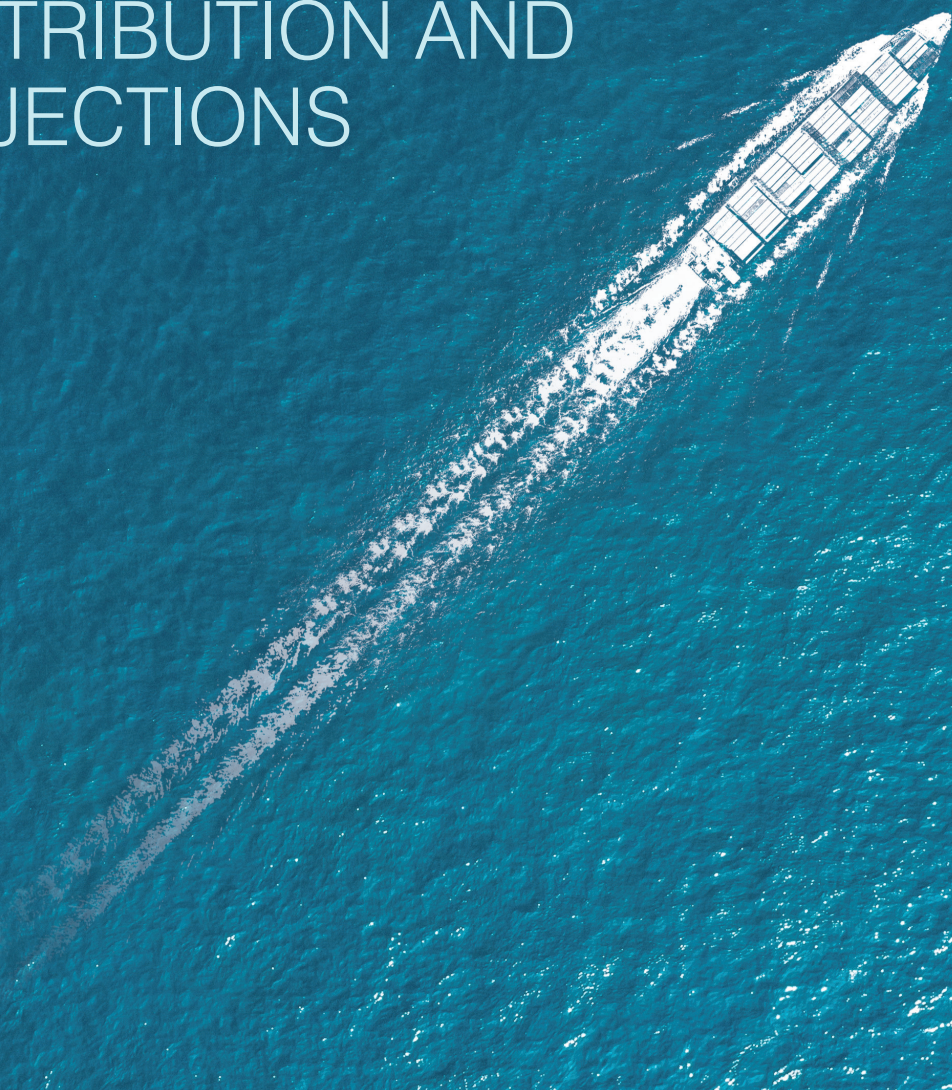
From a long-term perspective, Andhra Pradesh's ambition is not limited to lowering logistics costs but to transition into a maritime-industrial cluster by 2047. This means moving beyond a throughput model of ports toward integrated shipbuilding, repair, blue economy expansion, and coastal industrial hubs. By aligning with India's centennial growth aspirations, AP seeks to capture 20% of India's cargo share, place one port among the world's top 20, and secure a 25% share in national shipbuilding by 2047 (Government of Andhra Pradesh, 2025; Logistics Talking Points for VC, 2025).





# 3

## LOGISTICS AS A GROWTH ENGINE: ECONOMIC CONTRIBUTION AND PROJECTIONS







## Current Economic Context

Andhra Pradesh's Gross State Domestic Product (GSDP) at current prices is projected at INR 18.3 lakh crore (US\$214 billion) in FY 2025–26, reflecting an average CAGR of 11.7% between FY 2016 and FY 2026 (Government of Andhra Pradesh, 2025a). Within the state economy, the services sector, which includes transport, storage, and communication, accounts for 39.2% of Gross State Value Added (GSVA), below the national average of 51% (NITI Aayog, 2025). While logistics is not reported as a standalone category, transport, storage, and communication together are estimated to contribute 8–10% of GSDP, a range broadly consistent with national logistics benchmarks (EY, 2023).

## Estimating the Logistics Contribution

Using this share, the logistics sector's current value for FY 2025–26 can be approximated at INR 1.46–1.83 lakh crore. If GSDP continues to expand at ~10% annually, it would reach INR 29–30 lakh crore by FY 2030. Should the logistics share rise to 12% through targeted reforms, the sector's contribution could exceed INR 3.5 lakh crore by 2030 (Government of Andhra Pradesh, 2025a; Ministry of Commerce & Industry, 2024).

## Indicative Estimates for Andhra Pradesh

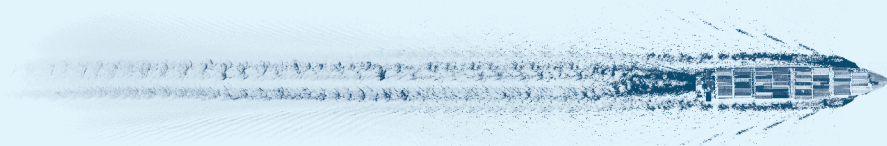
Year	Estimated GSDP (INR lakh crore)	Logistics Share (%)	Logistics Sector Size (INR lakh crore)
2025–26	18.3	8–10	1.46 – 1.83
2030 (proj.)	29–30	10–12	2.9 – 3.6

**In FY 2025–26**, Andhra Pradesh's GSDP is projected at INR 18.3 lakh crore, of which logistics accounts for an estimated INR 1.46–1.83 lakh crore (8–10%) (Government of Andhra Pradesh, 2025a; NITI Aayog, 2025). This establishes logistics not as a peripheral service but as a core contributor to the state economy, directly influencing agriculture, industry, and exports.

**By FY 2030**, with GSDP expected to rise to INR 29–30 lakh crore, the logistics sector could expand to INR 2.9–3.6 lakh crore (10–12%) if reforms are executed effectively. This implies a near doubling in absolute contribution within five years, and a shift in relative weight within the economy.

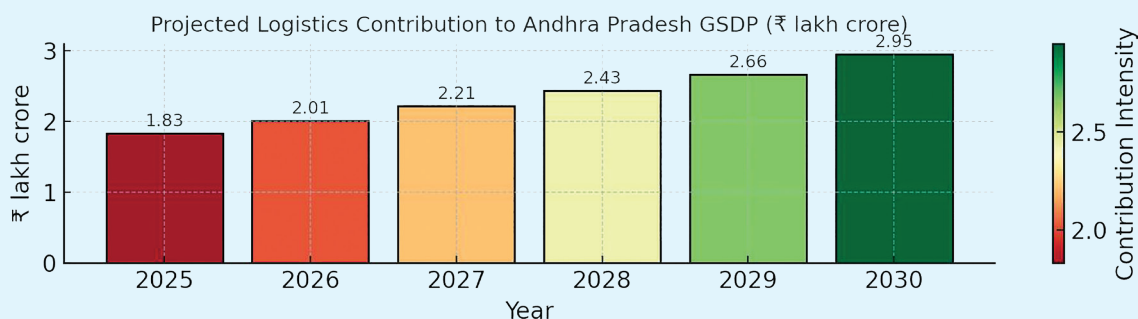
The difference between an 8% share and a 12% share is economically decisive, representing nearly INR 70,000–80,000 crore in additional value added annually. This margin highlights the stakes of timely implementation of reforms under the six pillars—particularly rail-led multimodality, digital visibility, cold-chain expansion, and regulatory responsiveness (Ministry of Commerce & Industry, 2024).

From a strategic perspective, strengthening logistics will lower transaction costs, enhance export competitiveness, and align Andhra Pradesh with global benchmarks, where logistics-intensive economies treat the sector as a growth multiplier and trade enabler.





## Policy Analysis: AP Logistics Contribution to GSDP



The heat map illustrates the projected growth of Andhra Pradesh's logistics sector, valued at INR 1.6–1.8 lakh crore in FY 2025–26 and rising steadily to INR 3.0–3.6 lakh crore by FY 2030. This trajectory reflects both the overall expansion of GSDP and the increasing share of logistics as reforms strengthen efficiency, multimodality, and digital integration (Government of Andhra Pradesh, 2025a; NITI Aayog, 2025).

### Key Policy Insights

#### 1. **Magnitude of Contribution.**

Even under conservative assumptions (8% of GSDP), logistics already represents one of the state's largest subsectors within services. By 2030, its value will nearly double, underscoring logistics as a core growth driver, not just an enabler.

#### 2. **Reform-Driven Upside.**

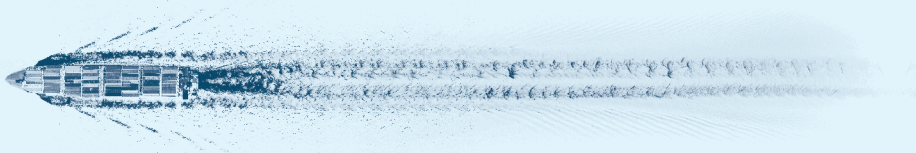
If reforms outlined in the six pillars—particularly rail-led multimodality, digital visibility, and responsive regulation—are implemented with urgency, logistics could expand its share to 12% of GSDP by 2030. This would lift the sector above INR 3.5 lakh crore, generating significant multiplier effects across agriculture, industry, and exports (Ministry of Commerce & Industry, 2024).

#### 3. **Risk of Underperformance.**

Without systematic execution, logistics could remain stuck at ~8% of GSDP, implying slower capacity expansion and missed integration with ASEAN and Indo-Pacific supply chains. This would weaken Andhra Pradesh's competitive advantage relative to western and southern states with more advanced multimodal ecosystems.

#### 4. **Fiscal and Investment Implications.**

A larger logistics economy also means a bigger financing requirement. Mobilising PPPs, green bonds, and multilateral funds will be critical to ensure infrastructure expansion does not overburden state budgets (Government of Andhra Pradesh, 2025b).





Positioning logistics as a measurable share of GSDP ensures that reforms are tracked not only through operational KPIs but also by their macroeconomic impact. By raising the logistics share from ~8% to 12% by 2030, Andhra Pradesh can unlock over INR 1.5 lakh crore in additional economic value, while lowering logistics costs and improving trade competitiveness. This aligns with both Vision 2047 and India's Act East Policy, reinforcing the state's ambition to become South Asia's logistics bridge.

## Strategic Implications

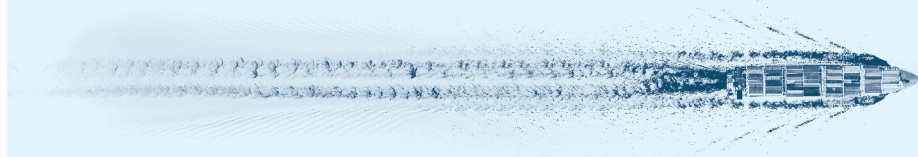
Three policy points follow from these projections:

- i. **Magnitude of Contribution.** Even at current levels, logistics represents one of the largest sub-segments of the services economy, underscoring its role as an economic engine.
- ii. **Reform Leverage.** Reforms that reduce logistics costs, strengthen multimodal integration, and expand cold-chain and digital systems could raise the sector's share of GSDP, with significant spillovers for agriculture, industry, and exports.
- iii. **Global Alignment.** National projections estimate India's logistics sector will grow at a CAGR of 4.5% to reach ~15% of GDP by 2050 (World Bank, 2022; EY, 2023). Andhra Pradesh's positioning within ASEAN- and Indo-Pacific supply chains places it in a strong position to outperform this trajectory.

## Monitoring and Policy Use

To make these projections operational, Andhra Pradesh should:

- i. Institutionalise measurement of "logistics value added" as part of state income statistics.
- ii. Integrate into the KPI framework an indicator for "logistics share of GSDP" with medium-term targets (10% by 2027, 12% by 2030).
- iii. Use scenario modelling (baseline, moderate reform, high-impact reform) to align financing and investment strategies with projected economic impacts (Government of Andhra Pradesh, 2025b).





# 4

## REFORM PRIORITIES: CHALLENGES IN ANDHRA PRADESH'S LOGISTICS LANDSCAPE

While Andhra Pradesh holds clear advantages as a coastal logistics hub, the state's performance in national assessments (LEADS 2024) shows that several challenges common to India's logistics sector remain highly relevant in the state's context. Addressing these issues is essential for Andhra Pradesh to translate its natural advantages into sustained competitiveness.







## Digital and Track-and-Trace Gaps.

Although Andhra Pradesh has pioneered initiatives such as Drone City in Kurnool and early adoption of digital systems in ports, performance on track-and-trace and cargo safety indicators remains weak. Many terminals, ICDs, and warehouses are not yet integrated through EDI/API systems, resulting in fragmented visibility. Closing this gap will require scaling a state logistics data platform with mandatory integration for licensed facilities (Ministry of Commerce & Industry, 2024).

## Cold Chain Constraints.

The cold chain challenge is particularly significant for Andhra Pradesh, given its leadership in seafood exports, pharmaceuticals, and horticultural produce. Existing infrastructure is fragmented, with insufficient reefer corridors, port-based cold storage, and multimodal linkages. Losses due to inadequate temperature-controlled logistics reduce export competitiveness and affect farmer incomes. This calls for a strategic expansion of cold-chain integration with ports and MMLPs tailored to Andhra Pradesh's sectoral strengths (Government of Andhra Pradesh, 2024).

## Port Connectivity and Customs Efficiency.

While major ports such as Visakhapatnam, Krishnapatnam, and Kakinada have expanded capacity, their efficiency is constrained by last-mile rail bottlenecks, variable customs clearance timelines, and limited adoption of paperless processes. Non-major and greenfield ports (e.g., Ramayapatnam, Bhavanapadu) face the added challenge of ensuring adequate multimodal connectivity and institutional support. Without these improvements, Andhra Pradesh risks underutilising its port capacity and missing opportunities to capture ASEAN- and BIMSTEC-bound trade flows (Ministry of Commerce & Industry, 2024).

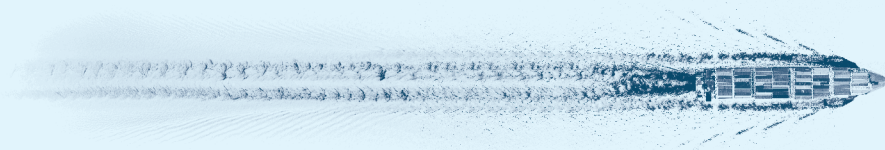
## Multimodal Integration and Governance.

A persistent challenge lies in the fragmented governance structure of logistics, with overlapping mandates across departments. This has slowed integration of rail, road, and inland waterways and weakened accountability. Skills shortages—particularly among drivers, reefer operators, and warehouse managers—further constrain system efficiency. These weaknesses are reflected in Andhra Pradesh's LEADS scores on multimodal adequacy and institutional responsiveness, highlighting the need for rail-led multimodality, regulatory reform, and workforce professionalisation (Government of Andhra Pradesh, 2024).

## Strategic Implication

These challenges should be viewed not as structural impediments but as priority reform opportunities. By addressing digital visibility, cold-chain integration, port efficiency, and multimodal governance with urgency, Andhra Pradesh can transform its coastline and port infrastructure into enduring sources of competitive advantage.

While these challenges underline the constraints Andhra Pradesh must address, they also provide a roadmap for reform. The state enters the logistics decade with a set of distinctive advantages—its coastline, port base, and proactive policy orientation—that can be leveraged to overcome these gaps. The following section presents a balanced assessment of strategic strengths and areas for improvement, setting the foundation for Andhra Pradesh's journey toward becoming South Asia's logistics hub.





# 5

## STRATEGIC BALANCE: STRENGTHS AND WEAKNESSES IN LOGISTICS COMPETITIVENESS





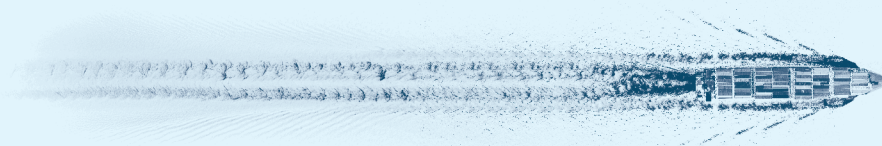
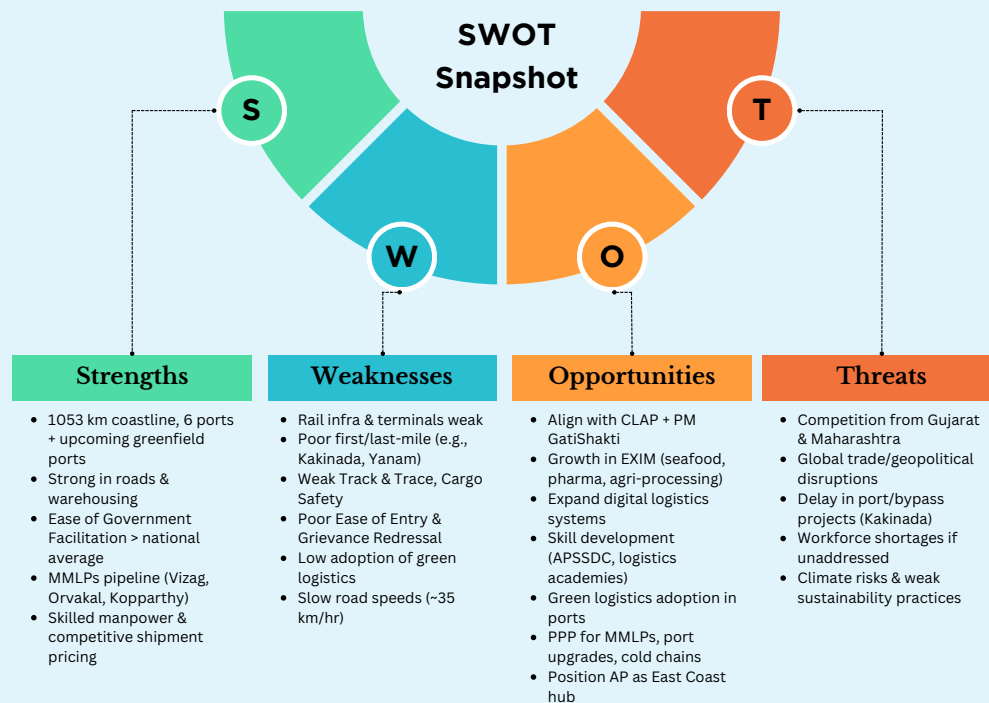


Andhra Pradesh enters the logistics decade with a distinctive set of advantages that position it as a natural leader on India's east coast. With its long coastline, strong port base, and proactive government facilitation, the state has laid a solid foundation for an integrated, future-ready logistics ecosystem. Policy recognition of logistics as a priority sector, new greenfield ports, and the rollout of multi-modal logistics parks (MMLPs) aligned with PM GatiShakti underscore Andhra Pradesh's commitment to becoming a logistics hub of national and international significance. Recent innovations such as Drone City in Kurnool and the Andhra Pradesh Drone Corporation further highlight its pioneering role in next-generation supply chain solutions.

At the same time, reaching global standards calls for targeted improvements. LEADS 2024 has provided constructive feedback, identifying areas where the state can accelerate progress—particularly in multimodal integration, digital visibility, and regulatory responsiveness. These are not limitations but opportunities for focused reform that can translate Andhra Pradesh's natural maritime advantages into sustained leadership.

This section sets out a balanced view of the state's strengths and priority areas for enhancement. It acknowledges the significant progress already achieved while highlighting the strategic levers—multimodal connectivity, digital platforms, and institutional responsiveness—that will enable Andhra Pradesh to realise its ambition of becoming South Asia's logistics capital by 2047.

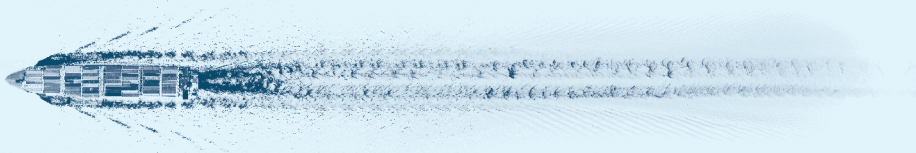
## Andhra Pradesh Logistics Strategy





## Strategic Strengths

- i. Maritime geography and port base:** Andhra Pradesh has a coastline of about 1,053 km, the second longest in India, and accounts for a significant share of the nation's port traffic. It ranks third nationally in cargo handling, after Gujarat and Maharashtra (Ministry of Commerce & Industry, 2024). The state's six operational ports, along with ongoing greenfield developments such as Ramayapatnam and Machilipatnam, provide a strong base for future expansion (Government of Andhra Pradesh, 2024).
- ii. Policy facilitation:** The state government has recognised logistics as an industry, instituted a single-window clearance system, and adopted a state logistics policy to coordinate assets and services. These measures have strengthened facilitation scores relative to other dimensions in the LEADS 2024 assessment (Ministry of Commerce & Industry, 2024).
- iii. Emerging multimodal platforms:** A pipeline of Multi-Modal Logistics Parks (MMLPs) at Visakhapatnam, Orvakal, Kopparthi, and Anantapur is aligned with the national PM GatiShakti programme, designed to consolidate warehousing and intermodal interfaces (Ministry of Commerce & Industry, 2024).
- iv. Drone Corridor:** Andhra Pradesh is also emerging as a hub for next-generation logistics innovation. The launch of Drone City in Kurnool and the establishment of the Andhra Pradesh Drone Corporation (APDC) mark an institutional shift toward integrating drones into supply chains. These initiatives provide the state with a unique advantage in positioning itself as South Asia's leader in drone logistics, complementing investments in ports and multimodal logistics parks.
- v. Stated development targets:** The Government of Andhra Pradesh has publicly articulated targets to expand port capacity, reduce logistics costs, and strengthen multimodal linkages by 2030 (Government of Andhra Pradesh, 2024). These include aligning with the national Comprehensive Logistics Action Plan (CLAP) and Sagarmala framework.



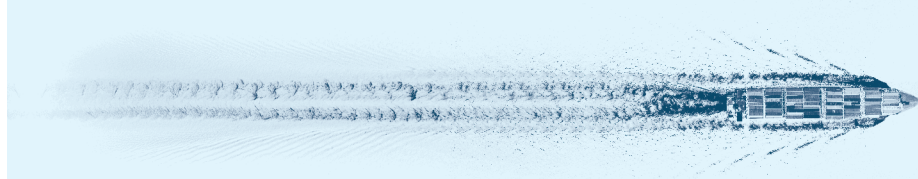


## Strategic Weaknesses

- i. LEADS downgrade and multimodal gaps:** The LEADS 2024 report downgraded Andhra Pradesh from “Achiever” (2023) to “Fast Mover” (2024). The state scored relatively weak on rail adequacy, terminal efficiency, and multimodal readiness, signalling structural bottlenecks despite its strong road and port infrastructure (Ministry of Commerce & Industry, 2024).
- ii. Persistent first/last-mile bottlenecks:** Connectivity gaps remain around Kakinada port, the Yanam bypass, and the Godavari Creek crossing, which have delayed efficient evacuation of cargo. These long-standing issues have increased congestion and reduced shipper reliability (Ministry of Commerce & Industry, 2024).
- iii. Road dependence and speed disadvantage:** Freight movement is heavily road-dependent. The average speed of freight vehicles in AP is ~35 km/h, well below Gujarat (~47 km/h) and Karnataka (~43 km/h). This translates into higher logistics costs and lower reliability, particularly for export-oriented supply chains (Ministry of Commerce & Industry, 2024).
- iv. Digitalisation and safety lag:** AP underperforms on track-and-trace and cargo safety indicators, with weaker adoption of digital cargo monitoring systems compared to leading states. This raises concerns around transparency, risk management, and reliability of high-value supply chains (Ministry of Commerce & Industry, 2024).
- v. Regulatory responsiveness:** While government facilitation is rated above average, AP scored poorly on “ease of entry” and grievance redressal mechanisms in LEADS 2024. The absence of a functioning redressal system reduces predictability for operators and investor confidence (Ministry of Commerce & Industry, 2024).

The evidence shows Andhra Pradesh possesses scale, geographic advantage, and facilitation strength, but it underperforms in multimodal connectivity, digital transparency, and regulatory responsiveness. Without closing these structural gaps, the state’s advantage in ports and location cannot be translated into leadership when compared with Gujarat’s rail-integrated multimodal hubs or Tamil Nadu’s industrial-port linkages (Ministry of Commerce & Industry, 2024).

Taken together, Andhra Pradesh’s strengths provide a strong platform for transformation, while its weaknesses highlight the reforms required to match global benchmarks. Building on this foundation, it is equally important to consider the emerging opportunities and risks that will shape the state’s logistics future. The next section sets out these dynamics, identifying areas where Andhra Pradesh can gain competitive advantage and the external challenges it must anticipate and mitigate.





6

OPPORTUNITY AND  
RISK MATRIX:  
NAVIGATING THE FUTURE  
OF AP LOGISTICS







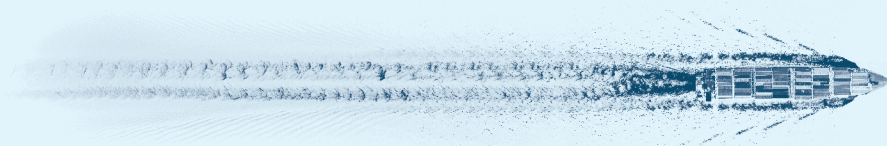
Andhra Pradesh's logistics sector is entering a phase of unprecedented opportunity. With a strong maritime base, expanding port infrastructure, and alignment with national initiatives such as PM GatiShakti and the Comprehensive Logistics Action Plan (CLAP), the state is well placed to integrate seamlessly into India's east coast growth story. Rising export potential in seafood, pharmaceuticals, and processed agriculture, coupled with the state's early moves in green logistics and drone-enabled supply chains, provide Andhra Pradesh with the chance to establish itself as a gateway for trade with ASEAN and the wider Asia-Pacific. These drivers create clear pathways for reducing logistics costs, deepening multimodal integration, and positioning the state as a national leader in sustainable and technology-driven logistics.

At the same time, Andhra Pradesh must manage a set of strategic risks that could slow this momentum if left unaddressed. Competitive pressures from Gujarat and Tamil Nadu, persistent first/last-mile bottlenecks, and heavy reliance on road transport highlight areas where acceleration is needed. Equally, the state's long coastline, while a strength, also increases exposure to climate-related disruptions such as cyclones, flooding, and heat stress. National assessments have also emphasised the importance of regulatory responsiveness and digital transparency as critical enablers of competitiveness.

This section sets out Andhra Pradesh's most significant opportunities for growth while identifying the key risks that must be mitigated. By capturing emerging prospects in multimodality, digitalisation, and green logistics, and by addressing vulnerabilities through timely reforms, the state can translate its natural advantages into lasting leadership and secure its position as South Asia's logistics capital by 2047.

## Opportunities

- i. Expansion of multimodal integration:** The PM GatiShakti framework and the Comprehensive Logistics Action Plan (CLAP) provide Andhra Pradesh with a national platform to deepen rail–road–port integration. With a coastline advantage and proximity to industrial corridors, the state is positioned to leverage national freight corridors and multimodal logistics parks to cut costs and improve reliability (Ministry of Commerce & Industry, 2024).
- ii. EXIM potential in high-value sectors:** Andhra Pradesh has a comparative advantage in seafood, pharmaceuticals, and processed agriculture, sectors that form a significant share of its export profile. Policy facilitation and improved port capacity could consolidate the state as a gateway for eastern and southern India's export flows (Government of Andhra Pradesh, 2024).
- iii. Digitalisation and governance reform:** The state's logistics portal and proposed command-and-control frameworks can close gaps in track-and-trace, cargo safety, and chain-of-custody assurance. As highlighted in LEADS 2024, adoption of digital monitoring offers Andhra Pradesh a direct pathway to improve transparency and reliability scores (Ministry of Commerce & Industry, 2024).





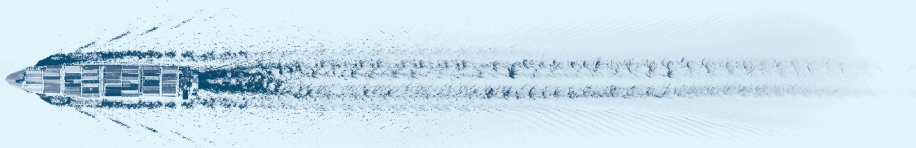


- iv. Green and resilient logistics:** Pilot initiatives in solarisation of ports, electrification of cargo-handling equipment, and waste treatment systems in Visakhapatnam and Krishnapatnam ports provide a starting point for scaling state-wide green logistics. Embedding climate resilience standards will be critical given AP's coastal vulnerability (Government of Andhra Pradesh, 2024).

## Risks

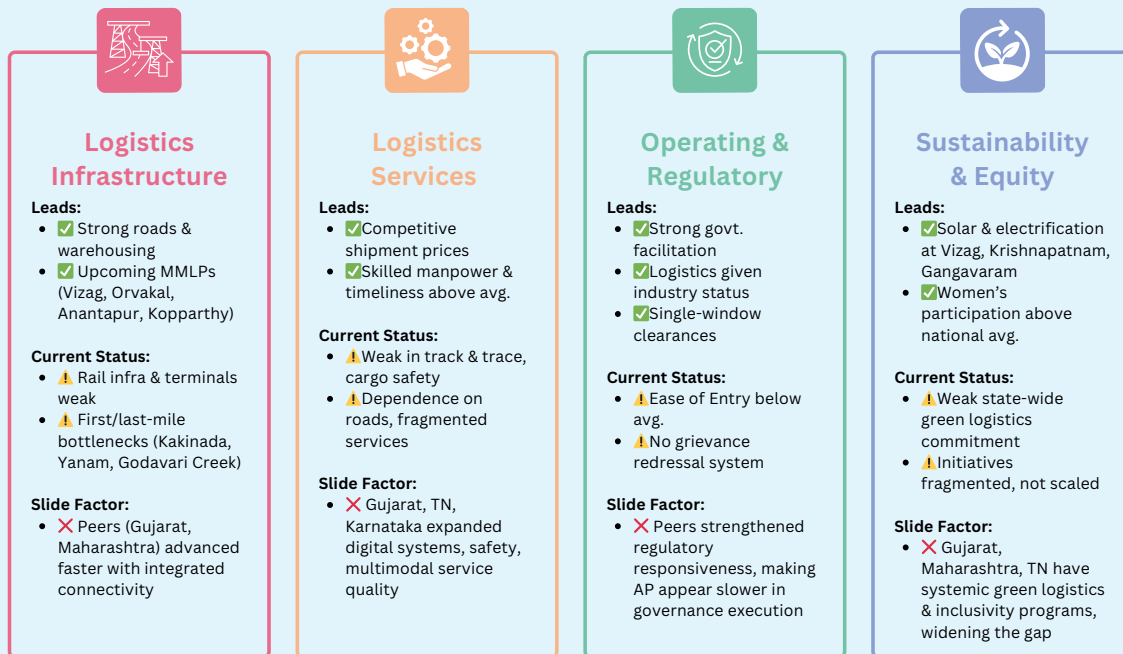
- i. Competitive pressures from coastal peers:** Gujarat and Tamil Nadu have advanced more rapidly in multimodal integration, regulatory responsiveness, and digital adoption. Gujarat's dry port-rail corridors and Tamil Nadu's strong port-industry linkages mean Andhra Pradesh risks losing relative competitiveness unless it accelerates reforms (Ministry of Commerce & Industry, 2024).
- ii. Structural bottlenecks in connectivity:** Unresolved first/last-mile issues at Kakinada, Yanam, and Godavari Creek remain high-cost risks. Unless fast-tracked under Sagarmala and GatiShakti, these choke points will continue to undermine AP's logistics efficiency (Ministry of Commerce & Industry, 2024).
- iii. Road dependence and vulnerability:** With freight flows heavily reliant on roads and average freight speeds significantly below peers, the state remains exposed to fuel price volatility, congestion, and emission risks. This modal imbalance directly undermines cost competitiveness and environmental sustainability (Ministry of Commerce & Industry, 2024).
- iv. Regulatory and institutional gaps:** The absence of a functional grievance redressal mechanism, weak "ease of entry," and uneven regulatory responsiveness depress AP's logistics governance scores. This creates risks for investor confidence, particularly in high-capital sectors such as cold chain and multimodal services (Ministry of Commerce & Industry, 2024).
- v. Climate and coastal exposure:** Andhra Pradesh's long coastline is both a strength and a vulnerability. Storm surges, flooding, and heat stress on assets and labour are identified by national assessments as rising risks for coastal states. Embedding resilience criteria in planning, siting, and port operations is therefore not optional but structural to long-term competitiveness (Government of Andhra Pradesh, 2024).

The opportunity set for Andhra Pradesh lies in scaling multimodal integration, strengthening EXIM sectors, accelerating digitalisation, and embedding resilience standards. The risk profile, however, underscores that execution discipline is critical: without timely closure of connectivity gaps, adoption of digital systems, and institutional reforms, the state's geographic and infrastructural endowments will continue to underperform relative to its coastal peers (Ministry of Commerce & Industry, 2024; Government of Andhra Pradesh, 2024).



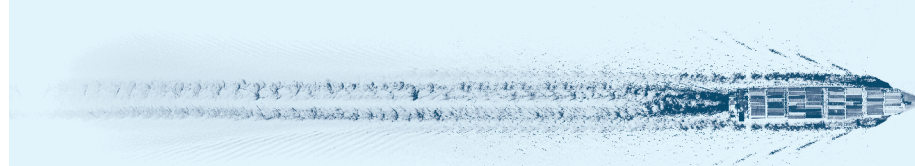


## How Andhra Pradesh Slid – From Achiever (2023) to Fast Mover (2024)



*With the right focus on connectivity, digitalisation, and green logistics, Andhra Pradesh can transform from a Fast Mover to the undisputed logistics leader of India's East Coast.*

The analysis of opportunities and risks makes clear that Andhra Pradesh must act with focus and urgency: leveraging its maritime and locational advantages, while mitigating systemic gaps in multimodality, digitalisation, resilience, and governance. To translate these insights into action, the strategy is organised around six pillars of reform. Each pillar targets a specific area of intervention—ranging from rail-led multimodal integration to digital systems, responsive regulation, sustainability, human capital, and performance management—together forming a comprehensive framework to position Andhra Pradesh as South Asia's logistics hub.





7

VISION 2030–2047:  
ANDHRA PRADESH AS  
SOUTH ASIA'S  
LOGISTICS BRIDGE





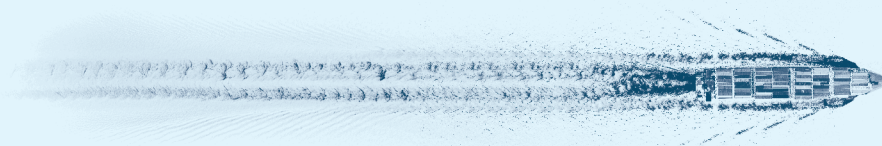


## Medium-Term Vision: 2025–2030

The Government of Andhra Pradesh has articulated clear logistics targets for the medium term. These are aligned with the Comprehensive Logistics Action Plan (CLAP) and the PM GatiShakti National Master Plan, both of which provide frameworks for asset integration and cost reduction (Ministry of Commerce & Industry, 2024). The medium-term goals are:

- i. Reduce logistics costs: from an estimated 15.7% of GSDP to 8% by 2030 (Government of Andhra Pradesh, 2024).
- ii. Expand port handling capacity: from ~200 MMTPA to 350 MMTPA, with utilisation rising from 50% to 85% (Government of Andhra Pradesh, 2024).
- iii. Extend multimodal corridors: doubling length from 1,040 km to 2,000 km, with a focus on rail-led integration (Ministry of Commerce & Industry, 2024).
- iv. Operationalise logistics parks: expansion of Multi-Modal Logistics Parks from 2 to 10, consolidating warehousing and transport functions (Government of Andhra Pradesh, 2024).
- v. Scale green logistics adoption: increase from 5% to 50% by introducing renewable energy, electrification of handling equipment, and sustainable transport practices (Government of Andhra Pradesh, 2024).
- vi. Employment growth: logistics-related jobs projected to rise from 10 lakh to 20 lakh through skilling and institutional reforms (Government of Andhra Pradesh, 2024).

These targets directly respond to performance gaps identified in LEADS 2024, which highlighted rail inadequacy, terminal efficiency shortfalls, and digital transparency deficits as Andhra Pradesh's weakest dimensions (Ministry of Commerce & Industry, 2024).







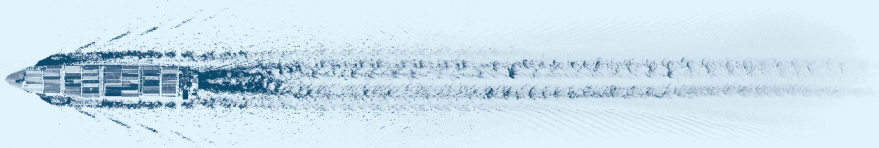
## Long-Term Vision: 2047 Horizon

Looking ahead to India's centenary of independence, Andhra Pradesh has articulated an extended vision for 2047. The emphasis is on transitioning from a throughput model of port handling toward a maritime-industrial cluster model where ports are integrated with shipbuilding, logistics parks, and industrial corridors. The publicly stated long-term ambitions include:

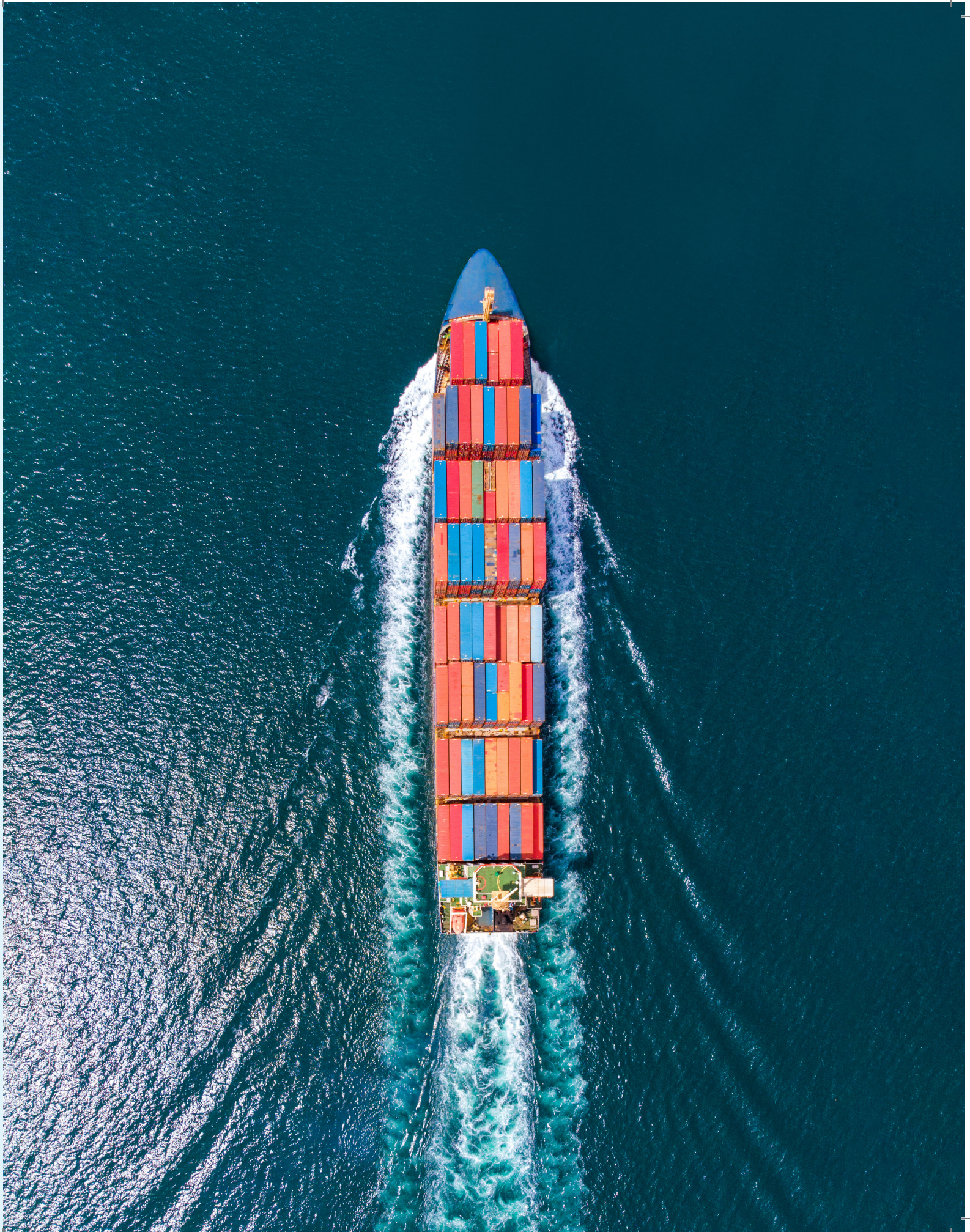
- i. Global port ranking: position at least one AP port among the world's top 20 by throughput and efficiency (Government of Andhra Pradesh, 2024).
- ii. National cargo share: capture around 20% of India's total cargo volume, reflecting a shift from current underperformance toward a leadership role (Government of Andhra Pradesh, 2024).
- iii. Shipbuilding and repair: expand participation in the national shipbuilding and repair sector to reach 25% share, leveraging AP's geographic advantages (Government of Andhra Pradesh, 2024).
- iv. Resilient and sustainable logistics systems: institutionalise climate resilience standards into port infrastructure, coastal planning, and inland transport, recognising Andhra Pradesh's exposure to storm surges and heat stress (Ministry of Commerce & Industry, 2024).

The medium-term targets (2025–2030) are primarily operational, aimed at reducing logistics costs and closing infrastructure gaps. They respond directly to the diagnostic weaknesses captured in LEADS 2024, especially the underperformance in multimodality, regulatory responsiveness, and digitalisation.

The long-term vision (to 2047) reframes Andhra Pradesh's role from being a coastal transit corridor to becoming a maritime-industrial cluster. This ambition is consistent with global port-development trajectories, where competitiveness is increasingly defined by integration with manufacturing, shipbuilding, and green logistics systems rather than throughput alone (Ministry of Commerce & Industry, 2024; Government of Andhra Pradesh, 2024).







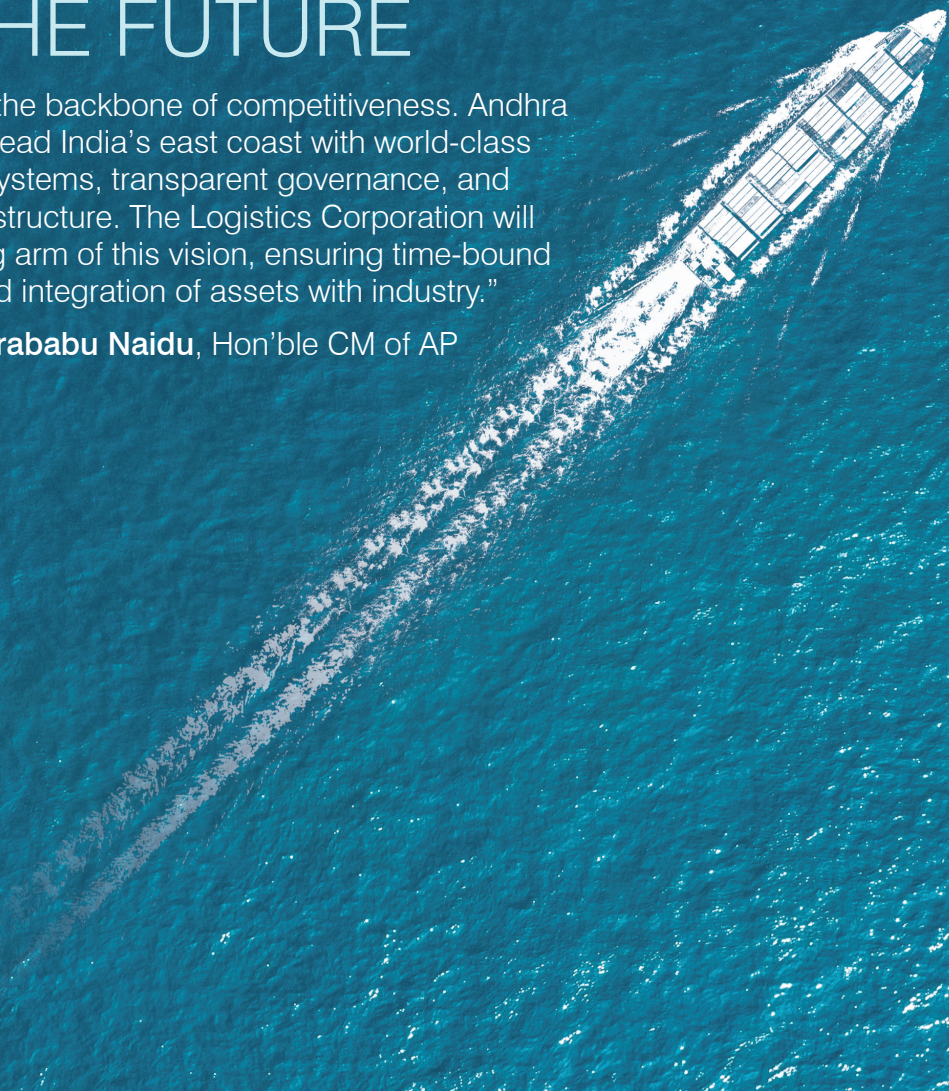


# 8

## SIX PILLARS OF REFORM: BUILDING THE LOGISTICS ARCHITECTURE OF THE FUTURE

“Logistics is the backbone of competitiveness. Andhra Pradesh will lead India’s east coast with world-class multimodal systems, transparent governance, and resilient infrastructure. The Logistics Corporation will be the driving arm of this vision, ensuring time-bound execution and integration of assets with industry.”

**Nara Chandrababu Naidu**, Hon’ble CM of AP







## Institutional Framework

### *Fragmented Governance and the Coordination Challenge*

## Andhra Pradesh Logistics Corporation: Driving the Next Wave of Competitiveness

**Vision:** To reposition Andhra Pradesh as India's East Coast Logistics Hub and ASEAN-facing maritime-industrial cluster by 2047.

**Mission:** To reduce logistics costs to 8% of GSDP by 2030, raise port utilisation to 85%, operationalise 10 MMLPs, and embed green, digital, and resilient practices across the logistics chain (Government of Andhra Pradesh, 2024).

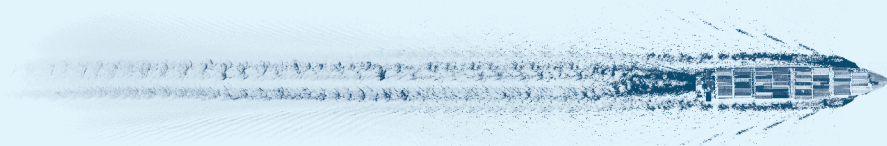
At present, Andhra Pradesh's logistics ecosystem is governed by multiple agencies with overlapping jurisdictions. Ports are overseen by the Department of Ports, road networks by the Roads & Buildings Department, rail infrastructure by Indian Railways, and industrial corridors by the Department of Industries and Commerce. While this arrangement reflects the complexity of logistics systems, it also produces institutional fragmentation, delays in clearances, and accountability gaps. National assessments, including LEADS 2024, have flagged this lack of coordination as a structural bottleneck for the state. Without a unified institutional mechanism, Andhra Pradesh's competitive strengths in ports and geography risk being diluted by weak governance responsiveness and disjointed execution.

## The Andhra Pradesh Logistics Corporation

In June 2025, the Government of Andhra Pradesh inaugurated the Andhra Pradesh Logistics Corporation (APLC) as a dedicated nodal institution to drive the state's logistics agenda. The APLC is designed to act as the single-window interface for investors and as a systems integrator for government departments. Its mandate extends across five key functions:

- i. Multi-agency coordination, ensuring that port, road, rail, and industrial projects under PM GatiShakti and Sagarmala are implemented in synchronised timelines.
- ii. Grievance redressal, operationalising a statutory mechanism with time-bound service-level agreements to restore regulatory credibility.
- iii. Digital integration, managing the state's logistics data platform and ensuring interoperability with national registries, customs, and port systems.
- iv. Investment facilitation, structuring PPP models, viability-gap funding, and exploring green bond instruments for financing logistics infrastructure.
- v. Performance monitoring, publishing quarterly scorecards on corridor efficiency, port utilisation, and service reliability.

The creation of APLC addresses a long-standing gap: the absence of an empowered body with both convening authority and operational responsibility.







## Learning from National and Global Models

Comparative experience reinforces the importance of institutional anchors in logistics governance. Gujarat Maritime Board (GMB) is often cited as the benchmark for India, credited with transforming Gujarat into the top performer in LEADS rankings. The GMB provides professionalised oversight of ports, coordinates multimodal projects, and ensures policy continuity across political cycles. Similarly, Tamil Nadu's Guidance Bureau has streamlined investor facilitation and dispute resolution for industrial-logistics projects. Globally, Singapore's PSA International and Port of Rotterdam Authority illustrate how empowered, corporatised entities can drive integration between ports, industrial clusters, and digital ecosystems. Andhra Pradesh can adapt these lessons through APLC, embedding professional management, stakeholder participation, and statutory authority into its governance framework.

## Governance and Accountability Architecture

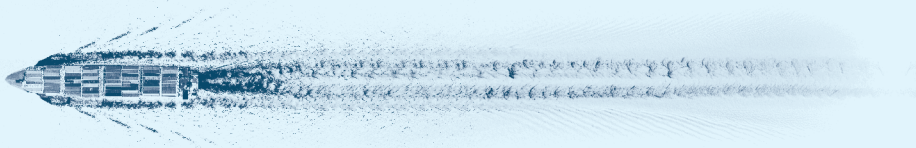
To function effectively, the APLC must be endowed with legal and financial authority. A statutory act of incorporation would provide clarity on its mandate, protect its autonomy, and strengthen investor confidence. The governance structure should feature a multi-stakeholder board, including representatives from government departments, private operators, industry associations, and independent experts. This design ensures that policymaking is not confined to bureaucratic silos but reflects market realities. Accountability can be reinforced through public performance dashboards, annual independent audits, and integration with GatiShakti's data layers. The Corporation should also maintain direct reporting to the Chief Minister's Office, aligning institutional performance with political priorities.

## Strategic Role in Delivering the Reform Agenda

The six strategic pillars outlined in this paper—rail-led multimodal integration, digital backbone, responsive regulation, green logistics, human capital, and performance management—require an institutional home. APLC can provide that home by acting as the execution arm of the state's logistics strategy. For example, it can coordinate the commissioning of PPP rail terminals under Pillar 1, manage the digital visibility platform under Pillar 2, and operationalise grievance redressal under Pillar 3. By embedding resilience standards and workforce certification into procurement and licensing processes, it can also mainstream Pillars 4 and 5. Finally, through scorecards and audits, it can drive Pillar 6's focus on accountability and continuous performance management.

## Converting Vision into Governance Capacity

Andhra Pradesh's logistics vision cannot be realised through asset creation alone; it requires a strong institutional spine that integrates multiple stakeholders, disciplines execution, and enforces accountability. The Andhra Pradesh Logistics Corporation offers that opportunity. If legally empowered, professionally managed, and equipped with financing instruments, the APLC can transform fragmented governance into coordinated delivery. In doing so, it will position Andhra Pradesh alongside Gujarat, Singapore, and Rotterdam as a state that recognises logistics not merely as infrastructure, but as a system requiring capable, accountable institutions.





Andhra Pradesh's logistics performance gap concentrates in rail adequacy, terminal efficiency, first/last-mile connectivity, digital transparency, and grievance redressal, despite relatively stronger facilitation and road/warehousing assets (Ministry of Commerce & Industry, 2024). The state's policy stance emphasises cost reduction, multimodal expansion, and coordinated asset development, consistent with PM GatiShakti and the Comprehensive Logistics Action Plan (CLAP) (Government of Andhra Pradesh, 2024; Ministry of Commerce & Industry, 2024). The pillars below translate these diagnostics into a reform agenda with measurable outcomes.

## Six Pillars of Reform

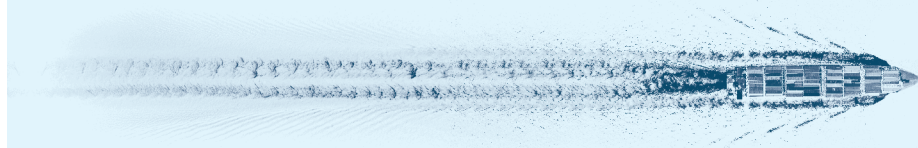
To realise its logistics vision, Andhra Pradesh requires a structured reform framework that addresses both immediate constraints and long-term competitiveness. The following six pillars set out the state's priorities for action, each targeting a critical area of performance. Together, they provide an integrated blueprint for lowering logistics costs, strengthening resilience, and positioning Andhra Pradesh as South Asia's most reliable logistics hub.

### Pillar 1 Rail-Led Multimodal Integration – Cutting costs through connectivity.

Rail connectivity is the most critical lever for Andhra Pradesh to reduce logistics costs and enhance reliability. The LEADS 2024 assessment highlighted that rail adequacy and terminal efficiency remain the state's most binding constraints, with over-dependence on road freight inflating costs and creating high variability in door-to-port transit (Ministry of Commerce & Industry, 2024). Addressing this imbalance is central to lowering logistics costs from 15.7% of GSDP to the targeted 8% by 2030 (Government of Andhra Pradesh, 2024).

### Policy Direction in Depth

- i. Prioritising port-rail last-mile connectors:** Many of Andhra Pradesh's ports—such as Kakinada, Krishnapatnam, and upcoming Ramayapatnam—suffer from missing or inadequate last-mile rail spurs. Prioritising these links under PM GatiShakti workflows will ensure that design, land acquisition, and clearance approvals are synchronised, preventing delays and reducing transaction costs (Ministry of Commerce & Industry, 2024). By fast-tracking these connectors, the state can address the door-to-port variability that currently undermines service reliability.
- ii. Developing PPP rail terminals and ICDs tied to MMLPs:** The planned Multi-Modal Logistics Parks (Visakhapatnam, Orvakal, Koppa, Anantapur) provide natural anchor points for rail-linked terminals. A PPP-based model will allow private operators to bring in efficiency and innovation, while the state ensures viability through standardised access agreements and facilitative clearances (Government of Andhra Pradesh, 2024). This approach mirrors Gujarat's successful dry-port and ICD strategy, which has contributed to its top ranking in LEADS (Ministry of Commerce & Industry, 2024).
- iii. Establishing time-definite rail services with SLAs:** Global best practices show that rail gains market share only when it is marketed as a service product with guaranteed schedules. Andhra







Pradesh's strategy to launch time-definite services on anchor corridors, such as Visakhapatnam–Orvakal or Krishnapatnam–Anantapur, can directly target high-value cargo (pharmaceuticals, seafood, reefer goods) that demands reliability. Publishing service-level agreements (SLAs) on on-time departures, transit times, and slot allocations will create shipper confidence and reduce disputes (Ministry of Commerce & Industry, 2024).

## Indicative KPIs and Expected Outcomes

The following KPIs will demonstrate progress and should be published quarterly through the Andhra Pradesh Logistics Corporation (APLC):

- i. Rail share of port-hinterland freight (%) – indicating modal rebalance and reduced road dependency.
- ii. Average door-to-port transit time (hours) – measuring efficiency gains from rail connectors and time-definite services.
- iii. Gate dwell times at ports (hours) – reflecting improved evacuation capacity.
- iv. Share of MMLPs with active rail spurs (%) – showing integration of multimodal platforms (Government of Andhra Pradesh, 2024; Ministry of Commerce & Industry, 2024).

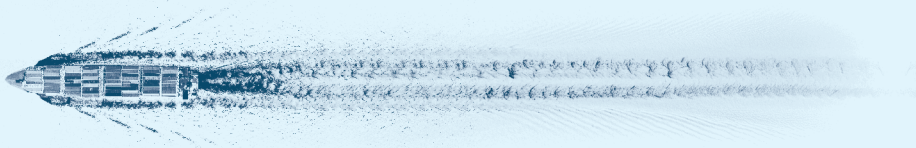
## Sequencing of action

**Phase I (2025–2027): Resetting the Core:** During this period, Andhra Pradesh's logistics strategy focuses on removing the most binding constraints while building confidence in rail as a reliable alternative to road. The priority is to complete critical port–rail connectors and commission at least two PPP rail terminals integrated with upcoming Multi-Modal Logistics Parks (MMLPs) at Visakhapatnam, Orvakal, Koppa, and Anantapur. These terminals should be launched with time-definite rail products and service-level agreements (SLAs) to assure shippers of predictable and transparent operations (Ministry of Commerce & Industry, 2024).

The emphasis is not only on infrastructure but also on service design. Rail services must be marketed as a dependable product, especially for high-value and time-sensitive cargo such as seafood, pharmaceuticals, and agri-processing. Publishing SLAs on on-time departures, gate dwell times, and incident response will strengthen market trust and reduce variability in door-to-port delivery (Government of Andhra Pradesh, 2024). This phase also requires digital onboarding from day one, with mandatory EDI/API integration for new terminals and real-time visibility for hazardous, reefer, and high-value consignments (Ministry of Commerce & Industry, 2024).

The outcome by 2027 should be operational PPP rail terminals, higher rail share of port-hinterland freight, and improved corridor reliability, supported by quarterly performance dashboards under the Andhra Pradesh Logistics Corporation (APLC). These reforms will demonstrate early wins, directly addressing feedback from the LEADS 2024 assessment on rail adequacy and multimodal readiness (Ministry of Commerce & Industry, 2024).

**Phase II (2027–2030): Locking in Scale and Price Discipline:** The second phase builds on early successes by expanding rail-served MMLPs to at least 3–4 nodes and enlarging ICD capacity on high-volume corridors (Government of Andhra Pradesh, 2024). At this stage, the priority shifts from pilots to full-scale adoption, with particular focus on standardising port–rail pricing interfaces.





Transparent tariffs across ports and terminals will reduce entry barriers, encourage private investment, and create confidence among exporters and logistics operators (Ministry of Commerce & Industry, 2024).

Digital compliance will be extended from specified cargo to general cargo, with analytics introduced for predictive risk management. In parallel, audit-backed SLA enforcement and grievance redressal mechanisms will reinforce regulatory credibility. These steps align with Andhra Pradesh's objective of becoming a best-in-India benchmark for reliability and cost competitiveness by 2030 (Government of Andhra Pradesh, 2024).

Green logistics measures will also be scaled during this phase, including electrification of cargo-handling equipment, expansion of low-emission corridors, and integration of climate-resilience standards into corridor design. Combined, these initiatives strengthen sustainability while maintaining cost efficiency (Ministry of Commerce & Industry, 2024).

## Strategic Significance

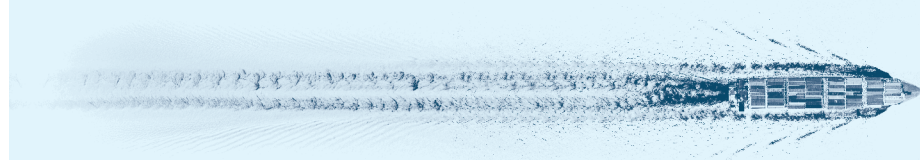
Pillar 1 directly targets the most binding constraint identified in Andhra Pradesh's logistics performance—rail adequacy and terminal efficiency. By prioritising port–rail connectors, commissioning PPP terminals linked to MMLPs, and introducing time-definite rail services with transparent SLAs, the state will address chronic over-dependence on road freight and unlock a more balanced, cost-efficient modal mix. These interventions will significantly reduce transit variability, improve port evacuation, and enhance reliability for high-value and time-sensitive cargo such as seafood, pharmaceuticals, and agri-exports (Ministry of Commerce & Industry, 2024).

More importantly, this pillar shifts Andhra Pradesh from viewing rail as an infrastructure input to treating it as a service product built on predictability, transparency, and accountability. The publication of SLAs, integration of digital platforms, and regular performance scorecards will foster greater trust among exporters and logistics operators, while outcome-based incentives will encourage private participation. In doing so, the state will send a clear signal to both domestic and global investors that it is committed to modern, service-oriented multimodal logistics (Government of Andhra Pradesh, 2024).

Strategically, successful implementation of Pillar 1 will allow Andhra Pradesh to lower logistics costs, improve its LEADS ranking, and strengthen its competitive position relative to peer states. Over the long term, it will form the backbone of the state's ambition to develop into a maritime–industrial hub of South Asia by 2047, ensuring that infrastructure investment translates into lasting economic advantage (Ministry of Commerce & Industry, 2024; Government of Andhra Pradesh, 2024).

## POLICY TAKEAWAY:

*Rail-led integration is Andhra Pradesh's gateway to competitiveness. By reducing cost volatility, strengthening multimodal connectivity, and advancing green logistics, the state can set new national benchmarks for efficiency and reliability.*







## Pillar 2 Digital and Safety Backbone – Visibility, transparency, and security.

A modern logistics system depends as much on information flows as on physical infrastructure. For Andhra Pradesh, digital visibility and cargo safety are critical enablers of competitiveness, particularly given its ambition to serve as a trusted gateway for high-value, export-oriented sectors such as pharmaceuticals, seafood, and agri-processing. The LEADS 2024 assessment noted that the state currently underperforms in track-and-trace systems and chain-of-custody assurance, which affects reliability scores and shipper confidence (Ministry of Commerce & Industry, 2024).

### Policy Direction in Depth

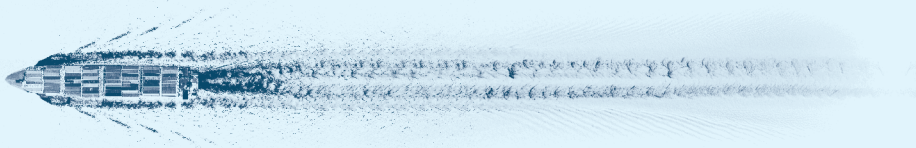
- i. Establishing a state logistics data platform:** The creation of a unified logistics data platform that can interoperate with port systems, customs, and national registries will provide the backbone for digital transparency. Mandating EDI/API integration for licensed terminals, ICDs, and major warehouses will ensure consistency, reduce duplication of documentation, and enable seamless data exchange (Ministry of Commerce & Industry, 2024). Such a platform also creates opportunities for advanced analytics, which can support planning, congestion management, and regulatory oversight (Government of Andhra Pradesh, 2024).
- ii. Enabling real-time monitoring for sensitive cargo:** High-value and time-sensitive commodities such as reefer seafood, vaccines, and pharmaceuticals require robust monitoring and risk protocols. Andhra Pradesh's policy to require real-time location and event data for hazardous, reefer, and high-value cargo is a step towards global best practices in supply chain visibility. Standardising incident reporting and investigation procedures across operators will also strengthen accountability and reduce disruption in export markets (Ministry of Commerce & Industry, 2024).
- iii. Creating data-linked compliance incentives.** Introducing incentives tied to digital compliance—for instance, expedited gate clearance for shipments with end-to-end visibility—will encourage faster adoption across the private sector. This aligns Andhra Pradesh's strategy with the Comprehensive Logistics Action Plan (CLAP) and builds a culture of performance-based regulation (Ministry of Commerce & Industry, 2024).

### Indicative KPIs

Progress in this pillar can be tracked through measurable outcomes, including:

- i. Share of shipments with end-to-end digital visibility (%).
- ii. Safety incidents per million consignments.
- iii. Average time for incident closure (days).
- iv. Coverage of facilities integrated via EDI/API (%).

Publishing these metrics quarterly through the Andhra Pradesh Logistics Corporation (APLC) will reinforce transparency, industry confidence, and accountability (Government of Andhra Pradesh, 2024).





## Sequencing of Actions

**Phase 01: Between 2025 and 2027**, Andhra Pradesh will focus on building the foundations of a robust digital and safety framework. The first priority is to establish a state-level logistics data platform that integrates seamlessly with port systems, customs, and national registries. At this stage, digital compliance will be mandated for hazardous, reefer, and high-value cargo, ensuring real-time monitoring and greater reliability for sensitive shipments. In parallel, a uniform incident reporting and investigation protocol will be operationalised, creating consistency across operators and reducing response times (Ministry of Commerce & Industry, 2024).

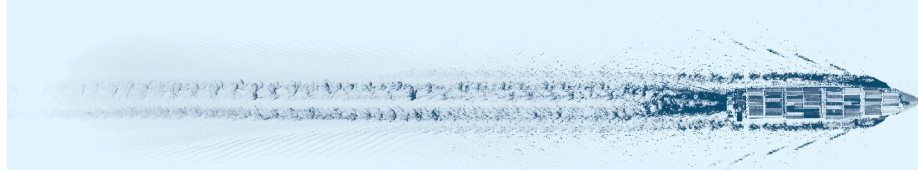
**Phase 02: From 2027 to 2030**, the emphasis will shift from pilots to full-scale adoption. Digital visibility will be extended to general cargo flows, covering the majority of Andhra Pradesh's logistics network. The platform will incorporate advanced analytics, enabling predictive risk management and early identification of disruptions in supply chains. To accelerate adoption, the government will link compliance with service incentives, such as expedited gate clearances and priority handling. Together, these measures will embed digital transparency and safety as defining features of the state's logistics ecosystem, positioning Andhra Pradesh as a leader in smart, reliable, and globally benchmarked logistics (Government of Andhra Pradesh, 2024).

## Strategic Significance

Pillar 2 addresses Andhra Pradesh's underperformance in track-and-trace and cargo safety—two areas critical to building trust with exporters, investors, and logistics operators. By operationalising a state logistics data platform, mandating EDI/API integration across terminals and warehouses, and requiring real-time visibility for high-value, hazardous, and reefer cargo, the state will eliminate information gaps that currently increase costs and erode confidence (Ministry of Commerce & Industry, 2024).

Embedding standardised incident reporting and investigation protocols will professionalise risk management across the logistics chain, reducing delays, safeguarding sensitive cargo, and aligning Andhra Pradesh with global norms for transparency. The introduction of compliance-linked incentives, such as expedited gate clearances for digitally visible shipments, will further accelerate adoption and reinforce accountability (Government of Andhra Pradesh, 2024).

Strategically, this pillar positions Andhra Pradesh as a trusted, technology-driven logistics hub where reliability and safety are assured through digital systems rather than discretionary processes. It strengthens the state's competitiveness in global supply chains, particularly in export-intensive sectors such as pharmaceuticals and seafood, where traceability and safety are non-negotiable. Over time, Pillar 2 will not only lift Andhra Pradesh's performance in LEADS indicators but also differentiate the state as a logistics ecosystem built on transparency, resilience, and confidence (Ministry of Commerce & Industry, 2024; Government of Andhra Pradesh, 2024).







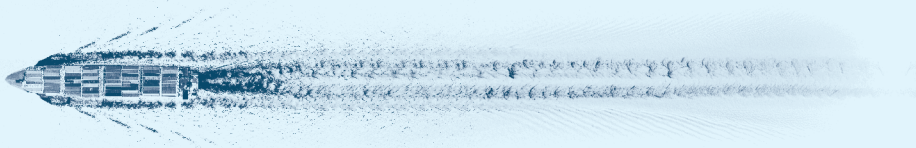
## POLICY TAKEAWAY:

*A unified logistics data platform with mandatory EDI/API integration, real-time monitoring of sensitive cargo, and standardised incident protocols will provide transparency and safety assurance, positioning Andhra Pradesh as a trusted and technology-driven logistics hub*

## Technology and Innovation Ecosystem

The future of logistics competitiveness will be determined not only by physical infrastructure but also by the state's ability to harness technology for efficiency, safety, and resilience. While Andhra Pradesh has taken pioneering steps through initiatives such as Drone City in Kurnool and the Andhra Pradesh Drone Corporation, a broader technology and innovation framework is required to position the state at the frontier of logistics transformation (Government of Andhra Pradesh, 2024).

- i. Digitalisation and Data Integration:** A unified logistics data platform must evolve into an open-architecture ecosystem that enables real-time data exchange across ports, terminals, MMLPs, and last-mile service providers. Leveraging APIs, EDI, and blockchain-enabled registries will reduce transaction costs, eliminate paperwork bottlenecks, and ensure end-to-end visibility. The use of digital twins for ports and corridors will allow predictive modelling of cargo flows, congestion scenarios, and infrastructure stress points, enhancing planning and operational readiness (Ministry of Commerce & Industry, 2024).
- ii. Smart Operations and Predictive Systems:** Artificial intelligence and machine learning should be embedded in logistics operations to improve predictive maintenance of rail lines, port equipment, and reefer facilities. AI-driven analytics can provide early warnings of risks such as equipment failure, reefer malfunction, or route disruptions. Integration of IoT sensors across warehouses and cold-chain networks will allow continuous monitoring of inventory, temperature, and humidity, reducing losses and assuring global buyers of quality standards.
- iii. Next-Generation Mobility Solutions:** Drone corridors for cargo transport, already being piloted in Andhra Pradesh, can be scaled to handle high-value, short-distance consignments such as pharmaceuticals, precision machinery, and seafood. Over time, integration with autonomous trucks, electric fleets, and low-emission barges will create a seamless multimodal ecosystem. These technologies not only reduce costs but also align with global environmental standards and improve operational safety (Government of Andhra Pradesh, 2024).
- iv. Cybersecurity and Trust Frameworks:** As logistics becomes more digitally integrated, ensuring data integrity and security is paramount. Establishing a cybersecurity and data governance framework tailored to logistics will protect sensitive cargo information, financial transactions, and customs data. Trust frameworks based on auditable digital records will also build investor and shipper confidence, particularly for high-value global supply chains.





- v. Innovation Partnerships and R&D:** To sustain innovation, Andhra Pradesh should institutionalise logistics innovation clusters in collaboration with universities, start-ups, and industry leaders. These clusters can pilot emerging technologies such as blockchain-enabled trade documentation, automated warehousing systems, and 5G-enabled smart corridors. Public-private research partnerships will ensure that the state remains aligned with international best practices in ports such as Rotterdam and Singapore (Ministry of Commerce & Industry, 2024).

### Strategic Implications:

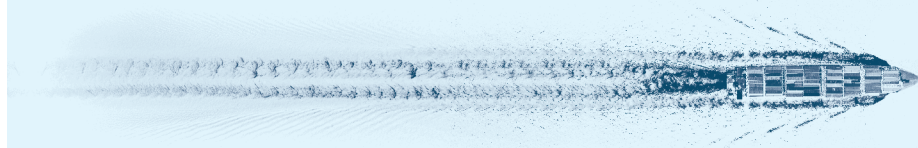
Building a technology and innovation ecosystem will allow Andhra Pradesh to leapfrog traditional bottlenecks and set new benchmarks for logistics competitiveness. By embedding AI, IoT, drones, and digital platforms into its logistics architecture, the state will differentiate itself as a hub of reliable, transparent, and future-ready supply chains. This will not only improve LEADS rankings but also position Andhra Pradesh as a preferred logistics gateway for global investors and ASEAN trade partners (Government of Andhra Pradesh, 2024).

### Pillar 3 Responsive Regulation – Ease of entry, clear contracts, and redressal.

Improving “ease of entry” and instituting a credible grievance pathway are pivotal to investor confidence and service reliability. The LEADS 2024 assessment flagged both issues for Andhra Pradesh, noting weak entry processes and the absence of an effective grievance mechanism that together depress regulatory quality (Ministry of Commerce & Industry, 2024). Your pillar rightly focuses on three levers: a sector-specific single window with statutory SLAs; an independent grievance redressal function with time-bound resolution and transparent dashboards; and standardised model contracts to reduce ambiguity and disputes.

### Implementation design (what “good” looks like)

- i. Single window with statutory service levels:** Codify a logistics-specific single window that covers licensing, wayleaves and right-of-way permissions with published, statutory SLAs. Making SLAs legally enforceable (with escalation paths) converts process certainty into an investable signal for operators and lenders (Government of Andhra Pradesh, 2024).
- ii. Independent grievance redressal with quarterly transparency:** Stand up an arm’s-length redressal unit with binding timelines and quarterly public dashboards. The visibility of resolution rates and time-to-close will directly improve perceived regulatory credibility and address a specific LEADS shortcoming (Ministry of Commerce & Industry, 2024).
- iii. Model contracts to reduce friction:** Adopt standardised templates for warehousing, drayage, and terminal services to lower negotiation costs and decrease the share of disputes that escalate to adjudication (Ministry of Commerce & Industry, 2024).







**iv. Institutional anchor and accountability:** House the single window, dashboards, and grievance function within (or tightly coupled to) the AP Logistics Corporation (APLC), leveraging its mandate for multi-agency coordination, data integration, and performance monitoring. APLC's governance model (multi-stakeholder board, public dashboards, independent audits, linkages to GatiShakti, and direct reporting to the CMO) provides the right scaffolding for credibility and follow-through (Government of Andhra Pradesh, 2024).

## KPIs and assurance (what to measure and publish)

- i. Track and publish, at a minimum:
- ii. average licensing/permit time (days);
- iii. share of grievances resolved within 30 days (%);
- iv. new-operator entry time (days); and
- v. contract disputes reaching adjudication (%)

These KPIs are already enumerated in your draft and should appear on a quarterly public dashboard to reinforce accountability.

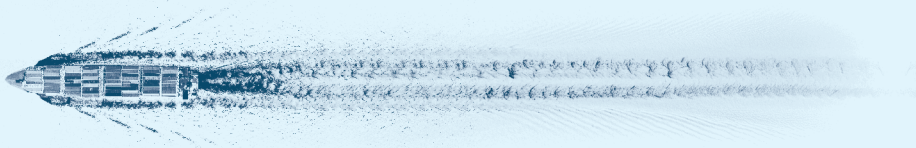
## Practical operating model

**Three-tier resolution:** A structured grievance mechanism should operate across three levels. At the first stage, operators are expected to resolve cases within seven days to ensure quick redress at source. Matters that remain unsettled will move to an independent logistics ombuds function with a maximum thirty-day resolution period. Disputes of a complex or high-value nature will be addressed by a sector-level appellate channel, with turnaround times formally published to maintain transparency and confidence.

**Data backbone:** All cases processed through the single-window system should feed directly into the performance dashboard of the Andhra Pradesh Logistics Corporation. This will make it possible to track delays by department, corridor, or permit type, and allow for targeted corrective action. By linking regulatory processes with the state's wider data ecosystem, accountability is reinforced and the efficiency of decision-making improved.

**Incentives and discipline:** A balance of positive reinforcement and corrective action is needed to strengthen credibility. Operators with a record of strong compliance should be granted expedited processing, while agencies or licensees with repeated breaches of service standards should face proportionate and clearly communicated penalties. This approach provides assurance to investors and sets a consistent expectation across the sector.

**Contract certainty:** Standardisation and digital record-keeping of contracts covering warehousing, drayage, and terminal services will reduce ambiguity and lower the risk of disputes. Mandating digital stamping and electronic repositories will shorten processing times, create verifiable records, and improve the overall efficiency of contract enforcement. This provides predictability for operators and enhances investor confidence in the regulatory framework.





## Strategic payoff

Delivering Pillar 3 will shorten entry timelines, lift resolution rates, and reduce dispute escalation, addressing precisely the regulatory credibility gap flagged by LEADS. Coupled with APLC's scorecards and audits, these reforms convert regulatory processes into a competitive advantage for Andhra Pradesh—improving investor sentiment, enabling faster project starts, and reinforcing the state's goal of best-in-India reliability by 2030 (Ministry of Commerce & Industry, 2024; Government of Andhra Pradesh, 2024).

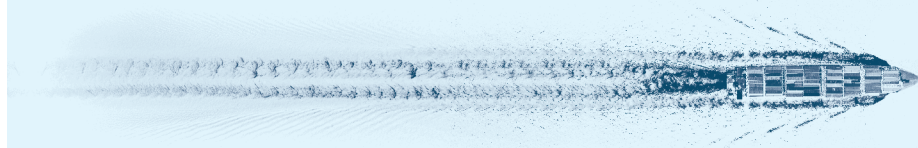
## Sequencing of Actions

In the **first phase (2025–2027)**, Andhra Pradesh will concentrate on establishing the core mechanisms that underpin regulatory credibility. A logistics-specific single-window clearance system with statutory service-level agreements (SLAs) will be made operational, covering licensing, wayleaves, and right-of-way approvals. At the same time, an independent grievance redressal mechanism will be instituted, designed to resolve cases within binding timelines and supported by a transparent escalation process. To reinforce trust and accountability, the state will begin publishing quarterly dashboards detailing approval timelines, resolution rates, and compliance with SLAs. This phase represents a decisive move from fragmented, ad hoc processes to a transparent and rules-based regulatory framework, providing clarity for operators and predictability for investors (Government of Andhra Pradesh, 2024).

In the **second phase (2027–2030)**, the focus will shift to institutionalising enforcement. Independent audits will verify compliance with SLAs, ensuring that statutory commitments are not only announced but consistently delivered. Where delays or non-compliance are identified, proportionate penalties will be applied, establishing accountability for both public agencies and private operators. In parallel, the use of standardised model contracts across warehousing, drayage, and terminal services will be expanded, reducing legal ambiguities and lowering the frequency of disputes. By embedding audit-backed enforcement and transparent penalties, Andhra Pradesh will move from procedural reform to a mature, rules-based regulatory regime that encourages investment, reduces transaction costs, and improves the state's ranking on regulatory responsiveness in national logistics assessments (Ministry of Commerce & Industry, 2024).

## Strategic Significance

Pillar 3 addresses one of the most persistent barriers to logistics competitiveness: regulatory uncertainty. By introducing a single-window system with statutory service-level agreements, Andhra Pradesh will provide operators with predictable timelines for permits and approvals, directly improving the ease of entry for new investments. The establishment of an independent grievance redressal mechanism with binding timelines will further strengthen investor confidence, ensuring that disputes are resolved quickly and transparently rather than escalating into prolonged litigation. Standardising contracts across warehousing, drayage, and terminal services will reduce ambiguity, lower transaction costs, and create a level playing field for operators.







Collectively, these reforms will enhance Andhra Pradesh's reputation as a credible and investment-friendly logistics hub. By embedding transparency, accountability, and contractual certainty into its regulatory framework, the state will not only improve its standing in national assessments such as LEADS but also signal to global investors that Andhra Pradesh offers a stable environment for long-term logistics growth (Ministry of Commerce & Industry, 2024; Government of Andhra Pradesh, 2024).

## POLICY TAKEAWAY:

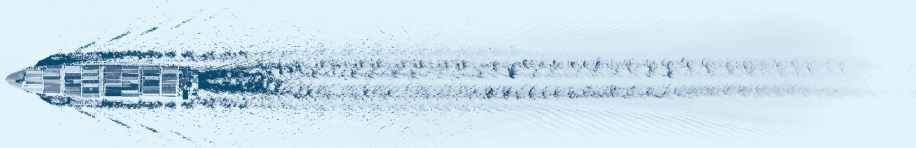
*Codifying statutory SLAs, operationalising an independent grievance redressal mechanism, and expanding the use of model contracts will improve ease of entry, resolve disputes quickly, and establish Andhra Pradesh as a state with regulatory credibility and predictability*

## Pillar 4 Green and Climate-Resilient Logistics – Embedding sustainability in growth.

Andhra Pradesh's long coastline and vulnerability to cyclones, storm surges, and rising temperatures make climate resilience not just a sustainability goal but a systems requirement. Simultaneously, the competitiveness of modern logistics depends increasingly on reducing emissions, lowering energy costs, and maintaining continuity under climate stress. The LEADS 2024 assessment highlights that states which integrate sustainability and resilience into logistics operations are better positioned to attract investment and improve long-term reliability (Ministry of Commerce & Industry, 2024). For Andhra Pradesh, embedding green and climate-resilient practices is therefore central to both cost competitiveness and risk management (Government of Andhra Pradesh, 2024).

### Policy Direction

- i. Green port infrastructure:** The introduction of shore power, electrified yard equipment, and port-level energy efficiency standards will cut operating costs while aligning the state with national decarbonisation policies. Early pilots at Visakhapatnam and Krishnapatnam can demonstrate viability and provide models for replication across the network (Government of Andhra Pradesh, 2024).
- ii. Low-emission drayage corridors:** Designating low-emission corridors around key ports and logistics hubs, coupled with preferential access for compliant fleets, will accelerate the transition to cleaner road transport. Complementary measures, such as financial incentives and charging/refuelling infrastructure, can support fleet conversion and create a visible reduction in gate-level emissions (Ministry of Commerce & Industry, 2024).
- iii. Climate-risk screening and adaptation:** Embedding climate-risk assessments—covering coastal flooding, heat stress, and extreme weather events—into all new port and corridor designs will ensure resilience is planned from the outset. Maintenance protocols should also incorporate resilience standards, supported by periodic stress-tests to identify vulnerabilities and strengthen continuity planning (Government of Andhra Pradesh, 2024).





## Indicative KPIs

Key indicators for monitoring progress include:

- i. Share of port energy sourced from renewables (%).
- ii. Number and proportion of electrified cargo-handling units.
- iii. Share of low-emission drayage trips as a percentage of gate moves.
- iv. Annual hours of unplanned downtime due to climate-related events.

(Government of Andhra Pradesh, 2024; Ministry of Commerce & Industry, 2024)

## Sequencing of Actions

**During the 2025–2027** period, Andhra Pradesh will focus on piloting sustainability initiatives at priority ports. This will include the deployment of shore power systems, electrified yard equipment, and the adoption of port-level energy efficiency standards. In parallel, the state will issue formal climate-risk screening guidelines, making resilience a mandatory consideration in the planning and maintenance of logistics assets (Government of Andhra Pradesh, 2024).

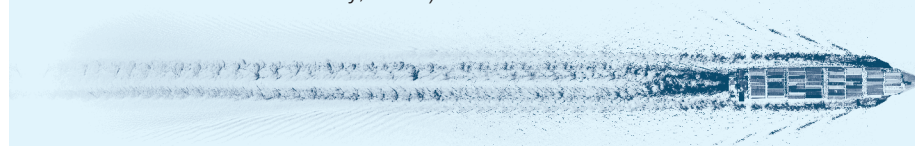
**From 2027 to 2030**, the emphasis will shift to scaling these practices across the wider logistics ecosystem. Low-emission drayage corridors will be extended to additional ports and inland corridors, with compliance supported by incentives and infrastructure. At the same time, periodic climate stress-tests will be introduced to assess vulnerabilities across ports and corridors, ensuring that continuity planning keeps pace with intensifying climate risks (Ministry of Commerce & Industry, 2024).

## Strategic Significance

Pillar 4 underlines that Andhra Pradesh's logistics advantage must be secured through resilience and sustainability. With a long coastline exposed to cyclones, flooding, and heat stress, the state cannot rely on infrastructure alone; it must build systems that ensure continuity under climate pressure. By introducing shore power, electrified cargo-handling equipment, and port-level energy efficiency standards, Andhra Pradesh will reduce operating costs while keeping pace with national and international sustainability benchmarks (Government of Andhra Pradesh, 2024).

The creation of low-emission drayage corridors, combined with incentives for cleaner fleets, will lower gate-level emissions and improve the environmental performance of logistics nodes. Embedding climate-risk screening in the planning and maintenance of ports and corridors will further ensure that investments remain reliable over their full life cycle, with reduced risk of disruption and unplanned downtime (Ministry of Commerce & Industry, 2024).

In strategic terms, these reforms will position Andhra Pradesh as a front-runner in sustainable logistics on India's east coast. They will reinforce the state's competitiveness by lowering long-term costs, ensuring uninterrupted operations, and signalling to investors that Andhra Pradesh is aligning with global standards on resilience and low-carbon growth. This combination of cost efficiency and climate preparedness will strengthen the state's claim to be a benchmark for green and resilient logistics in South Asia (Government of Andhra Pradesh, 2024; Ministry of Commerce & Industry, 2024).







## POLICY TAKEAWAY:

*Introducing shore power, electrified handling equipment, low-emission corridors, and climate-risk screening will reduce costs, improve continuity under climate stress, and set Andhra Pradesh apart as a leader in sustainable and resilient logistics*

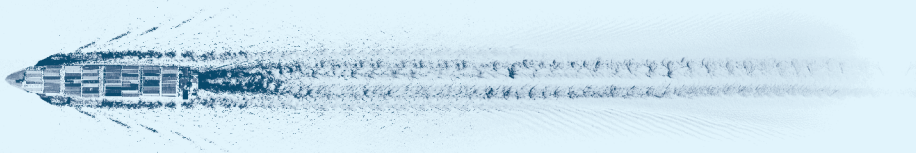
While the adoption of green practices and climate-resilient design is central to Andhra Pradesh's logistics transformation, their success will ultimately depend on the ability to mobilise sustainable finance and embed resilience into project planning. Infrastructure resilience cannot be treated as an add-on cost; it requires structured funding mechanisms, access to green capital, and measurable performance standards. To complement the measures outlined in Pillar 4, the state will therefore establish a Climate Financing and Resilience Framework, ensuring that sustainability is both financially viable and operationally enforceable (Government of Andhra Pradesh, 2024; Ministry of Commerce & Industry, 2024).

## Climate Financing and Resilience

As one of India's most climate-exposed states, Andhra Pradesh faces increasing risks from cyclones, coastal flooding, heat stress, and sea-level rise. These risks threaten the continuity of logistics operations and impose rising costs on infrastructure, insurance, and maintenance. At the same time, global trade and investment decisions are increasingly guided by environmental, social, and governance (ESG) standards and access to green finance. To remain competitive, Andhra Pradesh must not only embed resilience into port and corridor planning but also create a robust framework for climate-aligned financing that mobilises both domestic and international capital (Ministry of Commerce & Industry, 2024).

## Policy Dimensions

- i. Mainstreaming Climate Risk into Infrastructure Planning:** All new ports, logistics corridors, and multimodal hubs should undergo mandatory climate-risk screening to assess exposure to coastal flooding, heat stress, and extreme weather. Design standards must reflect resilience benchmarks, such as elevated port yards, reinforced breakwaters, and heat-resistant materials. Embedding these standards at the planning stage reduces future costs of retrofitting and protects long-term asset viability (Government of Andhra Pradesh, 2024).
- ii. Mobilising Climate Finance Instruments:** To fund resilience measures, Andhra Pradesh can leverage a mix of instruments:
  - a. Green Bonds:** Issued by the state or APLC to fund electrified port equipment, renewable-powered logistics parks, and low-emission corridors.





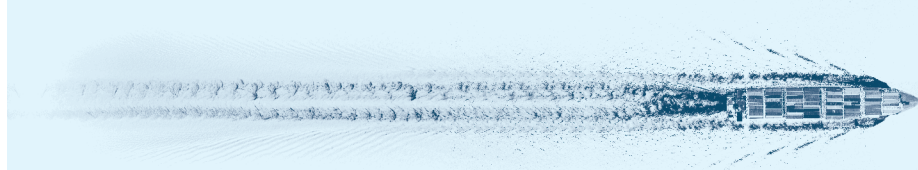
- b. **Blended Finance:** Partnerships combining public capital with concessional financing from multilateral banks (e.g., World Bank, ADB) to de-risk private investments in resilience projects.
  - c. **Carbon Credits and Offsetting Mechanisms:** Port electrification and renewable energy integration can generate credits tradable under voluntary or compliance carbon markets.
  - d. **Viability Gap Funding (VGF):** Targeted support for private operators to adopt climate-resilient technologies where commercial viability is initially weak.
- iii. Accessing Multilateral and Climate Funds:** Andhra Pradesh can directly align with financing windows such as the Green Climate Fund (GCF), the Global Infrastructure Facility, and the Asian Infrastructure Investment Bank's climate portfolio. Positioning logistics projects as part of India's nationally determined contributions (NDCs) under the Paris Agreement strengthens eligibility for concessional loans and grants.
- iv. Building Institutional Capacity for Climate Finance:** A Climate and Resilience Cell within the Andhra Pradesh Logistics Corporation (APLC) should be established to prepare bankable projects, manage carbon accounting, and coordinate applications to climate funds. This unit can also standardise methodologies for calculating emissions savings and resilience benefits, ensuring projects meet global investor requirements.

## Strategic Significance

Developing a climate financing and resilience framework has three clear implications:

- i. **Risk Reduction:** By embedding resilience standards in ports and corridors, Andhra Pradesh reduces the risk of costly service disruptions, protecting both domestic supply chains and export competitiveness.
- ii. **Investment Attraction:** Accessing green and climate-linked finance widens the pool of international investors, particularly ESG-focused funds, and reduces the cost of capital for large-scale infrastructure.
- iii. **Policy Alignment:** By aligning state-level projects with India's NDCs and global climate commitments, Andhra Pradesh positions itself as a forward-looking state capable of balancing growth with sustainability (Ministry of Commerce & Industry, 2024; Government of Andhra Pradesh, 2024).

In sum, climate financing and resilience are not peripheral to Andhra Pradesh's logistics strategy but core enablers of competitiveness. By securing financing for low-emission and climate-ready infrastructure, the state can simultaneously lower long-term logistics costs, safeguard operations against extreme events, and align with international standards of sustainable trade.







## Indicative KPIs for Climate Financing and Resilience

Dimension	KPI	Baseline (2024)	Target (FY2027)	Target (FY2030)
Climate Risk Integration	Share of new port/corridor projects with climate-risk screening (%)	<10%	100% of all new DPRs screened	Screening extended to major maintenance/upgrades
Green Finance Mobilisation	Value of funds raised through green bonds / blended finance (INR crore)	0	≥2,500	≥7,500
Carbon Reduction Incentives	Annual carbon credits generated from logistics projects (tonnes CO <sub>2</sub> e)	Negligible	≥0.5 million	≥2 million
Renewable Energy Adoption	Share of port energy consumption from renewable sources (%)	~5%	≥25%	≥50%
Electrification of Operations	Electrified port handling units and yard equipment (%)	<5%	≥30%	≥60%
Climate Resilience Outcomes	Average unplanned downtime due to climate-related disruptions (hours/year)	>200	≤120	≤60
Institutional Capacity	Establishment and operationalisation of Climate & Resilience Cell in APLC	Not present	Fully functional by FY2026	Continuous annual reporting and audits

## Monitoring Approach

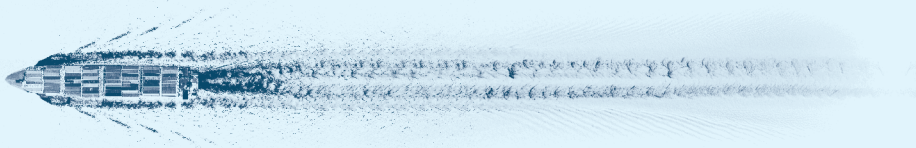
- Quarterly reporting via APLC's Logistics Performance Unit on progress in green bonds, renewable integration, and resilience audits.
- Annual independent review of resilience measures, focusing on whether ports and corridors meet climate-readiness standards.
- Carbon accounting system integrated with national registries to capture credits and offset data.

## Strategic Value

This KPI framework ensures that climate resilience is treated not as a narrative add-on but as a quantifiable and financeable component of the logistics strategy. It links Andhra Pradesh's sustainability goals to measurable performance, giving confidence to both policymakers and investors (Government of Andhra Pradesh, 2024; Ministry of Commerce & Industry, 2024).

## POLICY TAKEAWAY:

*By embedding climate-risk screening in all new logistics projects and mobilising green finance through bonds, blended instruments, and carbon credits, Andhra Pradesh can safeguard its infrastructure, reduce disruptions, and attract ESG-focused investment. Climate resilience is thus positioned as a core enabler of competitiveness, not a peripheral agenda*





## Pillar 5 Human Capital and Operational Capability – Skills for a modern logistics workforce.

The logistics sector is ultimately only as strong as its workforce. Operator surveys captured in LEADS 2024 consistently highlight shortages of trained drivers, warehouse operators, and port workers as a critical bottleneck. These gaps reduce asset utilisation, compromise safety, and limit the effectiveness of infrastructure investments (Ministry of Commerce & Industry, 2024). Addressing human capital constraints is therefore essential to unlock the full value of Andhra Pradesh's logistics endowments.

### Policy Direction in Depth

- i. Establishing a Logistics Skills Academy:** The state will establish a Logistics Skills Academy, drawing on existing institutional capacity such as the Andhra Pradesh State Skill Development Corporation (APSSDC) and Industrial Training Institutes. The academy will deliver modular curricula in driving, terminal operations, inventory control, cold-chain management, and environment, health and safety (EHS), with strong alignment to industry needs (Government of Andhra Pradesh, 2024).
- ii. Linking apprenticeships to MMLPs and ports:** Apprenticeship programmes tied directly to operational sites such as multi-modal logistics parks (MMLPs) and port operators will ensure that training is practical and demand-driven. The use of outcome-based funding will incentivise institutions to focus on placement and retention rather than enrolment alone (Ministry of Commerce & Industry, 2024).
- iii. Introducing operator certification:** Competency certification will be linked to licensing and renewals for critical operational roles. This step will raise baseline standards across driving, warehousing, and port operations, improving both safety and efficiency. Over time, a certification framework will create a professionalised workforce, giving Andhra Pradesh a clear competitive edge in operational quality (Government of Andhra Pradesh, 2024).

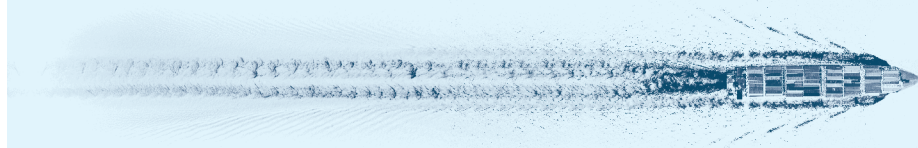
### Indicative KPIs

The progress of this pillar can be measured through:

- i. Number of trainees certified and placed.
  - ii. Retention rates at 12 months (%).
  - iii. Lost-time incident rates per million work hours.
  - iv. Vacancy rates at priority nodes (%).
- (Ministry of Commerce & Industry, 2024)

### Sequencing of Actions

**Between 2025 and 2027,** the Logistics Skills Academy will be launched and the first set of modular curricula rolled out. Apprenticeship pipelines will be initiated, anchored to MMLPs and ports, ensuring early cohorts of trainees are embedded directly within the state's logistics infrastructure. This phase will focus on building institutional credibility and demonstrating clear placement outcomes (Government of Andhra Pradesh, 2024).







**From 2027 to 2030**, the focus will shift to institutionalisation and quality assurance. Operator certification will be formally embedded into the licensing and renewal process for critical logistics roles, raising the professional baseline across the sector. Periodic skills audits will be introduced to measure training effectiveness, identify gaps, and adjust curricula accordingly. By this stage, the system will be capable of consistently producing a skilled workforce that meets the demands of a rapidly expanding logistics ecosystem (Ministry of Commerce & Industry, 2024).

## Strategic Significance

Pillar 5 recognises that infrastructure and systems are effective only when supported by a skilled and reliable workforce. Andhra Pradesh's logistics sector currently faces shortages of trained drivers, warehouse operators, and port workers, which constrain asset utilisation and raise safety risks (Ministry of Commerce & Industry, 2024). By establishing a Logistics Skills Academy, standardising modular curricula, and linking apprenticeships to MMLPs and port operations, the state can create a steady pipeline of trained personnel aligned with industry needs (Government of Andhra Pradesh, 2024).

Embedding certification into the licensing and renewal process will raise baseline competence and professionalise logistics occupations across the state. Regular skills audits will ensure training quality remains high and responsive to emerging technologies in warehousing, cold-chain management, and safety standards. These measures will reduce lost-time incidents, lower vacancy rates, and improve productivity at critical logistics nodes (Ministry of Commerce & Industry, 2024).

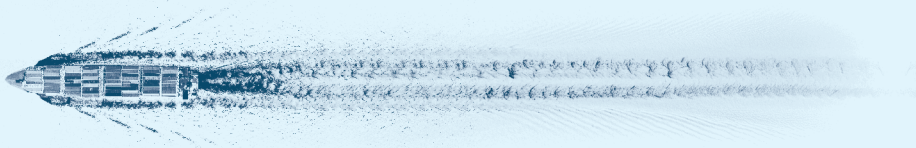
Strategically, this pillar will allow Andhra Pradesh to leverage human capital as a competitive advantage. A professionalised workforce will not only enhance safety and operational efficiency but also assure investors and exporters of consistent service quality. Over time, the state will distinguish itself as a logistics hub that combines infrastructure with globally benchmarked workforce standards, strengthening its long-term position in regional and international supply chains (Government of Andhra Pradesh, 2024; Ministry of Commerce & Industry, 2024).

## POLICY TAKEAWAY:

*A Logistics Skills Academy, apprenticeship pipelines linked to MMLPs and ports, and certification tied to licensing will close workforce gaps, improve safety, and create a globally competitive talent base to support Andhra Pradesh's logistics growth*

## Gender and Inclusion in Logistics

The logistics sector has historically been male-dominated, with women and small operators (particularly MSMEs) underrepresented in critical roles such as driving, warehousing, and freight forwarding. This limits not only the inclusiveness of growth but also the sector's ability to address chronic workforce shortages. Global experience shows that gender inclusion and MSME integration can expand the talent pool, raise service quality, and improve resilience of supply chains (Ministry





of Commerce & Industry, 2024). For Andhra Pradesh, embedding gender and inclusion into the logistics strategy aligns with both the state's development agenda and India's national policy commitments on inclusive growth.

## POLICY DIMENSIONS

### Workforce Inclusion of Women.

- i. Introduce women-focused training modules within the Logistics Skills Academy, covering driving, cold-chain management, inventory control, and EHS standards.
- ii. Establish safe transport and workplace infrastructure (e.g., dedicated facilities, flexible shifts, secure accommodation near logistics hubs) to improve retention.
- iii. Tie apprenticeship and certification programmes to gender participation quotas, ensuring at least 20–30% of trainees in select programmes are women by 2030 (Government of Andhra Pradesh, 2024).

### MSME Integration.

- i. Create preferential access schemes for MSMEs to participate in warehousing, last-mile delivery, and value-added services in logistics parks.
- ii. Provide capacity-building support (digital literacy, safety standards, financial access) to enable MSMEs to meet compliance requirements and participate in state tenders.
- iii. Encourage cluster-based participation of women-led enterprises in areas such as cold-chain logistics, packaging, and agri-processing.

### Inclusive Infrastructure Design.

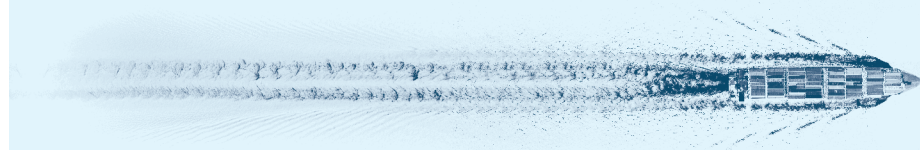
- i. Mandate universal design standards in logistics facilities (ports, MMLPs, ICDs) to ensure accessibility for all workers.
- ii. Introduce gender-sensitive safety protocols in ports and warehouses, including grievance mechanisms and monitoring.

### Policy Incentives.

- i. Offer incentives for operators employing women or contracting MSMEs, such as concessional land/lease rates or priority access to state-supported schemes.
- ii. Align inclusion incentives with national-level programmes such as Stand-Up India, Mudra, and Skill India to leverage central support.

### Indicative KPIs

- i. Share of women in certified logistics workforce (%).
- ii. Share of MSMEs participating in logistics tenders/contracts (%).
- iii. Retention rate of women employees at 12 months (%).
- iv. Share of logistics facilities with gender-sensitive safety infrastructure (%).







## Strategic Significance

Embedding gender and inclusion within Andhra Pradesh's logistics strategy provides three policy advantages:

- i. **Workforce Expansion:** By tapping underrepresented groups, the state can reduce shortages of drivers, warehouse operators, and port workers, directly supporting operational capability.
- ii. **Equitable Growth:** Ensuring that women and MSMEs benefit from logistics expansion strengthens the social legitimacy of reforms and aligns logistics with broader state development goals.
- iii. **Global Credibility:** Inclusive logistics frameworks resonate with international ESG standards and investor expectations, making Andhra Pradesh more attractive for ESG-driven capital.

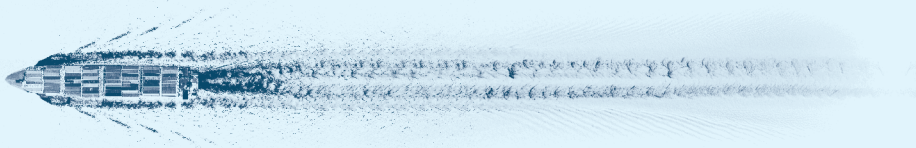
Thus, gender and inclusion are not peripheral concerns but core enablers of a sustainable, socially legitimate, and future-ready logistics system.

## Pillar 6 Coordination, Data, and Performance – Driving accountability with evidence.

Strong infrastructure and regulatory frameworks require an equally strong system of coordination and performance oversight. The LEADS 2024 assessment observed that fragmented execution and weak data-sharing across departments often slow the delivery of high-impact links in Andhra Pradesh. This fragmentation results in delays, inconsistent service standards, and difficulty in tracking accountability (Ministry of Commerce & Industry, 2024). Establishing a unified approach to data integration and performance management is therefore essential to translate the state's logistics ambitions into measurable outcomes.

### Policy Direction in Depth

- i. **State logistics performance unit:** The creation of a dedicated performance unit within the Andhra Pradesh Logistics Corporation (APLC) will provide the institutional backbone for coordination. This unit will be responsible for integrating GatiShakti data layers, tracking SLA compliance across line departments, and identifying bottlenecks in project execution. A single platform for data and monitoring will ensure that delays are visible in real time and corrective action can be taken promptly (Ministry of Commerce & Industry, 2024).
- ii. **Quarterly performance scorecards:** Publishing quarterly performance scorecards on nodes, corridors, and services will create transparency and reinforce accountability. These scorecards will track metrics such as project progress, corridor reliability, and SLA compliance. By making this information public, Andhra Pradesh can set itself apart as a state that measures, discloses, and actively manages its logistics performance (Government of Andhra Pradesh, 2024).
- iii. **Annual independent reviews:** An annual independent review of corridor and node performance will provide an objective assessment of outcomes and allow for recalibration of priorities. Such reviews will not only validate internal performance reporting but also build confidence among investors, industry partners, and national agencies that Andhra Pradesh is serious about evidence-based governance (Ministry of Commerce & Industry, 2024).





## Indicative KPIs

Progress in this pillar should be tracked through:

- i. Percentage of projects delivered on schedule.
- ii. SLA compliance rates across departments.
- iii. Corridor reliability measured by on-time delivery (%).
- iv. Timeliness of public release of performance scorecards (days).

## Sequencing of Actions

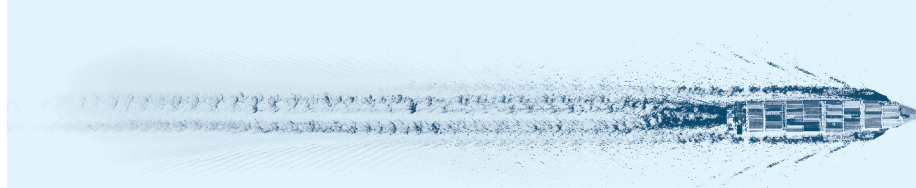
**Between 2025 and 2027**, Andhra Pradesh will establish the institutional and digital foundations for coordinated performance management. A state logistics performance unit will be constituted within the Andhra Pradesh Logistics Corporation to integrate GatiShakti data layers, monitor SLA compliance across departments, and coordinate project delivery. During this period, the first quarterly performance scorecards will be published, covering priority corridors, ports, and logistics nodes. These scorecards will provide transparency on project timelines, corridor reliability, and service performance, marking the state's shift from fragmented oversight to a unified, data-driven approach (Ministry of Commerce & Industry, 2024; Government of Andhra Pradesh, 2024).

**From 2027 to 2030**, the focus will move towards consolidation and continuous improvement. The quarterly scorecards will be expanded in scope to cover all major nodes and corridors, while annual independent reviews will be institutionalised to validate performance outcomes and recalibrate priorities. These reviews will provide objective assessments of delivery against targets, strengthen accountability, and identify systemic issues requiring course correction. Over time, this approach will transform logistics governance into a performance-led system, where planning, execution, and monitoring are seamlessly linked through data and regular feedback (Ministry of Commerce & Industry, 2024).

## Strategic Significance

Pillar 6 addresses one of the most important enablers of logistics reform: coordination across agencies and accountability in delivery. Andhra Pradesh's logistics system has been slowed in the past by fragmented project execution and limited data-sharing, which have created bottlenecks in high-impact corridors and ports (Ministry of Commerce & Industry, 2024). By establishing a state logistics performance unit under the Andhra Pradesh Logistics Corporation, integrating GatiShakti data layers, and monitoring service-level compliance across departments, the state will replace fragmented oversight with a single, performance-driven framework (Government of Andhra Pradesh, 2024).

The publication of quarterly scorecards on projects, corridors, and service performance will reinforce transparency and ensure that operators, investors, and citizens can track progress. Annual independent reviews will add credibility, providing external validation of achievements and informing adjustments to state priorities. Together, these measures will embed a culture of evidence-based decision-making and continuous improvement (Ministry of Commerce & Industry, 2024).







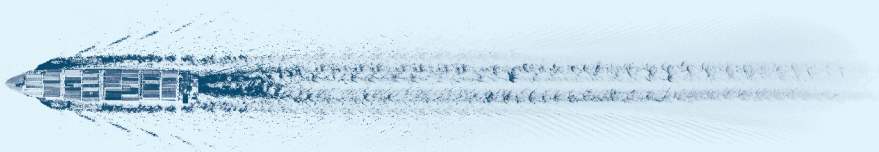
Strategically, this pillar ensures that Andhra Pradesh's logistics reforms move from policy design to measurable results. By integrating data, enforcing accountability, and aligning departmental efforts, the state will strengthen its ability to deliver projects on time, improve corridor reliability, and build investor confidence. In the long term, this approach will position Andhra Pradesh as a state where logistics governance is coordinated, transparent, and performance-led, securing its ambition to become South Asia's logistics capital by 2047 (Government of Andhra Pradesh, 2024).

## POLICY TAKEAWAY:

*A dedicated performance unit, quarterly scorecards, and annual independent reviews will integrate data, enforce accountability, and provide execution discipline, ensuring that logistics reforms move from plans to measurable delivery*

## How the Pillars Close the LEADS Gap

Pillar	Focus Area	How It Closes the LEADS Gap
Pillar 1 — Rail-Led Multimodal Integration	Rail adequacy and terminal efficiency	Expands rail share, improves terminal performance, and reduces over-reliance on road freight.
Pillar 2 — Digital & Safety Backbone	Track-and-trace, cargo safety, transparency	Provides end-to-end digital visibility, strengthens chain-of-custody, and standardises safety protocols.
Pillar 3 — Responsive Regulation & Grievance Redressal	Ease of entry, dispute resolution	Introduces single-window SLAs, grievance mechanisms, and standard contracts, enhancing investor confidence.
Pillar 4 — Green and Climate-Resilient Logistics	Sustainability, continuity under climate stress	Embeds low-emission operations and climate-risk screening to maintain reliability and cost competitiveness.
Pillar 5 — Human Capital & Operational Capability	Skilled workforce, safety, and productivity	Expands certified training, apprenticeships, and operator licensing to strengthen workforce quality.
Pillar 6 — Coordination, Data, and Performance Management	Execution discipline, inter-agency coordination	Uses integrated data, quarterly scorecards, and audits to track delivery and enforce SLA compliance.







# 9

## FINANCING THE TRANSFORMATION: INVESTMENT PATHWAYS FOR AP LOGISTICS

Andhra Pradesh's logistics transformation will require sustained and large-scale investment in rail connectors, multimodal logistics parks, port modernisation, green infrastructure, and digital systems. While public funding and central schemes (e.g., Sagarmala, PM GatiShakti) will provide an important base, the scale of ambition—particularly achieving global standards of efficiency and resilience—necessitates a diverse financing framework that can mobilise private, institutional, and climate-linked capital. A well-structured investment framework ensures reforms remain fiscally viable and attractive to global investors (Ministry of Commerce & Industry, 2024).







## Policy Dimensions

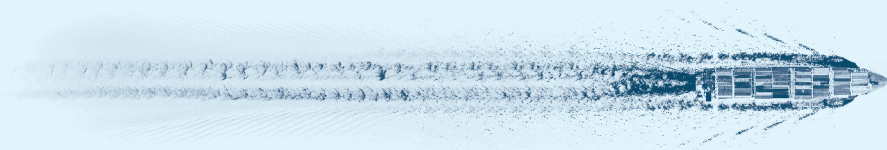
- i. **Public Investment as Anchor:** The state budget and central schemes will continue to anchor priority connectors, rail corridors, and port access works. Budgetary allocations must prioritise high-impact bottlenecks where private capital is unlikely to flow immediately, such as last-mile connectors and climate-proofing of vulnerable assets (Government of Andhra Pradesh, 2024).
- ii. **PPP Models for Terminals and MMLPs:** Public–Private Partnerships (PPPs) should be the primary mechanism for rail terminals, ICDs, and MMLPs, where revenue models are viable through freight charges, warehousing, and value-added services. Standardised concession frameworks and transparent bidding can reduce investor uncertainty and accelerate participation.
- iii. **Green and Thematic Bonds:** Issuing green bonds or logistics-linked thematic bonds through the Andhra Pradesh Logistics Corporation (APLC) can mobilise international ESG capital for projects such as renewable-powered logistics parks, shore power facilities, and electrified cargo-handling equipment. Global investors increasingly seek sustainable infrastructure portfolios, making this a strategic channel (Ministry of Commerce & Industry, 2024).
- iv. **Blended Finance and Viability Gap Funding:** For projects with high social or climate value but weak initial commercial returns (e.g., low-emission drayage corridors, cold-chain networks in underserved districts), the state can deploy blended finance—combining concessional multilateral funds with private investment. Viability Gap Funding (VGF) should be used selectively to de-risk pioneering projects and accelerate adoption.
- v. **Multilateral and Bilateral Partnerships:** Engagement with the World Bank, Asian Development Bank, Asian Infrastructure Investment Bank, and bilateral partners (Japan, EU, USA) can unlock concessional loans and technical support. These partnerships also reinforce Andhra Pradesh's credibility in global supply chain integration and align logistics investment with broader Indo-Pacific connectivity frameworks.
- vi. **Institutional Anchoring:** The financing architecture should be anchored in the APLC Investment Facilitation Cell, responsible for preparing bankable projects, structuring PPP agreements, and liaising with investors. This unit should work closely with the proposed Climate and Resilience Cell to align financing with green standards and carbon-credit opportunities.

## Strategic Significance

A diversified financing and investment framework offers three major policy advantages:

- i. **Sustainability:** Reduces reliance on public budgets by leveraging private and global capital, ensuring reforms are financially viable.
- ii. **Competitiveness:** Access to ESG funds and thematic bonds positions Andhra Pradesh as an investment-ready logistics hub, aligned with global capital flows.
- iii. **Credibility:** Transparent PPP frameworks, blended finance models, and partnerships with multilateral institutions will reinforce Andhra Pradesh's reputation as a state capable of delivering complex infrastructure at global standards (Government of Andhra Pradesh, 2024; Ministry of Commerce & Industry, 2024).

In short, a structured financing and investment framework ensures that Andhra Pradesh's logistics transformation is not just ambitious in design but also bankable, investable, and fiscally resilient.



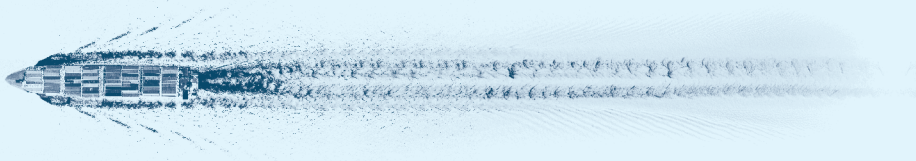




## Indicative KPIs for Financing and Investment

(approximate values)

Dimension	KPI	Baseline (2024)	Target FY2027	Target FY2030
Public Investment	Share of state logistics budget allocated to priority connectors (%)	Limited	≥30%	Sustained ≥30%
PPP Mobilisation	% of MMLPs/rail terminals developed under PPP	<10%	≥40%	≥70%
Bond Market Access	Value of logistics-linked green/thematic bonds issued (INR crore)	0	≥1,500	≥5,000
Blended Finance	Number of projects supported by blended finance / VGF	0	≥3	≥10
Multilateral/ Bilateral Partnerships	Value of loans/grants leveraged from multilaterals (INR crore)	Negligible	≥2,000	≥6,000
Climate-linked Financing	Share of climate-resilient/green projects funded via ESG or climate funds (%)	0	≥20%	≥40%
Institutional Capacity	Establishment of APLC Investment Facilitation Cell	Not present	Fully functional by FY2026	Continuous project pipeline by FY2030



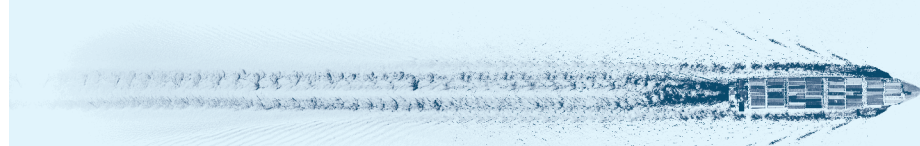


## Monitoring Approach

- i. Quarterly reporting on PPP progress and bond issuances through the APLC dashboard.
- ii. Annual financing review to track public vs private capital mix.
- iii. Integration of green finance and climate-linked projects into the broader Logistics Performance Scorecards.

## Strategic Value

Tracking financing KPIs ensures that Andhra Pradesh's logistics transformation remains bankable, fiscally sustainable, and attractive to private investors and multilateral partners. It also creates transparency around the capital mix, reducing risks of underfunded commitments





# 10

## MEASURING IMPACT: MONITORING AND EVALUATION ARCHITECTURE







## Rationale and Objective

Large-scale logistics reforms require a strong monitoring and evaluation framework to ensure that policy commitments translate into measurable outcomes. Andhra Pradesh has set ambitious targets for reducing logistics costs, improving multimodal integration, and building climate resilience. Without systematic M&E, reforms risk slipping into fragmented implementation and underreporting. A well-structured M&E architecture provides transparency, accountability, and adaptive learning, ensuring that reforms remain on track and responsive to changing conditions (Ministry of Commerce & Industry, 2024).

## Policy Dimensions

**i. KPI–Target Matrix:** Each pillar should be linked to a clear KPI framework covering baselines, annual targets, and long-term milestones. For example:

- i. Rail share of port-hinterland freight (Pillar 1).
- ii. Share of shipments with end-to-end digital visibility (Pillar 2).
- iii. Average licensing/permit processing time (Pillar 3).
- iv. Share of renewable energy in port operations (Pillar 4).
- v. Number of certified trainees placed in logistics jobs (Pillar 5).
- vi. Corridor reliability measured by on-time delivery (Pillar 6).

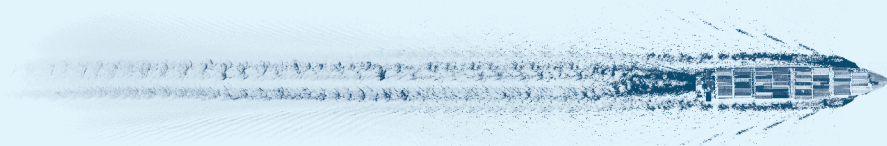
A consolidated KPI–target matrix will allow policymakers to monitor reforms at a glance, linking progress directly to LEADS indicators and Vision 2047 goals (Government of Andhra Pradesh, 2024).

**ii. Quarterly Dashboards:** A State Logistics Dashboard should be published every quarter by the Andhra Pradesh Logistics Corporation (APLC), covering corridor performance, SLA compliance, grievance redressal, and digital adoption. Public disclosure of this data will reinforce accountability and build confidence among investors and operators.

**iii. Annual Independent Reviews:** Independent performance reviews—conducted by academic institutions, think tanks, or multilateral partners—should validate state-reported outcomes. These reviews will provide objectivity, identify systemic bottlenecks, and recommend course corrections. By institutionalising this practice, Andhra Pradesh can demonstrate commitment to evidence-based governance (Ministry of Commerce & Industry, 2024).

**iv. Feedback and Adaptive Policy:** An M&E system must be more than a reporting exercise; it should provide structured feedback to policymakers. Data from dashboards and independent reviews should feed into annual policy recalibration exercises, allowing the state to adjust priorities based on performance gaps, market shifts, or emerging risks.

**v. Institutional Anchoring:** The M&E architecture should be anchored in the State Logistics Performance Unit within APLC, ensuring consistency across departments. The unit should integrate GatiShakti data layers, grievance records, climate financing metrics, and workforce certification data into a single monitoring system.





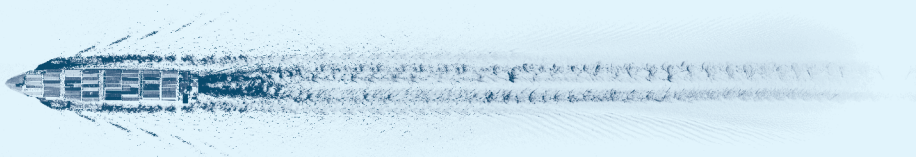


## Strategic Significance

A robust M&E framework ensures that Andhra Pradesh's logistics reforms are not just well-designed but credibly implemented and transparently monitored. By combining KPI-linked dashboards, independent reviews, and adaptive recalibration, the state can create a governance system that is both accountable and flexible. Strategically, this will enhance Andhra Pradesh's credibility with investors, improve its standing in national performance assessments, and ensure steady progress toward the long-term goal of becoming South Asia's logistics capital by 2047 (Government of Andhra Pradesh, 2024; Ministry of Commerce & Industry, 2024).

## KPI–Target Matrix for Andhra Pradesh Logistics Strategy

Pillar / Enabler	Key Performance Indicators (KPIs)	Baseline (2024)	Target FY2027	Target FY2030
Pillar 1 — Rail-Led Multimodal Integration	Rail share of port-hinterland freight (%)	~15%	≥25%	≥35%
Average door-to-port transit time (hours)	18–20	≤14	≤10	
Port gate dwell time (hours)	8–10	≤6	≤4	
Pillar 2 — Digital & Safety Backbone	Shipments with end-to-end digital visibility (%)	<10%	≥40%	≥70%
Safety incidents per million consignments	High variance	□ by 30%	□ by 60%	
Average incident closure time (days)	>30	≤15	≤7	
Pillar 3 — Responsive Regulation & Grievance Redressal	Average licensing/permit time (days)	60–90	≤30	≤15
Share of grievances resolved within 30 days (%)	<20%	≥70%	≥90%	
Contract disputes reaching adjudication (%)	High variance	≤10%	≤5%	
Pillar 4 — Green and Climate-Resilient Logistics	Share of port energy from renewables (%)	~5%	≥25%	≥50%
Electrified cargo-handling units (%)	<5%	≥30%	≥60%	

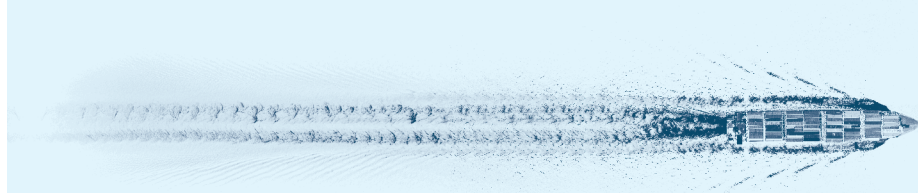




Pillar / Enabler	Key Performance Indicators (KPIs)	Baseline (2024)	Target FY2027	Target FY2030
Unplanned climate-related downtime (hours/year)	> 200	≤ 120	≤ 60	
Pillar 5 — Human Capital & Operational Capability	Certified trainees placed in logistics jobs (number)	Minimal	≥ 20,000	≥ 50,000
Retention rate at 12 months (%)	Low baseline	≥ 65%	≥ 80%	
Lost-time incident rate (per million hours)	High	□ by 30%	□ by 60%	
Pillar 6 — Coordination, Data & Performance Management	Projects delivered on schedule (%)	< 50%	≥ 75%	≥ 90%
SLA compliance across departments (%)	< 40%	≥ 70%	≥ 85%	
Corridor reliability (on-time delivery, %)	< 60%	≥ 80%	≥ 90%	
Enabler — Climate Financing & Resilience	Value of funds mobilised through green finance (INR crore)	0	≥ 2,500	≥ 7,500
Annual carbon credits generated (tonnes CO <sub>2</sub> e)	Negligible	≥ 0.5 mn	≥ 2 mn	
Enabler — Monitoring & Evaluation	Timeliness of quarterly scorecards (days)	Not published	≤ 30 days after quarter	≤ 15 days after quarter
Independent annual reviews conducted (Yes/No)	No	Yes (annual)	Yes (institutionalised)	

## How to Use This Matrix

- Forms the basis of the State Logistics Dashboard published quarterly by APLC.
- Ensures pillar-wise accountability while also tracking enablers (finance + M&E).
- Creates a clear line of sight from short-term actions (2027) to medium-term outcomes (2030), aligned with Vision 2047 milestones.

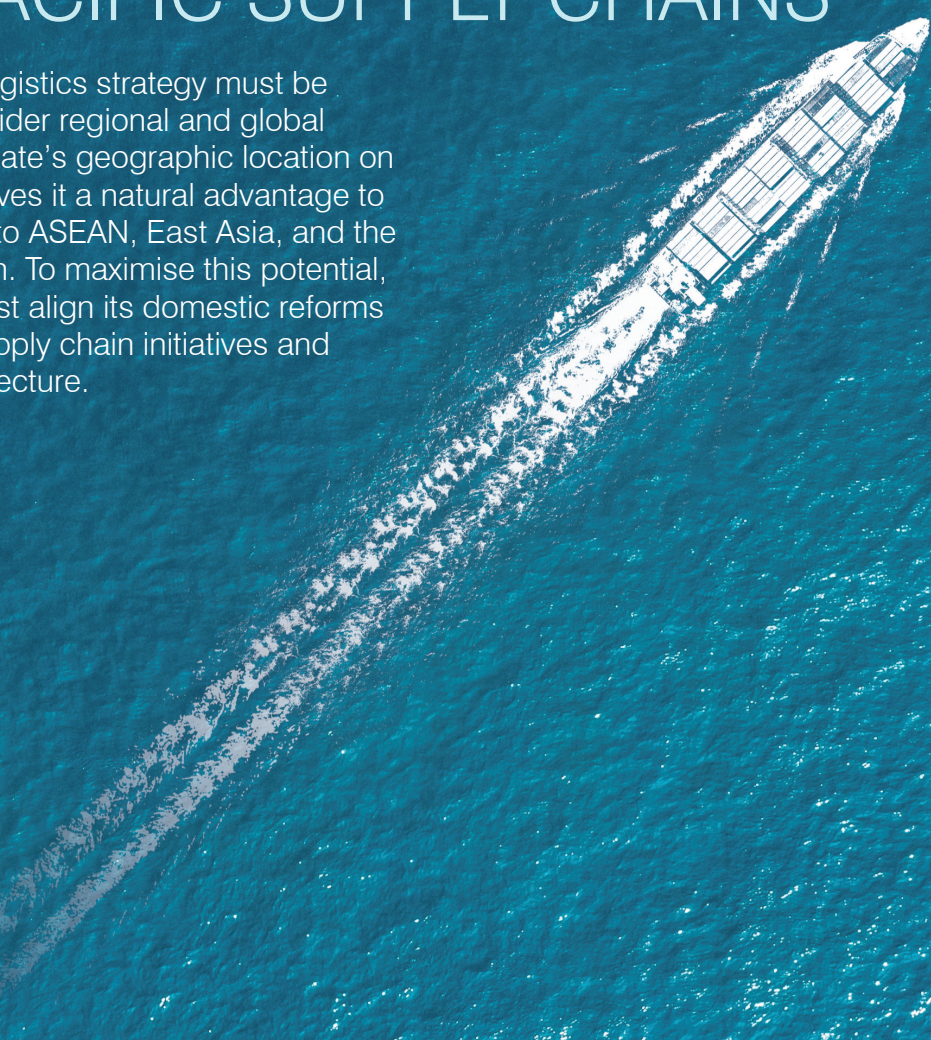




# 11

## REGIONAL AND GLOBAL POSITIONING: ANDHRA PRADESH IN ASEAN AND INDO-PACIFIC SUPPLY CHAINS

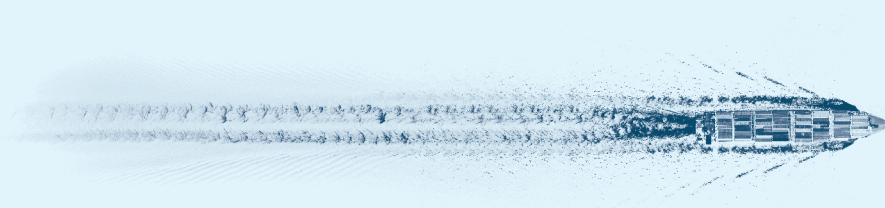
Andhra Pradesh's logistics strategy must be situated within the wider regional and global trade context. The state's geographic location on India's east coast gives it a natural advantage to serve as a gateway to ASEAN, East Asia, and the Bay of Bengal region. To maximise this potential, Andhra Pradesh must align its domestic reforms with international supply chain initiatives and regional trade architecture.







- i. Act East and BIMSTEC Integration:** Andhra Pradesh's ports—Visakhapatnam, Krishnapatnam, and the upcoming Ramayapatnam—are strategically positioned to connect with the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) corridor. Aligning logistics infrastructure with India's Act East Policy will strengthen direct cargo flows to Thailand, Myanmar, and Vietnam, reducing reliance on trans-shipment hubs outside the region. This integration will also support India's growing participation in Indo-Pacific supply chain initiatives (Ministry of Commerce & Industry, 2024).
- ii. Linking with ASEAN Supply Chains:** ASEAN is rapidly emerging as a manufacturing hub in electronics, textiles, and automotive components. By improving multimodal evacuation and digital traceability, Andhra Pradesh can position its ports as preferred gateways for ASEAN–India trade. Specialised corridors for pharmaceuticals, seafood, and agri-processing will allow the state to tap demand in markets such as Singapore, Indonesia, and Malaysia. Over time, these trade flows can be reinforced through bilateral port-level agreements and logistics MoUs with ASEAN counterparts (Government of Andhra Pradesh, 2024).
- iii. Positioning in Indo-Pacific and Global Trade Networks:** Global investors are diversifying supply chains under the China+1 strategy, creating opportunities for India's east coast. Andhra Pradesh, with its port capacity expansion and green logistics pilots, can serve as a trusted alternative hub for time-sensitive cargo. Alignment with Indo-Pacific connectivity frameworks, such as the India–Japan Industrial Partnership and the U.S.-led Indo-Pacific Economic Framework for Supply Chains (IPEF-SC), will further integrate Andhra Pradesh into global trade routes (Ministry of Commerce & Industry, 2024).
- iv. Branding Andhra Pradesh as a Maritime–Industrial Gateway:** To strengthen its global standing, Andhra Pradesh must invest in strategic branding of its ports and corridors. This includes positioning Visakhapatnam as an ASEAN-facing hub for containerised trade, Krishnapatnam as a bulk and energy gateway, and Ramayapatnam as a future-ready port for green and digital supply chains. Such differentiated branding, backed by investment promotion, will attract foreign direct investment in port-led manufacturing and logistics services (Government of Andhra Pradesh, 2024).







## Strategic Significance

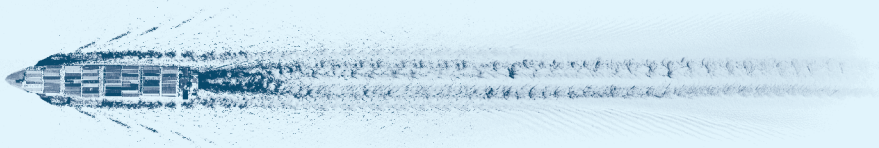
A dedicated focus on regional and global positioning has three major policy implications:

- Economic Advantage:** By embedding itself into ASEAN, BIMSTEC, and Indo-Pacific corridors, Andhra Pradesh can expand cargo throughput, attract port-led manufacturing investment, and secure long-term export growth.
- Resilience and Reliability:** Integration with diversified trade networks reduces dependence on western corridors and distant hubs, insulating exporters from external shocks and congestion risks.
- Credibility and Differentiation:** Clear port roles, digital interoperability, and formal bilateral agreements signal Andhra Pradesh's seriousness in aligning with global trade norms, enhancing its reputation as a stable and policy-aligned logistics hub (Ministry of Commerce & Industry, 2024; Government of Andhra Pradesh, 2024).

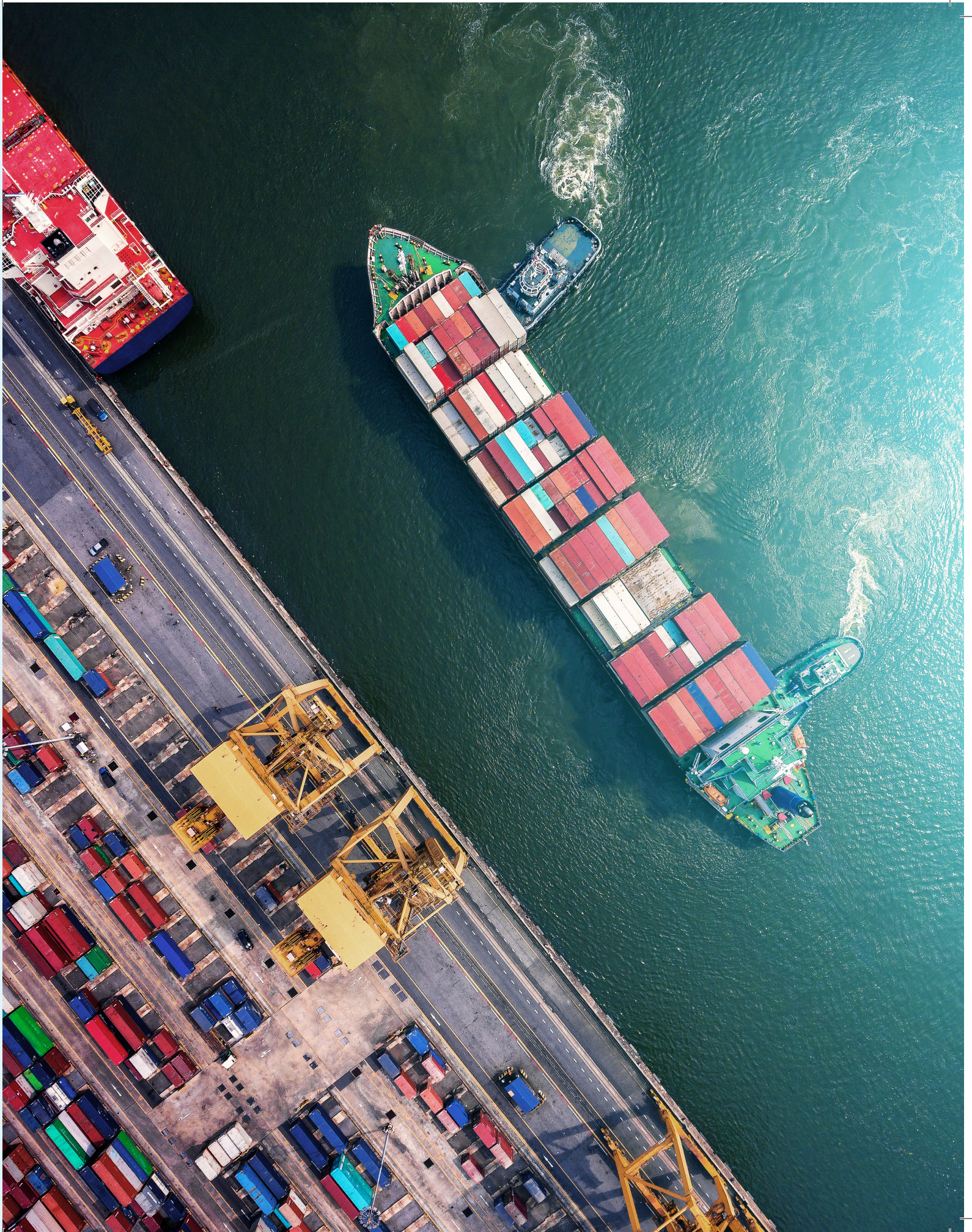
In summary, regional and global positioning ensures that Andhra Pradesh's logistics reforms extend beyond domestic rankings and are firmly tied to cross-border trade opportunities and evolving global supply chains. This elevates the state from being a national logistics leader to a South Asia–ASEAN logistics bridge, consistent with India's wider strategic priorities.

### Exhibit: Andhra Pradesh Ports – Regional Role and Target Market

Port	Strategic Role	Target Markets / Corridors	Positioning Message
Visakhapatnam Port	Containerised trade hub with strong rail and road hinterland links	ASEAN (Vietnam, Thailand, Singapore), East Asia (Japan, South Korea), Bay of Bengal cargo flows	"Gateway for ASEAN-facing container trade and pharmaceuticals."
Krishnapatnam Port	Bulk and energy gateway; strong private operator presence	Middle East (energy imports), ASEAN (bulk commodities), pan-India hinterland	"Anchor for bulk, energy, and agro-commodities trade."
Ramayapatnam (under development)	Future-ready green and digital port; designed for scale and sustainability	ASEAN and Indo-Pacific corridors; long-haul container traffic	"India's model port for green logistics and digital supply chains."
Kakinada Port	Niche gateway for agri-processing, seafood, and energy	ASEAN (Indonesia, Malaysia), Middle East (energy), domestic east-coast corridors	"Specialised hub for seafood, agri-exports, and petro-energy."
Gangavaram Port	Industrial bulk and minerals hub	Japan, South Korea, China (steel and industrial inputs)	"Industrial gateway for bulk and heavy cargo."
Bhavanapadu Port (planned)	Northern Andhra gateway for coastal and cross-border cargo	Bangladesh, Myanmar, Bay of Bengal regional flows	"Strategic connector for Bay of Bengal trade."









# 12

## IMPLEMENTATION ROADMAP: SEQUENCING ACTIONS FOR LOGISTICS COMPETITIVENESS

The successful transformation of Andhra Pradesh into the logistics capital of South Asia will depend not only on the quality of its strategy but also on the discipline of its execution. While the six pillars provide the thematic framework for reform, the implementation roadmap consolidates these into a sequenced programme of action. It translates policy direction into time-bound priorities, ensuring that reforms are delivered in a coherent, coordinated, and accountable manner.







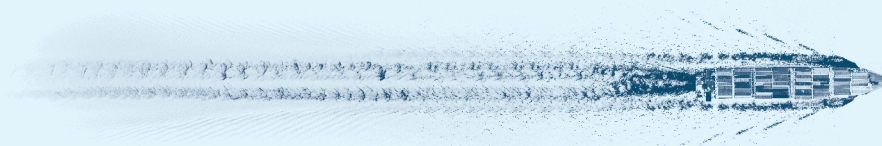
## Near Term (FY2025–FY2027): Removing Binding Constraints

The immediate focus in the first two years is to remove operational bottlenecks that most directly undermine competitiveness and investor confidence. Priority will be given to closing first- and last-mile fractures at high-impact nodes such as Kakinada port access, the Yanam bypass, and the Godavari Creek crossing. These interventions, integrated under PM GatiShakti and Sagarmala workflows, will directly improve evacuation capacity, reduce gate dwell times, and stabilise door-to-port delivery.

In parallel, the state will commission at least two PPP rail terminals tied to MMLPs, signalling a decisive move toward rail-led multimodality. A state logistics data platform will be launched, initially mandating real-time visibility for hazardous, reefer, and high-value cargo. This will be complemented by the operationalisation of a single-window system with statutory SLAs and an independent grievance redressal mechanism, ensuring predictability of approvals and timely resolution of disputes.

On sustainability, Andhra Pradesh will pilot shore power facilities, electrified yard equipment, and energy-efficiency standards at priority ports, setting the foundation for green logistics. At the same time, the Logistics Skills Academy will be launched with standardised curricula, and apprenticeship pipelines will be initiated in partnership with port operators and MMLPs.

By FY2027, the state will demonstrate visible improvements in port evacuation efficiency, digital transparency, grievance responsiveness, and workforce pipelines. These near-term measures are designed to deliver early wins, strengthen credibility, and restore Andhra Pradesh's standing in the national LEADS index (Ministry of Commerce & Industry, 2024; Government of Andhra Pradesh, 2024).







## Medium Term (FY2027–FY2030): Scaling and Institutionalising

The medium term will mark the shift from pilot interventions to systemic adoption. Rail-led multimodality will be expanded, with 3–4 rail-served MMLPs operational and port–rail pricing frameworks standardised to eliminate cost opacity. The logistics data platform will extend to general cargo flows, embedding predictive analytics for risk management and allowing early identification of disruptions.

Regulatory credibility will be reinforced through audit-backed SLA compliance, with penalties applied where breaches occur. This period will also see the scaling of low-emission drayage corridors, electrification of additional port and yard fleets, and mainstreaming of renewable energy across logistics assets.

Human capital reforms will move from training to full professionalisation, with certification embedded in licensing and renewals and periodic skills audits conducted to align training with industry demand. The quarterly performance scorecards published by the APLC will be broadened to cover all major corridors and nodes, while annual independent reviews will validate outcomes and recalibrate priorities.

By 2030, Andhra Pradesh will achieve lower logistics costs (target ~8% of GSDP), greater reliability across corridors, universal digital adoption, a professionalised workforce, and climate-resilient operations, securing its position as a national leader in logistics performance (Ministry of Commerce & Industry, 2024).





## Long Term (Post-2030): Positioning for Global Leadership

Beyond 2030, the implementation agenda will pivot toward consolidating Andhra Pradesh's role as a global logistics hub. The objective is not only to serve India's domestic economy but also to establish the state as South Asia's maritime-industrial gateway by 2047.

Strategic priorities will include positioning at least one Andhra Pradesh port among the world's top 20 by efficiency and throughput, capturing a 20% share of India's cargo volume, and achieving a 25% national share in shipbuilding and repair. Green logistics will be mainstreamed, with full adoption of renewable energy, electrified port operations, and climate-resilient design standards across all corridors and nodes.

By this stage, the workforce certification framework will be aligned with global benchmarks, ensuring that Andhra Pradesh's logistics professionals are recognised internationally. Continuous independent reviews and adaptive policy recalibration will ensure that reforms remain responsive to evolving trade dynamics and technological shifts.

The long-term vision is to anchor Andhra Pradesh not only as India's leading logistics state but also as a benchmark for reliability, resilience, and sustainability across South Asia (Government of Andhra Pradesh, 2024).

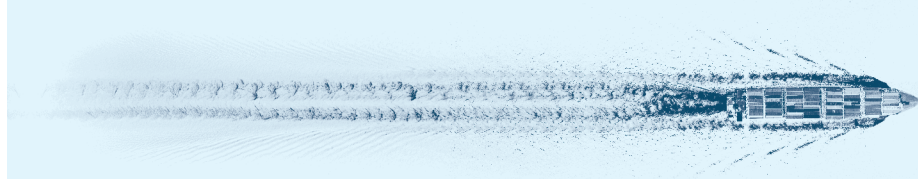
## Monitoring and Accountability Framework

To ensure delivery, a State Logistics Performance Unit will be constituted within the APLC as the nodal agency for monitoring. This unit will integrate GatiShakti data layers for real-time project tracking, coordinate across departments, and track SLA compliance.

Performance will be made public through quarterly scorecards covering projects, corridors, and services, while annual independent reviews will provide credibility and external validation. Budget allocations and institutional incentives will be explicitly tied to performance, embedding accountability into the reform process (Ministry of Commerce & Industry, 2024).

## Strategic Significance of the Roadmap

This phased roadmap ensures that Andhra Pradesh moves logically from removing near-term bottlenecks, to scaling and institutionalising reforms, to consolidating long-term global leadership. By sequencing actions carefully and embedding accountability at every stage, the state will deliver on its ambition of becoming South Asia's logistics capital by 2047.





# 13

## RISK AND RESILIENCE: MITIGATING PRESSURES IN GLOBAL AND DOMESTIC LOGISTICS







## National Competitive Landscape

Andhra Pradesh operates within an increasingly competitive coastal logistics environment. LEADS 2024 shows Gujarat maintaining its “Achiever” classification on the back of robust multimodal integration, rail-linked dry ports, and strong private-sector participation (Ministry of Commerce & Industry, 2024). Tamil Nadu, though facing congestion at Chennai, scores higher than Andhra Pradesh on regulatory responsiveness and industrial-port integration, benefiting from automobile and electronics clusters tightly coupled to port systems (Ministry of Commerce & Industry, 2024).

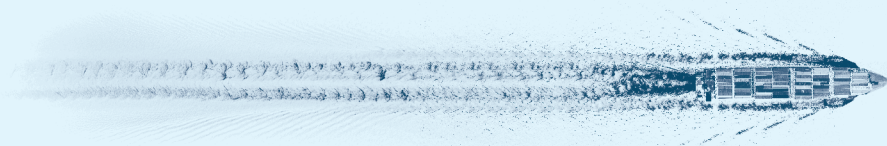
By contrast, Andhra Pradesh’s downgrade from “Achiever” to “Fast Mover” in 2024 reflects persistent weaknesses in rail adequacy, terminal efficiency, grievance redressal, and digitalisation (Ministry of Commerce & Industry, 2024). Unless corrective measures are implemented with urgency, the state risks a widening competitive gap.

## Structural and Institutional Risks

- i. First/last-mile choke points. Long-standing connectivity delays — at Kakinada, Yanam, and Godavari Creek — have eroded shipper confidence and created reputational risk. These have been identified repeatedly in national assessments, but progress has been slow (Ministry of Commerce & Industry, 2024).
- ii. Modal imbalance. With freight flows heavily dependent on roads, Andhra Pradesh is vulnerable to fuel price shocks, congestion cycles, and emissions exposure. This structural imbalance reduces resilience during supply or demand shocks (Ministry of Commerce & Industry, 2024).
- iii. Institutional fragmentation. Multiple agencies oversee ports, roads, rail, and inland waterways, creating coordination challenges. Execution delays in greenfield ports and corridor projects illustrate the risk of fragmented responsibility (Government of Andhra Pradesh, 2024).
- iv. Regulatory gaps. LEADS 2024 highlights weak “ease of entry” and the absence of an effective grievance redressal mechanism. This regulatory uncertainty raises barriers to new investment and undermines the credibility of dispute resolution processes (Ministry of Commerce & Industry, 2024).

## External and Global Risks

- i. Trade disruptions. Global container shortages, shipping rate volatility, and geopolitical tensions have periodically strained port economies. Andhra Pradesh’s port-heavy cargo profile makes it particularly exposed to these shocks (Ministry of Commerce & Industry, 2024).
- ii. Climate and environmental exposure. The state’s long coastline creates vulnerability to storm surges, cyclones, flooding, and heat stress on both physical assets and labour. National policy guidance stresses the urgency of embedding resilience standards in coastal infrastructure planning (Government of Andhra Pradesh, 2024).
- iii. Competitive investments in peer states. Gujarat continues to expand capacity through rail-integrated hubs and green port initiatives, while Tamil Nadu leverages air cargo and industrial clusters. These competitive moves may divert cargo flows and investor attention away from Andhra Pradesh if reforms are delayed (Ministry of Commerce & Industry, 2024).





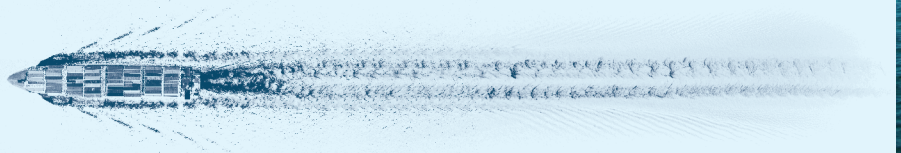


## Implications for Strategy

The combined evidence suggests Andhra Pradesh faces a dual risk environment:

- i. Internal risks: structural bottlenecks, modal imbalance, weak grievance redressal, and institutional fragmentation.
- ii. External risks: intensifying competition from peer states, volatility in global trade systems, and climate vulnerability along the coastline.

Strategically, this implies that Andhra Pradesh cannot rely solely on asset expansion. Without parallel reforms in governance responsiveness, multimodal rebalancing, digital transparency, and resilience standards, the state's geographic and port advantages will continue to underperform relative to Gujarat and Tamil Nadu (Ministry of Commerce & Industry, 2024; Government of Andhra Pradesh, 2024).









# 14

STRATEGIC OUTCOMES:  
LOWER COSTS, HIGHER  
COMPETITIVENESS,  
GREATER VISIBILITY



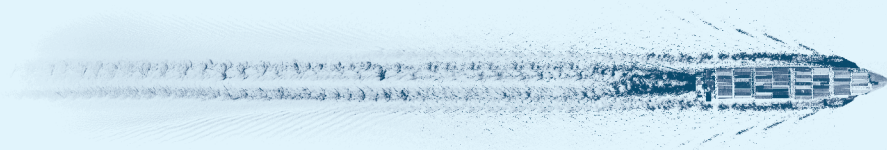




## Outcomes by 2030 (Medium-Term Horizon)

If the sequencing of reforms (2025–2030) is implemented with discipline, Andhra Pradesh can expect measurable outcomes across the dimensions tracked in LEADS 2024 and in the state's logistics policy targets:

- i. Logistics cost reduction. Costs are projected to decline from 15.7% of GSDP to about 8% through modal rebalancing, removal of first/last-mile choke points, and improved multimodal corridor utilisation (Government of Andhra Pradesh, 2024).
- ii. Port capacity and utilisation. Installed capacity will expand from 200 MMTPA to 350 MMTPA, with utilisation rising from 50% to 85%. Completion of new greenfield ports (Ramayapatnam, Machilipatnam) and hinterland rail/road integration will reduce congestion and improve throughput reliability (Government of Andhra Pradesh, 2024).
- iii. Multimodal corridor expansion. Corridor length is expected to double from ~1,040 km to 2,000 km, anchored by rail-linked MMLPs and ICDs. This will reduce road dominance, lower congestion exposure, and bring AP closer to the performance of Gujarat's dry port network (Ministry of Commerce & Industry, 2024).
- iv. Digital transparency and cargo safety. With a logistics data platform and mandatory EDI/API integration, end-to-end visibility will be extended to hazardous, reefer, and high-value cargo by 2027, and to general cargo by 2030. This will directly lift AP's track-and-trace and safety scores, which are current weaknesses in LEADS 2024 (Ministry of Commerce & Industry, 2024).
- v. Regulatory responsiveness. A statutory single-window with time-bound SLAs and a grievance redressal system will reduce entry time for new operators and improve dispute resolution credibility. This is expected to correct AP's low regulatory score in LEADS 2024 (Ministry of Commerce & Industry, 2024).
- vi. Green logistics adoption. By 2030, the state aims for 50% adoption of renewable energy and electrification in port and logistics operations, including shore power and low-emission drayage corridors. This aligns with national sustainability objectives and reduces vulnerability to climate risks (Government of Andhra Pradesh, 2024).
- vii. Employment and skills. Logistics-related employment is projected to double from 10 lakh to 20 lakh, with structured training via APSSDC and logistics academies. Workforce certification will raise service quality and lower safety incidents (Government of Andhra Pradesh, 2024).







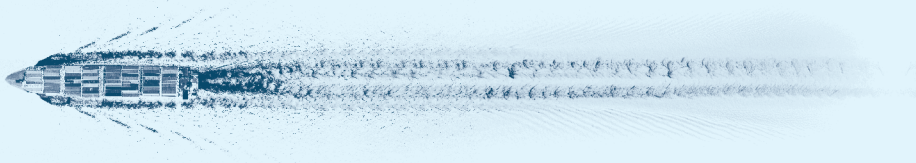
## Outcomes by 2047 (Long-Term Horizon)

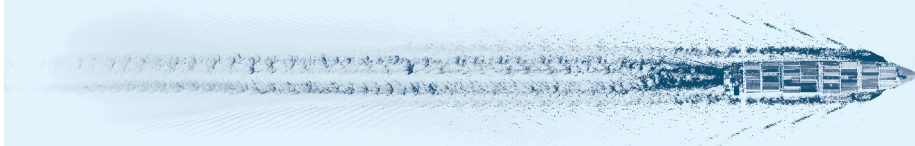
By India's centenary of independence, Andhra Pradesh's vision shifts from short-term cost reduction to structural positioning as a maritime-industrial hub:

- i. Global ranking of ports. At least one AP port is targeted to enter the world's top 20 by throughput and efficiency, reflecting a sustained rise in competitiveness (Government of Andhra Pradesh, 2024).
- ii. National cargo share. The state aims to capture ~20% of India's total cargo volume, positioning itself as the dominant logistics hub of the east coast (Government of Andhra Pradesh, 2024).
- iii. Shipbuilding and repair. Participation in India's shipbuilding and repair sector is projected to reach ~25%, supported by geographic advantage and integration with industrial corridors (Government of Andhra Pradesh, 2024).
- iv. Maritime-industrial cluster integration. Ports will be embedded within a broader ecosystem of logistics parks, MMLPs, manufacturing clusters, and shipbuilding yards, aligning AP with global benchmarks where port competitiveness depends on industrial integration (Ministry of Commerce & Industry, 2024).
- v. Resilience and sustainability. By 2047, all major logistics nodes and ports are expected to operate with climate-resilient standards, minimising disruption from storm surges, flooding, and heat stress. Emissions intensity of freight and port operations will be structurally lower, consistent with national decarbonisation goals (Government of Andhra Pradesh, 2024).

## Implications for Andhra Pradesh's Position

- i. Short term (to 2030): Andhra Pradesh can reclaim "Achiever" status in LEADS by correcting its weakest axes — multimodal connectivity, digital safety, and regulatory responsiveness (Ministry of Commerce & Industry, 2024).
- ii. Long term (to 2047): The state is positioned not as a throughput corridor, but as an ASEAN-facing maritime-industrial cluster integrated into India's broader economic transformation (Government of Andhra Pradesh, 2024).







# 15

## CONCLUSION: ANDHRA PRADESH'S LOGISTICS IMPERATIVE FOR 2047

Andhra Pradesh's logistics system embodies both structural advantage and persistent constraint. With a 1,053 km coastline, six operational ports, and multiple greenfield projects under development, the state possesses one of India's strongest maritime endowments. Yet the state's downgrade from Achiever (2023) to Fast Mover (2024) in the LEADS assessment signals that geography and assets have not translated into competitive leadership (Ministry of Commerce & Industry, 2024).







### **The evidence is clear:**

- i. Strengths lie in port capacity, road and warehousing infrastructure, and facilitative policy frameworks.
- ii. Weaknesses concentrate in rail adequacy, first/last-mile connectivity, digital visibility, and grievance redressal.
- iii. Opportunities include integration with PM GatiShakti, leveraging comparative advantage in seafood, pharmaceuticals, and agriculture, and scaling digital and green logistics (Government of Andhra Pradesh, 2024).
- iv. Risks range from competitive pressures posed by Gujarat and Tamil Nadu, to structural bottlenecks, regulatory gaps, and climate vulnerabilities (Ministry of Commerce & Industry, 2024).

The state has set measurable targets: reducing logistics costs from 15.7% to 8% of GSDP by 2030, expanding port handling to 350 MMTPA with 85% utilisation, doubling multimodal corridors to 2,000 km, and scaling green logistics adoption to 50% (Government of Andhra Pradesh, 2024). Over the longer horizon, Andhra Pradesh aspires to place one of its ports among the world's top 20, capture 20% of India's cargo volume, and achieve 25% national share in shipbuilding by 2047 (Government of Andhra Pradesh, 2024).

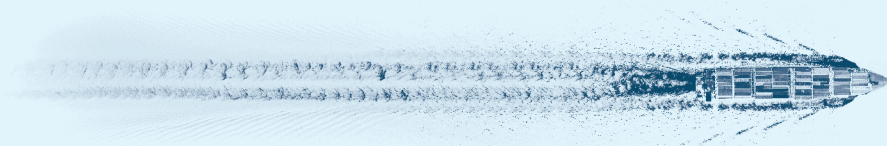
To achieve these ambitions, Andhra Pradesh must move beyond asset addition toward systems performance. The strategic pillars identified — rail-led multimodal integration, digital and safety backbone, responsive regulation, green logistics, human capital development, and coordinated performance management — provide the structural reforms necessary to correct the deficits highlighted in LEADS 2024.

### **The sequencing of actions matters:**

- i. 2025–27: remove binding constraints — close first/last-mile fractures, commission PPP rail terminals, stand up digital visibility for hazardous and high-value cargo, operationalise grievance redressal, and pilot green measures.
- ii. 2027–30: scale rail-served MMLPs, extend digital transparency to general cargo, enforce regulatory SLAs, mainstream green standards, and institutionalise performance monitoring.

### **If executed with strategic, timebound action plan, Andhra Pradesh can:**

- i. Reclaim Achiever status in LEADS by 2030,
- ii. Align logistics costs with global competitiveness benchmarks,
- iii. Establish resilience against climate and trade shocks,
- iv. And, by 2047, reposition itself from a coastal throughput corridor into an ASEAN-facing maritime-industrial hub that anchors India's east coast logistics architecture (Ministry of Commerce & Industry, 2024; Government of Andhra Pradesh, 2024).







## STRATEGIC TAKEAWAY:

*Andhra Pradesh's logistics system is at an inflection point. Despite a strong maritime base, LEADS 2024 confirms persistent structural gaps in rail connectivity, digital visibility, and regulatory responsiveness. The state's medium-term imperative is to lower logistics costs to 8% of GSDP, expand port utilisation to 85%, and institutionalise digital, green, and resilient practices by 2030.*

*The long-term vision is not limited to throughput expansion, but to reposition Andhra Pradesh as India's ASEAN-facing maritime-industrial hub by 2047 — integrating ports with industrial corridors, shipbuilding, and sustainable logistics. Success will depend less on new assets and more on execution discipline, governance reforms, and resilience standards that convert geography into competitiveness.*

**Bottom Line:** Andhra Pradesh holds one of India's strongest maritime positions, but LEADS 2024 confirms that its logistics system underperforms due to rail, digital, and regulatory gaps. By 2030, disciplined reforms must reduce logistics costs to 8% of GSDP, lift port utilisation to 85%, and embed digital and resilience standards. If pursued with execution discipline, these measures will enable Andhra Pradesh to reclaim Achiever status, withstand competitive and climate pressures, and, by 2047, transition from a coastal corridor into India's ASEAN-facing maritime-industrial hub (Ministry of Commerce & Industry, 2024; Government of Andhra Pradesh, 2024).









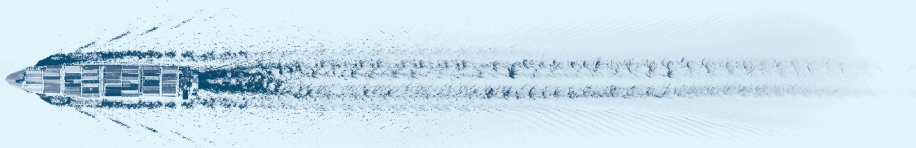


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## 17. ABBREVIATIONS

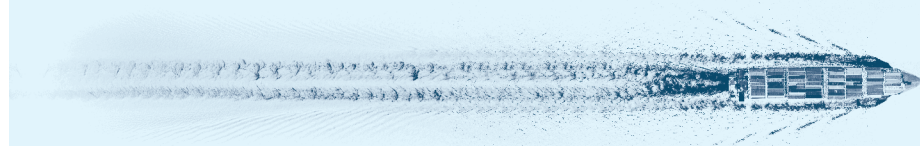
1. ADB – Asian Development Bank
2. AI – Artificial Intelligence
3. AIIB – Asian Infrastructure Investment Bank
4. APLC – Andhra Pradesh Logistics Corporation
5. API – Application Programming Interface
6. ASEAN – Association of Southeast Asian Nations
7. BIMSTEC – Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation
8. CLAP – Comprehensive Logistics Action Plan (Govt. of India)
9. DPR – Detailed Project Report
10. EDI – Electronic Data Interchange
11. EHS – Environment, Health and Safety
12. ESG – Environmental, Social, and Governance
13. EXIM – Export–Import
14. FY – Financial Year
15. GCF – Green Climate Fund
16. GSDP – Gross State Domestic Product
17. ICT – Information and Communication Technology
18. ICD – Inland Container Depot
19. IoT – Internet of Things
20. IPEF-SC – Indo-Pacific Economic Framework for Supply Chains
21. KPI – Key Performance Indicator
22. LEADS – Logistics Ease Across Different States (Index by Ministry of Commerce & Industry, GoI)
23. MMLP – Multi-Modal Logistics Park
24. MoU – Memorandum of Understanding
25. MSME – Micro, Small and Medium Enterprises
26. NDC – Nationally Determined Contribution (under Paris Agreement)
27. OMC – Operator Model Contract (if referenced under pillar contracts)
28. P4 – Public–Private–People Partnership for Progress
29. PPP – Public–Private Partnership
30. ROW – Right of Way
31. SLA – Service Level Agreement
32. VGF – Viability Gap Funding





## 18. GLOSSARY OF KEY TERMS

1. Act East Policy – India's strategic initiative to strengthen economic and connectivity ties with Southeast Asian and East Asian nations.
2. APLC (Andhra Pradesh Logistics Corporation) – The state-level nodal agency for logistics, responsible for planning, coordination, investment facilitation, and performance monitoring.
3. BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation) – A regional organisation of South and Southeast Asian countries, aimed at promoting connectivity, trade, and cooperation around the Bay of Bengal.
4. Blended Finance – A financing approach combining public, private, and concessional capital to de-risk projects that deliver social, climate, or sustainability benefits.
5. Carbon Credits – Tradable certificates representing reductions in greenhouse gas emissions, generated by adopting green technologies or renewable energy.
6. Cold Chain – A temperature-controlled logistics network for storing, transporting, and distributing perishable goods such as seafood, dairy, and pharmaceuticals.
7. EDI (Electronic Data Interchange) – Standardised digital exchange of business information between logistics operators, ports, and customs, reducing paperwork and delays.
8. ESG (Environmental, Social, and Governance) – A set of standards used by investors to assess a project or company's sustainability, social impact, and governance practices.
9. GatiShakti – A Government of India initiative to integrate infrastructure planning and accelerate project delivery through digital geospatial platforms.
10. Green Bond – A debt instrument specifically used to raise funds for climate-friendly or environmentally sustainable projects.
11. ICD (Inland Container Depot) – A logistics facility located away from ports that handles containerised cargo, providing customs clearance and multimodal connectivity.
12. KPI (Key Performance Indicator) – A measurable variable used to evaluate the performance of a project, policy, or organisation against defined objectives.
13. LEADS (Logistics Ease Across Different States) – A national index published by the Ministry of Commerce & Industry to assess the efficiency of logistics across Indian states.
14. Logistics Park (MMLP) – An integrated facility offering multimodal transport access, warehousing, cold chain, and value-added logistics services in a single cluster.
15. PPP (Public-Private Partnership) – A cooperative investment and operational model where public agencies and private companies share risks and rewards in infrastructure projects.
16. Resilience (Climate Resilience in Logistics) – The ability of logistics infrastructure and systems to maintain operations and service levels despite climate shocks such as floods, cyclones, or heat stress.
17. SLA (Service Level Agreement) – A contractual commitment defining specific standards (e.g., processing time, service reliability) between a government agency or operator and logistics users.
18. Track-and-Trace – A digital capability enabling real-time visibility of cargo location and status across the supply chain.
19. Viability Gap Funding (VGF) – Financial support provided by the government to make projects with high social or climate value commercially viable for private investors.







## 19. ABOUT THE GLOBAL FORUM FOR SUSTAINABLE TRANSFORMATION (GFST)

The Global Forum for Sustainable Transformation (GFST) is an international think-and-do tank advancing inclusive development through data, innovation, and policy integration. Operating at the nexus of governance, community empowerment, and digital transformation, GFST leverages emerging technologies such as Artificial Intelligence (AI) and Machine Learning (ML) to design scalable solutions for sustainable livelihoods. By partnering with government departments and institutions, GFST enhances policy frameworks and implementation effectiveness across sectors including agriculture, education, health, and climate resilience. With a strong presence in India and growing global collaborations, GFST is shaping next-generation strategies for equitable and future-ready development.











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