

The background of the entire page is an aerial photograph of a coastal city. On the left, a sandy beach meets the ocean with waves. In the center, a modern city skyline is visible, including a prominent white, sail-like structure. On the right, a multi-lane highway with several vehicles is shown, alongside a train track with a white train. The sky is clear and blue. A vertical purple-to-blue gradient bar is on the left side, and a green-to-blue gradient bar is on the right side.

THINK  
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FORUM

# Odisha 2.0:

**Building a New Growth Model  
by Learning from India's Best-  
Performing States**

# Executive Summary

India's renewed emphasis on accelerating development in eastern India has brought Odisha into sharp strategic focus—and with good reason. Over the past decade, the state has demonstrated strong industrial momentum, anchored by large-scale investments, improving infrastructure, and a policy environment that has enabled Odisha to emerge as one of eastern India's most consistent growth engines.

This progress positions Odisha at the cusp of what can be seen as “Odisha 2.0”—a new phase of development that moves beyond resource extraction and primary processing toward building globally competitive ecosystems in the industries of the future. With its mineral strength, coastal advantage, surplus power, and evolving logistics backbone, Odisha is uniquely placed to lead India's next wave of industrialisation, much like Gujarat in the west or Tamil Nadu and Andhra Pradesh in the south.

Yet, the opportunity ahead is not just about scale—it is about structure. While the coastal belt has successfully leveraged steel-led industrialisation to drive growth, large parts of Western Odisha remain outside this momentum.

The next phase of transformation will therefore depend on how effectively the state can align its resource base with employment-intensive, regionally distributed value chains. In this context, aluminium presents a parallel and equally strategic pathway.

As a critical input for sectors such as electric mobility, renewable energy, transmission infrastructure, aerospace, and advanced manufacturing, aluminium offers Odisha the opportunity to replicate—and adapt—the success of steel, particularly in regions where bauxite reserves are concentrated. Building a robust aluminium value chain can unlock downstream industries, strengthen MSME participation, and drive more inclusive, regionally balanced growth.

Odisha's development challenge, therefore, is not one of weak fundamentals, but of unlocking the next layer of industrialisation—where growth is not only investment-led, but also employment-rich, geographically distributed, and aligned with the demands of a future-ready economy.



# Executive Summary

Over the past two decades, Odisha has transformed from a relatively low-income eastern economy into one of India's most mineral-rich industrial hubs. With nearly half of India's bauxite reserves, substantial iron ore deposits, expanding steel and alumina capacity, surplus power generation, and access to major ports along a 575-kilometre coastline, the state possesses structural advantages that few regions in India can match. Industrial output and infrastructure have expanded rapidly and state revenues have strengthened.

Yet developmental outcomes remain uneven. Coastal and eastern districts have benefited from port-linked ecosystems and capital-intensive industrialisation, while western and south-western Odisha — despite being mineral-rich — continue to face low enterprise density, high distress migration, and weak non-farm employment. Manufacturing employment growth has lagged output growth, MSME integration remains limited, and spillovers into local labour markets have been modest.

Western and south-western Odisha continue to exhibit low industrial density, weak non-farm employment and high out-migration, despite holding the state's richest bauxite reserves — a pattern driven by extraction without ecosystem formation rather than geography alone

Based on extensive research, expert consultations and panel discussions with economists and senior practitioners who have served in Odisha for long periods, this report investigates the roots of this paradox through a comparative political-economy analysis of Odisha, Gujarat and Andhra Pradesh, drawing on evidence from the Annual Survey of Industries (ASI), National Sample Survey (NSS), Economic Census, academic literature, and policy and media sources.

It argues that Odisha's underperformance is not a consequence of weak fundamentals, but of industrial structure, regional imbalance, and execution delays.

**As Prof. Nilanjan Banik, Economist and Program Director at Mahindra University, observed during the Think Change Forum panel discussion, "We have created very large industrial assets, but the multiplier effect that should come from MSMEs around these industries is missing."**

The analysis shows that Gujarat and Andhra Pradesh — despite lacking Odisha's mineral endowments — have successfully translated industrial growth into employment and regional development by prioritising downstream manufacturing, dense MSME ecosystems, institutional speed, and spatially dispersed industrial clusters. Gujarat's model has been characterised by ecosystem-led industrialisation and strong supplier networks, while Andhra Pradesh has explicitly targeted employment elasticity through labour-absorbing sectors, industrial parks, and coordinated project execution.



Odisha's trajectory, by contrast, has been marked by four binding constraints. First, institutional delays — particularly in bauxite mining operationalisation — have disrupted aluminium value chains and deterred downstream investment. Second, an implicit sectoral bias toward steel has crowded out strategic focus on aluminium, despite steel's limited employment elasticity. Third, the systematic exclusion of manufacturing MSMEs has created a "missing middle," preventing employment absorption and local value capture. Fourth, the absence of spatially explicit industrial planning has allowed regional disparities between coastal and western Odisha to persist and deepen.

# Executive Summary

Against this backdrop, the report makes the case for a decisive strategic pivot. It argues that aluminium represents Odisha's most credible future-facing development lever. Aluminium occupies a central position in the global energy transition, with rapidly growing demand driven by electric mobility, renewable energy, power transmission, aerospace, defence, and lightweight construction.

Unlike steel, aluminium downstream processing is more labour-intensive, MSME-friendly, and spatially flexible — characteristics that directly address Odisha's core challenges of employment generation and regional imbalance.

The report concludes that Odisha must move from a project-led, extraction-centric industrial model toward an aluminium-centred manufacturing ecosystem anchored in south-western Odisha.

This requires treating aluminium as a strategic sector, resolving bauxite mining delays through time-bound execution, building downstream aluminium value chain and MSME clusters, strengthening skills pipelines, and creating empowered institutions for corridor-level delivery.

If successfully executed, an aluminium-led strategy could reposition Odisha as India's principal hub for future-oriented manufacturing, unlock large-scale employment, and finally enable the state to fulfil its strategic role in eastern India's development.

Failure to act risks locking Odisha into a path of high output but low structural transformation — a missed opportunity not only for the state, but for India's broader eastern growth agenda.

This report adopts a comparative political-economy approach to examine why Odisha's industrial growth has not translated into employment-rich and spatially balanced development outcomes, despite strong factor endowments and large-scale investment.





**ODISHA**

## Chapter 1

**Eastern India's  
Development  
Imperative and  
Odisha's Paradoxical  
Position**

# Eastern India's Development Imperative and Odisha's Paradoxical Position

## 1.1 Eastern India in India's Political Economy of Growth

Since the onset of economic liberalisation in the early 1990s, India's growth trajectory has been spatially uneven. Western and southern states—most notably Gujarat, Maharashtra, Tamil Nadu, Karnataka, and Andhra Pradesh—have emerged as the principal engines of industrial expansion, export growth, and formal employment creation.

Eastern India, by contrast, has remained structurally peripheral, characterised by lower levels of industrialisation, higher dependence on agriculture and extractive activities, and persistent out-migration of labour.

Odisha's manufacturing growth has been dominated by capital-intensive sectors such as mining, metals and power, producing high output per worker but consistently low employment absorption compared to downstream manufacturing states like Gujarat and Andhra Pradesh. It has become increasingly salient in national policy discourse over the last decade. A growing body of policy analysis now recognises that India's long-term growth potential cannot be sustained without a structural transformation of its eastern region,

which combines high population density, surplus labour, and significant natural resources.

The Purva or eastern corridor narrative—articulated through infrastructure initiatives, logistics corridors, and renewed emphasis on eastern ports—reflects this recognition.

Within eastern India, however, the developmental landscape is far from homogeneous. States such as West Bengal and Bihar face deep-rooted agrarian and institutional constraints,

While Jharkhand and Chhattisgarh struggle with governance fragmentation and conflict-prone resource politics. Odisha stands apart. It is the only eastern state that combines large-scale mineral endowments, a long coastline with deep-water ports, surplus power generation, and relative political stability.

In theory, Odisha should have emerged as the industrial fulcrum of eastern India. Yet empirical outcomes suggest otherwise.



## 1.2 Odisha's Structural Advantages in the Eastern Region Mineral, Metal and Maritime

Odisha's factor endowments are exceptional even by national standards. The state holds a dominant share of India's mineral wealth, including iron ore, coal, chromite, and—most critically—bauxite. Estimates suggest that Odisha accounts for nearly 51 percent of India's bauxite reserves, positioning it among the most resource-rich aluminium provinces globally.

In addition, Odisha's coastline hosts major ports such as Paradip, Dhamra, and Gopalpur, offering direct access to global markets and positioning the state as a natural logistics hub for eastern and central India.

Infrastructure investments over the last two decades have further strengthened this position.

Rail connectivity between mineral belts and ports has improved, power generation capacity has expanded significantly, and road networks have seen steady upgrades. Recent analyses highlight Odisha's growing role as a transportation and trade node in eastern India.

From a labour market perspective, Odisha also possesses a large reserve of under-employed and semi-skilled workers, particularly in western and southern districts.

This labour surplus, if absorbed into manufacturing and downstream industries, could support employment-led growth on a scale comparable to that achieved by Gujarat and Andhra Pradesh during their industrial transitions.

Taken together, Odisha possesses the full set of factor conditions typically associated with rapid industrial transformation: resource abundance, logistical connectivity, energy availability, and labour supply.

Few regions in India combine these advantages as comprehensively.



### 1.3 The Odisha Paradox: High Growth, Weak Transformation

Despite these advantages, Odisha's development trajectory exhibits a persistent paradox. On the one hand, the state has recorded relatively strong GSDP growth rates over the last decade, buoyed by mining, metals, and power generation.

On the other hand, this growth has translated poorly into structural transformation, understood as the movement of labour from low-productivity activities into higher-productivity manufacturing and modern services.

Empirical studies of Odisha's growth dynamics show that output growth has been driven primarily by capital-intensive sectors with limited employment elasticity (Padhi & Panda, 2021).

Manufacturing employment growth has lagged behind output growth, and the share of labour engaged in informal and low-productivity activities remains high.

This pattern contrasts sharply with Gujarat and Andhra Pradesh, where manufacturing growth has historically been accompanied by significant employment absorption.

The persistence of this pattern suggests that Odisha's challenge is not cyclical but structural. Mining-led industrialisation, while generating revenues and exports, has not produced the dense networks of downstream firms, MSMEs, and supplier ecosystems necessary for broad-based development. Instead, industrial activity has taken the form of large, enclave-style projects with limited local spillovers.

This structural diagnosis is reinforced by ground-level industrial experience. **As Prof, Suresh Chandra Mishra, Emeritus, IIT Kharagpur, industry expert observed during the Think Change Forum panel discussion, "The coast is seeing industrial clusters coming up because of ports and logistics, but the minerals are coming from the interior and moving out without creating manufacturing ecosystems there."** This succinctly captures how Odisha's growth has been anchored in extraction rather than value-chain integration.



## 1.4 Spatial Concentration and Regional Inequality within Odisha

One of the most striking features of Odisha's development is its internal spatial imbalance. Eastern and coastal districts—particularly those hosting steel plants, power stations, and ports—have experienced faster income growth, improved infrastructure, and greater fiscal capacity.

Districts such as Jajpur, Angul, Jharsuguda and Sundargarh have emerged as industrial nodes, albeit narrowly specialised.

In contrast, western and south-western Odisha remain persistently underdeveloped. These regions, despite being rich in bauxite and other minerals, exhibit low levels of industrial employment, weak enterprise density, and high rates of out-migration.

Economic Census-based district analyses show that manufacturing enterprises per capita in these districts are significantly lower than in interior districts of Gujarat and Andhra Pradesh with comparable population sizes. This spatial divergence has deep political-economy roots.

Historical land relations, tribal displacement concerns, and contested mining projects have shaped state-society relations in western Odisha, often slowing project execution (Dash, 2015).

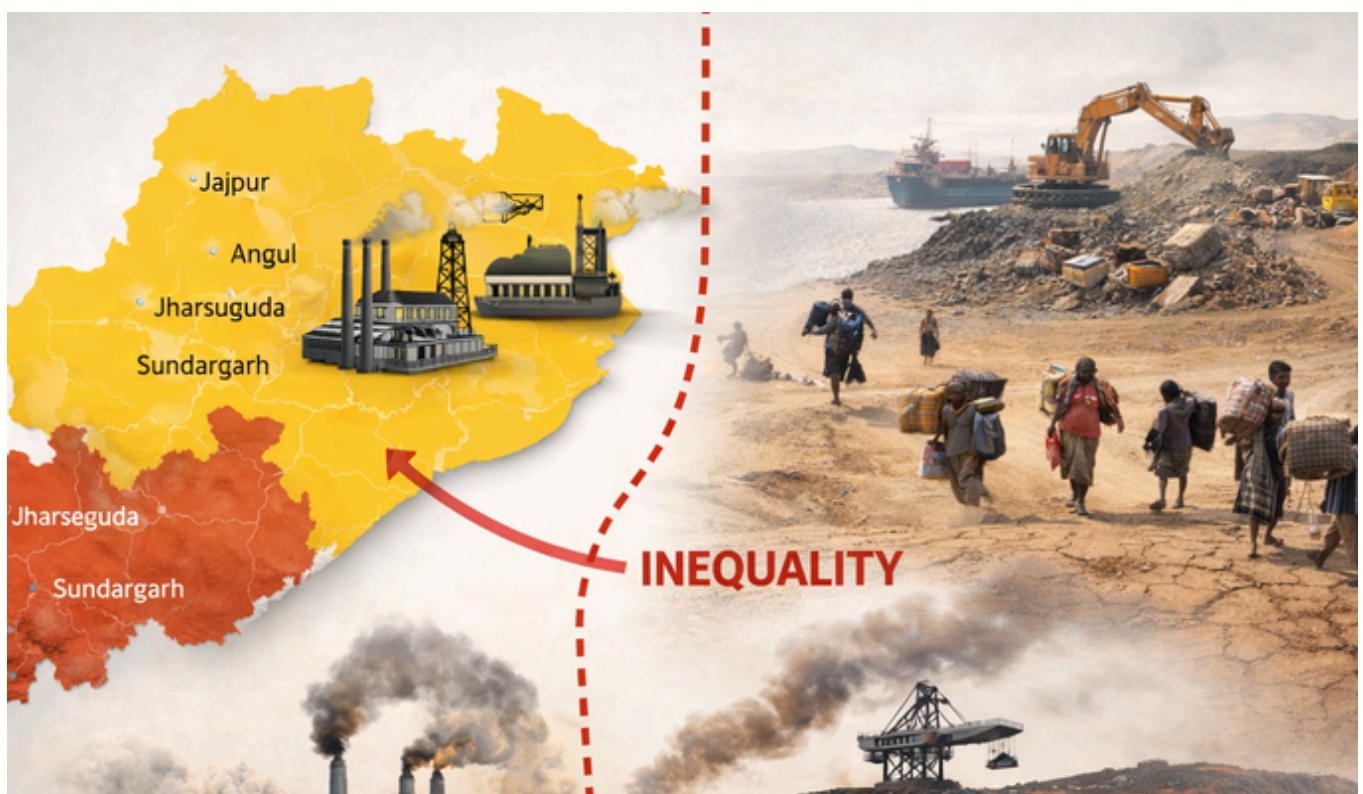
However, comparative evidence suggests that institutional mediation, rather than resource conflict per se, determines whether mineral-rich regions translate extraction into development.

What distinguishes successful resource-based industrial regions is not the absence of conflict, but the presence of coordinated institutions that link mining to downstream manufacturing, employment creation, and local enterprise formation.

Western Odisha's underdevelopment is not accidental but the outcome of delayed structural integration.

Despite a decade of policy discussions around aluminium corridors, downstream clusters and regional manufacturing hubs, mineral wealth has remained disconnected from enterprise creation.

The failure to translate extraction into local industrial ecosystems has compounded spatial inequality, locking mineral districts into low employment density and persistent out-migration cycles.



## 1.5 Odisha as an Outlier in the Eastern Growth Agenda

From the perspective of eastern India's development strategy, Odisha's underperformance is particularly consequential. Unlike Bihar or West Bengal, Odisha does not suffer from fundamental constraints of geography or factor availability.

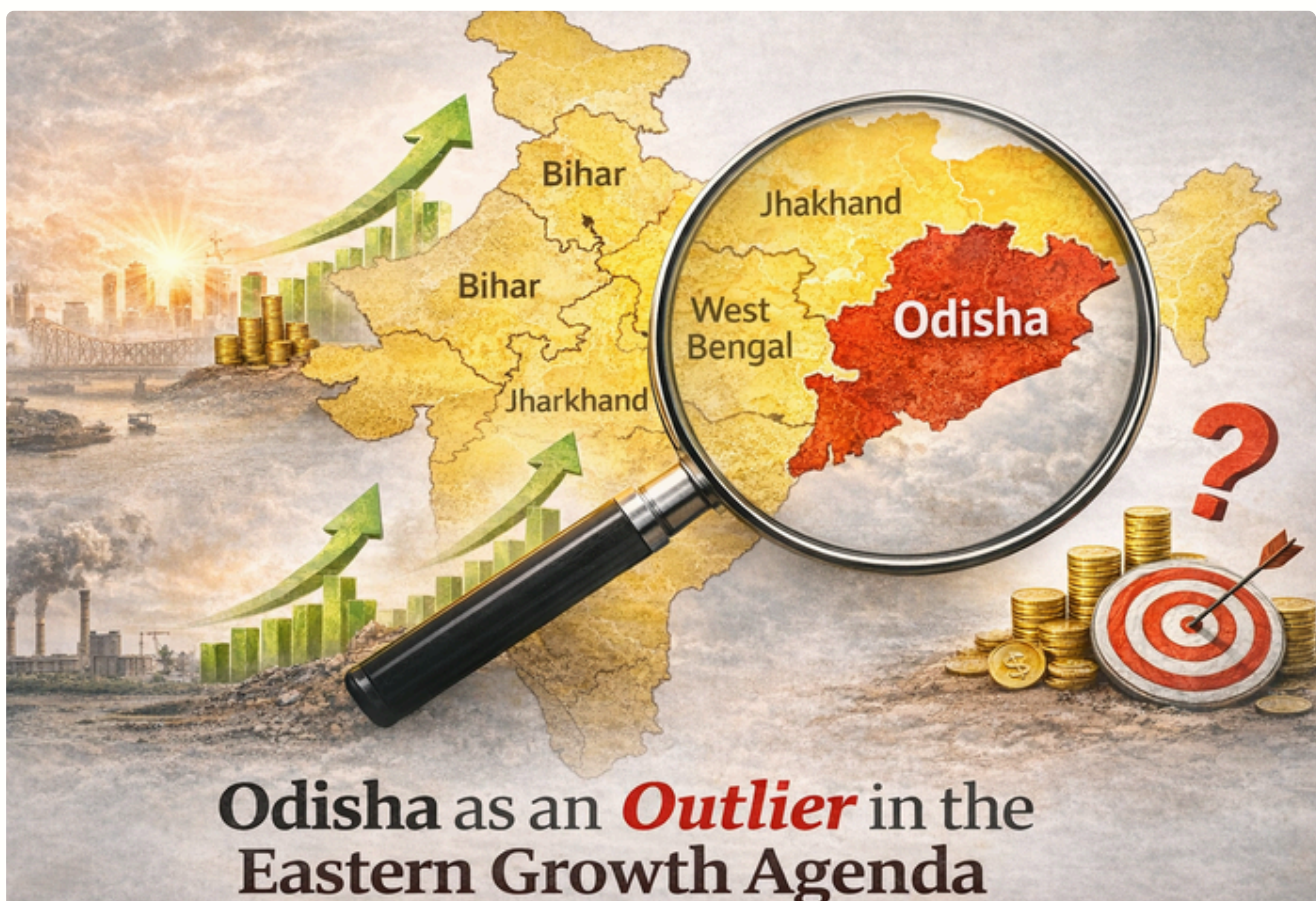
Unlike Jharkhand or Chhattisgarh, it has achieved relative political stability and administrative continuity. Its continued failure to emerge as an employment-generating industrial hub, therefore represents a missed systemic opportunity for eastern India as a whole.

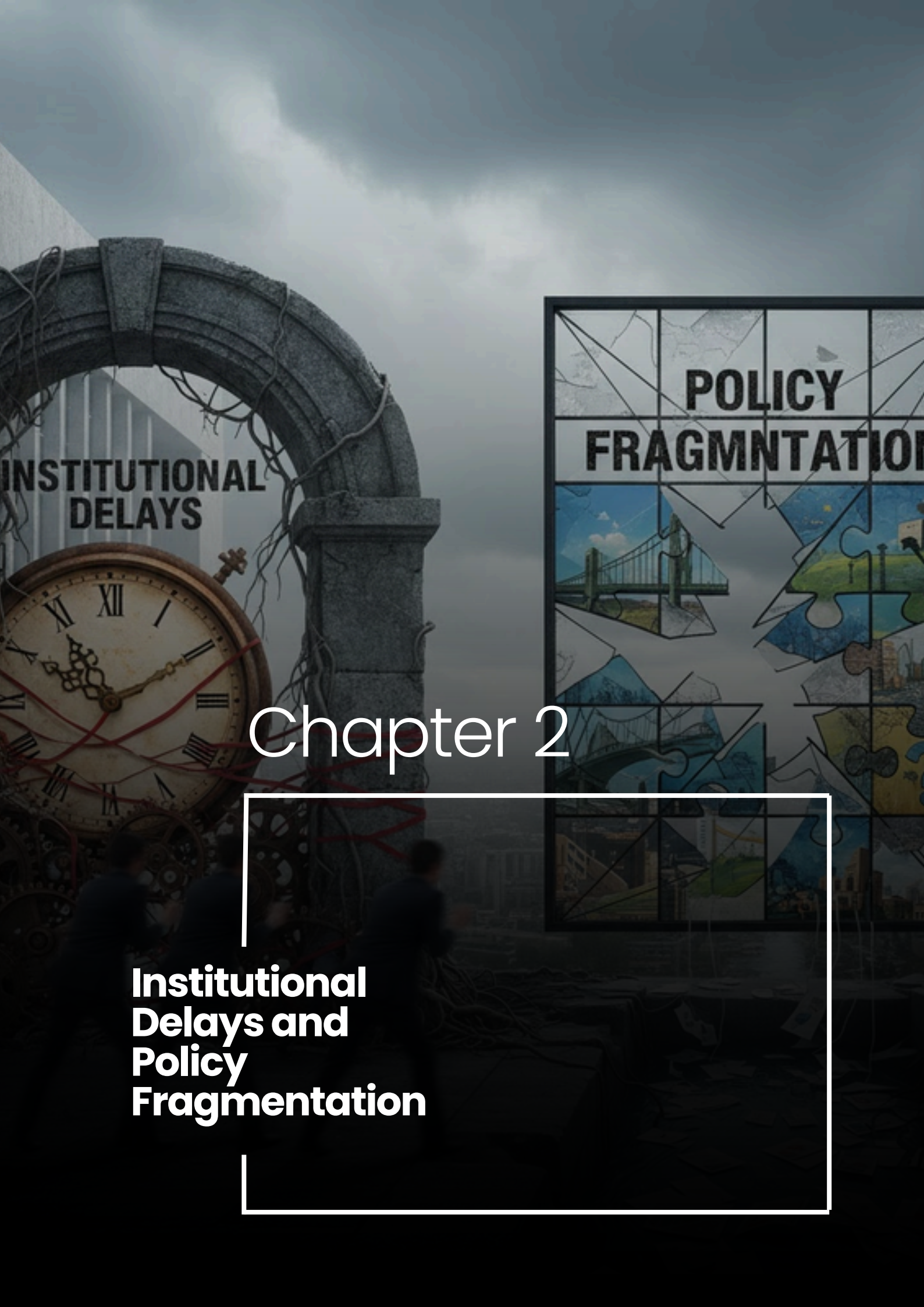
Scholars analysing Odisha's post-reform trajectory increasingly describe it as a case of "under-industrialisation despite industrial investment".

This formulation captures the central puzzle that motivates this report: why has a state with such favourable initial conditions failed to replicate the industrial success of benchmark states?

The answer, as this study will demonstrate, lies not in resource scarcity or macroeconomic constraints, but in industrial structure, ecosystem depth, institutional sequencing, and the persistent neglect of employment-rich downstream manufacturing.

**Mr. R. K. Sinha, Former Controller General, Indian Bureau of Mines, Ministry of Mines and a mining policy specialist, observes:**  
**"We have a well-defined mineral policy framework that covers the exploration and extraction of mineral wealth in a scientific and systematic manner. But policy, by itself, does not create economic value or social outcomes unless it is backed by effective implementation and strong push from government. In Odisha, for instance, bauxite mining has not advanced with the same momentum as iron ore. Unless these gaps are corrected, along with a deliberate strategy to build downstream value chains, mineral-rich states will continue to capture only a fraction of the sector's true economic and social multiplier."**





**INSTITUTIONAL  
DELAYS**

**POLICY  
FRAGMENTATION**

## Chapter 2

**Institutional  
Delays and  
Policy  
Fragmentation**

# Institutional Delays and Policy Fragmentation

Odisha's industrial governance framework is comprehensive on paper, encompassing environmental regulation, forest clearances, land acquisition processes, investment facilitation agencies, MSME promotion schemes and skills development programmes. Yet implementation delays and institutional fragmentation continue to disrupt value chains.

Project approvals typically proceed sequentially rather than in parallel. Mining permissions are often disconnected from downstream industrial planning. Infrastructure rollout is rarely synchronised with investment timelines, while MSME development programmes operate independently of anchor industry supply chains.

This fragmentation generates long project gestation periods, uncertainty for investors, and broken value chain coordination – particularly damaging for aluminium ecosystems where mining, refining and component manufacturing must develop in coordinated phases.

Comparative experience shows that states achieving rapid industrial transformation established empowered corridor-level institutions capable of aligning approvals, infrastructure, skills and investment facilitation under unified execution frameworks.

In Odisha, the absence of such integrated mechanisms has allowed delays to compound across departments, undermining ecosystem formation even where policy intent exists.

Execution failure, rather than policy absence, thus emerges as a central binding constraint on structural transformation.

**Debidutta Biswal clarified: "There is no dearth of legislation. The problem is implementation." Sequential clearances and siloed institutional structures have slowed ecosystem formation. Mining, MSME development, logistics planning, and skills policy have not been integrated under a single execution framework.**

## MSME Micro, Small and Medium Enterprises



Odisha's regulatory architecture is comprehensive. Environmental clearances, forest approvals, and compliance frameworks are robust. Yet implementation delays disrupt value chains.

The region already hosts critical industrial infrastructure. The alumina refinery at Lanjigarh operated by Vedanta Aluminium and the refinery at Damanjodi operated by NALCO demonstrate that processing capability and industrial skill depth exist.

Yet, significant reserves remain under-operational, and more importantly, downstream manufacturing ecosystems remain limited.

Primary mining has created assets, but downstream manufacturing is what creates livelihoods. That is where communities actually see income growth.

Primary mining has created assets, but downstream manufacturing is what creates livelihoods. That is where communities actually see income growth.

The economic multiplier potential of unlocking bauxite responsibly is substantial. A 1 MTPA alumina refinery can generate 2,000–3,000 direct jobs and up to 10,000 indirect employment opportunities across logistics, manufacturing, maintenance and ancillary services.

Over a decade, a structured mineral-to-manufacturing strategy could catalyse industrial activity worth ₹1 lakh crore or more if integrated with downstream sectors such as EV components, solar frames, railways, defence alloys and precision castings.



## 2.1 The Bauxite Paradox

Western Odisha's mineral districts illustrate a striking paradox: extraordinary resource abundance alongside persistent poverty.

As policy commentator Debidutta Biswal, IFS, Former Director of Mines observed during, "If you superimpose forest, mining and tribal poverty maps, you will find they sit exactly on top of each other."

The panel further noted the depth of this contradiction: "A block generating ₹15,000 crore in mining revenue still has 90 percent of people below the poverty line."

This is not a failure of extraction. It is a failure of value-chain participation. Without downstream industries and local manufacturing ecosystems, mineral wealth does not translate into distributed income, entrepreneurship, or durable economic resilience. Revenue flows outward; prosperity does not. Western Odisha sits at the heart of one of India's most strategic mineral endowments.

Odisha accounts for nearly half of India's total bauxite reserves—estimated at close to 2 billion tonnes—and a substantial portion of these deposits lie across the districts of Kalahandi, Rayagada, Koraput and Nabarangpur in the Eastern Ghats belt.

This geological advantage positions the region not merely as a mining zone, but as a potential anchor of India's aluminium-led manufacturing future.

However, the development divergence between coastal and western Odisha remains stark. Coastal districts such as Khordha and Cuttack report per capita incomes in the range of ₹1.6–2.2 lakh annually, supported by ports, steel, petrochemicals, services and logistics ecosystems.

In contrast, mineral-rich districts such as Kalahandi and Nabarangpur remain in the ₹30,000–50,000 range, despite generating significant mining revenues.

The districts that hold the resource wealth continue to rank among the lowest in income and human development indicators.



## 2.1 The Bauxite Paradox

This structural imbalance reflects an economic model where extraction is geographically concentrated but value addition is not. Coastal Odisha benefits from port-led industrialisation and diversified manufacturing.

Western Odisha contributes raw material and primary output but captures limited downstream value. The result is lower employment elasticity, continued distress migration and weak local enterprise formation.

Western Odisha is therefore not underdeveloped –it is under-leveraged. The risk is not merely stagnation; it is that the region remains an untapped growth engine in a state aspiring toward a Viksit Odisha vision.

The path forward lies in linking mineral development to regional manufacturing clusters, MSME parks, skill institutions and logistics corridors. Captive bauxite development tied to downstream industry can transform blocks that currently generate revenue without prosperity into engines of distributed growth.

Aluminium, as a strategic material for energy transition, mobility, defence and infrastructure, offers a rare opportunity to align national priorities with regional inclusion.

If mineral wealth is integrated with manufacturing, skills and entrepreneurship, Western Odisha can shift from a paradox of extraction and poverty to a model of inclusive industrialisation.

That transformation would narrow the coastal-western divide and anchor a more balanced and resilient growth trajectory for Odisha as a whole.



## 2.2 Lanjigarh Refinery – the Structural Cost of Delayed Bauxite Operationalization– A Case Study

Western Odisha’s development debate often oscillates between competing narratives—environmental sensitivity, tribal rights, mineral potential, and industrial growth.

However, the Vedanta alumina refinery at Lanjigarh offers a concrete institutional lens through which to evaluate the measurable cost of delay in value-chain integration.

The Lanjigarh facility represents one of the most significant mineral-processing investments in western Odisha and provides an analytical case study of how upstream–downstream misalignment constrains structural transformation.

Conceived as a value-addition anchor within the Kalahandi–Rayagada mineral belt, the refinery was designed to convert proximate bauxite reserves into alumina and catalyse downstream aluminum-led industrialization.

Its geographic location was strategically aligned with one of India’s richest bauxite belts in the Eastern Ghats. With installed refining capacity estimated between 1–2 million tonnes per annum (MTPA) and cumulative investments running into several thousand crores, the project signaled a long-term commitment to processing-based industrialisation rather than raw mineral evacuation.

Yet the refinery’s operational trajectory has periodically been shaped by raw material constraints arising from delays in operationalising captive bauxite reserves. This constraint is not technological.

It is not capacity-related. It is structural—reflecting sequential approvals, incomplete upstream integration, and fragmentation across the mining-to-manufacturing value chain. The structural stakes are substantial. Odisha holds approximately 50–59 percent of India’s total bauxite reserves. India’s overall bauxite resource base is estimated between 3.9 and 5 billion tonnes.

In FY 2022–23, Odisha produced 17.4 million tonnes of bauxite—accounting for nearly 73 percent of national output. However, less than one-fourth of Odisha’s deposits are currently under active extraction.

The aluminium value chain is conversion-intensive: producing one tonne of aluminium requires roughly six tonnes of bauxite. Where upstream mining remains under-operational, downstream refining capacity faces supply volatility and suppressed expansion potential.

The economic consequences extend beyond a single industrial installation.



## 2.2 Lanjigarh Refinery – the Structural Cost of Delayed Bauxite Operationalization– A Case Study

India imported approximately 3.6 million tonnes of bauxite in FY2023 and an estimated 4.5 million tonnes in FY2024–25. The annual import cost for bauxite alone stands in the range of ₹4,000–5,000 crore.

Alumina imports rose by approximately 25 percent in FY 2022–23, imposing an estimated ₹7,800 crore additional fiscal burden. India's annual imports of finished aluminium crossed ₹70,000 crore in FY2025–26.

In effect, while Odisha possesses surplus reserves, the national economy continues to incur import dependence in the same value chain. This represents measurable economic leakage.

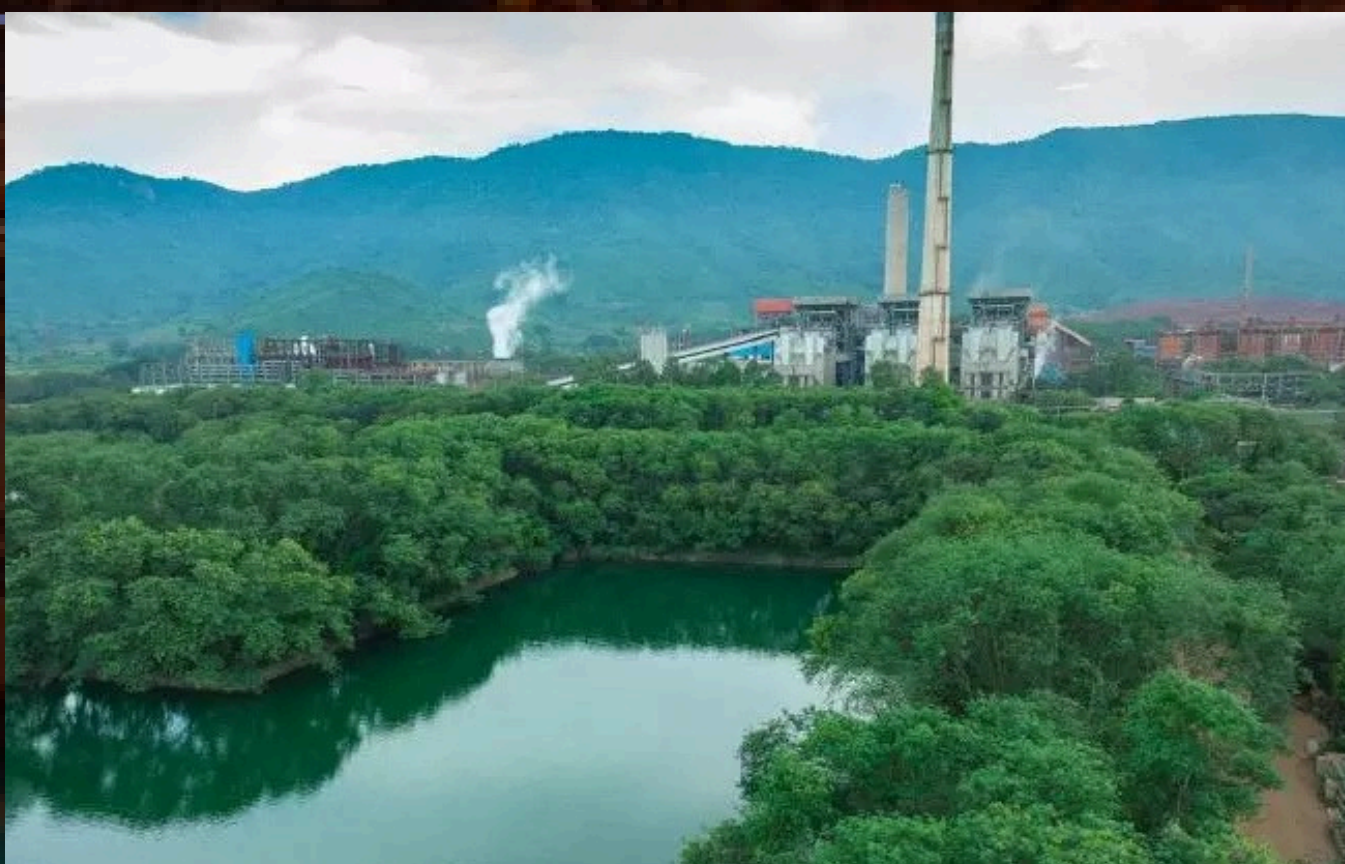
For Lanjigarh specifically, delayed captive mine operationalisation translates into throughput instability, higher logistics costs when sourcing externally, working capital strain, and deferred downstream investment signals.

For western Odisha, the opportunity cost compounds annually in the form of foregone enterprise formation and constrained employment density.

The regional transformation potential of integrated mining is significant. Estimates suggest that opening three bauxite mining clusters linked to refining capacity could add approximately ₹18,000 crore annually to Odisha's GSDP.

Direct employment generation is projected at roughly 15,000 jobs, with more than 50,000 indirect jobs across logistics, services, and ancillary industries. Downstream investment potential is estimated at nearly USD 2.5 billion, with the capacity to enable over 10,000 MSMEs. The broader ecosystem could support up to 2.4 million livelihoods across mineral-linked districts including Kalahandi, Rayagada, Koraput, Sundargarh, Bolangir, and Sambalpur.

In districts such as Kalahandi—historically associated with low per capita income and distress migration—the stakes are structural. Mining revenues may be generated at the block level, yet income multipliers remain weak where downstream value addition does not materialise locally. Without MSME clusters, supplier ecosystems, logistics hubs, and skills integration, extraction remains capital-intensive and spatially concentrated.



## 2.2 Lanjigarh Refinery – the Structural Cost of Delayed Bauxite Operationalization– A Case Study

The Lanjigarh case must also be situated within global industrial shifts.

Global aluminium demand is projected to rise nearly 80 percent by 2050, driven by electric vehicles, renewable energy infrastructure, power transmission expansion, aerospace manufacturing, and defence modernisation.

Resource nationalism has intensified: Indonesia's 2023 ban on bauxite exports triggered double-digit price increases in global markets, while China has tightened export licensing and secured overseas mineral assets in Africa and Guinea.

India's Critical Minerals Report (2024) classifies bauxite and aluminium as strategically important minerals within national industrial planning.

Climate-linked trade frameworks add another dimension. The European Union's Carbon Border Adjustment Mechanism (CBAM), adopted in 2023 and entering financial enforcement in 2026, categorises aluminium as a high-risk exposed metal.

Carbon intensity will increasingly determine export competitiveness. Studies indicate that high-grade domestic bauxite combined with efficient refining can reduce lifecycle emissions by approximately 40–50 percent compared to less efficient global supply chains. Securing stable domestic ore supply therefore strengthens both economic resilience and green competitiveness.

Recent mobilisation under local development platforms reflects evolving community discourse—shifting from blanket resistance toward conditional engagement anchored in safeguards, revenue transparency, livelihood guarantees, and participatory oversight. This transition underscores the importance of credible institutional integration between mining, manufacturing, and community development outcomes.

In analytical terms, Lanjigarh represents a structural test case. It demonstrates that capacity without upstream integration cannot deliver full regional transformation. It quantifies the cost of delay in terms of import leakage, foregone GSDP expansion, suppressed MSME density, and persistent regional inequality

At the same time, it illustrates the embedded opportunity: where captive bauxite operationalisation is synchronised with refining, downstream cluster formation, skills planning, and logistics infrastructure, mineral wealth can translate into distributed economic participation.

The decision before Odisha is therefore not narrowly industrial. It concerns whether mineral extraction will remain capital-intensive and spatially concentrated, or whether integrated execution can enable ecosystem depth. The Vedanta Lanjigarh case provides empirical grounding to that structural choice.



A photograph of two construction workers, a woman and a man, wearing white hard hats and high-visibility yellow safety jackets. They are standing on a construction site, looking at a large set of blueprints held by the man. The woman is holding a tablet. In the background, there are industrial structures, including tall towers and a crane, under an overcast sky.

# Chapter 3

## Employment Elasticity and the Missing Middle

# Employment Elasticity and the Missing Middle

Industrial output in Odisha has expanded significantly. However, manufacturing employment has not grown proportionately.

Capital-intensive sectors such as mining, refining, and smelting generate high output per worker but limited direct employment.

**Prof. Nilanjan Banik underscored this: “Large capital-intensive investments increase output, but employment density depends on ecosystem depth. If refining capacity operates below potential due to supply constraints, local income generation is directly affected.”**



### 3.1 MSMEs as the Real Drivers of Industrial Prosperity – A State Comparison

In India's most industrialised states, MSMEs form the backbone of manufacturing-led growth and employment, embedded deliberately within dense supplier ecosystems around large anchor industries.

Gujarat, Tamil Nadu and Maharashtra structured industrialisation not around isolated mega-projects, but around integrated manufacturing clusters that enabled MSMEs to capture substantial shares of value addition and job creation.

In Gujarat, MSMEs contribute an estimated 35–40 percent of industrial output, with strong integration across metals, engineering goods, chemicals and auto components.

Tamil Nadu's manufacturing clusters – particularly in automotive, textiles, electronics and heavy engineering – derive over one-third of output and the majority of industrial employment from MSME networks embedded within larger value chains.

Maharashtra similarly leverages MSME-driven supplier systems across automotive manufacturing, pharmaceuticals and precision engineering.

This structural divergence explains the contrasting employment outcomes across states.

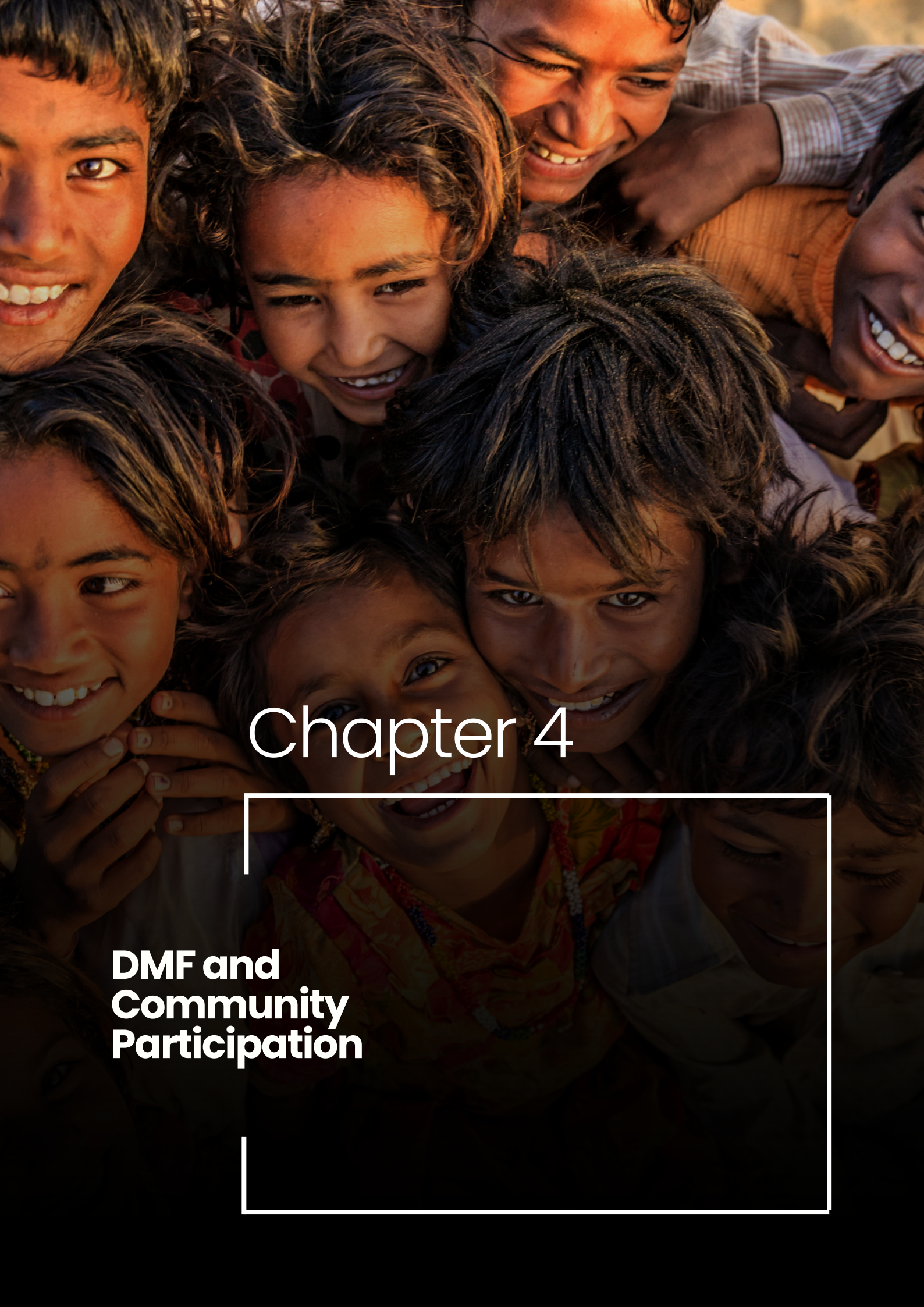
Where Gujarat, Tamil Nadu and Andhra Pradesh deliberately engineered industrial density and MSME-linked manufacturing clusters, Odisha's growth has remained concentrated in capital-intensive extraction and primary processing nodes with limited local spillovers.

The result has been strong output expansion but weak employment transformation and limited regional diversification.

Odisha presents a contrasting industrial structure. Despite hosting large mining operations and primary metal facilities, the state's MSME sector remains heavily concentrated in micro enterprises and largely detached from industrial value chains. While Odisha has approximately 17–18 lakh registered MSMEs, their contribution to industrial output remains below 20 percent, reflecting weak participation in manufacturing supply ecosystems

The evidence is clear: industrial prosperity is driven not simply by large projects, but by the density of MSMEs embedded across value chains. Without deliberate ecosystem design, mineral-rich states risk remaining extractive economies – generating output without livelihoods – rather than evolving into employment-rich manufacturing powerhouses.





# Chapter 4

## **DMF and Community Participation**

The failure of downstream integration is not only an economic issue but also explains why mineral-bearing communities have not benefited proportionately. District Mineral Foundation (DMF) funds in Odisha represent one of India's largest local mineral revenue pools.

However, utilisation has focused largely on infrastructure and welfare expenditure, whereas community inclusion must become a more serious pillar of Odisha 2.0. Development in mineral-bearing regions must become more visible, and instruments such as the DMF should be used more effectively, with greater empowerment of communities.

The governance architecture for responsible mining already exists. Supreme Court directives have mandated allocation of a minimum share of mining profits toward community development. Institutions such as the District Mineral Foundation (DMF) and the Odisha Mineral Bearing Areas Development Corporation (OMBADC) are operational.

Progressive mine closure and reclamation frameworks demonstrate that scientifically managed bauxite mining can enable forest restoration within defined timelines.

Gram Sabha-based consent processes provide institutional channels for community participation. The binding constraint is not legislative absence but execution alignment.

**R. K. Sinha, Former Controller General Indian Bureau of Mines, emphasised during the panel:** "Local people should get the presence. Their voices should be heard." He added: "Funds are being generated in DMF which districts may not be able to absorb effectively." **Reorienting DMF toward enterprise development, skill-building, and MSME incubation would create durable economic multipliers rather than short-term asset creation.**

**As Deepak Mohanty IFS Former Director of Mines Odisha, IFS, Former Director of Mines, Odisha, observed:** "Part of DMF resources may be allowed to be directly handled by the village communities so as to generate their sense of ownership and involvement in deciding the interventions required for themselves. The assets so created can be maintained by the communities, who will then be the active recipients of the benefits rather than becoming passive recipients, as happens in the case of all development projects."



An aerial view of a futuristic city at sunset. The scene features several large, white, dome-shaped structures in the foreground, a high-speed train on an elevated track, and several wind turbines scattered across the landscape. The background shows a dense urban area with buildings and more wind turbines under a hazy, orange-tinted sky.

# Chapter 5

**Minerals could be  
Odisha's Strategic  
Transformation Lever  
— Ecosystem,  
Employment and  
Future Industry Impact**

# Minerals could be Odisha's Strategic Transformation Lever – Ecosystem, Employment and Future Industry Impact

The persistence of extraction-led industrialisation carries long-term economic and social costs. Distress migration drains local labour markets and weakens community stability. Revenue flows outward rather than anchoring local enterprise bases. Young populations enter informal employment rather than modern manufacturing.

Over time, this model entrenches regional inequality and limits fiscal diversification. Resource-rich districts remain dependent on transfers and welfare spending rather than generating self-sustaining economic growth. By contrast, manufacturing ecosystems create virtuous cycles of enterprise formation, skills upgrading, income growth and local reinvestment. The divergence between coastal and western Odisha illustrates the cumulative impact of these structural choices. Delay therefore represents not neutrality but an active economic loss – compounding disparities with each passing year. Across India's most industrialised states and leading global manufacturing economies, aluminium has increasingly emerged as a foundational metal for employment-rich downstream manufacturing ecosystems.

Unlike steel and other primary metals – which typically concentrate production in large, capital-intensive facilities – aluminium is used in diverse value-added segments including extrusions, rolled products, precision castings, lightweight structures, modular components, and engineered systems. Each of these segments supports dense MSME participation, supplier specialisation, and substantially higher labour absorption.

States that deliberately structured aluminium value chains around downstream clusters have consistently converted primary metal capacity into diversified manufacturing bases. In Gujarat, aluminium hubs supplying renewable energy structures, transportation components, building systems and electrical equipment now anchor hundreds of MSMEs within integrated supply ecosystems. Tamil Nadu's engineering clusters – increasingly utilising aluminium for electric mobility, industrial machinery, and precision components – similarly illustrate how downstream metal multiplies employment far beyond primary smelting.



Global demand dynamics further reinforce aluminium's strategic role. The rapid expansion of renewable energy infrastructure, electric vehicles, power transmission networks, aerospace manufacturing and lightweight construction is structurally increasing aluminium consumption worldwide. Projections indicate global aluminium demand will rise by 40–50 percent by 2040, with the majority of value addition occurring in fabricated products rather than primary metal alone.

Regions that integrate raw material supply with downstream manufacturing therefore capture both industrial competitiveness and employment growth.

For Odisha, this alignment is uniquely powerful. The state already holds vast bauxite reserves, extensive alumina refining capacity, and large primary aluminium assets. What remains missing is the manufacturing layer that converts raw material advantage into widespread enterprise formation and livelihoods.

Compared to steel — which demands massive capital concentration and yields relatively narrow employment bases — aluminium supports smaller plant sizes, faster MSME entry, distributed production models, and stronger regional dispersion of economic activity.

This structural advantage was repeatedly underscored during the panel discussion. **Prof. Nilanjan Banik noted, “Aluminium has far more scope in applications across critical sectors, component manufacturing and MSME participation compared to sectors like steel.”**

He further emphasised that “once downstream industries develop, employment multiplies very quickly because each segment supports multiple small and medium enterprises.

**“Suresh Chandra Misra highlighted the ecosystem effect directly: “If you create demand for aluminium components locally — for power, infrastructure, mobility — the supplier base will automatically start growing around it. That is how industrial clusters form.”**

From an employment perspective, the downstream aluminium economy is particularly transformative. While primary aluminium smelting remains highly capital intensive with limited workforce requirement and component manufacturing typically generate three to five times more jobs per tonne of metal processed. These include machine operators, welders, precision technicians, quality engineers, designers, logistics workers, maintenance staff, and MSME entrepreneurs. International manufacturing benchmarks demonstrate that mature aluminium clusters can support 1,000–1,500 direct and indirect jobs per ₹100 crore of downstream investment, far exceeding employment levels in extraction-led industries.

Panel insights reinforced this livelihood potential. As one expert stated, “Primary mining has created assets, but downstream manufacturing is what creates sustained livelihoods. That is where communities actually see income growth.”



Crucially, aluminium-based manufacturing aligns directly with sectors that will define India's industrial future. Downstream aluminium components are already integral to:

- Renewable energy systems – solar panel frames, mounting structures, wind turbine components, transmission hardware
- Electric mobility – lightweight vehicle bodies, battery housings, motor casings, charging infrastructure
- Power infrastructure – conductors, substations, grid hardware, high-voltage systems
- Infrastructure & construction – modular structures, bridges, rail systems, building façades
- Defence & aerospace – lightweight structural components, precision assemblies
- Industrial machinery & engineering goods – frames, housings, precision parts

As India accelerates infrastructure expansion, energy transition and manufacturing self-reliance, demand across these sectors will rise sharply – placing aluminium at the centre of future industrial value chains.

Equally important is aluminium's regional development fit. Unlike export-oriented bulk industries that require port proximity, downstream units can be located near mineral belts and labour pools. This allows western and south-western Odisha to directly host manufacturing clusters rather than functioning solely as raw material suppliers.

Aluminium parks and MSME clusters anchored in these districts can therefore capture value locally, reduce migration pressures, and diversify regional economies.

In strategic terms, aluminium offers Odisha a clear pathway to transition from a resource extraction economy into an integrated manufacturing ecosystem economy – one that simultaneously strengthens industrial competitiveness, employment generation, MSME growth and regional inclusion.

Global aluminium demand is projected to rise sharply, driven by electric mobility, renewable energy systems, transmission infrastructure, and defence applications.

Aluminum downstream offers wider MSME participation and employment elasticity.

**Prof. Nilanjan Banik noted: “Aluminium has far more scope for components manufacturing and MSME participation compared to sectors like steel.” Odisha's bauxite reserves provide a foundation not merely for extraction, but for leadership in future-oriented manufacturing.**

Unlike steel-led industrialisation, which concentrates capital in a few large plants, aluminium downstream ecosystems naturally fragment into multiple segments that support MSMEs, regional dispersion and higher employment absorption. This structural difference explains why aluminium offers Odisha a fundamentally different development trajectory – one oriented toward enterprise density rather than output concentration.

**“If you create demand for aluminium components locally – for power, infrastructure, mobility – the supplier base will automatically start growing around it. That is how industrial clusters form.” Said Prof. Suresh Chandra Misra**





# Chapter 6

## **Corridor-Based Industrial Transformation — Lessons from High- Growth States**

# Corridor-Based Industrial Transformation – Lessons from High-Growth States

Benchmark manufacturing states such as Gujarat and Tamil Nadu demonstrate that industrial transformation occurs not through isolated mega-projects but through integrated corridor-style ecosystems that link resources to manufacturing value chains.

These states deliberately combined upstream resource access, midstream processing capacity and dense downstream networks, supported by MSME clusters, shared infrastructure, logistics connectivity and sector-aligned skills institutions. The result has been high enterprise density, strong employment absorption and spatially dispersed industrial growth.

For Odisha, the relevance of this model is clear. Rather than continuing with project-led extraction and primary processing, the state must adopt a corridor-based development approach in western Odisha that connects mineral development directly to diversified manufacturing ecosystems.

This requires shifting bauxite operationalisation to mission-mode execution with parallel approvals and synchronised infrastructure rollout, mirroring the time-bound execution frameworks used in benchmark states.

Embedding MSMEs directly into anchor industry value chains through structured supplier development programmes, credit facilitation and procurement linkages is essential to replicate the ecosystem density achieved in Gujarat and Tamil Nadu.

Alongside this, corridor-linked skill academies aligned with engineering and manufacturing operations must be created to support workforce transition.

Finally, successful state models underline the importance of empowered corridor-level governance institutions capable of coordinating approvals, infrastructure development, investment facilitation and ecosystem building under a unified execution framework.

Adopting this integrated corridor approach would allow Odisha to move from extraction-centric industrialisation toward employment-rich manufacturing transformation – replicating the structural pathways that have driven sustained industrial prosperity in India's leading manufacturing states.



## 6.1 The Rise of Odisha's Eastern Industrial Corridor: Anchor-Led Industrialisation Along the Coast

Eastern Odisha has increasingly emerged as a preferred destination for large-scale anchor investments, driven by port connectivity, logistics alignment, and phased industrial facilitation. The Paradip–Kendrapara belt in particular illustrates how coordinated infrastructure planning and institutional support can convert investor interest into structured industrial momentum.

A central example of this model is the proposed expansion of ArcelorMittal Nippon Steel India (AM/NS India) in coastal Odisha. The company has announced plans for a 24 million tonne per annum (MTPA) integrated steel plant in Kendrapara, with an estimated investment of approximately ₹1.02 lakh crore, to be developed in phases. In parallel, an additional proposed 7 MTPA facility near Paradip, with investment estimates of around ₹38,000 crore, further reinforces the eastern belt's industrial positioning.

While these projects are at various stages of development, they reflect a broader trend: Odisha's coastline is being structured as a long-term manufacturing corridor capable of attracting mega anchor investments.

The eastern corridor's momentum reflects structural alignment—port-led logistics through Paradip, coordinated land and clearance processes under corridor-based planning, an existing industrial base including operational pellet capacity, and the anchor effect of large steel investments that shape infrastructure prioritisation and investor confidence.

### Economic Significance

The proposed AM/NS investments represent among the largest industrial commitments in eastern India in recent years. At full scale, such integrated steel capacity would:

- Strengthen Odisha's position as a leading steel-producing state
- Reinforce the Paradip–Kendrapara belt as a manufacturing cluster
- Generate substantial direct and indirect employment over construction and operational phases
- Increase state-level industrial output and tax contributions

More importantly, the eastern corridor demonstrates that when infrastructure, port access, mineral linkages, and policy coordination align, Odisha can attract and retain mega-scale industrial capital.



## 6.1 The Rise of Odisha's Eastern Industrial Corridor: Anchor-Led Industrialisation Along the Coast

**The Structural Lesson:** The Eastern Corridor development case illustrates a broader policy insight: Anchor-led industrialisation works when upstream inputs, logistics infrastructure, and regulatory execution are synchronised.

The eastern belt shows that Odisha can create a stable investment environment capable of supporting long-gestation industrial projects. This reinforces investor confidence and strengthens the state's positioning within India's broader industrial growth narrative.

**The Broader Debate:** The success of anchor-led planning along the coast provides a benchmark for balanced regional growth.

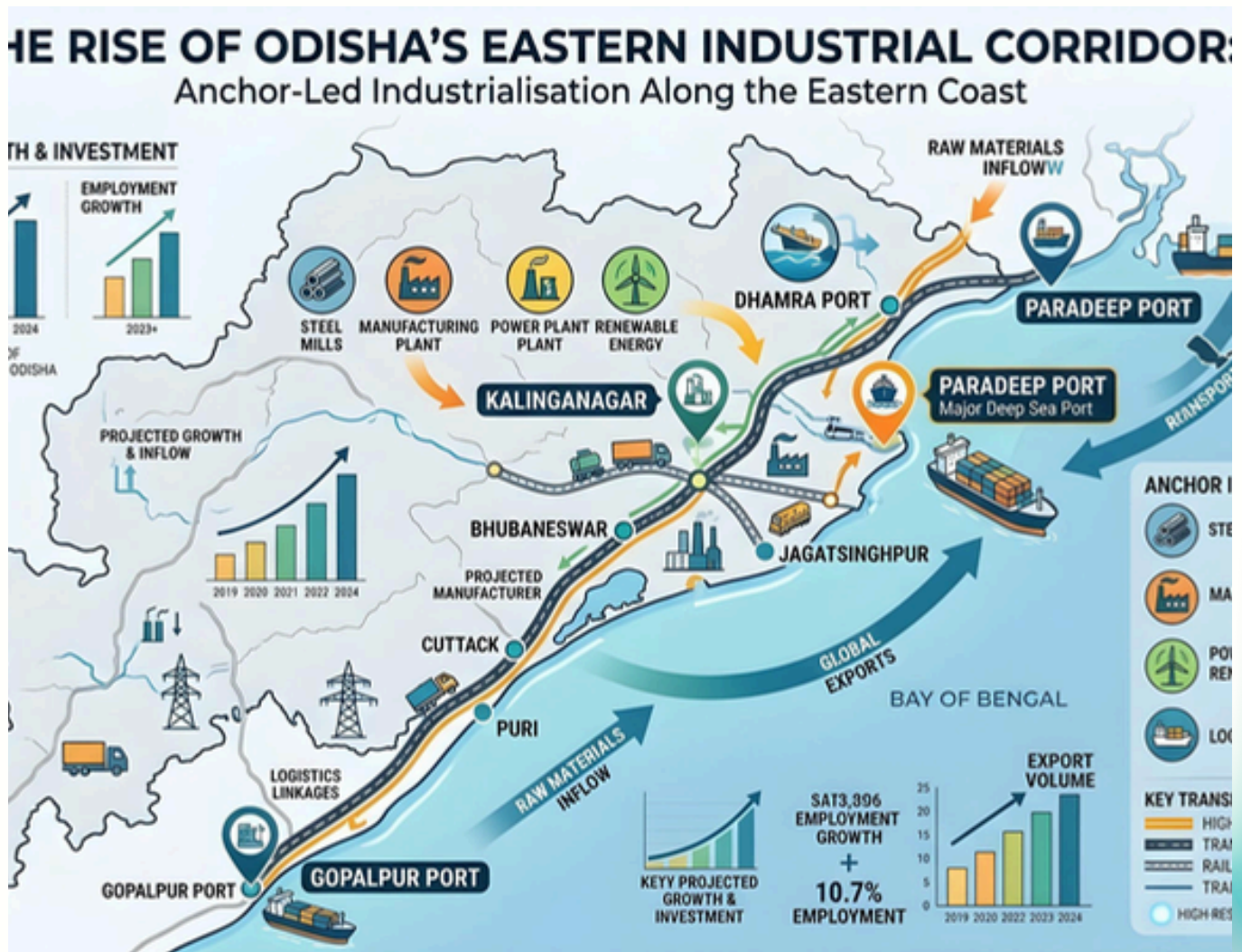
It demonstrates how structured coordination—between ports, industrial land, clearances, and long-term investment facilitation can convert industrial ambition into executable projects.



Placed alongside the Lanjigarh case study in western Odisha, this example highlights an internal contrast within the state:

- In the East: coordinated anchor investments are shaping an industrial corridor.
- In the West: existing refining capacity awaits integrated upstream operationalisation to unlock similar transformation.

The policy question that emerges is therefore not about industrial intent—but about ensuring consistent integration across regions.





# Conclusion

**From Projects to  
Ecosystems. Odisha  
has achieved scale.  
The next phase  
requires ecosystem  
depth**

# From Scale to Systems: Activating Odisha's Next Industrial Phase

Odisha has demonstrated its ability to build industrial scale. The next phase—Odisha 2.0—must now focus on converting this scale into ecosystem depth, where investments are fully operational, value chains are integrated, and growth becomes employment-intensive and regionally balanced.

The state stands at a critical inflection point. While large investments have been announced and mineral output continues to rise, the pace of translating these into fully functional industrial ecosystems remains uneven. In particular, the delayed operationalisation of approved and anchor projects in mineral-rich regions has constrained job creation, slowed enterprise development, and limited the spread of industrialisation beyond the coastal belt.

Addressing this is the most immediate and high-impact priority. Fast-tracking stalled and under-implementation projects—through time-bound clearances, last-mile coordination, and resolution of linkage and regulatory bottlenecks—can unlock a new cycle of economic activity, restore investor momentum, and create visible employment outcomes in Western Odisha.

At the same time, Odisha's next phase of growth must be more deliberately structured. The success of steel-led industrialisation along the coast offers a clear lesson: when anchor industries are embedded within broader ecosystems—supported by logistics, downstream manufacturing, MSMEs, and skilling—they create sustained multiplier effects.

A similar approach, adapted to the state's resource geography, points toward the development of a Bauxite-led Industrial Corridor in Western Odisha.

By aligning mining, alumina refining, aluminium production, and downstream manufacturing clusters within a corridor-based framework, Odisha can unlock a new layer of industrialisation that is both geographically distributed and future-facing.

To operationalise this transition, a focused set of priorities emerges:

- Develop a Bauxite-led Industrial Corridor linking resource regions with refining, metal production and downstream clusters
- Enable downstream manufacturing ecosystems through an Aluminium Value Chain comparable to that of Steel in Coastal Odisha, with targeted support for MSMEs, cluster-based incentives and plug-and-play industrial infrastructure
- Accelerate operationalisation of stalled anchor investments to unlock immediate employment and industrial momentum
- Align skilling and community development with industrial growth, ensuring that local populations participate meaningfully in emerging value chains

The economic cost of delayed integration is cumulative. Each year that mineral wealth remains weakly linked to downstream manufacturing represents foregone jobs, suppressed enterprise creation, and a widening regional divide. Conversely, decisive execution can position Odisha not just as a resource-rich state, but as a manufacturing and value-addition hub for eastern India.

Odisha has achieved scale. The defining question for the decade ahead is whether it can now build integrated, aluminium-led ecosystems that transform Western Odisha into a core driver of the state's growth story.

The background features a stylized, semi-transparent illustration of a cityscape on the left and a large, curved bridge spanning across the lower half of the image. The overall color palette is a gradient from purple at the top to green at the bottom.

THINK  
CHANGE  
FORUM