

Internship Report



Land Ports Authority of India

Systematic Seamless Secure

Title: “Dawki Land Port: Assessment of Trade Facilitation, Infrastructure Optimization, and Regional Connectivity under BBIN and the Act East Policy”

Submitted By: - Vachan Ambati

**Project Mentor: - Dr. Rekha Raikar Kumar
Member (Finance)**

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List of Abbreviations

Abbreviation	Full Form
AEP	Act East Policy
ASEAN	Association of Southeast Asian Nations
BBIN	Bangladesh–Bhutan–India–Nepal
BIS	Bureau of Indian Standards
CBIC	Central Board of Indirect Taxes and Customs
DGFT	Directorate General of Foreign Trade
EDI	Electronic Data Interchange
FIEO	Federation of Indian Export Organisations
FY	Financial Year
Gol	Government of India
GSDP	Gross State Domestic Product
HS Code	Harmonized System Code
ICP	Integrated Check Post
LPAI	Land Ports Authority of India
MT	Metric Tonne
NER	North Eastern Region
PM Gati Shakti	Prime Minister's Gati Shakti Infrastructure Plan
₹Cr	Indian Rupees in Crores
RFID	Radio Frequency Identification
SWOT	Strengths, Weaknesses, Opportunities, Threats
WTO-TFA	World Trade Organization – Trade Facilitation Agreement
ECTS	Electronic Cargo Tracking System
SOP	Standard Operating Procedure

Chapter 1: Introduction

1.1 Context

The Northeastern region of India, long hindered by geographic remoteness and limited infrastructure, has become central to India's regional connectivity agenda under the Act East Policy and the BBIN (Bangladesh–Bhutan–India–Nepal) initiative. At the heart of this transformation lies the Dawki Land Port in Meghalaya—India's easternmost land port on the Bangladesh border.

Commissioned in May 2023, Dawki marks the transition from a rudimentary border crossing into a modern, digitally enabled trade and immigration complex. Strategically located approximately 427 km from Chattogram Port, it provides landlocked Northeastern states with a vital overland transit corridor to seaports and global markets, particularly the ASEAN region.



1.2 Policy Alignment

The development of Dawki Land Port aligns with three pivotal policy frameworks:

1. **Act East Policy** – Emphasizing Northeast India’s integration with Southeast Asian economies through infrastructure-led connectivity.
2. **BBIN Motor Vehicles Agreement (2015)** – Aims to streamline cross-border transport by removing transshipment requirements and facilitating direct truck movement.
3. **PM Gati Shakti** – India’s multimodal infrastructure master plan, promoting coordination among customs, immigration, and transport authorities for efficient logistics ecosystems.

Dawki Land Port serves as a microcosm of this integrated vision, functioning under the Land Ports Authority of India (LPAI) to unify trade facilitation and security functions at the border.

1.3 Problem Statement

Despite its recent modernization, Dawki Land Port’s operational effectiveness and trade facilitation capacity remain under-evaluated. Preliminary observations and stakeholder interactions suggest persistent challenges in infrastructure utilization, procedural delays, and coordination gaps.

Critical questions remain:

- Have trade volumes and clearance times improved meaningfully post-modernization?
- What infrastructural or procedural constraints limit throughput and efficiency?
- Is revenue generation sustainable for LPAI operations at Dawki?
- To what extent does the Land Port advance broader strategic objectives under BBIN and Act East?

Answering these questions is essential to unlock the port’s potential as a regional trade gateway.

1.4 Objectives

This study addresses the above concerns through four key objectives:

1. **Operational Assessment:** Evaluate Dawki Land Port's trade flows, export-import composition, and clearance performance between May 2023 and June 2025.
2. **Bottleneck Identification:** Examine physical, procedural, and digital constraints through field observations, stakeholder interviews, and process mapping.
3. **Stakeholder Impact Analysis:** Assess how exporters, logistics providers, transport unions, and border communities are affected in terms of costs, service delivery, and livelihoods.
4. **Alignment Review:** Explore Dawki's integration into regional connectivity frameworks such as BBIN and the IMT (India–Myanmar–Thailand) Trilateral Highway, and its role in enabling ASEAN access.

1.5 Significance

This dissertation provides the first systematic performance review of Dawki Land Port following its upgrade. By combining quantitative trade data with qualitative field insights, it delivers an evidence-based evaluation of its infrastructural and policy effectiveness.

The findings aim to:

- Inform LPAI's operational strategy and investment planning
- Support inter-agency coordination mechanisms
- Guide future land port development in India's border regions
- Contribute to India's broader ambition of connecting Northeast India to Southeast Asian value chains and export markets

The evaluation framework developed—focusing on infrastructure, operations, stakeholder dynamics, and regional alignment—also offers a replicable model for assessing other border infrastructure projects across India.

Chapter 2: Literature Review

The modernization of land border infrastructure and its impact on trade facilitation have been a subject of growing focus in South Asia, where cross-border logistics continue to face structural and procedural constraints. This chapter synthesizes global and regional literature on border infrastructure, trade corridors, and institutional frameworks to establish the analytical base for evaluating the Dawki Land Port .

2.1 Infrastructure-Led Trade Facilitation

Empirical studies globally confirm that efficient border infrastructure reduces clearance time, lowers transaction costs, and improves access to international markets. Both physical upgrades and procedural simplification play a critical role in boosting throughput and lowering logistics delays. Paperless systems and digitized documentation processes have emerged as effective tools for improving cross-border efficiency, reducing human interface, and enhancing transparency.

Digitization, in particular, has shown a direct correlation with reduced processing time and improved inter-agency coordination. Electronic data interchange systems and unified command structures have significantly curtailed redundant inspections and paperwork, accelerating the movement of goods. These insights provide operational benchmarks relevant to evaluating Dawki's performance post-modernization.

Multilateral development frameworks also identify infrastructure gaps in Northeast India as major impediments to regional trade. Specific mention of the Dawki-Tamabil corridor in such plans underscores its strategic relevance and supports the case for rigorous evaluation of its performance following modernization.

2.2 BBIN Corridor Development

Research on the BBIN region emphasizes that seamless corridor development requires synchronized efforts across borders. Isolated infrastructure development has limited impact unless mirrored by corresponding upgrades on the other side and supported by enabling legal frameworks. The Dawki-Tamabil corridor reflects this challenge, where outcomes are closely tied to coordination between Indian and Bangladeshi authorities.

The BBIN Motor Vehicles Agreement was envisioned to simplify vehicular movement across borders by eliminating transshipment. However, its incomplete implementation continues to delay full realization of logistical benefits. Research suggests that regulatory harmonization, mutual recognition of permits, and coordinated border management are essential prerequisites for this framework to succeed.

Beyond the BBIN region, corridor development also links Dawki to broader trade routes like the India–Myanmar–Thailand (IMT) Trilateral Highway. This places Dawki within a network that extends beyond bilateral trade, enhancing its strategic value for regional integration.

2.3 Digital Trade Facilitation and WTO Commitments

India's obligations under the WTO Trade Facilitation Agreement have led to partial adoption of systems such as electronic customs clearance, risk-based inspections, and single-window interfaces. While progress has been made, full-scale implementation remains uneven.

Literature on trade digitization underscores that benefits materialize only when agencies share data in real time and processes are streamlined end-to-end. Dawki's effectiveness depends not only on having digital tools in place but also on their actual usage and interoperability among customs, immigration, and other regulatory bodies.

2.4 Insights from Northeast India's Trade Corridors

Studies of older Indo-Bangladesh land ports like Petrapole-Benapole and Agartala-Akhaura show tangible improvements in throughput after infrastructure modernization. However, Dawki presents a distinct case. Its location in a hilly terrain, its lower baseline volume, and its recent development makes it fundamentally different from high-volume flatland crossings.

There is limited academic or policy literature assessing newly operational land ports in Northeast India. Dawki, in particular, lacks documented performance data or impact studies since its inauguration. Existing state policy documents acknowledge Dawki's potential for export diversification but do not provide clear implementation strategies or evaluation indicators.

2.5 Research Gaps

The current literature provides a strong theoretical consensus that infrastructure upgrades and digitization improve border performance. However, there is a gap in empirical validation, particularly for emerging land ports in remote regions. Dawki remains largely absent from academic and policy research since its modernization.

Another gap lies in the limited inclusion of operational actors—such as transporters, customs officers, local traders, and community members—in existing assessments. These perspectives are critical for identifying practical barriers and inefficiencies that top-down policy documents often overlook.

Additionally, most studies rely on official data without triangulating findings through field engagement. This limits their ability to capture the full range of issues affecting day-to-day operations at the border.

2.6 Contribution of the Study

This dissertation aims to fill these gaps through an integrated approach that combines statistical analysis with field research. It brings together data on trade flows, stakeholder feedback, and institutional practices to provide a comprehensive post-modernization assessment of Dawki Land Port.

The literature reviewed in this chapter supports a set of clear assumptions: Infrastructure modernization should reduce delays, improve trade volumes, and enhance cost-efficiency. However, outcomes depend heavily on how infrastructure is managed, how procedures are implemented, and how cross-border coordination is maintained.

By evaluating Dawki against these parameters, this research contributes actionable insights for policy improvement and offers a replicable framework for assessing other land ports across India's international borders.



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Chapter 3: Overview of Dawki Land Port

The Dawki Land Port marks a major shift in India's approach to border infrastructure in the Northeast. Transitioning from a basic border point to a modern, digitally enabled trade facility, Dawki now stands as a key node for India's regional connectivity with Bangladesh and the ASEAN corridor. Commissioned in May 2023 under the Land Ports Authority of India (LPAI), the port combines physical infrastructure development with procedural digitization, designed to establish Dawki as a functional and strategic trade gateway.

3.1 Geographic and Strategic Relevance

Located in West Jaintia Hills, Meghalaya, Dawki lies on the crucial Dawki–Tamabil corridor, offering direct access to Bangladesh's commercial centres. Its proximity to Chattogram Port—roughly 427 km—presents a significantly shorter trade route for exporters in Northeast India, in contrast to the longer Kolkata-bound logistics corridor.

The port serves as a natural extension of regional connectivity projects such as Asian Highways 1 and 2, and forms a potential feeder link to the India–Myanmar–Thailand Trilateral Highway. This situates Dawki not just within the context of bilateral trade, but within a larger strategic vision of regional and cross-border supply chain integration.

3.2 Infrastructure and Facilities

Spread over 23 acres, Dawki Land Port is built to manage both cargo and passenger flows through a combination of core and support facilities.

Cargo Handling infrastructure includes a dedicated terminal (1,237 sq. m), a warehouse (956 sq. m), a 120 MT weighbridge, and a cargo parking area of 12,000 sq. m. While functional, parking capacity remains under strain during peak traffic.

Passenger Terminal infrastructure covers 4,626 sq. m and includes immigration counters, waiting areas, vehicle booking desks, medical support, free shuttle services to the border point, ATM access, forex counters, and retail amenities. Internet and Wi-Fi facilities remain pending under the tendering process.

Security and Digital Systems feature CCTV surveillance, radiation detection for imports, and electronic systems for cargo processing. Watch towers and full-body truck scanners are part of the broader security plan, with further technological upgrades proposed in the next phase.

Support Utilities include backup power systems, sewage and water treatment facilities, well-laid internal roads with drainage, and wayfinding signage, ensuring round-the-clock operability and user navigation.

3.3 Operational Framework

Dawki operates through a multi-agency model involving customs, immigration, BSF, quarantine, and state-level departments. BSF presence includes jawan and women's barracks, quarters for officers, and other on-site housing to ensure secure functioning.

Digitized customs clearance via Electronic Data Interchange (EDI) has been implemented, though periodic outages in electricity and internet connectivity have forced occasional fallback to manual processing, affecting efficiency.

3.4 Trade Composition

Dawki Land Port is predominantly export-driven, with export-to-import value ratios around 30:1. The export profile is shifting from mineral dependence toward a broader commodity mix.

Minerals such as limestone and boulder stone historically dominate, but the trade basket is diversifying. There has been a notable rise in exports of paper products, methanol, and agricultural items including rice and raisins, marking the emergence of new sectors.

Imports remain modest and are concentrated in plastic goods, float glass, and construction materials, primarily for local consumption. High-volume transit imports are minimal.

3.5 Revenue and Sustainability

LPAI's income from Dawki Land Port is heavily concentrated in weighment and parking charges, together accounting for over 90% of annual revenue. This creates fiscal sensitivity to trade volume fluctuations. Revenues dropped from ₹4.05 crore in FY 2023–24 to ₹2.62 crore in FY 2024–25, and further declined to ₹0.48 crore in Q1 of FY 2025–26.

Breakdown of revenue sources:

- Weighment charges: 56–58%
- Parking fees: 35–40%
- Miscellaneous income: <10%

This narrow revenue base poses sustainability concerns and underscores the need to diversify income sources or enhance throughput.

3.6 Connectivity and Access

The Shillong–Dawki highway remains the primary route for cargo movement. Road width limitations and congestion often lead to long queues, extending into Dawki town and disrupting daily life.

Upgradation of the corridor is under progress, with road widening and multimodal alignment supported under the PM Gati Shakti framework. Land acquisition and project approvals are being facilitated by the state government through the Commerce and Industries Department.

3.7 Technology and Future Upgrades

Security systems such as radiation detection are in place, but trade facilitation tools remain underdeveloped. The absence of queue management systems, single-window platforms, and digital payment integration limits the port's operational efficiency.

Planned upgrades include RFID tracking, automated gates, and business intelligence dashboards, aligned with WTO trade facilitation goals and LPAI's modernization roadmap.

3.8 Summary

Dawki Land Port is strategically positioned and structurally sound, with a foundation suitable for high-volume, diversified trade. Yet, challenges remain in achieving full operational optimization. Key issues include hinterland bottlenecks, overreliance on limited revenue streams, underutilization of digital tools, and incomplete integration with regional corridors.

Maximizing Dawki's potential requires focused efforts on streamlining operational coordination, strengthening financial models, and accelerating infrastructure and technology upgrades. As a pilot case in Northeast India's trade integration, Dawki's performance will shape future policy and investment decisions across India's land port network.

Chapter 4: Research Methodology

4.1 Research Approach and Prioritization

This study adopts a trade-centric, evidence-driven methodology to evaluate the performance of Dawki Land Port since its modernization in May 2023. The central objective is to assess how Dawki Land Port facilitates cross-border trade, identify constraints limiting its throughput and revenue generation, and propose actionable interventions for enhancing its trade-handling capacity and financial sustainability under the Land Ports Authority of India (LPAI).

A mixed-methods design was chosen to integrate quantitative trade data analysis with qualitative insights from port users and stakeholders. This approach is particularly suited to land port studies, where infrastructural performance must be assessed in tandem with user behaviour, logistical realities, and institutional coordination.

4.2 Research Design and Analytical Pillars

The study is structured around four analytical pillars; each aligned with the dissertation's core trade objectives:

1. **Trade Volume and Composition Analysis** – Using time-series data to measure export-import flows, commodity shifts, and throughput changes post-modernization
2. **Revenue Stream Assessment for LPAI** – Evaluating how port usage translates into financial returns and the sustainability of current income models
3. **Bottleneck Identification and Process Mapping** – Pinpointing operational frictions through field observations, focusing on queuing, documentation, inspection delays, and digital system reliability
4. **Stakeholder-Centric Trade Facilitation Evaluation** – Capturing ground-level perspectives from exporters, brokers, customs officials, and transporters on how the Land Port's current design supports or obstructs trade

Strategic alignment with policy frameworks (BBIN, Act East, WTO-TFA) is assessed to contextualize trade facilitation measures, not as a standalone objective.

4.3 Primary Data Collection

4.3.1 Field Observations at Dawki Land Port

Fieldwork was conducted through multiple site visits, capturing daily operations across cargo terminals, weighbridges, parking lots, and customs clearance zones.

Observations focused on:

- Average clearance time per truck
- Infrastructure utilization during peak hours
- Queue management, space constraints, and re-routing inefficiencies
- Manual fallback incidents due to digital system failures

These insights served to validate throughput data and expose infrastructural or procedural bottlenecks invisible in official statistics.

4.3.2 Stakeholder Interviews

Structured interviews were conducted with a diverse pool of respondents involved directly in trade operations:

- **Customs and immigration officers** – On clearance bottlenecks, EDI system usage, and inter-agency coordination
- **LPAI officials** – On revenue patterns, infrastructure capacity, and planned upgrades
- **Exporters and customs brokers** – On documentation burdens, logistics costs, and time delays
- **Truck drivers and union leaders** – On waiting times, weighment queues, and road conditions
- **Local residents** – On traffic disruptions and livelihood impacts

Interviews yielded over 18 pages of transcribed feedback. These were thematically analysed to identify converging concerns about trade process inefficiencies and port underutilization.

4.3.3 Government Consultation

A detailed consultation was held with the Deputy Director of Industries and Commerce, Meghalaya, to understand:

- State-led export promotion policies
- Dawki's role in agricultural trade diversification

- Inter-departmental project coordination
- PM Gati Shakti and BBIN corridor integration efforts

Responses helped situate Dawki's trade facilitation efforts within larger state and regional economic plans.

4.4 Secondary Data Analysis

4.4.1 Trade Statistics

Export-import data were obtained from LPAI and customs authorities for the period **May 2023 to June 2025**, covering:

- Monthly and quarterly truck movement volumes
- Commodity-wise trade value (₹) and tonnage (MT)
- Export-import ratios and diversification trends
- Seasonal peaks and troughs in border traffic
- Revenue breakdown by weighment, parking, and other services

Special attention was paid to the emerging commodity profile (paper products, methanol, rice) and their implications for Dawki's shift from mineral dependency to diversified exports.

4.4.2 Revenue Flow Analysis

LPAI revenue data were disaggregated by category to examine:

- Contribution of weighment (primary income source)
- Variability in parking charges based on truck inflow
- Year-on-year revenue stability and vulnerability
- Relationship between trade volume decline and income dip (from ₹4.05 crore in FY 2023–24 to ₹0.48 crore in Q1 2025–26)

The narrowness of Dawki's revenue model was a critical analytical theme—pointing to structural fragility in the face of declining throughput.

4.4.3 Policy and Infrastructure Documents

To assess enabling policy conditions for trade, the following documents were reviewed:

- BBIN Motor Vehicles Agreement provisions on cross-border vehicular movement
- WTO Trade Facilitation Agreement guidelines (single window, advance ruling)
- PM Gati Shakti master plan alignment with Dawki's hinterland road upgrades
- State-level export policies and industrial promotion targets

These frameworks were analysed for their potential to scale Dawki's trade volumes and strengthen its financial performance.

4.5 Analytical Techniques

Quantitative Analysis

- Time-series charts of truck volumes and export-import flows
- Commodity shift tracking via change-in-share calculations
- Revenue contribution graphs to highlight fiscal imbalance
- Utilization metrics (e.g., parking occupancy vs capacity)

Qualitative Analysis

- Thematic coding of interview data into trade-centric categories (delays, costs, digitization gaps)
- Operational bottleneck mapping across procedural checkpoints
- Stakeholder satisfaction matrices for key user groups

SWOT Analysis

A SWOT framework was employed to consolidate findings:

- **Strengths** – Modern facilities, strategic location, mineral base
- **Weaknesses** – Weak hinterland road, over-reliance on minerals, low import flows
- **Opportunities** – Diversification, BBIN trucking, agri-exports
- **Threats** – Volatile traffic, internet outages, policy delays

Supply Chain Mapping

Product flows were mapped from Meghalaya farms and quarries to Bangladeshi destinations via Dawki, identifying friction points in the logistics chain and estimating potential efficiency gains under a seamless BBIN protocol.

4.6 Validation and Triangulation

Findings were cross-verified between data sources:

- Truck volume decline (reported by stakeholders) confirmed through monthly customs logs
- Revenue fall corroborated by both LPAI staff and secondary financial statements
- Queuing delays and digital failures were evident in both user complaints and field observation logs

Stakeholder perspectives were compared across categories to ensure balanced interpretation, and areas of consensus (e.g., lack of queue management systems) informed the recommendations chapter.

4.7 Quantitative Formulas and Analytical Tools Used

This section presents all quantitative techniques, statistical formulas, and mathematical logic used in this dissertation to analyze Dawki ICP's trade performance, revenue modeling, infrastructure utilization, and stakeholder responses. Every percentage, trend, and metric reflected in Chapter 5 is the outcome of clear, replicable calculations outlined below. These methods form the empirical core of the research design.

4.7.1 Year-on-Year (YoY) Percentage Change in Trade or Revenue

Formula: YoY Change (%) = [(Current Year Value - Previous Year Value) / Previous Year Value] × 100

Used For: Used to assess trends in export, import, and LPAI revenue growth or decline over FY 2023–24 to FY 2025–26 Q1.

Variables:

- Current Year Value: Trade value or revenue in the later financial year (e.g., ₹110.4 Cr)
- Previous Year Value: Trade value or revenue in the earlier financial year (e.g., ₹120.7 Cr)

Example: Export Decline: $[(110.4 - 120.7) / 120.7] \times 100 = -8.5\%$

4.7.2 Monthly Average Calculation

Formula: Monthly Average = Annual Trade Value ÷ 12

Used For: To normalize trade data for monthly trend comparison across different fiscal years.

Variables:

- Annual Trade Value: Total export/import/revenue value in a financial year

Example: FY 2023–24: ₹120.7 Cr ÷ 12 = ₹10.06 Cr per month

4.7.3 Export-to-Import Ratio

Formula: Export-Import Ratio = Total Export Value / Total Import Value

Used For: To reflect Dawki ICP's trade directionality, showing it as a high-export, low-import corridor.

Variables:

- Total Export Value: Sum of export trade value in ₹ Cr
- Total Import Value: Sum of import trade value in ₹ Cr

Example: ₹120.7 Cr / ₹4.0 Cr = 30.2

4.7.4 Component Revenue Share (%)

Formula: Revenue Share (%) = (Component Revenue / Total Revenue) × 100

Used For: To analyze the revenue model of LPAI, especially dominance of weighment and parking.

Variables:

- Component Revenue: Revenue from weighbridge or parking (e.g., ₹2.27 Cr)
- Total Revenue: Total annual revenue (e.g., ₹4.05 Cr)

Example: $(2.27 / 4.05) \times 100 = 56\%$ from weighment charges

4.7.5 Projected Annual Revenue from Quarterly Data

Formula: Projected Revenue = Q1 Revenue × 4

Used For: To forecast full-year LPAI revenue based on Q1 collections.

Variables:

- Q1 Revenue: LPAI revenue in Q1 FY 2025–26 (e.g., ₹0.48 Cr)

Example: ₹0.48 Cr × 4 = ₹1.92 Cr (projected)

4.7.6 Percentage Share of a Commodity or Item

Formula: Commodity Share (%) = (Commodity Value / Total Export Value) × 100

Used For: Used to quantify the dominance or growth of specific exports (e.g., limestone, methanol, rice).

Variables:

- Commodity Value: FOB value of a given export (e.g., ₹74.7 Cr)
- Total Export Value: Total value of all exports (e.g., ₹120.7 Cr)

Example: Limestone = $(74.7 / 120.7) \times 100 = 61.9\%$

4.7.7 Commodity Growth Rate

Formula: Commodity Growth (%) = [(Current Value - Past Value) / Past Value] × 100

Used For: To assess individual product growth—e.g., methanol, paper, rice—year-on-year.

Variables:

- Current Value: Latest export value of the commodity
- Past Value: Previous year's value of the same commodity

Example: Methanol: $(10.6 - 0.643) / 0.643 \times 100 = \sim 1550\%$

4.7.8 Decline Rate in Trade or Revenue

Formula: Decline (%) = [(Previous - Current) / Previous] × 100

Used For: To evaluate drop in exports or LPAI income across years.

Variables:

- Previous: Earlier trade or revenue value
- Current: Later trade or revenue value

Example: Parking Revenue = $(1.6 - 1.1) / 1.6 \times 100 = 31.25\%$ decline

4.7.9 Total Value (Summation)

Formula: Total Value = Sum of Individual Commodity or Revenue Components

Used For: Used for computing total export, import, or revenue aggregates.

Variables:

- Individual Components: E.g., limestone + boulder + methanol + paper + etc.

Example: Limestone (₹74.7 Cr) + Boulder (₹31.7 Cr) = ₹106.4 Cr

4.8 Scope and Limitations

- Temporal coverage is limited to 26 months post-modernization; longer-term trends may yet evolve
- Sample size in interviews is diverse but not statistically generalizable
- Geographic focus is exclusive to Dawki Land Port; comparisons with other land ports are not included
- Data accuracy depends on official records; third-party validation was not possible within project scope

4.9 Ethical Considerations

All stakeholder responses were anonymized, and permissions were obtained before conducting fieldwork and data collection. Institutional transparency was maintained through clear disclosure of research intent and data usage terms.

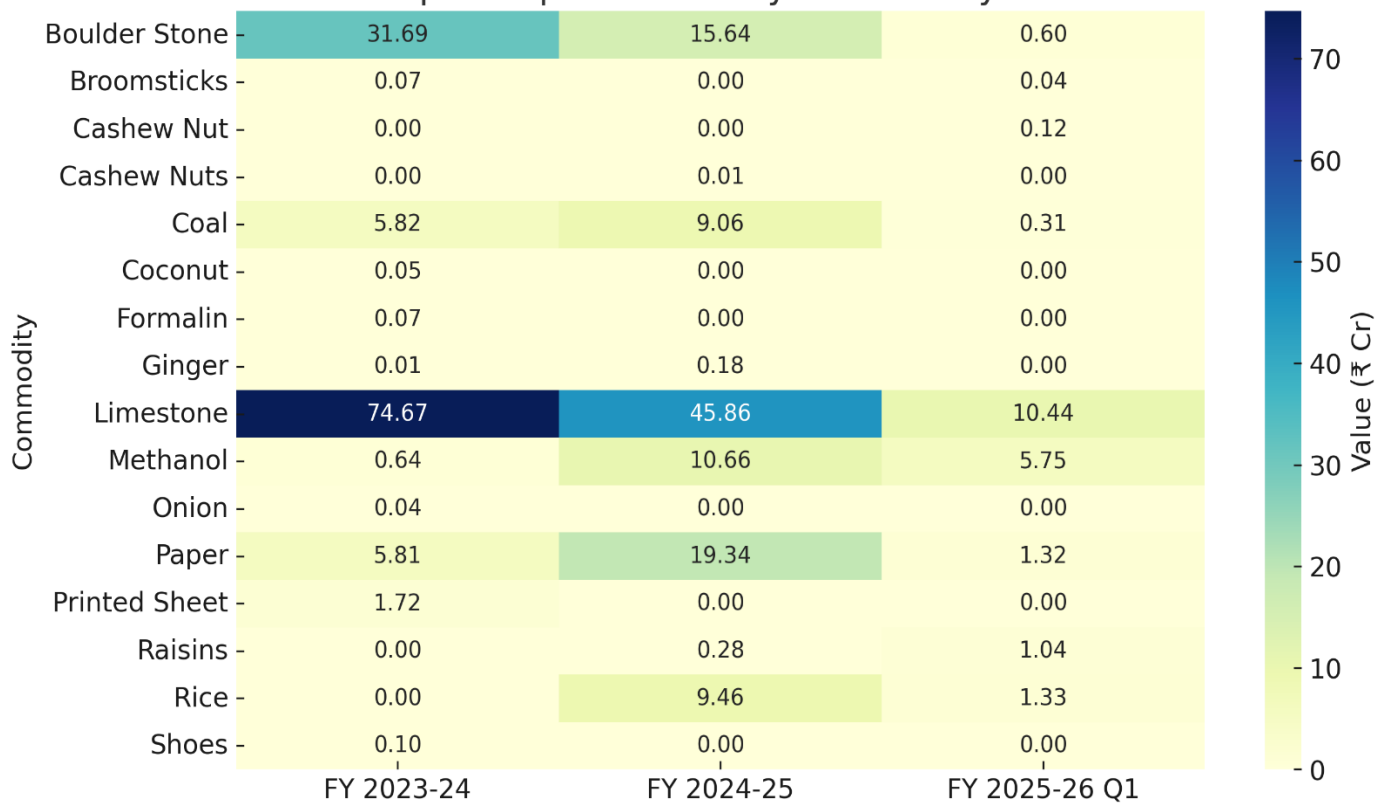
Chapter 5: Data Analysis, Findings, and Discussion

5.1 Introduction

Post-modernization performance of the Dawki Land Port presents a complex picture of early gains, persistent inefficiencies, and untapped strategic potential. Drawing on primary field research and structured analysis of trade and revenue data from May 2023 to June 2025, this chapter offers a comprehensive, evidence-based evaluation of Dawki's performance in trade facilitation, infrastructure utilization, financial sustainability, and regional integration.

5.2 Trade Performance and Evolution

Heatmap of Export Values by Commodity and Year

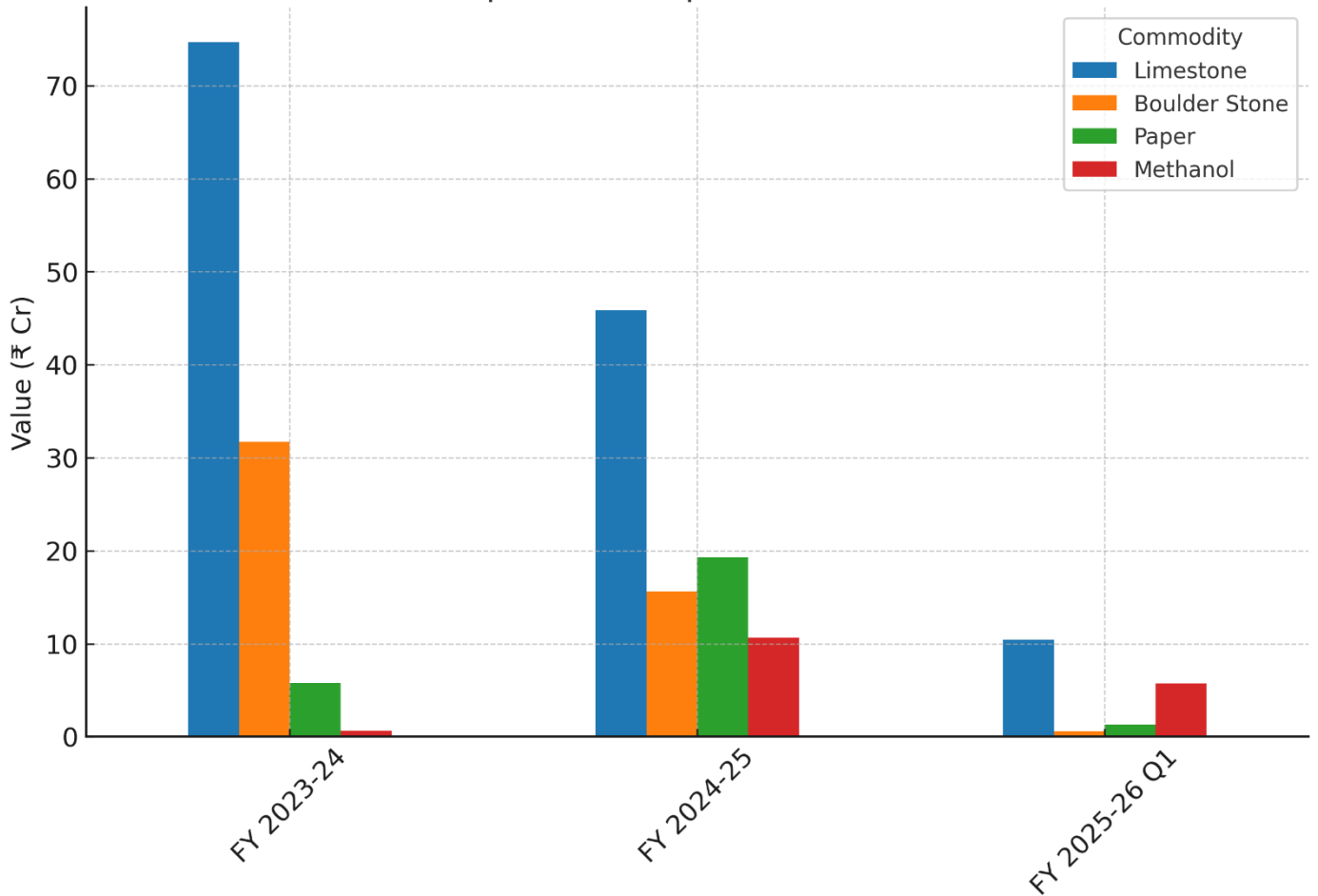


5.2.1 Trade Volumes and Directionality

Dawki Land Port remains export-dominated, with exports surpassing imports by a ratio of nearly 30:1. Export values reached ₹120.7 crore in FY 2023–24, declined to ₹110.4 crore in FY 2024–25, and stabilized at ₹22.5 crore in Q1 FY 2025–26. Monthly averages declined from ₹10.48 crore to ₹7.51 crore—indicating weakening momentum despite baseline modernization.

Imports remained below ₹1 crore per month across all periods, with no significant transit trade or industrial import diversification.

Comparative Export Value Trends



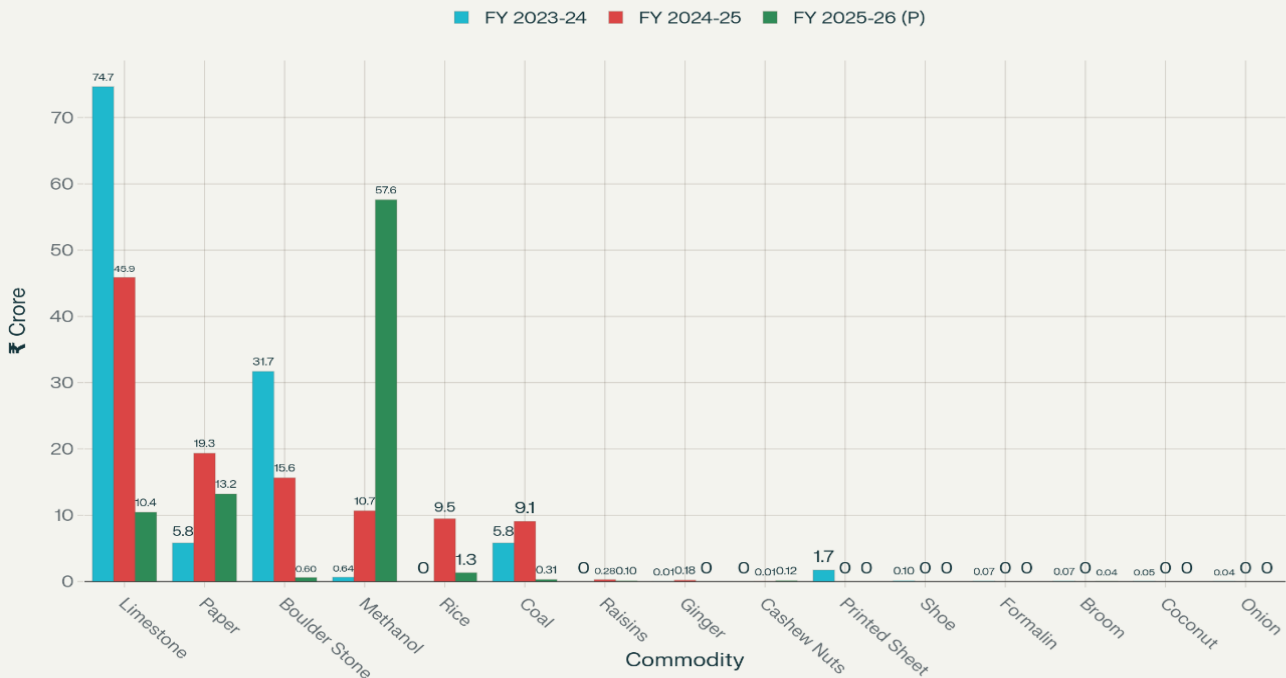
5.2.2 Commodity Diversification

A significant structural shift in exports is underway. While limestone and boulder stone historically accounted for over 90% of outbound trade, recent data shows diversification into:

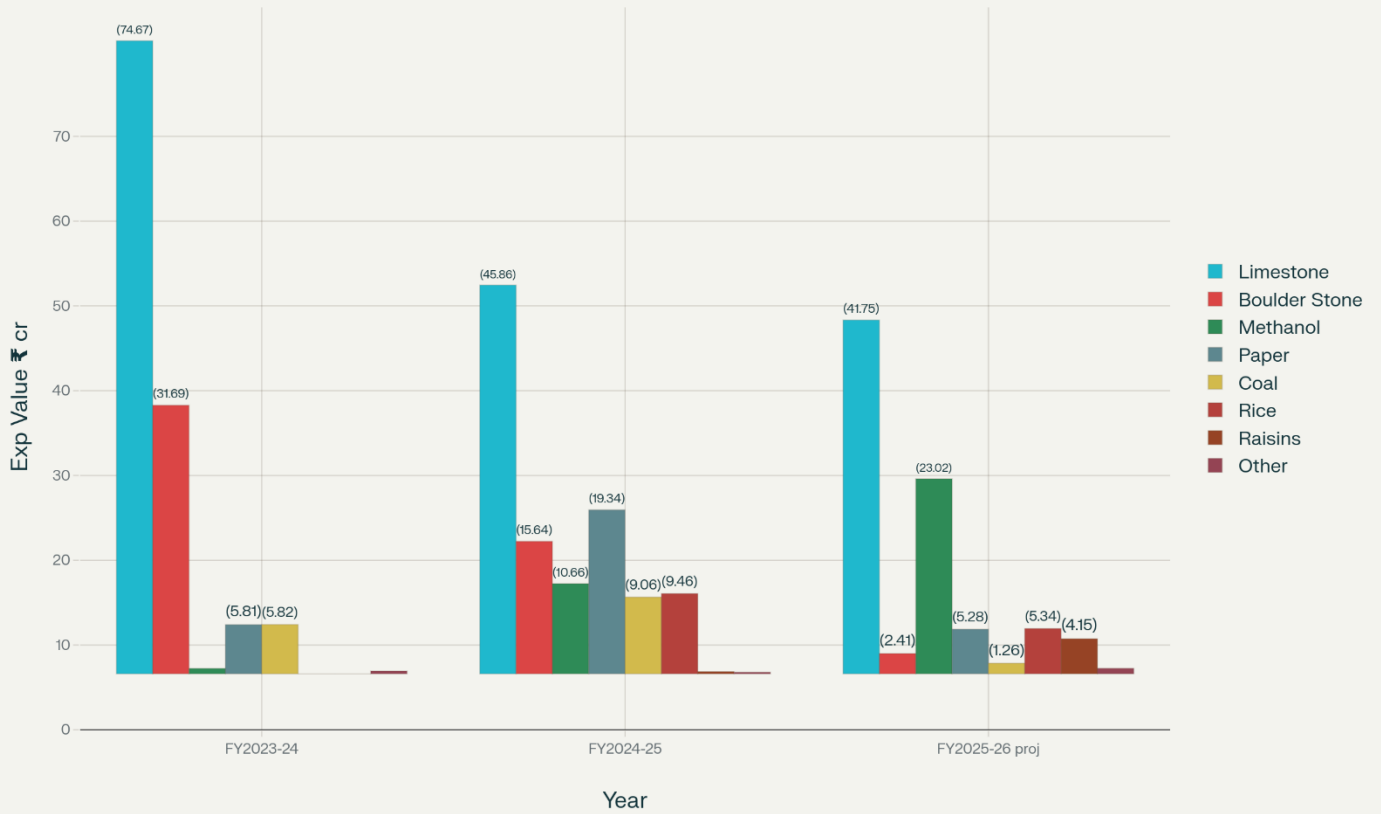
- **Paper products** – 230% growth
- **Methanol** – 1500% surge
- **Rice** – ₹9.5 crore in FY 2024–25
- **Raisins and cashew** – New high-value categories

This evolution positions Dawki as a nascent multi-commodity trade hub, reducing exposure to fluctuations in the mineral trade.

Export Values by Commodity Comparison

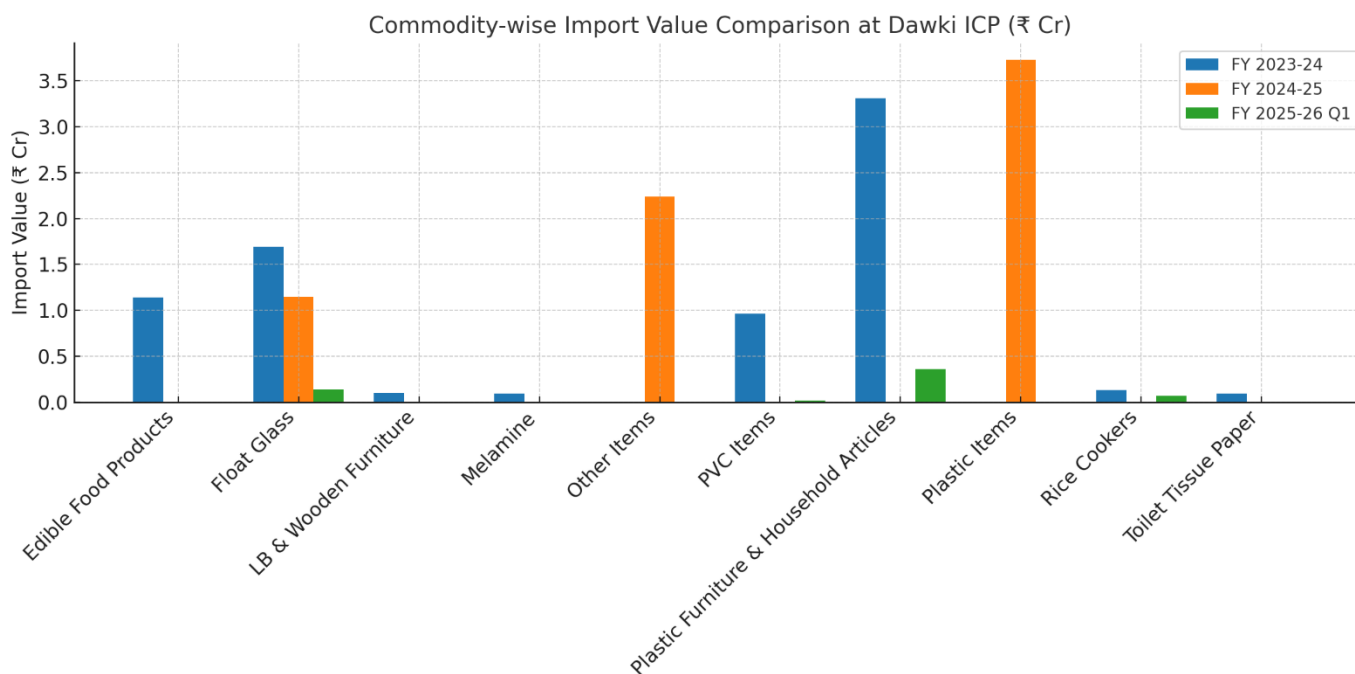


Exports by Commodity (₹ cr)



5.2.3 Import Profile

Imports remain marginal and concentrated in plastic goods and float glass, mostly for local use. Despite modernization, Dawki has yet to attract industrial or transit-focused imports. Import values fell from ₹8.69 crore to ₹7.13 crore, with further decline to ₹0.67 crore in Q1 FY 2025–26.



5.3 Infrastructure Utilization and Constraints

5.3.1 Physical Bottlenecks

- Approach road from Shillong is the most critical choke point, with narrow sections leading to congestion that spills into Dawki town.
- Parking yard capacity (~150 trucks) is insufficient, forcing most waiting trucks onto public roads.
- Single operational weighbridge delays processing; a second weighbridge remains non-functional.

5.3.2 Cold Chain and Testing Infrastructure

- Absence of cold storage hinders export of perishables and high-value agri-products.
- No on-site quality testing—samples must be transported to distant labs in Shillong or Guwahati, increasing delays and costs.

- Lack of mutual recognition with Bangladeshi agencies leads to duplicate inspections, limiting trade efficiency.

5.4 Procedural Efficiency and Digital Systems

5.4.1 Digitization and System Gaps

EDI-based customs processing is functional but frequently interrupted due to **power and internet outages**, forcing reversion to manual procedures. Full clearance under digital systems averages **under 10 minutes**, proving its efficiency when uninterrupted.

Key missing systems:

- No e-token queue management
- No integrated single-window clearance
- Absence of cashless payments and real-time SMS alerts

5.4.2 Coordination Misalignment

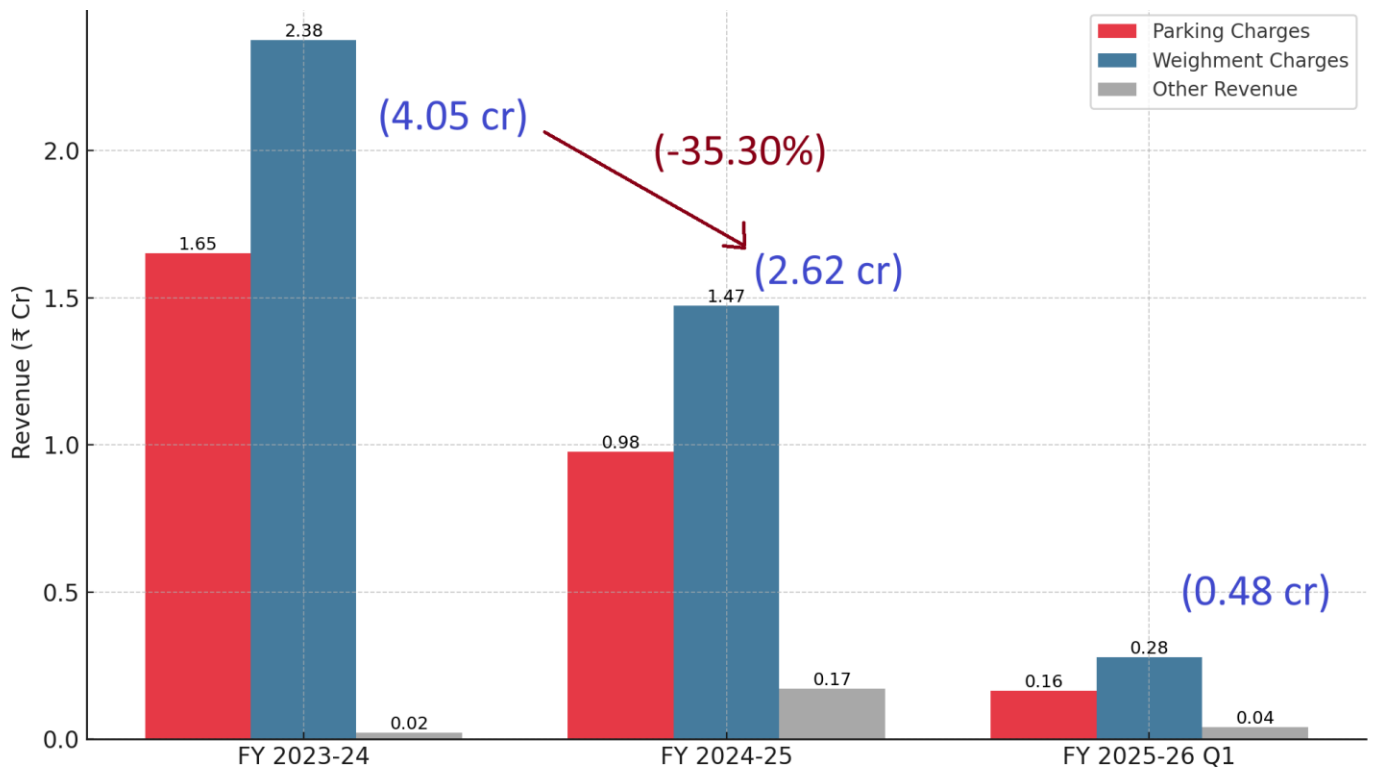
- **Misaligned operating hours:** Bangladesh closes by 2 PM; India operates till 5–6 PM. This results in non-functional cross-border movement on at least two days per week, cutting weekly throughput by over 25%.
- **Redundant documentation:** Single shipments require multiple agency sign-offs, delaying clearance even in the absence of corruption.

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5.5 Revenue Analysis and Financial Risks



5.5.1 Revenue Trends

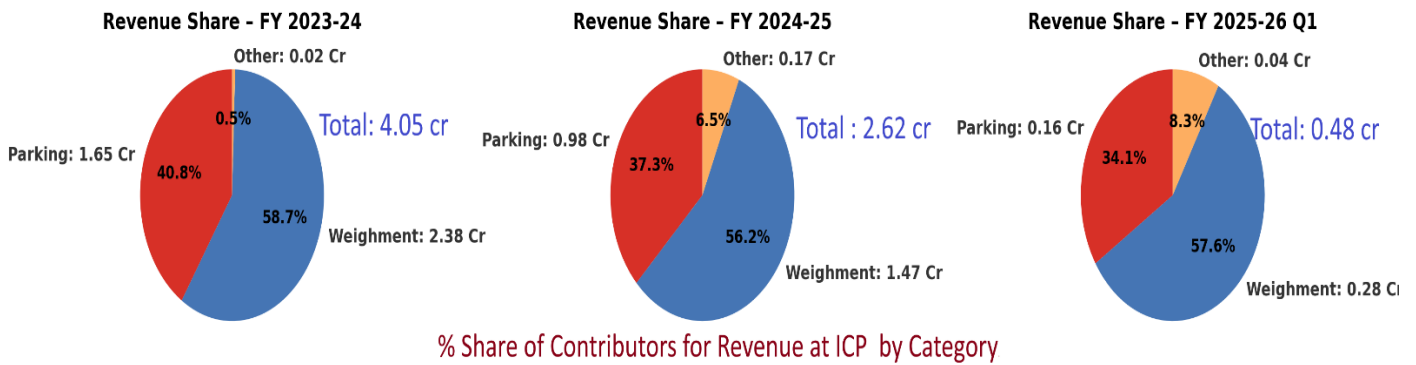
LPAI revenue from Dawki fell from ₹4.05 crore in FY 2023–24 to ₹2.62 crore in FY 2024–25—a 35% decline—and plummeted to ₹0.48 crore in Q1 FY 2025–26, indicating likely revenue below ₹2 crore if trends persist.

Over **90% of revenue** is generated from:

- **Weighment charges:** 56–58%
- **Parking fees:** 35–40%

This **one-dimensional model** renders operations highly vulnerable to trade flow fluctuations.

Comparative Revenue Share by Component (₹ Cr)



5.5.2 Diversification Imperative

“Other services” contribute less than 10% of revenue. Untapped potential includes:

- Cold storage usage fees
- Warehousing
- Testing services
- Digital facilitation charges

Without infrastructure expansion, revenue diversification remains theoretical.

5.6 Stakeholder Perspectives and Impacts

5.6.1 Exporters and Logistics Providers

Positive feedback:

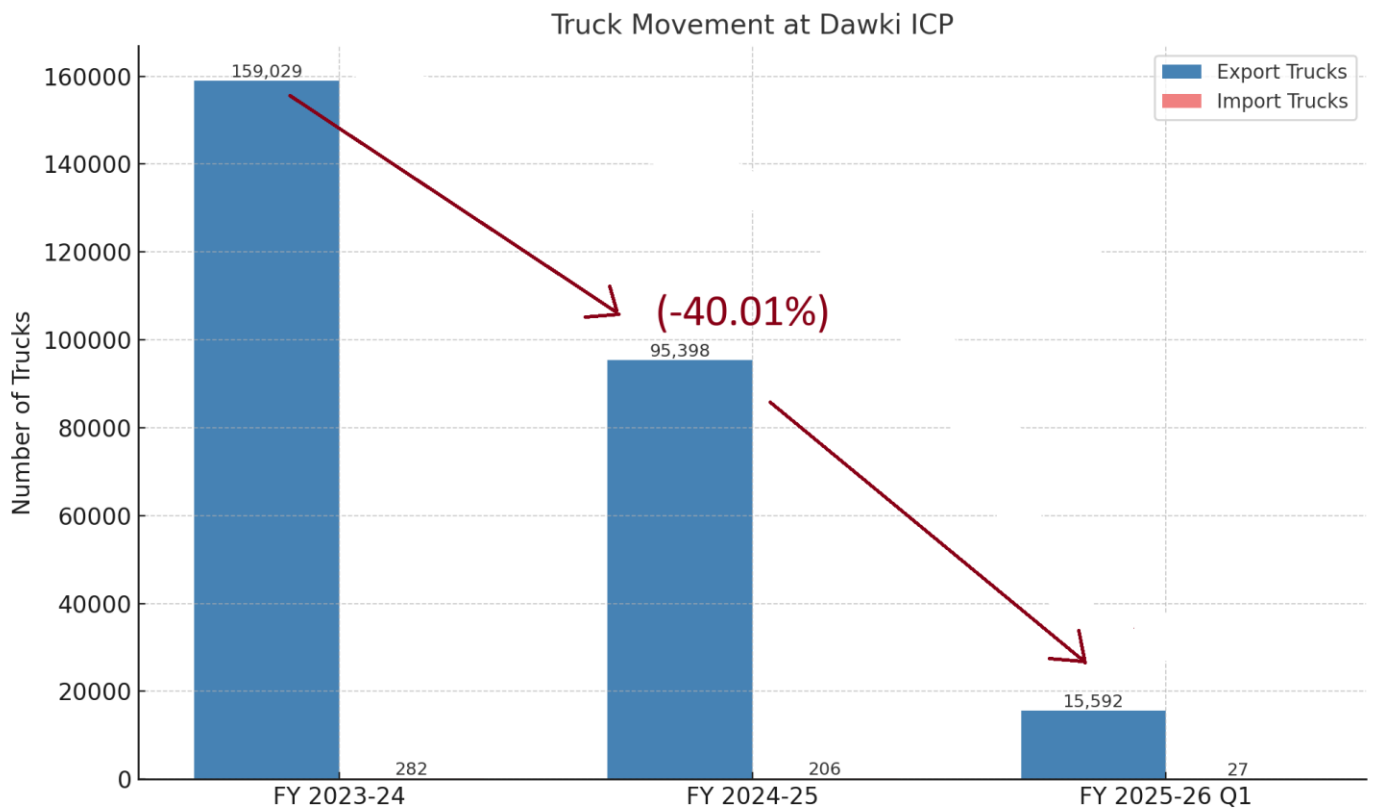
- Faster clearance during digital uptime
- Reduced corruption
- Better basic facilities

Concerns:

- Queue congestion
- Multi-point documentation

- Limited-service reliability

Routing through Bangladesh offers ₹4/km cost savings versus Kolkata—highlighting the corridor’s latent economic advantage if friction points are addressed.



5.6.2 Local Community

Positive outcomes include employment generation, growth in ancillary services, and increased visibility for tourism. However, uncontrolled truck queues have raised road safety and congestion concerns in Dawki town.

Absence of **cultural exchange platforms** or **border haats** limits soft-power and informal trade potential.

5.7 State Government and Policy Alignment

5.7.1 Meghalaya State Priorities

The state recognizes Dawki’s strategic importance but lacks granular targets or timelines. Key actions include:

- Coordination via Meghalaya Investment Promotion Authority (MIPA)
- PM Gati Shakti Road widening
- BorderHaats expansion (5 existing; 2 planned)

Deployment delays for plant and animal quarantine facilities highlight coordination bottlenecks.

5.7.2 Policy Gaps

- **BBIN MVA** remains partially implemented, restricting cross-border trucking potential.
- Estimated capacity of **150 trucks/day** remains theoretical without road and policy coordination.
- Lack of **bilateral logistics governance mechanisms** hinders seamless trade.

5.8 Regional Trade Alignment

5.8.1 BBIN Framework

Despite location advantages, Dawki's integration into the BBIN corridor remains underleveraged. Policy-level gaps and infrastructure asymmetry prevent effective through-trucking.

5.8.2 WTO TFA and Act East Policy

Digital systems meet partial WTO compliance, but lack of single-window platforms, inter-agency integration, and quality harmonization limits Dawki's trade facilitation potential.

Under Act East Policy, Dawki holds promise as a trade link to ASEAN via Chattogram and the IMT Highway. Realizing this vision requires procedural reform and infrastructure upgrades beyond current levels.

5.9 SWOT Summary

Strengths

- Strategic proximity to Chattogram Port
- Modern customs and passenger facilities
- Clean operational environment
- Export basket diversification

Weaknesses

- Inadequate road and parking infrastructure
- Missing cold chain and testing labs
- Fragile revenue model
- Digital system unreliability

Opportunities

- BBIN MVA implementation
- Cold storage and value-added services
- Industrial export expansion
- ASEAN corridor integration

Threats

- Bilateral coordination lags
- Climate-related disruptions
- Competing trade routes
- Financial non-viability

5.10 Summary

Dawki Land Port has achieved substantial foundational progress as a modern export hub in Northeast India. However, its performance is constrained by procedural inefficiencies, digital reliability gaps, and a narrow financial model. Trade potential remains high, but full realization depends on systemic improvements in connectivity, service capacity, and inter-governmental coordination.

The port stands at a critical juncture with timely optimization and strategic policy execution, Dawki can evolve into a resilient, high-volume trade corridor. Without intervention, however, its promise risks stagnation.

Chapter 6: Recommendations

6.1 Insights Derived from Operational Data

The post-modernization data from Dawki Land Port indicates moderate infrastructure advancement but continued operational bottlenecks. Parking congestion, weighment delays, and digital interruptions remain persistent, while cold chain and quarantine infrastructure and testing facilities are absent. Despite these constraints, trade data reveals a clear trend toward commodity diversification, highlighting emerging export categories such as methanol, rice, and paper products.

This chapter outlines key areas of intervention based on observed field realities and trade statistics. The intent is to guide institutional focus toward measures that enhance operational efficiency, broaden trade participation, and improve the financial sustainability of Dawki Land Port.

6.2 Revenue Optimization: Leveraging Existing Assets

6.2.1 Digitization of Parking Management

Approximately 35–40% of LPAI's revenue at Dawki originates from parking-related charges. However, this segment remains manually administered, with potential leakages and limited scalability. Parking capacity limitations further constrain revenue growth.

Recommendations:

- Introduce RFID or e-token-based parking systems integrated with vehicle registration.
- Implement tiered parking charges (e.g., based on truck type or peak hours).
- Enable cashless transactions and SMS receipt generation to improve transparency.
- Increase of existing parking fees by a nominal percentage and making it fully digital.
- Increase of the Parking catchment area and expediting the on-going land acquisition process.

Digitization is expected to streamline collection and modestly increase parking revenue by improving turnover and minimizing manual errors.

6.2.2 Weighbridge Utilization and Expansion

With only one weighbridge in regular use, trade flow is delayed and weightment-based revenue—currently over 56% of Dawki's total income—is sub-optimized.

Recommendations:

- Operationalize the second weighbridge with enforced service level agreements.
- Explore premium lanes for express cargo based on weight brackets or pre-booking.

Improved weighbridge throughput will reduce clearance time per vehicle and allow LPAI to accommodate more cargo movements daily, thereby increasing revenue.

6.2.3 Cold Chain and Quality Infrastructure

The absence of temperature-controlled storage, quality testing laboratories, and fully operational quarantine facilities limits Dawki's capacity to handle value-added or perishable exports.

Recommendations:

- Establish modular cold storage units and testing laboratories under PPP models.
- Introduce usage-based service charges for exporters.
- Harmonize testing standards with Bangladesh to avoid duplicate inspections.

Investments in these facilities will enable Dawki to support a wider range of commodities and create new fee-based revenue streams for LPAI.

6.3 Trade Diversification Strategy

6.3.1 Shift from Mineral Dependence to High-Value Commodities

Export data indicates that while minerals like limestone and boulder stone still dominate, non-mineral commodities are steadily rising:

- Methanol: 1500% year-on-year increase
- Paper Products: 230% growth

- Rice: ₹9.5 crore in FY 2024–25

This emerging pattern calls for institutional support to sustain diversification.

Recommendations:

- Prioritize 5–7 fast-growing commodity categories and enable specific trade facilitation measures.
- Develop warehousing, packaging, and phytosanitary support services for high-growth products.
- Coordinate with Meghalaya’s industrial development departments to align supply chain incentives and export promotion policies.

A more diversified export basket will reduce sectoral vulnerabilities and broaden Dawki’s role in India’s cross-border trade architecture.

6.4 Procedural Simplification and System Efficiency

6.4.1 Digital Streamlining of Trade Workflows

Manual redundancies—such as multiple sign-offs and delayed documentation—remain a major impediment to timely cargo movement.

Recommendations:

- Introduce an integrated single-window clearance platform.
- Provide mobile-based interfaces for real-time queue status, payment updates, and customs clearance alerts.
- Enable inter-agency data exchange protocols with Bangladeshi authorities to support synchronized processing.

Focused digital interventions can reduce clearance time and enhance user experience without requiring significant capital expenditure.

6.4.2 Alignment of Operating Hours with Tamabil ICP

Mismatched operational hours between Dawki (India) and Tamabil (Bangladesh) reduce corridor efficiency, with functional downtimes observed on multiple days each week.

Recommendations:

- Initiate bilateral engagement to standardize working hours, particularly during peak seasons.
- Consider piloting adjusted operating schedules during high-volume periods to evaluate feasibility and trade gains.

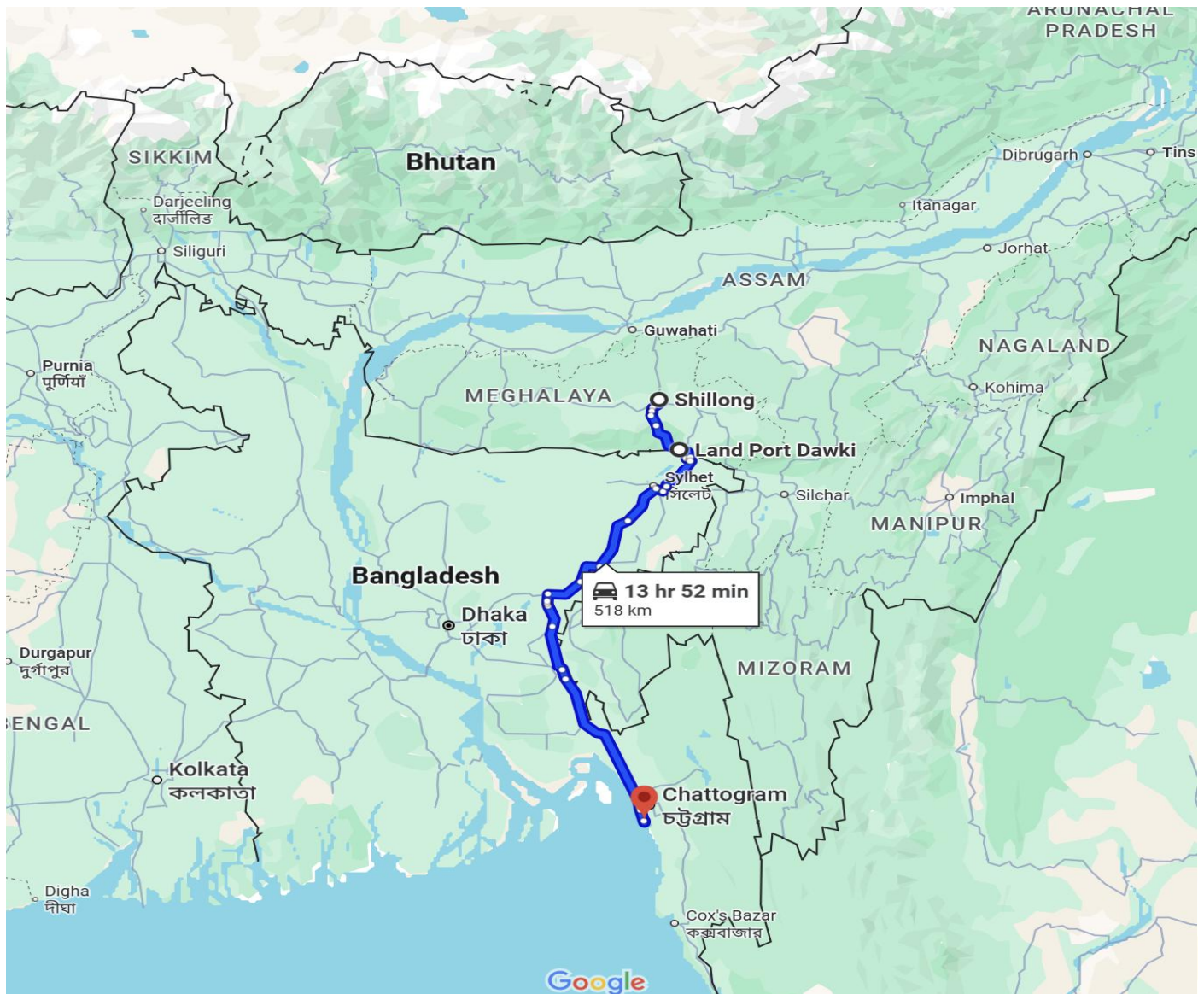
Operational harmonization is expected to raise daily throughput without major infrastructural changes.

6.5 Dawki–Chattogram Link: Institutional Imperatives for Cross-Border Integration

Current road distance from Dawki to Chattogram Port (~427 km) is significantly shorter than the route to Kolkata (~1100 km). Logistical advantages include:

- Approximate savings of ₹4–5/km in freight cost.
- Time reduction of 3–4 days per shipment.
- Access to Bangladesh’s largest deep-sea port with global transshipment connectivity.

However, these benefits remain largely untapped due to infrastructure discontinuities and incomplete protocol implementation.



Key Institutional Priorities:

- **Bilateral Coordination Mechanisms:** Establish joint corridor management units, shared SOPs for inspections, and issue-resolution platforms.
- **Digitally Linked Trade Systems:** Integrate customs processing with Bangladesh via API-enabled data exchange and mutual risk profiling.
- **Supporting Logistics Infrastructure:** Plan for dry ports near Dawki, staging warehouses at Tamabil, and connectivity to inland logistics parks en route to Chattogram.
- **Transit Protocol Implementation:** Operationalize BBIN Motor Vehicles Agreement provisions for through-trucking to Chattogram without transshipment.
- **Policy Mainstreaming:** Embed the Dawki–Chattogram link in India–Bangladesh JCC agendas, BBIN working groups, and BIMSTEC transport discussions.

Full realization of this corridor will allow India to rebalance its Northeast logistics strategy and strengthen export competitiveness via Bangladesh’s maritime infrastructure.

6.6 Focus Areas Based on Field Realities

Focus Area	Impact
Parking Digitization & Expansion.	Enhances revenue tracking, reduces manual error and increases the flow of Trucks
Weighbridge Expansion	Increases processing capacity and reduces wait times
Cold Chain & Testing Labs	Enables value-added exports, diversifies trade basket
Single-Window Clearance	Reduces documentation delay and administrative friction
Operational Hour Alignment	Improves cross-border continuity and corridor efficiency
Dawki–Chattogram Linkage	Unlocks regional integration and connects Northeast to global trade

6.7 Dawki’s Role in Regional Economic Integration

The long-term utility of Dawki Land Port is not limited to trade facilitation alone. With appropriate institutional coordination, it can serve as a strategic node in operationalizing India's BBIN and Act East Policy frameworks. A well-integrated Dawki–Chattogram corridor would:

- Provide the Northeastern region with maritime access, mitigating landlocked trade limitations.

- Enhance multimodal connectivity and export readiness for agri-based, industrial, and processed goods.
- Reinforce bilateral cooperation with Bangladesh through co-managed infrastructure and policy alignment.

As Dawki's infrastructure stabilizes and trade volumes diversify, it is imperative that corridor-level integration efforts also advance in parallel. Connecting the port to a broader multimodal and cross-border logistics framework will ensure both operational and strategic relevance.



Chapter 7: Conclusion

This study set out to assess how the modernization of the Dawki Land Port has influenced trade facilitation, operational performance, and regional connectivity within the BBIN and Act East Policy frameworks. The evidence shows meaningful institutional and infrastructural progress—modern facilities, cleaner operating environments, and faster clearances during digital uptime—alongside persistent constraints that currently limit throughput and financial resilience. Export values reached **₹120.7 crore** in FY 2023–24, moderated to **₹110.4 crore** in FY 2024–25, and stood at **₹22.5 crore** in Q1 FY 2025–26. LPAI revenues, concentrated in weighment and parking (>90%), moved from **₹4.05 crore** (FY 2023–24) to **₹2.62 crore** (FY 2024–25), with **₹0.48 crore** in Q1 FY 2025–26. These trends underscore both the gains achieved and the vulnerability that remains.

7.1 Answering the research questions.

(i) Have trade volumes and clearance times improved?

Clearance performance improves markedly when digital systems remain stable, with end-to-end electronic processing achievable in minutes. Aggregate volumes, however, have softened over the past year, reflecting factors beyond on-site process efficiency.

(ii) What constraints limit throughput?

The most material frictions are the approach road bottleneck, parking yard overflow, reliance on a single operational weighbridge, absence of cold chain and on-site testing, and procedural gaps (no single-window system, lack of e-token/queueing, power/internet outages, and misaligned operating hours with Tamabil).

(iii) Is the current revenue model sustainable?

Not yet. A narrow income base—primarily weighment and parking—exposes Dawki to volume swings. Without diversification into service revenues (cold storage, warehousing, testing, digital facilitation), fiscal stability will remain fragile.

(iv) Does Dawki advance BBIN/Act East objectives?

Potentially yes. Dawki's location and infrastructure place it on a natural pathway to Chattogram Port, offering a shorter and cheaper route to maritime trade for the Northeast. Realizing that strategic value depends on bilateral operational alignment and corridor-level integration.

7.2 Contextualizing the recent decline.

The observed dip in trade and revenue during FY 2024–25 and early FY 2025–26 coincides with external developments, including policy/regime shifts across the border that affected commodity flows—particularly minerals. The available evidence suggests these are exogenous and time-bound influences rather than structural shortcomings of the Land Port's design. It is therefore reasonable to treat the downturn as temporary, contingent on external conditions, while continuing to address the on-site constraints documented in this dissertation.

7.3 Strategic significance and the Dawki–Chattogram linkage.

Dawki is more than a functional crossing. It is a gateway that can connect the Northeast to global markets via a route that is both shorter (≈ 427 km to Chattogram versus ≈ 1100 km to Kolkata) and faster/cost-efficient (notably lower per-kilometre freight costs and reduced transit time). Chapters 5 and 6 demonstrate that the full benefits of modernization at Dawki will be realized only when corridor-level integration becomes operational: coordinated working hours, through-trucking under BBIN MVA, mutual recognition (or joint delivery) of inspections and quality testing, and digitally linked customs workflows. In this sense, the Dawki–Chattogram link is not an add-on; it is the capstone that aligns infrastructure, procedures, and policy into a coherent trade corridor.

7.4 Building resilience and next steps

To safeguard performance against policy cycles and ensure that temporary headwinds do not harden into longer-term stagnation, the following priorities merit concerted action:

- **Institutionalize bilateral coordination:** Establish a joint corridor management arrangement with clear SOPs, escalation channels, and regular review cycles; align operating hours seasonally and during peak periods.

- **Complete the digital fabric:** Implement single-window clearance, API-level data exchange with Bangladeshi counterparts, e-token queueing, and cashless payments to reduce variance from outages and manual handling.
- **Stabilize core operations:** Put the second weighbridge into service with SLA-backed uptime; digitize and rationalize parking (tiered pricing, SMS receipts) to improve turnover and revenue certainty.
- **Enable diversification:** Commission modular cold storage and on-site testing/inspection (PPP feasible), paired with usage-based tariffs; prioritize facilitation for emerging export categories (paper products, methanol, rice, processed agri-goods).
- **Plan for scale:** Advance dry-port/staging concepts near Dawki and logistics waypoints toward Tamabil–Chattogram, ensuring the physical corridor can absorb higher volumes when policy conditions normalize.
- **Monitor and adapt:** Conduct joint quarterly reviews (India–Bangladesh) of flows, service levels, and bottlenecks; publish a simple dashboard of key metrics to guide iterative improvements.

7.5 Concluding perspective.

Modernization has given Dawki Land Port a credible platform: cleaner facilities, clearer processes, and tangible efficiency when systems are stable. Short-term trade softness appears linked to external policy dynamics, not a fundamental failure of the Land Port model. The prudent course is to consolidate operational reliability, broaden the service base, and complete the corridor to Chattogram so that Dawki's value proposition is robust to future shocks. With these steps, Dawki can evolve from a promising node into a resilient, high-throughput land port that anchors India's Northeastern exports, supports bilateral trust, and advances BBIN and Act East objectives.

In sum, investing in Dawki is an investment in connectivity, competitiveness, and regional development. With steady institutional coordination and targeted upgrades, the corridor's potential is well within reach—and the present lull can be the prelude to stronger, more diversified growth.

Annexures

Annexure 1: Stakeholder Questionnaire

Annexure 2: Export-Import Trade data accessed from the LPAI Dawki Officials (May 2023 – June 2025)

Annexure 3: LPAI Revenue Data Sheets

Annexure 4: Interview Transcripts accessed through the detail interviews and primary field visits

Annexure 5: Dawki–Chattogram Trade Route Map accessed from Google.

References

1. **Land Ports Authority of India (LPAI).** *Annual Reports and Revenue Data (2023–2025)*. Available at: <https://www.lpai.gov.in>
2. **Ministry of Home Affairs, Government of India.** *Land Ports Authority of India Act, 2010*. Published under Gazette Notification, New Delhi.
3. **World Bank.** *Digitalization of Border Management and Trade Facilitation: Global Case Studies*. World Bank Trade Publications, 2022.
4. **Asian Development Bank (ADB).** *SASEC Operational Plan 2016–2025: Trade Facilitation in Northeast India*. ADB South Asia Department Report.
5. **UNESCAP.** *Enhancing Trade and Transport Connectivity in South and Southeast Asia: The Role of Land Ports*. UNESCAP Transport Division, 2020.
6. **Economic Research Institute for ASEAN and East Asia (ERIA).** *BBIN Corridors and IMT Trilateral Highway: Infrastructure-Led Integration*. ERIA Working Papers Series, 2016.
7. **Directorate General of Foreign Trade (DGFT), Government of India.** *Trade Statistics and Export-Import Data – Dawki ICP, Meghalaya (May 2023 – June 2025)*.
8. **Department of Commerce and Industries, Government of Meghalaya.** *Official Stakeholder Interview and Policy Consultations (August 2025)*.