

Impact of Foreign Direct Investment in North East India: A Review

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Abstract

This review is an attempt to look at the picture of the foreign participation and local development in Northeast India as revealed by the assessed research and original documentation. It distinguishes a discovery catalogue from a research core of eight research publications that are analysed in substantive full-text sections. Official statistics are accompanied by a documentary enterprise case, a documented supplementary public-web search and a design-specific appraisal and restricted-evidence sensitivity analysis. Recorded equity for seven northeastern states is recorded at US\$36.62 million for October 2019 to June 2026, which is around 0.0101% of the matched national total, excluding Sikkim. Complementary needs are identified in regional diagnostics, which include needs related to border processes, logistics, standards and production capacities. While foreign-enterprise impact evaluations answer questions about the actual impact, scenario and macroeconomic studies address questions related to the potential impact. The case of the bamboo-biorefinery in Assam provides some evidence of participation and early implementation, operator-reported production at the trial stage, and financing pressures and lack of local-outcome measurement. It has a corporate history which must be distinguished from transactions with its parent company. The contribution is a regional application of known investment-stage, geographical, measurement and inference FDI quality channels. Some priorities that are proposed are: Linked project records, verified operation, local supplier and worker outcomes, and evaluation of public support. Studies that cannot be accessed don't affect the findings. The absence of full texts, unmeasured outcomes and unestablished attribution are considered to be different limitations, and no region-wide effect size is inferred.

Keywords: foreign direct investment; Northeast India; regional development; evidence synthesis; local linkages; investment measurement.

1. Introduction

Foreign direct investment (FDI) in Northeast India is always mentioned along with cross-border connectivity and industrial development. These are not synonymous but are related. The access can be improved by a corridor without the formation of a foreign-invested enterprise; the capital receipt can be made before the enterprise starts to make a profit from production, even years before; the enterprise can operate without needing to learn from local suppliers extensively. Nath and Kumar (2017, pp. 14–18), internal market integration and productive capacity are put in the balance with external connections. Their argument is that regional development is tied up more to economic connections that investment provides than to being located between larger markets.

The target area includes Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. The assessed sources are not in common population. In a seven-state

income study, Sikkim is not included and in a seven-state border diagnostic, Arunachal Pradesh is not included. Chapters in the selected books of the World Bank focus more on the states of Assam, Mizoram and Tripura. These differences do not mean that there are minor changes in terminology but it does impact valid comparison and aggregation (Choudhury et al., 2021; Basu Das & Chattopadhyay, 2022, pp. 1–3; Kathuria & Mathur, 2020, pp. 2–3).

A fundamental question is: **What is the assessed evidence able to tell us about foreign participation and local development in Northeast India with the measurement of capital receipts and enterprise implementation and local outcomes being separated?** Three supporting tasks provide similar recorded equity, mechanisms and geographic scope, and explore the relationship between ownership, finance and operations, and workers, suppliers and environmental outcomes. Development is not just an increase in investment value but also the changes in the productive capacity, employment, income and distribution, social and environmental impacts.

It is not suggested that there should be a new general theory of the distinction between volume and quality of investment. The Organisation for Economic Co-operation and Development (OECD) FDI Qualities Policy Toolkit identifies three types of FDI channels: direct enterprise activity, indirect value-chain and market interaction channels and labour mobility channels (OECD, 2022, §2.2). This review follows a similar structure to that employed in the review of measurement and evidence problems, but is tailored for regional issues. It is its role to link each claim to a stage, an actual population, an observed or modelled outcome and a defensible inference. It is not an initial Northeast FDI review nor does it presume that foreign ownership is better than a viable domestic option.

2. Review design and evidence selection

2.1. Scope and supplementary search

This is a critical integrative review, which is selective. The main publication period is 1 January 2016–31 December 2025, and publications and documentary updates for 2026 are identified separately, until 12 October. Observations and publication dates are kept separately. This is different from regional empirical literature in that it provides guidance for measurements. It is not a systematic review and is not a census of all the public-web available English-language reviews.

There are 36 query strings in the supplementary search that was done on 12 October 2026. The supplement specifies the platform, exact terms, domain filters (if applicable) and access outcomes and related decisions. The queries are based on every state name and FDI, foreign direct investment, foreign-owned enterprise, foreign affiliate, joint venture, employment, local suppliers. Negative, failed, cancelled, displacement, insignificant and null terms are used for separate searches. Original publisher/institutional retrieval was performed after exact-title, author and DOI search. Separate searches for corporate and administrative functions, and research functions.

There were multiple general searches that resulted in non-substantive and/or irrelevant search results. No screening totals were reconstructed and search counts are not shown as a universe of eligible studies. These queries may be rerun, but the rank and/or index may change. The accepted manuscript of Demena and van Bergeijk, and original enterprise environmental filings were generated by direct source-following. The two very relevant Ghosh articles continued to be restricted for the publisher route. Because of their abstract-based verdicts, their previous verdicts have been taken out of finding-level synthesis and are no longer considered to be evidence of no effects.

The source register holds decisions for the old 24 literature records and the four leads without decisions. Two more Meghalaya policy/MSME discovery leads were not included in the findings only for the purpose of providing more context. Version and title/doi checks are done and any version is counted as one, as is an online-first and issue version. The shared authorship will cause a dependence check, but does not on its own constitute duplication. The supplementary record is not a record of all of the results that may have been returned by a search engine, but it is a record of the material actually handled.

2.2. Eligibility and examination depth

There are four evidence strata with varying eligibility requirements. Target state foreign participation, foreign invested enterprises or outcomes of foreign investment in the target state needs to be identified and examined in direct regional research. A named mechanism must be explained in the regional context by a substantive passage that is assessed. External mechanism research needs to be conducted on FDI and an appropriate outcome, but cannot provide a Northeast coefficient by substitution. Dated descriptive information that is included in the scope of reporting is supported by original administrative and enterprise documents.

The updated research core has 8 publications (Ro3, Ro5, Ro7, R11, R16, R22, R23 and R24 in the supplement). Methods, findings or arguments were examined and assessed in all, and selected chapters (not multi-chapter books) were assessed. Seven are regional contextual, scenario or outcome publications and one is an external FDI meta-analysis. No treatment evaluation of an identified regional foreign-ownership is counted. That is not a claim that these studies don't exist, it's a property of this assessed core.

In the legacy catalogue, access is now made to nine selected-text records, thirteen abstract-level records and two metadata/source-summary records. Chhina's article is one of the records in which the text has been selected but it is not included in substantive and numerical synthesis due to an unresolved internal numerical inconsistency; details in the audit worksheet. The remaining sixteen legacy records and four pending leads continue to have discovery/access role. They do not provide for leave of absence. In addition to the eight research publications, two OECD frameworks and twelve original statistical, policy or company documents are cited.

2.3. Design-specific appraisal and synthesis

Extraction records the question, geography, sector, dates, exposure, outcome, design, substantive finding, limitations and possible dependence. The assessment of diagnostics covers the selection of stakeholders, coverage and triangulation; measurement and comparison of observational studies; assumptions and sensitivity tests; and selection and repeated estimates and publication bias for syntheses. An aggregate quality score is not computed. The supplement separates out the information extracted from this review from the analytical judgement of this review.

There are four knowledge states that will not lead to retrieval limitations being substantive conclusions: **A—access/appraisal incomplete; B—target outcome not measured in an assessed design; C—outcome examined but requested attribution unestablished; D—external population.** These are not a hierarchy and can overlap. For the income-convergence paper, the methods are not available, but the paper is assessed as having a regional outcome, so the outcome is not B, but A. For the income-convergence paper, the methods are not available, but the paper has an assessed regional outcome, so the outcome is not B, but A.

Conditions, participation, operation, direct effects and indirect channels are the themes. The financial-stage and environmental-monitoring issues were added when they were needed by

enterprise documents. Disagreement is studied by comparing measures and research questions instead of the number of positive and negative findings. Extraction and calculations were automated, source-checked but not duplicated by humans and no original data was replicated. A restricted-evidence sensitivity analysis is reported in Section 8.

3. Framework and measurement

The international benchmark is based on a cross-border relationship and a threshold of 10% of voting power, offering guidance on direct and indirect investment relationships. There are two types of investor residence: immediate investor residence and ultimate control (OECD, 2025, §2.4 and Chapter 8). The retrieved FAQ by Department for Promotion of Industry and Internal Trade (DPIIT) clarifies that the definition of non-resident investment in the unlisted Indian company is different from the 10% fully diluted definition of the listed Indian company. Only the definitional passage is treated as current legal advice, other dated FAQ provisions are not treated as current legal advice (DPIIT, n.d., Question 1). However, a subsequent investment of 9.70% does not automatically make all the relationships in an unlisted business.

In this measure, the numerical value will be the **recorded state-attributed FDI equity**, and not the total FDI. The equity receipts, reinvested earnings, debt, paid-up capital, project costs and ownership percentage and commitments are not synonymous. It is not possible to independently determine the exact state-allocation rule from the retrieved documentation. Therefore, the review does not imply a bias for headquarters nor does it imply that all operating locations are identified in the state allocation. The reconciliation process of linking recipients, operating districts and actual transactions is not an implied adjustment to official data, but a reconciliation process.

Table 1. Regional application of established FDI-quality channels

Stage / channel	Evidence to observe	Interpretation / comparison
Participation and implementation	Recipient, residence, dated receipts, ownership chain, commissioning and output.	Announcements, capital receipts and functioning production are different stages.
Direct enterprise activity	Resident payroll, wages, duration, training and resource use.	Project versus no project differs from foreign versus comparable domestic ownership.
Value-chain relationships	Local purchases, supplier entry, quality, prices, margins and payment delays.	A contract is not automatically productivity upgrading or net income.
Market learning and competition	Domestic-firm entry/exit, output, imitation and technology adoption.	Include displacement, pre-existing capabilities and selection.
Worker mobility	Movement between foreign and domestic firms, skills and subsequent performance.	Learning must be distinguished from hiring already productive workers.
Public support and net outcomes	Approval, disbursement, alternatives, sustained outcomes and public cost.	Incentive versus no incentive is a separate counterfactual.

Adapted from OECD (2022, §2.2); regional evidence requirements and comparisons are this review's operationalisation, not estimated causal arrows.

There are three comparisons that need to be made: project versus no project; foreign participation versus a feasible domestic arrangement; and public support versus no support. Domestic equity, external technology, debt and incentives can be used in a jointly financed project. It does not single out any particular source of financing. A descriptive history is useful as it helps to pinpoint the dates, relationships, and outcomes that will be needed to make better comparisons; none of the three counterfactual effects are estimated here.

The water project in Guwahati is development-assistance infrastructure under JICA and the approval records of UNNATI show an industrial incentive framework. FDI equity is not added and neither is it regarded as FDI created jobs (JICA, 2022; Press Information Bureau, 2024). Likewise, the sale of shares in a foreign parent does not have to be a source of fresh funds to its Indian operating company. History of the company and flow accounting should be reconciled NOT combined.

4. Recorded equity: annual observations and cumulative scale

Table 2 is an extension of the previous two-snapshot account with the same annual columns from the original 2023, 2024 and 2025. These one-year calendar presentations are not referred to as Indian financial years. There is no separate "till March" column, which is not compared



with full years. The starting point of the cumulative series is the same for October 2019, and the end point is June 2026. The analysis is based on actual date coverage and published rounding is preserved (DPIIT, 2026a, Annexure C; DPIIT, 2026b, Table 5).

Table 2. Recorded state-attributed FDI equity (US\$ million)

State / aggregate	2023	2024	2025	Oct 2019–Jun 2026
Assam	0.43	2.36	2.79	26.19
Arunachal Pradesh	—	1.47	—	7.03
Tripura	0.12	0.55	0.23	1.98
Meghalaya	—	0.11	—	1.20
Manipur	0.0006	—	0.03	0.11
Nagaland	—	0.05	0.001	0.06
Mizoram	—	—	—	0.05
Sikkim	Not listed	Not listed	Not listed	Not listed
Seven-state subtotal	Not calculated	Not calculated	Not calculated	36.62
India, matching period	41,324.78	53,058.03	57,220.72	361,429.04

DPIIT (2026b), Table 5, pp. 1–2, annual columns; DPIIT (2026a), AnnexureC, p. 10, cumulative. “—” is a source dash, not a verified zero. Sikkim is unlisted. Annual regional totals are withheld; small positive observations retain their precision.

The total of the seven reported state observations is US\$36.62 million, which is about 0.0101% of the matching national total. The Assam contribution to this subtotal is 71.52% and Assam and Arunachal Pradesh combined contribute 90.72%. These calculations are for a limited denominator. They do not measure welfare or set that all foreign enterprise activity is captured. The US\$0.62 million discrepancy from the March snapshot isn't a certified quarterly receipt, but rather a difference between releases, which could be revisions or rounding.

Annual data shows variation not apparent in cumulative rankings. The absolute increase in receipts for Assam is US\$1.93 million and US\$0.43 million respectively from US\$0.43 million to US\$2.36 million and US\$0.43 million to US\$2.79 million. The acceleration is not always the same; the value of Tripura increases from US\$0.12 million to US\$0.55 million, and then decreases to US\$0.23 million. A two-decimal format would cover up Manipur's 2023 value of US\$0.0006 million and Nagaland's 2025 value of US\$0.001 million. Those small positive observations (DPIIT, 2026b, Table 5) are kept in the workbook.

No regional panel is built with zero filled in for annual regional output, and no other FDI-to-state-output ratio exists. The ratio of a multi-year cumulative receipt to state output in one year is not the annual investment intensity. There needs to be a clearer dash legend, a consistent allocation of dashes each year, and the same denominators. The present observations provide evidence of a small scale, and of concentration and of uneven annual receipts, but more evidence is required to explain location decisions and economic returns.

5. Critical synthesis of the assessed research

5.1. Comparative appraisal

Table 3. Substantive findings and design-specific appraisal

Publication	Design and coverage	Reported contribution	Review appraisal
Nath & Kumar, 2017	Narrative regional review; historical trade and policy material	Internal production and institutions complement external connections.	Useful economic mechanism; selection is not a systematic literature sample.
De et al., 2020	Border diagnostic; Moreh–Tamu; RIS observations, 2019	Testing, banking and logistics frictions affect transactions.	Location-specific detail; representative respondent selection is not established in examined sections.
Basu Das & Chattopadhyay, 2022	Interviews and field visits; 19 priority border points; seven states excluding Arunachal Pradesh; 2019	Physical and procedural bottlenecks interact.	Stakeholder groups are listed; purposive priority selection is not a representative investor sample.
Kathuria & Mathur, 2020	Selected value-chain chapters; detailed Assam, Mizoram and Tripura focus	Logistics, standards and buyer requirements shape participation.	Illustrative sectors and stakeholder diagnostics, not a balanced foreign-enterprise panel.
Anbumozhi et al., 2019	Cost-minimising electricity model; 2015–2030 scenarios; 5% discount rate	Grid-only and grid-plus-hydropower scenarios alter regional roles.	Demand, cost and expansion assumptions drive results; seven/eight-state wording conflicts within source.
De et al., 2024	PCA index and regressions; 30 states/UTs; 2010–11, 2015–16, 2021–22	Readiness rankings and GDP relationships vary by specification.	Alternative-index check acknowledged; several Table 5 coefficients are insignificant; weights are not causal importance.
Choudhury et al., 2021	Break-adjusted conditional-convergence tests; seven states excluding Sikkim; 1980–81–2014–15	Preferred tests support conditional stochastic convergence.	Statistical convergence permits persistent income differences; policy timing is not a defined FDI exposure.



Publication	Design and coverage	Reported contribution	Review appraisal
Demena & van Bergeijk, 2017	Meta-regression; 1,450 estimates, 69 studies, 31 developing countries; studies through 2013	Preferred adjusted synthesis positive intra-industry spillovers; simple tests differ.	Multilevel/clustered dependence and bias checks matter; benchmark, missingness and outlier choices constrain interpretation.

Eight research publications, not eight causal FDI studies. Passage locators, exposure/outcome distinctions and dependence notes are in the evidence supplement. Selected chapters were examined, not every page of the books.

5.2. Complementary capabilities and local production

The diagnostics offer more operational content than the list of regional resources. Moreh-Tamu observations reveal certain transaction frictions. Field visits, semi-structured interviews and an explicit stakeholder-group annex are part of the broader ADB assessment. The World Bank chapters arrange the participation by access to buyers and standards, with sectors such as fruits and vegetables, spices, bamboo related products and medical tourism being used to illustrate participation. B1-20–21, B1-36–40; Basu Das & Chattopadhyay, 2022, Annex 2; Kathuria & Mathur, 2020, Chapters 1, 3–4).

The contributions of these sources are varied; named bottlenecks allow for testable hypotheses; a stakeholder list allows for diagnostic provenance to be visible; and a value-chain approach allows for identification of where producers may be able to hold on to income. Agreement is not the repetition of the estimation of one investment effect. Policy concerns and locations may be overlapping, and purposive selection may favour those points that are commercially or strategically significant. There might be different constraints for failed entrants, nonparticipants and remote producers. The synthesis thus highlights a coordination problem, rather than a statistical ranking of the causes.

The sequence of transactions (aggregation, testing, clearance, delivery and payment) can be a useful unit of diagnosis instead of a single state. A failure at one point can make a success at another point less than satisfactory. This is an interpretation based on the review, in accordance with place-specific interventions. The status of all border processes in October 2026 are not justified by historical observations and should be investigated again.

5.3. Models and regional outcomes: question fit matters

Complementarities of investments are explicitly captured in the electricity study in the form of a grid-only and grid-plus-hydropower case. The cost minimising design, assumptions of demand, expansion constraints and 5% discount rate are not indicative of bankable commercial financing, but rather a planning problem. Some of the notes in the seven states in chapter 2 are conflicting with the notes in chapter 2, which is why a model result is not assigned in the coverage map for Sikkim (Anbumozhi et al., 2019, Chapter 2, p. 12–19, 28–29, 39).

The solar study is more than just an index description, it also contains an alternative-index check and state/time regressions. The GDP relationships vary between specifications and several Table 5 index coefficients are not appreciably different from zero. This sensitivity, together with the three observation periods and income-related indicators, limits the ability to

draw causal conclusions. Agreements between alternative indices is relevant robustness evidence but do not support a foreign-entry effect (De et al., 2024, pp. 19–23, 27–30; Appendices 1–2).

The income study considers the issue of conditional stochastic convergence with the presence of structural breaks. This is about persistence and potential income differences over time, rather than income differences between the states. It is statistically accounted for, but the authors' identification of breaks with policy periods is removed from an identified financing mechanism. A regional change can be due to several processes that are occurring at the same time (Choudhury et al., 2021, methodology and results).

These designs should not be put in a positive-negative FDI discussion. A better supply of energy, comparative readiness and comparative income are different results. They are responsible for finding out constraints, sensitivity and measurement problems. Those differences would be lost when they were combined into an FDI coefficient. On the other hand, it would not assess their true research contribution if they were dismissed because they didn't answer a question about treatment by foreigners.

5.4. External spillovers and evidence dependence

Accepted-manuscript appraisal gives weight to the treatment given to Demena and van Bergeijk. They use 1,450 estimates from 69 studies in 31 developing countries in their synthesis, which includes multilevel/clustered methods, publication-bias tests and moderator analysis. Simple versions of the bias-test specification are not consistently positive, while the preferred version with adjusted specifications is positive for intra-industry spillovers. Exclusions due to missing data, treatment of outliers and methodological benchmark are still relevant (Demena & van Bergeijk, 2017, accepted manuscript §§3–5, Tables 3–4).

This is not an estimate of the supplier effect nor a magnitude that applies specifically to the Northeast. It demonstrates the lack of independence of repeated estimates and the need for checking of adjusted averages before transfer. When used in conjunction with the OECD framework, it encourages the assessment of technology within a venture and separate contracts with suppliers and subsequent learning. Improved supplier performance following the signing of a contract could be an indication of the selection of the more productive firms, and not an indication of the upgrading that occurs as a result of foreign investment.

6. State, sector and outcome coverage

Table 4. State–sector–outcome coverage of assessed evidence

State	Equity	Border study	Relative income	Sector context	Enterprise outcomes	/ local
Assam	Listed	Yes	Yes	V + S	Bioethanol: O	
Arunachal Pradesh	Listed	Outside sample	Yes	S	Not assessed	
Manipur	Listed	Yes	Yes	S	Not assessed	
Meghalaya	Listed	Yes	Yes	S	Not assessed	
Mizoram	Listed	Yes	Yes	V + S	Not assessed	
Nagaland	Listed	Yes	Yes	S	Not assessed	
Sikkim	Unlisted	Yes	Outside sample	S	Not assessed	
Tripura	Listed	Yes	Yes	V + S	Not assessed	

DPIIT (2026a); Basu Das and Chattopadhyay (2022); Choudhury et al. (2021); De et al. (2024); Kathuria and Mathur (2020); ABEPL (2026a–b). S=solar readiness; V=detailed value-chain focus, not every sector in every state; O=reported operation, not a net worker/supplier effect. “Not assessed” is not zero effect.

The map is not an indicator of the attractiveness of investments. Solar readiness covers eight states, relative-income analysis covers seven states and the border diagnostic covers seven states, with selected value-chain chapters having a detailed focus of three states. This documentary enterprise case is available only in Assam. Assessed enterprise outcomes that are not included in this synthesis are not evidence that those states do not have foreign enterprises or that they have no impacts.

The mapping also shows the next step in the empirical process. State receipts must be associated with recipients, operating districts and exposed workers/suppliers. A readiness score will not constitute treatment, and participation in a border study will not be deemed to be receipt of FDI. Even in Assam, there are no operational documents that reconcile transaction by transaction. This is more useful than lumping the Northeast as one homogenous observation or presenting the potential of the Northeast as realised investment.

7. Documentary case: the Assam bamboo biorefinery

7.1. Participation and corporate history

Assam Bio Ethanol Private Limited (ABEPL) is chosen as it has original disclosures which link participation, technology and implementation; and the case is not statistically representative. The 2018 announcement shows that the joint venture is between Numaligarh Refinery Limited (NRL) (50%), Fortum (28%) and Chempolis (22%) and includes a technology partnership (Chempolis, 2018). The later FY2025–26 note records 50%, 40.30% and 9.70%, respectively (NRL, 2026, Note 66). Dated stakes do not show receipts or voting arrangements.

Omitted transaction added back. The transaction, which was closed on 23 September 2024, is for the sale of Fortum's interest in Chempolis and the holding company that owns 40.3% of ABEPL, with AM Green Technology & Solutions B.V. as the buyer (Fortum, 2024). Chempolis' Feb. 2026 update also confirms the majority stake in Chempolis was completed in the later part of 2024, although it is not deemed to be a separate transaction to the holding-company leg (Chempolis, 2026).

It is called "Fortum 3V, Netherland" in NRL's later filing. The source wording is retained instead of being omitted and assumed to be a legal name. The question of registry identity and closing and ultimate control are still unsettled. The case does not set up a current control chain reconciliation, but rather a historical cross-border participation record and a snapshot accounting later. A legacy label does not imply a continued control of the ultimate control or new inward investments.

7.2. Finance, support and reporting-period context

Table 5. Financing evidence and missing accounting links

Component	Dated evidence	Reconciliation still needed
Domestic sponsor equity	NRL records INR138.47 crore equity investment.	Transaction dates and financing sources; not project-cost multiplication.
Paid-up capital	INR276.93 crore at 31 March 2026.	Investor-specific receipts and dates; the residual is not certified cumulative FDI.
Specified liabilities	Note 66: INR4,242.45 crore non-current; INR854.97 crore current liabilities in specified categories.	Lenders, instruments, residence and trade/other liability reconciliation; not all foreign debt.
Public assistance approval	2023 ministry disclosure: INR150 crore approved for an NRL commercial 2G project.	Exact ABEPL recipient/cash bridge unverified; excluded from venture receipts.
Operating receipts	Revenue is separately reported in Table 6.	Sales recognition and collection; revenue is not equity or grant approval.

NRL (2026), Note 66; Ministry of Petroleum and Natural Gas (2023), table row4. Preserve the note's liability categories. No shareholder-percentage multiplication or currency conversion is used.

A joint-financed output cannot be completely identified as foreign equity and domestic participation, liabilities, technology and possibly support are excluded. The financing gaps need to be filled with allotment/receipt records, lender schedules and grant payment documents. The NRL assistance approval is a policy context and not an accounting bridge to ABEPL. It is not included in the case receipts or FDI totals.

Table 6. Comparative enterprise accounting information (INR crore)

Note 66 measure	Period ended 31 Mar 2025	Period ended 31 Mar 2026
Revenue	0.38	0.46
Employee-benefit expense	1.99	1.88
Venture loss	7.71	7.98
NRL share of loss	3.86	3.99

NRL (2026), Note 66, pp. 342–343. Note 67 separately reports losses of INR781.19 lakh and INR793.38 lakh: these do not exactly match after conversion. The different bases remain unreconciled, not silently corrected. Expense is not headcount.

Note 67 further mentions that current liabilities are higher by INR77,188.83 lakh at March 2026 than they were a year ago by INR27,618.08 lakh. It reflects funding activities and shareholder support and management has not identified a material uncertainty that casts a significant doubt on its ability to continue as a going concern. The funding dependence and management's assessment are reported, but not an auditor qualification or a long-term viability assessment (NRL, 2026, Note 67, pp. 343–344).

7.3. Operation, suppliers and environmental implementation

Operator filings provide more than just information about inaugurations. Form V shows 18 kL of ethanol in FY2025-26, and mentions the stabilisation towards commercial production once it is inaugurated on 14 September 2025. It also informs of 4200 registered suppliers/farmers and 111900 saplings distributed during the financial year. The following are reported production and mobilisation activities and not independently verified recurring purchases, jobs or net household income (ABEPL, 2026a, PDF pp. 2–3,5–6).

The same filing indicates that process-water intensity is not related to normal operation but includes commissioning, flushing and trials. The occupational health surveillance and commissioning of continuous emissions monitoring were still ongoing during the reporting period (ABEPL, 2026a, PDF pp.). 2–3; ABEPL, 2026b, conditions 10(t)–10(u)). These disclosures should not be considered as completion of operations or environmental completion. They are not regulatory conclusions of compliance or non-compliance, but are operator submissions.

Reported production and supplier mobilisation have been added to the evidence, so to say that they were hypothetical would be an understatement. But it is not a procurement of registration, and the distribution of saplings is not a source of additional income. If mobilisation resulted in sustained local benefit, repeated output, bamboo volumes delivered, prices, payment delays, resident payroll and monitoring completion would distinguish mobilisation from sustained local benefit. The multiple company documents are not separate impact assessments because they report the same measures but refer to the same venture.

Technical progress and financing or implementation challenges can occur simultaneously, as can be the case with unknown net local effects. The case does not imply success or failure, but rather a progressive evaluation. The adverse implementation information should be in that account, but it does not prove the problems were caused by foreign participation.

8. Sensitivity and synthesis

The main synthesis was re-constructed without abstract-only findings. Another limitation excludes external meta-evidence to evaluate what is actually demonstrated in Northeast India, and another excludes operator/partner disclosures to evaluate what is independently demonstrated. Table 7 shows the remaining and inassessable items. This is a sensitivity exercise that is qualitative, not a statistical robustness coefficient.

Table 7. Restricted-evidence sensitivity analysis

Claim	Assessed-text synthesis	Further restriction
Recorded equity and annual variation	Supported by original DPIIT observations.	Unaffected by removal of abstracts, external studies or company disclosures.
Operational/supplier constraints	Supported as historical diagnostic mechanisms.	Survives removal of abstracts; not a current all-state audit.
Readiness and relative income	Models and macro outcomes assessed and answer distinct questions.	Combining them does not produce a foreign-ownership effect.
Intra-industry spillovers	Qualified external mechanism support.	Removing external evidence removes this generalisation; no Northeast coefficient was assigned.
Production and supplier mobilisation	Company filings document reported activities.	Removing operator/partner disclosures makes these outcomes unassessable here, not independently verified.
Net employment, income or productivity effect	Not identified with a relevant comparison in the assessed case/core.	Remains unresolved; inaccessible direct studies are a separate access gap.

Review-derived qualitative sensitivity assessment. “Survives” means the bounded claim retains support, not that sources are independent or exhaustive.

Dependence is based on the evidence generating process. Chapters of a volume are considered one publication, partner releases and operator filings are one enterprise and diagnostics may share settings without being duplicate samples. The papers in the meta-analysis are not included as individual appraised papers in this review, but the repeated estimates are included. If there is an overlap that is not known, it is unknown and not independence.

The best preserved conclusions are those related to recorded receipts and historic mechanisms and dated enterprise implementation. The substantive gap is less than an absence claim: there is no assessment of the extent of foreign participation that contributes to local outcomes versus what is feasible. The access gap is different: there are several relevant studies that are not fully appraised, and the extent to which they have implications for a broader appraisal is still not determined.

9. Proposed policy and research priorities

The following proposals are based on the evidence map, rather than on estimates of policy effects or statements of new legal requirements. Actor categories define the collaboration needed, formal responsibilities and data sharing authority needs confirmation. Prioritisation is based on solving a perceived information bottleneck, before big new spending, and separating out local outcomes from announcements.

Table 8. Proposed policy sequence and evaluation

Priority horizon	Proposed collaborating actors	Practical action	Test / data
Measurement 0–6 months	State facilitation statistical recipient enterprises.	Link project, location, receipt, ownership and operating stage.	Reconciled dated records; missingness, delays and cancellations, not summed MoUs.
Worker/supplier pilot 6–12 months	Enterprise, worker/producer representatives, independent researchers.	Verify repeated output, resident payroll and delivered purchases; include non-selected suppliers.	Net margins, payment timing, wages and duration against a baseline.
Targeted facilitation 6–18 months	Relevant border operators, customs interfaces, testing providers and departments.	Revalidate bottlenecks along selected product routes before new spending.	Clearance and delivery reliability, costs and actual enterprise entry.
Support additionality 12–24 months	Scheme administrators, public-finance evaluators, data custodians.	Reconcile approval/disbursement and compare credible alternatives.	Additional sustained outcomes relative to public cost; failed/delayed projects included.
Safeguards Baseline and recurring	Competent regulators, operator, communities, independent assessors.	Verify monitoring completion, resource and baselines distribution.	Resource use, protection and distribution of net gains/costs.

Review-derived proposals informed by OECD (2022), regional diagnostics and case disclosures. Actors/horizons are proposed, not assignments of statutory authority; mandates and data-sharing permissions require confirmation.

Set up the operating unit and baseline, and then test the constraint and local-linkage mechanism at the location. Training, quality support and credit should be based on verified buyer needs, evaluation should cover non-selected suppliers and failed projects. If not, the effective selection of participants can be confused with the effectiveness of the programme. The low readiness score is not sufficient to determine where an investment should be made in infrastructure.

Inference might be enhanced by linked firm, worker and supplier panels on actual receipt and operation. Foreign participation is separate from the existence of any project because of the feasibility of domestic alternatives. Even with event studies or difference-in-differences, there would need to be credible comparison trends, timing, concurrent-policy controls and spillover and survival issues. Qualitative fieldwork can provide explanations of contracting and bargaining in situations in which representative panels do not exist. The design is appropriate, following the question and the evidence, rather than following the desire to report one regional FDI coefficient.

10. Limitations and conclusion

Access and coverage constraints are not addressed by narrowing the assessed core, but are addressed by adding the core. Access and coverage constraints are not removed by narrowing the assessed core, but are added by adding the core. It is not a complete book appraisal to conduct English-language public-web retrieval without relevant research. No new data sets were created. Limited transfer due to dated fieldwork, source dependence and geographic inconsistencies. The statistics are restricted by dashes, unlisted Sikkim and an unallocated allocation rule. The closing of the corporate books, the exact identity of the holder, and the differences in the financial notes and disbursements of the grant are issues that must be reconciled externally, and are clearly noted, not assumed.

The review, however, does not merely raise a general warning to mind about causality. It pinpoints the unequal annual receipts below cumulative concentration, compares the mechanisms assessed, finds geographic evidence, and links attendance to reported pressures during operation and implementation in trial stage. There are diagnostic, modelled and macroeconomic and enterprise observations distinguished in the regional evidence map. These differences help to make the evaluation more specific in the following.

The bounded conclusion is that additional local effects may be documented and the extent and location of these effects are not determined in the assessed material. This is not a zero effect finding or evidence that there are no relevant findings in inaccessible studies. Evaluation should be based on finance, operation and direct and indirect relationships, with the distinction between foreign participation and domestic co-investment and public support. Credible alternatives and linked records would help to determine which investments create lasting benefits, to whom and at what social and environmental price.

Data and disclosure boundary

Supplement v2.0 dated 12 October 2026 includes the discovery register, substantive appraisal, exact supplementary queries, source locators, formula-based calculations, geographic coverage, case ledger and all 35 reviewer responses. There was no primary participant data collected. Preparation and extraction were assisted by AI. The authors' identities, funding, conflicts, and actual contribution to the paper and requirements of the journal have not been certified or invented; the authors who submit the paper must fill in the checklist accompanying the paper and certify the disclosures.



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