

INFRASTRUCTURE DEFICITS AS BARRIERS TO FDI ATTRACTION IN SIERRA LEONE: A STRATEGIC ANALYSIS

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ABSTRACT

Infrastructure is the physical grammar of an investment climate. Where roads, power, ports and networks function, capital can read the country; where they fail, even generous incentives struggle to persuade. This article examines how infrastructure deficits constrain foreign direct investment (FDI) inflows into Sierra Leone and asks what strategic, institutional and financing choices could convert those deficits into a source of competitive advantage. Drawing on an integrated theoretical framework that combines Dunning's eclectic paradigm, new institutional economics, growth pole theory, endogenous growth theory, transaction cost economics and Porter's diamond model, the study analyses secondary data from the World Bank, UNCTAD, the African Development Bank, the International Monetary Fund and Sierra Leonean government sources, supported by comparative case analysis of eight African economies. The evidence shows that deficits in electricity, transport, logistics and digital connectivity raise production and transaction costs, compress the set of viable investment projects towards enclave extractives, and depress investor confidence through unreliability rather than absence alone. Institutional fragmentation, weak project preparation capacity and constrained fiscal space compound the physical deficits. Comparative analysis of Rwanda, Ghana, Kenya, Senegal, Mauritius, Botswana, Morocco and Namibia indicates that credible sequencing, independent regulation and disciplined public-private partnership frameworks matter as much as capital expenditure. The article proposes a phased infrastructure investment roadmap centred on power sector recovery, gateway efficiency, corridor rehabilitation and digital backbone completion, financed through a blended architecture that respects debt sustainability limits. It contributes an integrated institutional and strategic account of infrastructure-constrained FDI in a small post-conflict economy and sets an agenda for firm-level empirical research.

Keywords: foreign direct investment, infrastructure, Sierra Leone, investment promotion, public-private partnerships, institutional economics, Africa

List of Abbreviations.

Abbreviation	Meaning
AfDB	African Development Bank
AGL	Africa Global Logistics
AIDI	Africa Infrastructure Development Index
AUDA-NEPAD	African Union Development Agency (New Partnership for Africa's Development)
B-READY	Business Ready (World Bank benchmarking framework)
CLSG	Côte d'Ivoire, Liberia, Sierra Leone and Guinea power interconnector
ECOWAS	Economic Community of West African States
EDSA	Electricity Distribution and Supply Authority
EGTC	Electricity Generation and Transmission Company
EPZ	Export processing zone
EWRC	Electricity and Water Regulatory Commission
FDI	Foreign direct investment
GDP	Gross domestic product
GSMA	GSM Association
ICA	Infrastructure Consortium for Africa
ICT	Information and communication technology
IDA	International Development Association
IEA	International Energy Agency
IFC	International Finance Corporation
IMF	International Monetary Fund
IPP	Independent power producer
IRENA	International Renewable Energy Agency
ITU	International Telecommunication Union
LPI	Logistics Performance Index
MCC	Millennium Challenge Corporation
MNE	Multinational enterprise
MTNDP	Medium-Term National Development Plan
MW	Megawatt
NATCOM	National Telecommunications Commission
NIB	National Investment Board
NIE	New institutional economics
NPPA	National Public Procurement Authority
OECD	Organisation for Economic Co-operation and Development
OLI	Ownership, location and internalisation
PESTLE	Political, economic, social, technological, legal and environmental
PIDA	Programme for Infrastructure Development in Africa
PPP	Public-private partnership
SDG	Sustainable Development Goal
SEZ	Special economic zone
SGR	Standard gauge railway
SLIEPA	Sierra Leone Investment and Export Promotion Agency
SLIHS	Sierra Leone Integrated Household Survey
SLPA	Sierra Leone Ports Authority
SLRA	Sierra Leone Roads Authority

SWOT	Strengths, weaknesses, opportunities and threats
TEU	Twenty-foot equivalent unit
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
USD	United States dollar
WAPP	West African Power Pool

1. INTRODUCTION

Sierra Leone presents a puzzle familiar to students of African political economy. The country holds world-class mineral deposits, one of the finest natural harbours on the West African coast, abundant water resources, arable land and a young population, yet it attracts a thin and volatile stream of foreign direct investment concentrated in extractive enclaves (UNCTAD, 2023; International Monetary Fund [IMF], 2024). Annual FDI inflows have fluctuated between roughly 130 million and 950 million United States dollars since 2010, with the peak years driven almost entirely by iron ore projects that later collapsed with commodity prices and the Ebola epidemic of 2014 to 2016 (UNCTAD, 2017; World Bank, 2021a). The country's endowments have not translated into the diversified, employment-rich investment that national plans envisage (Government of Sierra Leone, 2019, 2024).

This article argues that infrastructure deficits sit at the centre of that puzzle. Electricity access reached only about a third of the population by the mid-2020s, among the lowest rates in the world, and supply to firms remains unreliable and expensive (World Bank, 2023a; International Energy Agency [IEA] et al., 2023). Less than a tenth of the classified road network is paved, and much of the feeder network becomes impassable in the rainy season (African Development Bank [AfDB], 2020; Sierra Leone Roads Authority [SLRA], 2021). The international airport at Lungi is separated from the capital by a wide estuary, an arrangement with few parallels among trading nations. Broadband penetration and digital public services lag regional peers despite the landing of the Africa Coast to Europe submarine cable in 2011 (International Telecommunication Union [ITU], 2023; GSMA, 2024). Each deficit alone would deter marginal investors. Together they define the country's investment climate.

The costs are not abstractions. A manufacturer in Wellington runs diesel generators through the outage hours and prices the fuel into goods that must then compete with imports landed through a faster port elsewhere. A cocoa exporter watches quality premiums evaporate in trucks stranded on a washed-out feeder road. A hotel investor tours the peninsula beaches, then calculates what the estuary crossing does to arrival numbers, and builds in Senegal instead. Multiplied across thousands of decisions, most of them never announced, these calculations are the mechanism by which infrastructure writes itself into the FDI statistics.

The relationship between infrastructure and FDI is one of the more robustly established regularities in the empirical literature. Cross-country and panel studies consistently find that infrastructure quality raises the probability of investment entry, the volume of inflows and the diversity of sectors attracted, particularly in developing regions where deficits are binding (Asiedu, 2002, 2006; Khadaroo & Seetanah, 2010; Kinda, 2010; Donaubauer et al., 2016; Blonigen, 2005). Infrastructure operates through several channels at once. It lowers production costs directly, reduces the transaction costs of moving goods, people and information, widens effective market size, and signals state capacity to investors who cannot observe governance directly (Calderón & Servén, 2010; Straub, 2011). For a small economy such as Sierra Leone, whose domestic market alone

cannot justify most efficiency-seeking investment, the quality of connections to regional and global markets is decisive (World Bank, 2020; United Nations Economic Commission for Africa [UNECA], 2020; Limão & Venables, 2001).

Yet the Sierra Leonean case has received little systematic scholarly treatment. Existing work tends to examine single sectors, single projects or the aggregate investment climate without integrating physical, institutional and financing dimensions into one strategic analysis (Pushak & Foster, 2011; UNCTAD, 2010). Policy documents, including the Medium-Term National Development Plan 2024 to 2030 and its predecessor, diagnose the deficits candidly but stop short of the comparative and theoretical grounding a coherent strategy requires (Government of Sierra Leone, 2019, 2024). This article addresses that gap.

The study pursues ten research objectives. It examines the current state of national infrastructure across transport, energy, information and communication technology (ICT), water and industrial facilities. It analyses how those deficits shape FDI decisions and which sectors impose the greatest constraints. It assesses infrastructure quality against international indicators, examines investor perceptions, evaluates financing mechanisms, and compares Sierra Leone with selected African economies whose trajectories offer usable lessons. It analyses institutional coordination and public-private partnership (PPP) implementation, evaluates logistics performance, and develops strategic recommendations organised into short, medium and long-term horizons.

Three claims organise the argument. First, the binding constraint on FDI in Sierra Leone is not the absence of infrastructure but its unreliability and cost, which raise the risk premium investors attach to every project and push the composition of inflows towards sectors, chiefly mining, that can internalise their own infrastructure. Second, physical deficits are inseparable from institutional ones: fragmented mandates, weak project preparation, thin regulatory capacity and constrained fiscal space reproduce the deficits that deter investment. Third, the country's position is remediable. Comparative experience from Rwanda, Mauritius, Senegal and Morocco shows that small and initially poor economies can convert focused infrastructure programmes into durable investment advantages within a generation, provided sequencing is disciplined and institutions are credible (Behuria, 2018; Zafar, 2011; AfDB, 2023a).

The article proceeds as follows. Section 2 develops the integrated theoretical framework. Section 3 reviews the global, African and Sierra Leonean literature and identifies gaps. Section 4 sets out the methodology. Sections 5 to 7 present the infrastructure, FDI and institutional analyses. Section 8 offers comparative analysis against eight African economies. Section 9 examines financing mechanisms. Section 10 conducts the strategic analysis, including PESTLE, SWOT and Porter's five forces assessments, and evaluates the policy framework. Section 11 discusses the findings against theory and comparative evidence. Section 12 presents recommendations and a phased investment roadmap. Section 13 concludes with contributions and a future research agenda.

2. THEORETICAL FRAMEWORK

No single theory captures the relationship between infrastructure and FDI in a small post-conflict economy. The framework developed here integrates twelve complementary lenses, each contributing a distinct mechanism, and closes by showing how they combine into the conceptual model in Figure 1.

2.1 Dunning's Eclectic (OLI) Paradigm

Dunning's eclectic paradigm holds that firms invest abroad when they possess ownership advantages, when a location offers advantages worth internalising, and when internalisation beats

licensing or trade (Dunning, 1988; Dunning & Lundan, 2008; Buckley & Casson, 1976). Infrastructure enters chiefly through the L pillar. Reliable power, functioning ports and dense networks are classic location advantages; their absence removes a country from the feasible set for most efficiency-seeking and market-seeking investment, leaving only resource-seeking projects whose location is fixed by geology (Dunning, 2000). Sierra Leone's FDI profile, dominated by mining, is precisely what the paradigm predicts for an economy whose location advantages are limited to immobile natural assets.

The paradigm also predicts the margin on which policy can act. Ownership advantages belong to firms and internalisation choices follow from market failures largely beyond a host state's reach, but location advantages are created, and the internalisation literature since Buckley and Casson (1976) treats infrastructure services as among the few location variables a government can move within a planning horizon. Empirically, the sensitivity of location choice to infrastructure was established early for efficiency-seeking manufacturing investment (Wheeler & Mody, 1992; Cheng & Kwan, 2000), which is exactly the class of investment Sierra Leone's plans seek and its infrastructure currently screens out.

2.2 New Institutional Economics

New institutional economics (NIE) insists that the rules of the game, formal and informal, determine economic performance (North, 1990; Williamson, 2000). Infrastructure is produced, regulated and maintained through institutions: procurement systems, utilities, regulators and contract enforcement. Where institutions are weak, infrastructure investment is delayed, overpriced or stranded, and the physical deficit becomes a symptom of an institutional one (Acemoglu & Robinson, 2012; Rodrik et al., 2004). NIE also explains why investors read infrastructure as a signal: a state that keeps the lights on demonstrates capabilities that no investment brochure can.

Rodrik et al. (2004) put the point at its strongest: institutions trump geography and openness in explaining income differences, and infrastructure sits on the causal path because institutions determine whether roads are maintained, utilities collect revenue and contracts survive elections. For a post-conflict state, the signalling channel carries extra weight. Investors discount official assurances heavily where state capacity is uncertain, but they cannot discount an operating grid or a functioning port; physical performance is the costliest and therefore the most credible signal available.

2.3 Transaction Cost Economics

Following Coase (1937) and Williamson (1985), transaction cost economics locates the costs of using markets in search, bargaining and enforcement. Poor infrastructure inflates every category. Unreliable roads raise inventory holdings and spoilage; power outages force firms into self-generation at multiples of grid tariffs; slow ports add days of demurrage and uncertainty that no tariff schedule records (Straub, 2011; World Bank, 2023b). Transaction cost reasoning also illuminates PPP design, since long-lived, asset-specific infrastructure contracts are acutely vulnerable to hold-up and renegotiation where credible commitment is absent (Guasch et al., 2014).

2.4 Growth Pole Theory

Perroux (1955) argued that growth appears at poles of concentrated activity and spreads through linkages. The modern application is the corridor, special economic zone (SEZ) and port-city complex, where co-located infrastructure creates agglomeration economies that isolated projects cannot (Zeng, 2015). For Sierra Leone, growth pole logic argues against spreading scarce capital

thinly and for concentrating investment where mining, agriculture and the Freetown gateway intersect.

2.5 Endogenous Growth Theory

Endogenous growth models treat knowledge, human capital and public capital as engines of sustained growth rather than exogenous gifts (Romer, 1990; Lucas, 1988; Barro, 1990). Infrastructure is a form of public capital whose services enter private production functions; the seminal empirical demonstration is Aschauer (1989), refined for developing regions by Calderón and Servén (2010). The theory implies that infrastructure investment does not merely attract FDI but raises the return to every complementary investment, including the human capital that multinationals demand.

2.6 Infrastructure-Led Development Theory

A related body of work treats infrastructure as a deliberate development strategy rather than a passive input, drawing on East Asian experience where states built ahead of demand to shape comparative advantage (Ansar et al., 2016; Foster & Briceño-Garmendia, 2010). The approach carries risks of white elephants and debt distress, which the financing analysis in Section 9 takes seriously, but it explains why waiting for demand to justify infrastructure condemns latecomers to permanent disadvantage.

2.7 Public Goods Theory

Much infrastructure is non-rivalrous over ranges of use and difficult to price, generating under-provision by private markets (Samuelson, 1954; Ostrom, 1990). The theory clarifies the boundary question at the heart of PPP policy: which layers of infrastructure are genuinely public goods requiring state provision, and which are club or private goods, such as container terminals and telecommunications, where private capital and user charges can carry the load (Engel et al., 2014).

2.8 Network Economics

Infrastructure exhibits network externalities: the value of a road, a grid or a data network rises with the number of connected nodes (Katz & Shapiro, 1985; Economides, 1996). Network economics explains threshold effects observed in the empirical literature, where infrastructure only begins to attract FDI once connectivity crosses a critical mass, and it warns that fragmented, unconnected projects yield little (Donaubauer et al., 2016).

2.9 Competitive Advantage Theory and the Porter Diamond

Porter (1990) relocated competitiveness from natural endowments to created advantages. In the diamond model, factor conditions include infrastructure explicitly, and the other determinants, demand conditions, related industries and firm rivalry, all depend on it indirectly. The model reframes Sierra Leone's task: minerals are inherited, but logistics performance, power reliability and digital capability are created, and it is created factors that anchor investment once resources deplete (Porter, 1998).

2.10 Spatial Economics

The new economic geography formalises how transport costs, scale economies and factor mobility determine where activity locates (Krugman, 1991; Fujita et al., 1999). High internal transport costs fragment Sierra Leone into small, poorly integrated markets, keeping agricultural surplus regions disconnected from the port and suppressing the agglomeration that would attract manufacturing FDI. Spatial reasoning underpins the corridor prioritisation in Section 12.

2.11 Investment Climate Theory

The investment climate approach, associated with the World Bank's enterprise survey programme, treats FDI decisions as responses to the whole bundle of costs, risks and barriers facing firms (World Bank, 2005; Dollar et al., 2005). Its virtue is empirical discipline: it measures what firms actually report. Enterprise surveys for Sierra Leone repeatedly rank electricity, transport and access to finance among the top constraints, providing the demand-side evidence used in Section 5 (World Bank, 2017, 2023b).

2.12 Public Value and Governance Theory

Finally, governance and public value theory ask how public organisations create outcomes citizens and investors value, stressing legitimacy, operational capacity and authorising environments (Moore, 1995; Fukuyama, 2013). Investment promotion agencies and infrastructure authorities succeed not merely by existing but by sustaining coalitions that protect long-lived projects from political cycles, a condition examined in the institutional analysis of Section 7.

2.13 An Integrated Model

The twelve lenses combine into the conceptual framework shown in Figure 1. Infrastructure deficits, conditioned by institutions and financing constraints, operate through cost, risk, market access and agglomeration channels on investor decisions, which determine FDI volume and composition. FDI in infrastructure itself feeds back to ease the original deficit, creating the possibility of a virtuous circle that policy can either ignite or forfeit.

The lenses assign the framework's variables to owners. Firms control ownership and internalisation choices; markets set commodity prices and capital costs; but the state controls the location variables, the institutions that produce them and the sequencing among them. The framework is therefore not merely descriptive; it is a map of policy leverage, and the empirical sections that follow test whether Sierra Leone's observed FDI pattern matches the map's predictions before Section 12 uses the map to route the response.

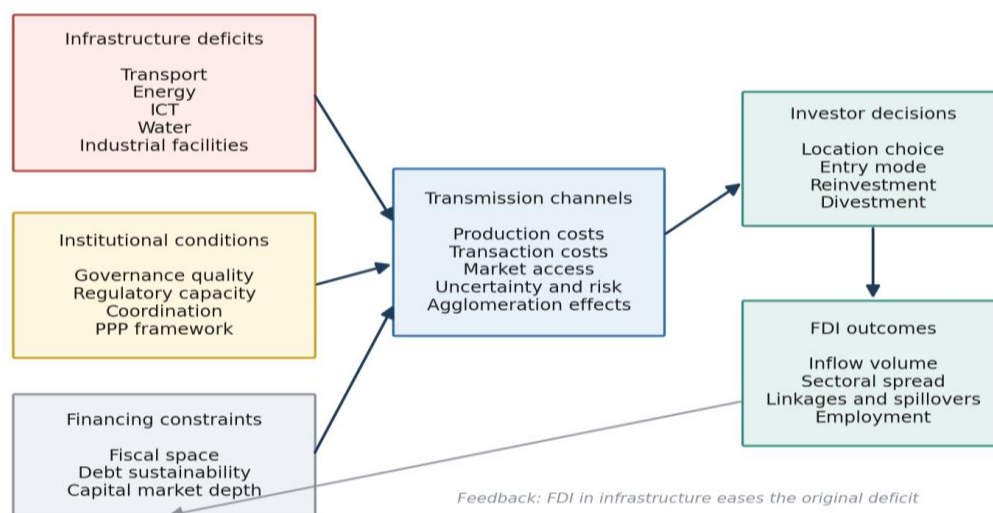


Figure 1. Conceptual framework linking infrastructure deficits, institutions and FDI outcomes. Source: Author's construction.

3. LITERATURE REVIEW

3.1 Global Literature

Infrastructure and economic growth. The macroeconomic literature converges on a positive, sizeable contribution of infrastructure to growth, with the strongest effects in capital-scarce economies. Aschauer (1989) opened the modern debate; Calderón and Servén (2010) estimated that infrastructure development explained a substantial share of growth differentials within Africa, echoing earlier findings by Ndulu (2006) and Ajakaiye and Ncube (2010); Ansar et al. (2016) supplied the caution, documenting cost overruns and stranded assets when project selection is politicised. Meta-analytic and survey work confirms heterogeneity by sector and quality of governance (Straub, 2011; Estache & Garsous, 2012). Timilsina et al. (2020) find output elasticities of public capital clustering around 0.1 to 0.2 for developing countries, largest for electricity and transport.

Infrastructure and competitiveness. The World Economic Forum's Global Competitiveness Index treats infrastructure as a basic pillar, and successive editions place most low-income African economies, Sierra Leone included, in the bottom decile (Schwab, 2019). The Logistics Performance Index similarly links trade competitiveness to gateway and corridor quality (Arvis et al., 2023), and the trade literature quantifies the channel: poor infrastructure accounts for a large share of Africa's transport cost disadvantage, each day of export delay acts as a tariff, and trade facilitation reform raises export performance measurably (Limão & Venables, 2001; Djankov et al., 2010; Portugal-Perez & Wilson, 2012). Firm-level evidence shows infrastructure inadequacy depressing total factor productivity and export participation across African manufacturing (Dethier et al., 2011; Escribano et al., 2010).

Infrastructure and FDI. The FDI-specific literature is now extensive. Early location studies established infrastructure among the strongest FDI determinants in developing countries (Wheeler & Mody, 1992; Cheng & Kwan, 2000), findings consolidated in Blonigen's (2005) survey. Asiedu (2002, 2006) established that infrastructure, alongside openness and institutions, drives FDI to Africa, and that natural resource dependence can crowd out diversified inflows. Khadaroo and Seetanah (2010) demonstrated transport infrastructure effects in African panels. Kinda (2010) used firm-level data to show that physical infrastructure problems reduce the probability of foreign ownership. Donaubauer et al. (2016) built comprehensive infrastructure indices and found robust FDI effects, strongest for telecommunications. Recent work extends the finding to digital infrastructure and greenfield project counts (UNCTAD, 2021, 2023).

Infrastructure financing. A parallel literature examines how the developing world can close a financing gap estimated for Africa at 68 to 108 billion dollars annually (AfDB, 2018). Gutman et al. (2015) mapped external flows; the Infrastructure Consortium for Africa tracks commitments annually (ICA, 2018); Engel et al. (2014) provide the economics of PPPs; the World Bank (2018) benchmarks PPP procurement frameworks across countries; Guasch et al. (2014) document renegotiation risks; and the blended finance literature assesses the leverage and pitfalls of concessional capital mobilising private funds (OECD, 2018, 2023). Sovereign debt research warns that infrastructure ambitions collide with post-pandemic debt distress across low-income countries (IMF, 2023a).

Digital, green and resilient infrastructure. Newer strands examine broadband as general-purpose infrastructure with measurable growth and inclusion effects (Hjort & Poulsen, 2019; World Bank, 2016), the greening of infrastructure portfolios under climate constraints (OECD, 2023; IEA, 2022, 2023; IRENA, 2023), and resilience economics showing that every dollar of resilient design saves

multiples in avoided losses (Hallegatte et al., 2019). Governance scholarship ties the whole together: infrastructure outcomes track procurement integrity, regulatory independence and planning capability more closely than they track spending (Flyvbjerg, 2014; Collier et al., 2016).

3.2 African Literature

Country experiences supply the comparative raw material for Section 8; the literature is summarised here.

Rwanda rebuilt from conflict through deliberate state-led infrastructure and institutional investment, with the Rwanda Development Board integrating promotion, facilitation and aftercare in a single agency; electricity access rose from around 10 per cent in 2010 to more than half of households by the mid-2020s (Behuria, 2018; World Bank, 2023a). Behuria's (2018) careful reading warns against naive emulation: Rwandan performance rests on a centralised political settlement that disciplines agencies and tolerates long payback periods, conditions that must be built rather than assumed. The transferable elements are organisational, a single accountable promotion agency, published service standards and aftercare that treats existing investors as the best marketing channel, and these travel better than the political settlement does. **Ghana** shows both the promise of energy sector expansion and the fiscal peril of take-or-pay power contracts that produced large arrears (Eshun & Amoako-Tuffour, 2016; IMF, 2023b). After the crippling load-shedding of the mid-2010s, known locally as dumsor, Ghana contracted emergency capacity on terms that later converted excess capacity charges into a fiscal burden measured in points of GDP. The episode is directly relevant to Sierra Leone's Karpowership arrangement: emergency power is a bridge, and bridges that become permanent become debts. **Kenya** leveraged mobile connectivity and the standard gauge railway debate illustrates the tension between transformational ambition and debt sustainability (Wekesa et al., 2016; Wissenbach & Wang, 2017). **Ethiopia** pursued infrastructure-led industrialisation through industrial parks and hydropower, achieving manufacturing FDI growth but exposing foreign exchange and political risks (Oqubay, 2015; Zeng, 2015; UNCTAD, 2019). **Morocco** built Tanger Med into a top-twenty container port and an automotive export platform, the continent's clearest demonstration that created gateway advantages attract efficiency-seeking FDI (AfDB, 2023a; UNCTAD, 2024). The Moroccan sequence deserves attention: the port, the free zones, the motorway and rail connections and the vocational training institutes were planned as one product and delivered under an empowered special agency, after which Renault, Stellantis and their supplier networks arrived. Infrastructure created the location advantage; the eclectic paradigm did the rest. **Botswana** converted mineral rents into infrastructure and stability through credible institutions (Acemoglu et al., 2003). **Mauritius** graduated from sugar dependence to services through early export processing zones, air access and telecommunications reform (Zafar, 2011; Subramanian & Roy, 2003). **Senegal** combined a new airport, toll motorway and the Diamniadio pole with an improving PPP framework (AfDB, 2023a; World Bank, 2022a). Studies of **Côte d'Ivoire** and **Tanzania** reinforce the corridor and port efficiency themes (Arvis et al., 2023; UNECA, 2020).

Abidjan's post-2012 recovery combined port expansion with an aggressive national development plan that lifted Côte d'Ivoire to among West Africa's largest FDI recipients, while Tanzania's central corridor investments illustrate how port dwell time reductions propagate inland as lower prices and faster stock turns (Djankov et al., 2010). **Senegal's** experience since 2014 under the Plan Sénégal Émergent is perhaps the most instructive near-peer case: a new airport at Diass, the Dakar toll motorway, the Diamniadio urban pole and independent power procurement together shifted the country's investment narrative within a decade, without Rwandan-style political centralisation (World Bank, 2022a; AfDB, 2023a).

The lessons for Sierra Leone recur across cases: consolidate investment promotion institutionally; sequence power before industrial ambition; treat gateways as competitive products, not administrative territories; keep PPP fiscal commitments transparent; and protect long-lived projects from electoral cycles.

3.3 Sierra Leone Literature

Scholarship on Sierra Leone's infrastructure is thin, fragmented and dominated by grey literature. On **roads**, SLRA reports and AfDB appraisal documents describe a classified network of roughly 11,000 kilometres of which under ten per cent is paved, with maintenance financing chronically short (SLRA, 2021; AfDB, 2020). On **electricity**, studies document among the world's lowest access rates, heavy dependence on the seasonal Bumbuna hydropower plant, high system losses and costly emergency generation contracts (World Bank, 2021b; Ministry of Energy, 2021; Blimpo & Cosgrove-Davies, 2019). The **water** literature records low piped coverage and severe urban shortfalls in Freetown (World Bank, 2022b). Work on the **port** notes the paradox of an excellent natural harbour with historically modest throughput, partially remedied by the 2011 container terminal concession to Bolloré, later AGL (Sierra Leone Ports Authority [SLPA], 2021; World Bank, 2020). The **Lungi airport** question, whether to bridge the estuary, relocate the airport or improve ferry links, has generated consultancy studies but little peer-reviewed analysis (Ministry of Transport and Aviation, 2020). The colonial **railway** closed in the 1970s; the only operating line is the private Tonkolili to Pepel iron ore railway (Pushak & Foster, 2011; IMF, 2022). On **digital infrastructure**, ITU and GSMA data show internet use below a third of the population despite submarine cable access, with the national fibre backbone incomplete (ITU, 2023; GSMA, 2024; World Bank, 2016; Ministry of Communication, Technology and Innovation, 2021). Emerging work covers the special economic zone programme and investment climate reforms, including the creation of the National Investment Board in 2023 to consolidate the Sierra Leone Investment and Export Promotion Agency and the PPP unit (Government of Sierra Leone, 2023; UNCTAD, 2010; Pushak & Foster, 2011).

3.4 Gaps in the Literature

Four gaps stand out. First, no study integrates physical, institutional and financing analysis of Sierra Leone's infrastructure within a single FDI framework. Second, comparative positioning against African peers is rarely systematic. Third, firm-level evidence on how infrastructure enters investor decisions in Sierra Leone specifically is nearly absent outside enterprise survey tabulations. Fourth, the strategic literature offers lists of projects but little sequencing logic grounded in theory. This article addresses the first, second and fourth gaps directly and defines the third as the priority for future research.

A fifth, quieter gap concerns measurement. Sierra Leone's infrastructure statistics are scattered across agency reports with inconsistent definitions, no unified asset register and irregular condition surveys. Until the state can count its assets, it cannot maintain them, price them or pledge them; the statistical gap is itself an infrastructure gap, and closing it is a research contribution as much as an administrative one (Pushak & Foster, 2011).

The chronology of the national literature also matters. The most systematic assessment of Sierra Leone's infrastructure remains the continental diagnostic of 2011, produced when reconstruction was the frame and before the iron ore boom, Ebola, the pandemic and the current reform wave. A country cannot steer the 2020s on a 2011 map, and part of this article's purpose is to redraw it from the scattered sources now available.

4. METHODOLOGY

4.1 Research Philosophy and Approach

The study adopts a pragmatist philosophy. Pragmatism treats research questions, not methodological allegiance, as the arbiter of design, and it suits policy-oriented inquiry where the object is usable knowledge (Creswell & Creswell, 2018). The approach is abductive: the twelve theoretical lenses supply expectations, the evidence is examined against them, and the framework is refined where the Sierra Leonean case resists the theory.

4.2 Research Design and Mixed Methods Justification

The design is a convergent mixed methods study built on secondary sources. Quantitative analysis of infrastructure and FDI indicators establishes magnitudes and trends; qualitative documentary and comparative policy analysis explains mechanisms and institutional context. Neither strand suffices alone. Indicator movements without institutional context invite spurious inference, while institutional narrative without magnitudes invites anecdote. Convergence across strands, and across independent data producers, is the study's principal warrant for its claims (Yin, 2018).

The mixed design also matches the object of study. Infrastructure-FDI relationships are simultaneously quantitative, magnitudes of access, cost and flow, and institutional, matters of mandate, credibility and sequencing that no indicator captures. A purely econometric design applied to one small country would face fifteen usable annual observations interrupted by civil war reconstruction, an epidemic and a pandemic; a purely qualitative design would forfeit the discipline of comparative measurement. Combining documentary depth with indicator breadth is not methodological hedging but the only design proportionate to the question.

4.3 Data Sources

Quantitative data are drawn from the World Bank World Development Indicators and Enterprise Surveys, UNCTAD World Investment Reports and FDI statistics, the AfDB Africa Infrastructure Development Index, the World Bank Logistics Performance Index, IMF Article IV consultations and debt sustainability analyses, IEA and Tracking SDG 7 energy datasets, and ITU and GSMA digital indicators. National sources include the Bank of Sierra Leone annual reports and balance of payments statistics, Statistics Sierra Leone surveys and the 2021 mid-term census, budget documents of the Ministry of Finance, the Medium-Term National Development Plans, and sectoral reports of the SLRA, SLPA, the Ministry of Energy, the Electricity Distribution and Supply Authority (EDSA) and the National Investment Board. Where national and international series diverge, both are reported and the divergence noted.

4.4 Analytical Techniques

Five techniques are combined. Trend analysis and descriptive statistics characterise infrastructure stocks, access rates and FDI flows over 2010 to 2024. Documentary analysis interrogates legislation, plans and agency reports for mandates, capacity and coordination. Comparative policy analysis positions Sierra Leone against eight African economies selected for relevance rather than similarity: two small success cases (Mauritius, Botswana), two post-conflict reformers (Rwanda, Senegal as regional benchmark), two regional anchors (Ghana, Kenya), one gateway exemplar (Morocco) and one resource-dependent comparator (Namibia). A case study logic treats Sierra Leone as a critical case for infrastructure-constrained FDI in small post-conflict economies (Yin, 2018). Finally, the study synthesises regression evidence from the existing econometric literature

rather than estimating new models, since national time series are too short and structurally broken (war, Ebola, pandemic) for credible country-specific estimation.

4.5 Strategic Analysis Tools

Section 10 applies PESTLE analysis, SWOT analysis, Porter's five forces adapted to locational competition for FDI, value chain analysis, gap analysis, institutional capacity assessment, political economy analysis, risk analysis and scenario analysis. These tools are heuristics, not tests; their value lies in forcing completeness and surfacing interactions that sectoral analysis misses.

4.6 Reliability, Validity and Limitations

Reliability is pursued through exclusive reliance on citable, publicly available sources and a transparent audit trail from claim to source. Construct validity rests on triangulation across at least two independent data producers for every central empirical claim. External validity is bounded: findings generalise analytically to small, coastal, resource-rich post-conflict economies, not statistically to all developing countries.

Limitations are material and are stated plainly. Sierra Leonean administrative data are patchy, with gaps and revisions in FDI, road condition and electricity statistics. Several international benchmarking exercises have been discontinued or revised, including the Doing Business series withdrawn in 2021 and replaced by B-READY (World Bank, 2024), which truncates comparability. Sectoral FDI decomposition relies on central bank and UNCTAD estimates with acknowledged coverage weaknesses, so shares reported in Section 6 are indicative. The absence of purpose-built investor interviews means investor perceptions are inferred from surveys and revealed behaviour rather than elicited directly. None of these limitations, singly or together, threatens the direction of the findings, but they properly widen the uncertainty around magnitudes.

Two mitigations are applied throughout. Point estimates that vary across sources are reported as ranges with the qualifier approximate, and no argumentative step depends on the precision of any single number; the analysis is constructed so that its conclusions survive plausible revisions to every statistic cited. Where a figure is the author's estimate rather than a source's, the tables say so explicitly.

4.7 Ethical Considerations

The study uses only public secondary data and involves no human subjects. Care is taken to attribute all data and interpretations, to represent government documents fairly, and to distinguish the author's judgements from source claims. Comparative assessments avoid league-table triumphalism; the purpose is learning, not ranking for its own sake.

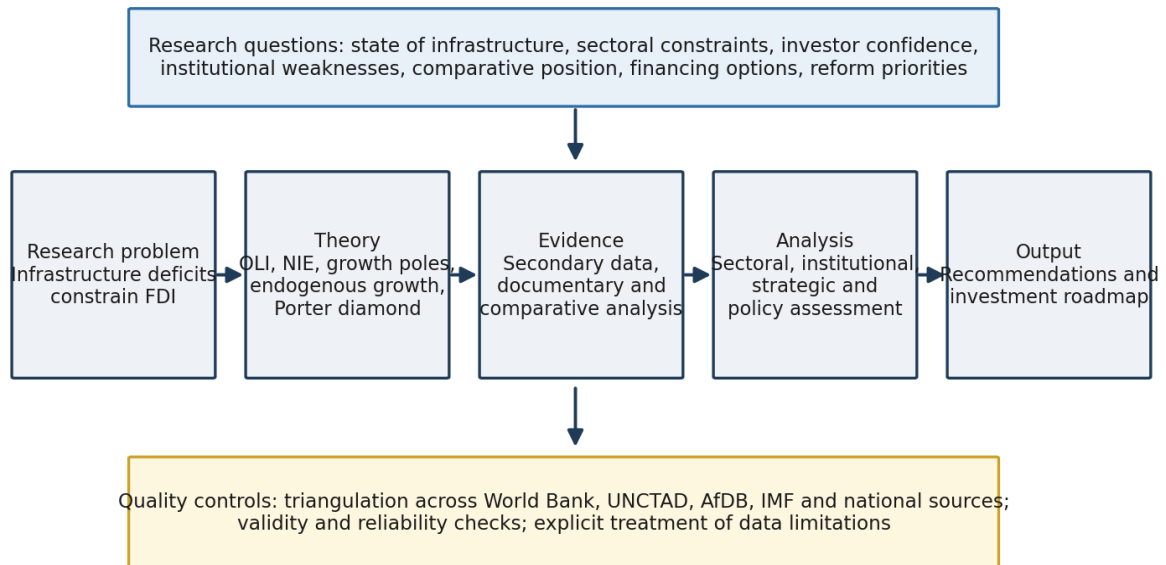


Figure 2. Research framework. Source: Author's construction.

5. THE STATE OF INFRASTRUCTURE IN SIERRA LEONE

This section answers the first research question by sector, combining stock, quality, cost and reliability evidence. Table 1 sets the headline indicators against regional averages.

Table 1 Headline Infrastructure Indicators, Sierra Leone and Comparators, circa 2023

Indicator	Sierra Leone	Sub-Saharan Africa	Rwanda	Ghana	Source
Electricity access (% population)	33	52	56	86	World Bank (2023a)
Installed generation capacity (MW)	approx. 250	n/a	approx. 380	approx. 5,400	Ministry of Energy (2021); IEA (2023)
Paved roads (% classified network)	under 10	approx. 25	28	39	SLRA (2021); AfDB (2020)
Individuals using the internet (%)	approx. 30	37	34	70	ITU (2023)
LPI overall score (1 to 5)	2.0 to 2.2	2.4	2.8	2.7	Arvis et al. (2023)
Access to basic water (% population)	64	65	62	88	World Bank (2022b)
AIDI composite score	approx. 14	27	24	32	AfDB (2023b)

Note. Figures are the most recent comparable estimates and are indicative; national and international sources differ at the margin. AIDI is the Africa Infrastructure Development Index.

Source: Author's compilation.

5.1 Transport Infrastructure

Road network. The classified network comprises roughly 11,300 kilometres: about 8 per cent paved trunk roads radiating from Freetown towards Makeni, Bo, Kenema, Kono and the Guinea and Liberia borders, with the remainder gravel and earth roads of variable condition (SLRA, 2021; AfDB, 2020; Pushak & Foster, 2011). Condition surveys suggest under half of the network is in good or fair condition, and the feeder road system, which carries agricultural produce to markets, deteriorates sharply in the May to October rains. Urban roads in Freetown suffer acute congestion on a constrained peninsula, with a single arterial spine and informal settlement encroachment. The Road Maintenance Fund, financed by fuel levies, persistently collects less than the network's preservation requirement, so rehabilitation gains erode within years (Ministry of Finance, 2023). Bridge infrastructure on secondary routes includes ageing single-lane structures with weight limits that force freight detours.

Rail. The national narrow-gauge railway closed in 1974. The only operating line is the private 200-kilometre Tonkolili to Pepel railway, rehabilitated for iron ore evacuation and closed to general freight (Pushak & Foster, 2011; IMF, 2022). The country therefore moves all non-mineral freight by road, an unusual and costly position for bulk agriculture.

Ports. Freetown's Queen Elizabeth II Quay sits on one of the world's largest natural deep-water harbours. The 2011 container terminal concession brought new cranes, yard investment and berth deepening, lifting productivity materially, yet throughput remains modest at under 150,000 twenty-foot equivalent units annually, reflecting the small economy and thin shipping connectivity rather than terminal capacity (SLPA, 2021; World Bank, 2020). Landside constraints, customs dwell times and congestion on the single port access road erode much of the waterside gain. The Pepel and Nitti ports serve dedicated mineral exports.

Airports and the Lungi question. Freetown International Airport at Lungi received a new privately built terminal in 2023, improving passenger experience. The structural problem is geographic: the airport lies across the wide Sierra Leone River estuary from the capital, so arriving investors face a sea crossing or a long road detour. The arrangement raises the effective cost of every business visit and has become a symbol, fairly or not, of accessibility risk (Ministry of Transport and Aviation, 2020). Options studied include a fixed bridge crossing, estimated in the billions of dollars, airport relocation, and upgraded ferry services; none has reached financial close.

The economics of the choice deserve honest statement. A fixed link is transformational but would rank among the largest single investments in national history, with tolls unlikely to cover capital costs at current traffic; relocation strands the new terminal investment; improved ferries are cheap, quick and reversible but leave the perception problem partially intact. The disciplined answer is sequencing: regulate and brand a reliable fast-ferry service now, publish a rigorous cost-benefit study of the fixed link with independent traffic forecasts, and let the medium-term decision follow the evidence rather than the announcement cycle (Flyvbjerg, 2014). Air connectivity itself is thin, with a limited set of international carriers and no significant air freight capacity, which binds horticulture and tourism alike.

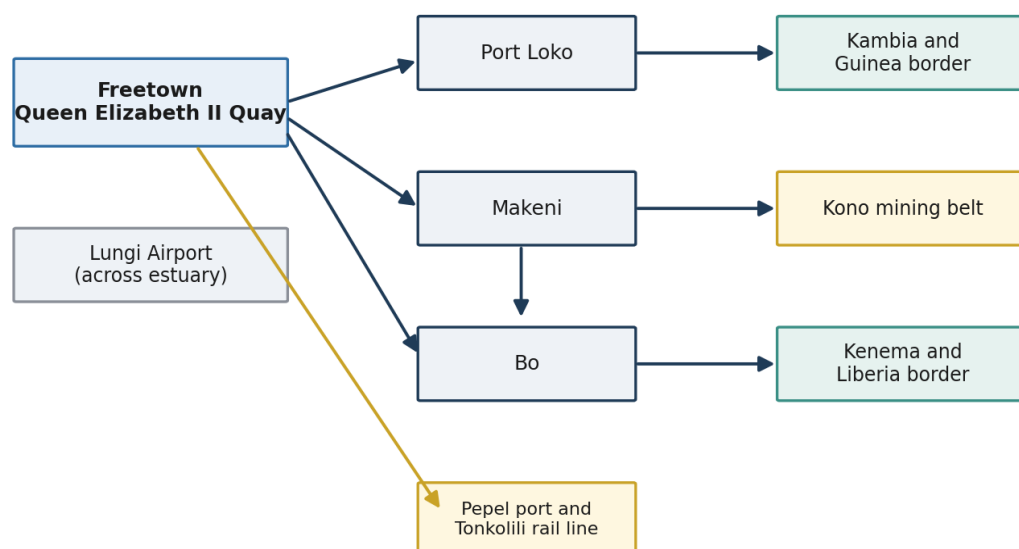
Logistics, borders and corridors. Sierra Leone's Logistics Performance Index scores have hovered near the bottom decile globally, with weakest ratings on tracking, timeliness and customs (Arvis et al., 2023). Border posts at Gbalamuya (Guinea) and Gendema (Liberia) suffer limited joint processing, though ECOWAS corridor initiatives are gradually introducing coordinated management (UNECA, 2020).

Freight economics summarise the transport deficit in a single price: moving a container inland in West Africa costs multiples of the equivalent movement in Asia, and Sierra Leone sits at the expensive end of an expensive region. Trucking markets are thin and ageing, axle-load enforcement is weak, which accelerates the very road deterioration that raises trucking costs, and there is no rail alternative to discipline road pricing. The circularity is the point: bad roads make expensive trucking, expensive trucking overloads trucks, overloading destroys roads. Breaking such circles is what corridor programmes, weighbridges included, are for. Table 2 summarises the transport picture.

Table 2. Road and Logistics Indicators, Sierra Leone

Indicator	Value	Year	Source
Classified road network (km)	approx. 11,300	2021	SLRA (2021)
Paved share of network (%)	8 to 10	2021	SLRA (2021)
Network in good or fair condition (%)	approx. 45	2020	AfDB (2020)
Container throughput (TEU)	approx. 130,000	2021	SLPA (2021)
LPI rank (of 139)	bottom decile	2023	Arvis et al. (2023)
Operational railway (km, private)	approx. 200	2022	IMF (2022)

Note. TEU is twenty-foot equivalent unit. Source: Author's compilation



Schematic representation of principal road corridors and trade gateways; not to scale

Figure 3. Schematic of principal trade corridors and gateways. Source: Author's construction.

5.2 Energy Infrastructure

Electricity is the most frequently cited constraint in every firm survey conducted in Sierra Leone (World Bank, 2017, 2023b). Access reached roughly a third of the population by 2023, from around 11 per cent in 2010, but remains heavily urban; rural access is in single digits in several districts (World Bank, 2023a; Statistics Sierra Leone, 2020, 2022). Installed capacity of roughly 250 megawatts is dominated by the 50-megawatt Bumbuna hydropower station, whose output falls sharply in the dry season, supplemented by thermal plants, the Karpowership floating plant contracted after the 2018 supply crisis, and small solar facilities (Ministry of Energy, 2021; IMF, 2024). The Bumbuna II expansion and the CLSG transmission interconnector linking Côte d'Ivoire, Liberia, Sierra Leone and Guinea under the West African Power Pool and the ECOWAS regional master plan (ECOWAS, 2019) offer routes to firm, cheaper supply, but domestic transmission and distribution remain the bottleneck: system losses near 35 to 40 per cent, among the highest in Africa, and EDSA's weak revenue collection undermine sector finances (World Bank, 2021b).

The loss figure repays decomposition. Technical losses from an aged, overloaded network account for perhaps a third; the remainder is commercial, unmetered connections, meter tampering and billing failures, which means the largest single source of new power available to Sierra Leone is not a plant but a metering and enforcement programme. Every percentage point of loss reduction is generation the country does not have to finance, and it is available at a fraction of the cost per delivered kilowatt-hour of new capacity (World Bank, 2021b; Blimpo & Cosgrove-Davies, 2019). Renewable options strengthen the case for sequencing supply after network repair: utility-scale solar costs have fallen to levels that undercut thermal generation across the region, and mini-grid concessions can serve district capitals decades before grid extension becomes economic (IRENA, 2023; IEA, 2022).

The consequences for investors are direct. Enterprise survey respondents report multiple outages weekly, losses from outages of several per cent of annual sales, and widespread reliance on diesel self-generation at unit costs several times the grid tariff (World Bank, 2023b; Blimpo & Cosgrove-Davies, 2019). Industrial tariffs, when grid power is available, are high by regional standards because of thermal and emergency contracting costs. Table 3 assembles the sector indicators; Figure 4 plots the access trajectory against Rwanda, whose 2010 starting point resembled Sierra Leone's.

Table 3: Electricity Sector Indicators, Sierra Leone

Indicator	Value	Source
Access, national (% population, 2023)	approx. 33	World Bank (2023a)
Access, rural (%)	approx. 5 to 8	Statistics Sierra Leone (2022)
Installed capacity (MW)	approx. 250	Ministry of Energy (2021)
Hydropower share of generation (wet season)	over 60%	Ministry of Energy (2021)
Transmission and distribution losses (%)	35 to 40	World Bank (2021b)
Firms citing electricity as major constraint (%)	approx. 60	World Bank (2023b)
Typical outage frequency	several per week	World Bank (2023b)

Note. Source: Author's compilation.

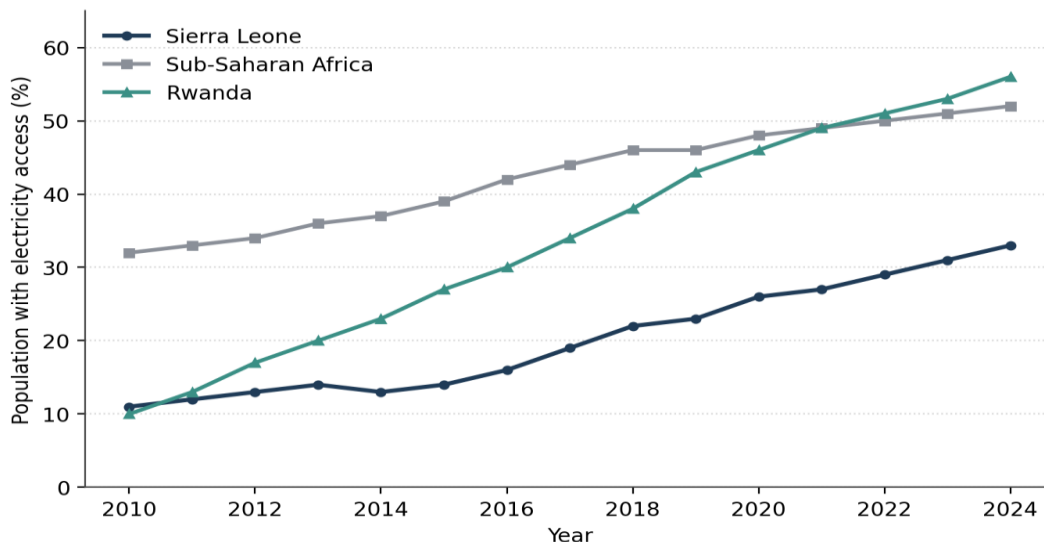


Figure 4. Electricity access trends, 2010 to 2024, Sierra Leone, Rwanda and Sub-Saharan Africa. Source: Author's compilation from World Bank (2023a) and IEA et al. (2023); recent values are provisional.

5.3 ICT and Digital Infrastructure

Sierra Leone landed the Africa Coast to Europe submarine cable in 2011 and has since built segments of a national fibre backbone, yet digital outcomes lag the connectivity endowment. Mobile penetration is broad but internet use stood near 30 per cent of individuals in 2023, data costs absorb a high share of average incomes, and 4G coverage thins quickly outside major towns (ITU, 2023; GSMA, 2024). The backbone is incomplete and insufficiently redundant, so wholesale prices stay high and outages propagate. Digital government has advanced, with the Directorate of Science, Technology and Innovation and the Ministry of Communication, Technology and Innovation driving e-services, digital identification and a national digital development strategy, but data centre capacity is minimal and cybersecurity institutions are nascent (Ministry of Communication, Technology and Innovation, 2021). A small but genuine fintech and start-up ecosystem has emerged around mobile money, whose usage grew rapidly after 2015 (Bank of Sierra Leone, 2021, 2023). For investors, the binding digital constraints are reliability, price and skills rather than raw international bandwidth.

The economic stakes of closing the digital gap are better evidenced than for any other sector, because the arrival of submarine cables created a natural experiment: Hjort and Poulsen (2019) show fast internet raised employment and firm entry across African connection zones, with effects concentrated in higher-skill services. For Sierra Leone the implication is that the marginal digital dollar belongs in the domestic backbone, wholesale open access rules and power for towers, since international capacity already exists and sits underused. Digital public infrastructure, identification, payments and registries, compounds the return by cutting the transaction costs of every other interaction between firms and the state (World Bank, 2016; UNCTAD, 2021).

5.4 Water Infrastructure

Access to at least basic water services covers about two thirds of the population, but piped supply is far scarcer, and the Guma Valley system serving Freetown suffers chronic dry-season shortfalls against a population that has multiplied since the system's mid-century design (World Bank, 2022b). Industrial water supply is unreliable enough that beverage and agro-processing investors

typically sink boreholes and build treatment in-house, another self-supply tax on investment. Sanitation coverage is low, and climate change intensifies both flood risk, tragically demonstrated by the 2017 Freetown landslide, and dry-season scarcity (Government of Sierra Leone, 2024).

Water interacts with every other deficit. Hydropower output depends on catchment management; road washouts follow drainage failures; industrial siting follows water as surely as it follows power. The sector also illustrates the maintenance pathology at its starkest: Guma Valley's core assets date from the 1960s, and the cheapest cubic metre available to Freetown is the one currently lost to leakage, exactly as the cheapest kilowatt is the one lost to the distribution network. Non-revenue water and non-revenue electricity are the same disease in different pipes.

5.5 Industrial and Agricultural Infrastructure

Purpose-built industrial infrastructure is scarce. The first-generation special economic zone at Newton, developed with private participation, hosts light processing but has struggled with power and road links, illustrating network economics in miniature: a zone without reliable connections is a fenced field (Farole & Akinci, 2011; Zeng, 2015). Warehousing is limited and cold chain capacity minimal, which forecloses horticulture and fisheries export models that depend on temperature-controlled logistics. Mining infrastructure is comparatively developed but private and dedicated. Agricultural infrastructure, feeder roads, storage, irrigation, remains the weakest layer, keeping post-harvest losses high and rural investment thin (Ministry of Planning and Economic Development, 2021).

The zone experience worldwide is unforgiving on this point: Farole and Akinci (2011) find that African zones underperform Asian ones chiefly because power, transport and administration inside the fence never matched the promise, not because the instrument is wrong. The policy conclusion for Sierra Leone is a rule rather than a project: no zone phase should be launched until dedicated power, water, fibre and an all-season road connection are contractually secured, because a partially serviced zone damages the country's promotional credibility more than no zone at all.

5.6 Summary of Deficits

Three cross-cutting features define the deficit. First, unreliability dominates absence: firms can usually obtain power, transport and connectivity at some price, but variance is what destroys business models. Second, self-supply is the hidden tariff: generators, boreholes, satellite links and private jetties convert public infrastructure failure into private fixed costs that only large or extractive investors can absorb, which mechanically skews FDI composition. Third, the deficits interact: the zone without power, the port behind a congested road, the cable without a backbone. Network economics predicts exactly this pattern of stranded partial investments, and it argues for the bundled, corridor-based response developed in Section 12.

6. FDI IN SIERRA LEONE: TRENDS, COMPOSITION AND INFRASTRUCTURE SENSITIVITY

6.1 Historical Trends

Sierra Leone's FDI history divides into four phases. Before 2010, inflows were modest and dominated by diamonds and rutile. Between 2010 and 2013, two large iron ore projects, African Minerals at Tonkolili and London Mining at Marampa, drove inflows to a peak near 950 million dollars in 2011, among the highest FDI-to-GDP ratios in Africa at the time (UNCTAD, 2017; Bank of Sierra Leone, 2015). The 2014 to 2016 collapse combined the Ebola epidemic with the iron ore price crash; both flagship mines entered administration, and inflows fell below 150 million dollars

(World Bank, 2021a). Since 2017, inflows have partially recovered into a range of roughly 250 to 400 million dollars annually, sustained by mining rehabilitation under new owners, energy projects and telecommunications, but remain volatile and undiversified (UNCTAD, 2023, 2024, 2025; IMF, 2024). Figure 5 plots the series; Table 4 provides the sectoral decomposition.

Two features of the series deserve emphasis. First, volatility is itself a cost: the swing of Sierra Leone's inflows relative to their mean exceeds that of every comparator examined in Section 7, and volatile inflows translate into volatile construction employment, revenue and foreign exchange, complicating macroeconomic management (Bank of Sierra Leone, 2023). Second, the recovery is compositionally thin. Announced greenfield projects outside mining remain few and small, and reinvested earnings, the component that signals investor satisfaction, contribute little, a pattern consistent with the aftercare weaknesses documented below. Relative to the size of the economy the ratios look more respectable, with FDI often exceeding 5 per cent of GDP in boom years, but that arithmetic reflects a small denominator more than a large numerator, and it is the level and mix of investment that build capacity, not the ratio. The trend series also carries a compositional footnote worth recording: mining rehabilitation at Tonkolili and Marampa under new ownership after 2017 restored flows without restoring diversification, so the headline recovery and the structural problem coexist in the same numbers (UNCTAD, 2016, 2023, 2025).

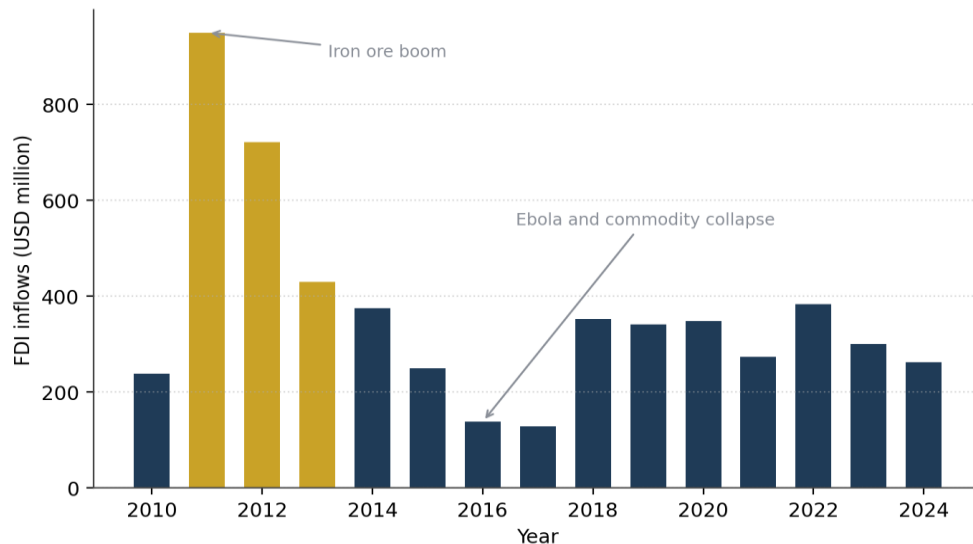


Figure 5. FDI inflows to Sierra Leone, 2010 to 2024. Source: Author's compilation from UNCTAD World Investment Report statistical annexes (UNCTAD, 2016, 2017, 2023, 2024); values are indicative and subject to revision.

Table 4 Indicative Sectoral Distribution of FDI Stock, Sierra Leone

Sector	Estimated share (%)	Infrastructure sensitivity
Mining and quarrying	approx. 52	Low: self-provides power, rail, port
Agriculture and agro-processing	approx. 14	High: feeder roads, power, cold chain
Energy	approx. 9	Constitutive: is infrastructure
Financial services	approx. 8	Medium: digital connectivity
ICT and telecommunications	approx. 6	Constitutive

Manufacturing	approx. 5	Very high: power, logistics
Tourism and hospitality	approx. 3	High: air access, roads, water
Construction and other	approx. 3	Medium

Note. Shares are the author's estimates from Bank of Sierra Leone (2023) balance of payments data and UNCTAD (2023) project information; coverage weaknesses make these indicative. Source: Author's compilation.

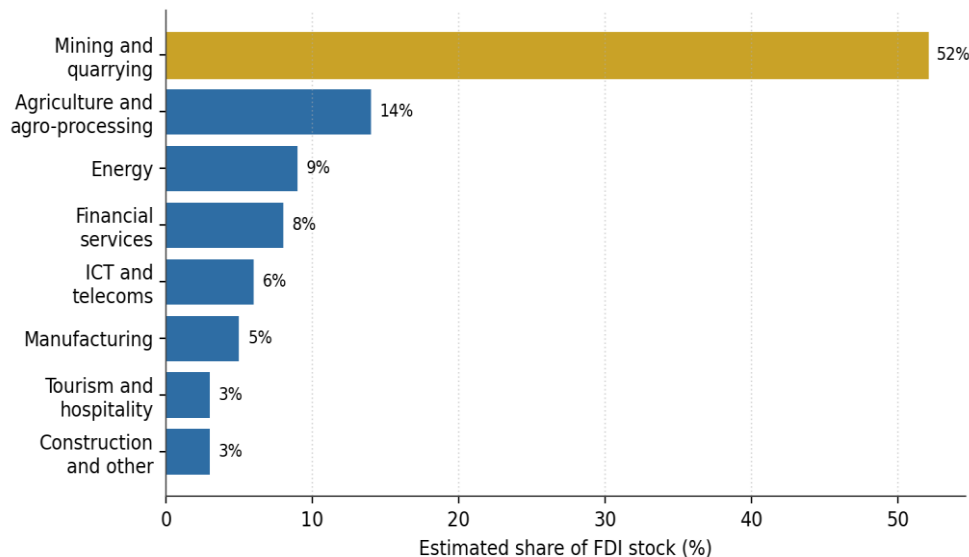


Figure 6. Estimated sectoral distribution of FDI stock. Source: Author's estimates from Bank of Sierra Leone (2023) and UNCTAD (2023).

6.2 How Infrastructure Enters Investment Decisions

The composition in Table 4 is the study's central stylised fact. More than half of FDI stock sits in a sector, mining, that is largely indifferent to public infrastructure because it builds its own. The sectors national plans prioritise for employment and diversification, manufacturing, agro-processing and tourism, are precisely the most infrastructure-sensitive and the least represented. This is the eclectic paradigm operating in reverse: with location advantages confined to geology, only geology-seeking capital arrives (Dunning & Lundan, 2008).

Investor perception evidence corroborates the mechanism. Enterprise surveys rank electricity, transport and access to finance as the leading obstacles (World Bank, 2017, 2023b). UNCTAD investment policy analysis and successive IMF Article IV consultations identify infrastructure and energy reliability among the principal impediments to diversification (UNCTAD, 2010; IMF, 2022, 2024). Regional evidence assembled in Section 3 shows the same ordering across African panels: reliability and connectivity predict non-resource FDI, while resource FDI tracks endowments (Asiedu, 2006; Kinda, 2010). Neighbouring comparison sharpens the point: Côte d'Ivoire and Senegal, with stronger gateways and power systems, attract several times Sierra Leone's inflows with a far more diversified composition (UNCTAD, 2024).

Revealed behaviour supplies a final line of evidence. Where investors have committed outside mining, they cluster in precisely the niches that minimise exposure to public infrastructure: telecommunications operators who build their own towers and power, breweries and cement plants with captive generation and boreholes, and fishing ventures using their own cold storage. The pattern is a market price on infrastructure failure, paid in the currency of foregone sectors.

Conversely, the investments the country most wants, out-grower agro-processing, garment assembly, business services, are those whose margins cannot absorb self-supply, and their absence is the deficit's most eloquent measurement.

6.3 Institutional Analysis

Physical deficits are administered into existence. This subsection assesses the institutions that plan, build, regulate and promote.

Investment promotion. The Sierra Leone Investment and Export Promotion Agency (SLIEPA), created in 2007, carried the promotion mandate with chronic underfunding and limited authority over other agencies. The National Investment Board (NIB) Act of 2023 consolidated SLIEPA and the PPP unit into a single body reporting at the centre of government, with one-stop-shop ambitions covering registration, licensing, land access and aftercare (Government of Sierra Leone, 2023). The reform follows the Rwandan and Mauritian template and is institutionally sound; its test is whether the NIB obtains real gatekeeping authority over incentives and PPPs rather than a coordination title (Behuria, 2018; Moore, 1995).

Planning and finance. The Ministry of Planning and Economic Development owns the Medium-Term National Development Plan and the public investment programme; the Ministry of Finance controls budgeting, debt and fiscal risk. The persistent gap lies between plan and budget: the MTNDP's infrastructure ambitions exceed available fiscal space several times over, and project selection has not always followed appraisal (IMF, 2024; Ministry of Finance, 2023). Public investment management assessments point to weak feasibility screening and a thin pipeline of bankable projects, the classic upstream failure that no financing instrument downstream can repair (IMF, 2023a).

Debt dynamics compound the constraint. With external debt service absorbing a growing share of thin revenues and the country assessed at high risk of distress, every non-concessional borrowing decision for infrastructure trades against future fiscal space, which is why the composition of finance matters as much as its volume and why Section 8 insists on concessionality, preparation quality and contingent liability discipline (IMF, 2024).

Sector agencies. The SLRA plans and procures roads while the Road Maintenance Fund finances upkeep; underfunded maintenance is the system's structural flaw. The unbundled power sector assigns generation and transmission to EGTC, distribution to EDSA, and regulation to the Electricity and Water Regulatory Commission (EWRC); EDSA's commercial losses are the sector's fiscal haemorrhage (World Bank, 2021b). The SLPA is both landlord and regulator at the port, a conflict the concession only partly resolves. The Civil Aviation Authority, the National Telecommunications Commission (NATCOM), the Environmental Protection Agency, the National Public Procurement Authority and the National Revenue Authority complete the regulatory perimeter, each competent in places, each understaffed, and none bound into a shared project pipeline.

Coordination and regulatory quality. Worldwide Governance Indicators place Sierra Leone below the regional mean on regulatory quality and government effectiveness, though ahead of fragile-state comparators on voice and stability (Kaufmann & Kraay, 2023). The practical symptom is familiar from NIE: every large project is renegotiated across multiple ministries with veto points and without a common appraisal standard, inflating transaction costs and signalling commitment risk to exactly the long-horizon investors infrastructure requires (Williamson, 2000; Collier et al., 2016). Table 5 maps responsibilities.

Table 5 Institutional Responsibilities for Infrastructure and Investment

Institution	Core mandate	Principal weakness
National Investment Board	Promotion, facilitation, PPP gatekeeping	Newness; authority untested
Ministry of Finance	Budget, debt, fiscal risk	Limited PPP liability monitoring
Ministry of Planning and Economic Development	MTNDP, public investment programme	Plan-budget gap
SLRA and Road Maintenance Fund	Road development and upkeep	Maintenance underfunding
Ministry of Energy, EGTC, EDSA, EWRC	Power policy, supply, regulation	Losses; utility finances
SLPA	Ports landlord and regulator	Role conflict; landside access
Civil Aviation Authority	Air transport oversight	Lungi access unresolved
MoCTI and NATCOM	Digital policy and regulation	Backbone completion; enforcement
NPPA	Procurement oversight	Capacity for complex contracts
EPA	Environmental licensing	Processing timelines

Note. Source: Author's compilation from statutes and agency reports.

The table's pattern is instructive: no single institution is the villain, and none is idle. The system fails between institutions, at the seams where a road project needs an environmental licence, a power connection, a procurement clearance and a budget line held by four different principals with four different clocks. Coordination failures of this kind are the textbook case for centre-of-government machinery, which is why the recommendations in Section 12 propose a standing infrastructure delivery council with a published pipeline rather than another restructuring of individual agencies (Fukuyama, 2013; Moore, 1995). International evidence adds a caution about investment promotion specifically: agencies succeed when they are professional, focused on a few priority sectors and measured on facilitation outcomes, and they fail when they become gatekeepers of discretionary incentives, a temptation the NIB's consolidated powers place squarely before it (James, 2013; UNCTAD, 2024).

7. COMPARATIVE ANALYSIS: SIERRA LEONE AGAINST AFRICAN PEERS

Comparison disciplines self-diagnosis, and continental frameworks from Agenda 2063 to the Programme for Infrastructure Development in Africa set the benchmarks against which national performance is read (African Union Commission, 2015; AUDA-NEPAD, 2020; AfDB, 2024). Eight economies are examined across infrastructure quality, FDI performance, reform experience, PPP practice, energy, digital capability, logistics and governance. Table 6 condenses the evidence; Figure 7 plots composite infrastructure scores.

Table 6: Comparative Positioning, circa 2023

Country	AIDI score	Electricity access (%)	LPI score	FDI inflows (USD bn, approx.)	Signature lesson
Mauritius	approx. 80	100	2.7	0.6	Services graduation via early EPZs and air access
Morocco	approx. 79	100	2.5	2.1	Gateway strategy: Tanger Med and export platforms
Botswana	approx. 40	75	2.8	0.5	Rents converted through credible institutions
Namibia	approx. 38	56	2.6	1.1	Port-led logistics positioning (Walvis Bay)
Ghana	approx. 32	86	2.7	1.3	Energy expansion; fiscal risk of power contracts
Kenya	approx. 29	76	2.8	0.8	Digital leapfrogging; SGR debt caution
Senegal	approx. 27	68	2.5	2.6	New gateway assets plus PPP framework
Rwanda	approx. 24	56	2.8	0.4	Institutional consolidation; access acceleration
Sierra Leone	approx. 14	33	2.0 to 2.2	0.3	Baseline case

Note. AIDI is the AfDB Africa Infrastructure Development Index (AfDB, 2023b); LPI from Arvis et al. (2023); FDI from UNCTAD (2024). Values are indicative. Source: Author's compilation.

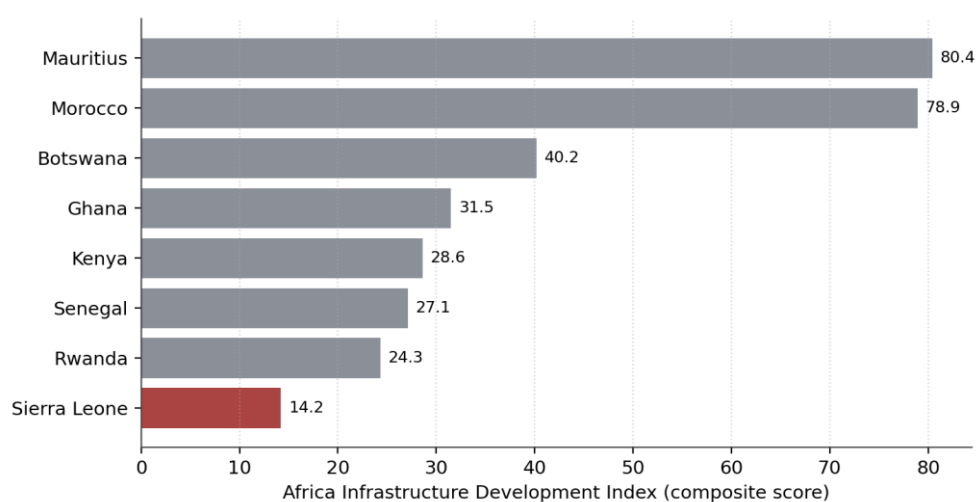


Figure 7. Africa Infrastructure Development Index, selected countries. Source: Author's compilation from AfDB (2023b); values approximate.

Five comparative lessons carry weight for Freetown. First, **institutional consolidation precedes physical catch-up**. Rwanda's Development Board and Mauritius's Economic Development Board gathered promotion, facilitation and PPP screening under single roofs with centre-of-government backing before their infrastructure indices moved; the NIB reform follows this sequence and should be resourced accordingly (Behuria, 2018; Zafar, 2011). Second, **gateways are products**. Morocco did not merely build Tanger Med; it marketed berth productivity, hinterland connections and zone integration as a package to automotive investors (AfDB, 2023a). Sierra Leone's natural harbour is a latent product awaiting the same treatment. Third, **power sequencing beats power ambition**. Ghana expanded capacity rapidly but through take-or-pay contracts that produced multi-billion-dollar arrears when demand lagged, a warning against contracting emergency capacity into permanence (IMF, 2023b; Eshun & Amoako-Tuffour, 2016). Rwanda's staged access programme, mixing grid densification with off-grid solar, offers the cheaper path. Fourth, **debt discipline is a competitiveness variable**. Kenya's standard gauge railway shows how a transformational asset can become a fiscal overhang that crowds out maintenance elsewhere (Wissenbach & Wang, 2017). Fifth, **governance is the multiplier**. Botswana's unremarkable geography and remarkable institutions attracted steadier investment than richer endowments elsewhere, a pattern the Ibrahim Index data confirm across the sample (Acemoglu et al., 2003; Mo Ibrahim Foundation, 2023).

The comparison also clarifies what Sierra Leone should not copy. Ethiopia-scale industrial park programmes presume power surpluses and administrative depth the country lacks; Mauritius's services model presumed education stocks built over decades. The usable frontier for the 2020s is Rwandan institutional practice plus Senegalese gateway investment at a scale the debt position permits.

Three further comparative observations refine the strategy. On **PPP practice**, Senegal and Kenya both learned to route unsolicited proposals through competitive challenge systems after early direct negotiations produced poor value; Sierra Leone can adopt the rule before, rather than after, paying the tuition (World Bank, 2018). On **digital infrastructure**, Kenya's experience shows regulation mattering more than construction: mobile money flourished under an enabling central bank posture years before fibre reached most counties, suggesting Sierra Leone's Bank-led payments liberalisation is a foundation to build on rather than a sideline (GSMA, 2024). On **ease of doing business reform**, the comparators that climbed fastest treated reform as a permanent bureaucratic function with named owners and published scorecards, not as a campaign; the B-READY successor framework rewards exactly this institutionalisation (World Bank, 2024).

Namibia completes the comparative set with a narrower but pointed lesson: Walvis Bay converted a modest port into a regional logistics proposition through corridor marketing and customs cooperation with landlocked neighbours, showing that gateway strategy is available to small economies that will never rival Durban or Tanger Med on volume. Freetown's natural harbour gives Sierra Leone a stronger physical starting point for the same play than Namibia ever held.

8. FINANCING INFRASTRUCTURE: INSTRUMENTS AND ARCHITECTURE

8.1 The Fiscal Starting Point

Sierra Leone entered the mid-2020s at high risk of debt distress, with revenue below a sixth of GDP, elevated inflation and currency depreciation raising external debt service (IMF, 2024). Public investment alone cannot close an infrastructure gap plausibly requiring several hundred million dollars annually for a decade. The financing question is therefore architectural: how to combine instruments so each does what it does best within debt limits.

8.2 The Instrument Set

Public investment and domestic revenue remain the foundation for non-commercial assets, feeder roads, rural water, resilience works. The efficiency agenda matters more than the volume agenda: public investment management reform can raise the output of existing spending by a third or more (IMF, 2023a).

Domestic revenue mobilisation is the quiet complement. At under a sixth of GDP, revenue cannot carry an infrastructure programme, and every point of GDP gained through tax administration, rationalised exemptions and property revenue is worth more than an equivalent point of borrowing because it arrives without debt service. The National Revenue Authority's publication of tax expenditure costs is the right first step towards pruning incentives that the FDI evidence says purchase little (National Revenue Authority, 2023; James, 2013). Earmarked instruments such as the fuel levy for road maintenance need rates and collection restored to preservation requirements.

Multilateral and bilateral development finance dominates current flows: World Bank IDA energy and water operations, AfDB corridor projects, the Millennium Challenge Corporation compact signed in 2024 targeting the power sector, and Islamic Development Bank transport finance (World Bank, 2023c; IMF, 2021; Millennium Challenge Corporation [MCC], 2024). Concessionally preserves debt space; the constraint is absorption and preparation capacity.

Public-private partnerships suit revenue-generating assets: the container terminal concession is the domestic proof of concept, and pipeline candidates include port expansion, independent power producers, toll-worthy road segments and data centre capacity. Two design disciplines are non-negotiable given global experience: competitive procurement rather than unsolicited proposals, and full disclosure of contingent liabilities in budget documents, since guarantees are debts in waiting (Engel et al., 2014; Guasch et al., 2014; World Bank, 2018, 2022c).

Blended, green and climate finance fit Sierra Leone's profile unusually well. High climate vulnerability qualifies adaptation projects for the Green Climate Fund and adaptation windows; renewable generation and mini-grids attract results-based finance; and blended structures can crowd private capital into solar independent power producers that pure commercial terms would price out (OECD, 2018, 2023; IEA, 2023; IRENA, 2023).

Capital market and diaspora instruments are longer-term options.

Green and climate instruments deserve a specific national strategy rather than opportunistic pursuit. Sierra Leone's vulnerability profile qualifies adaptation investments, drainage, coastal protection, climate-proofed corridors, for grant-heavy windows, while its renewable endowment qualifies mitigation projects for results-based payments; a small climate finance unit that packages projects to fund requirements would repay its cost many times over (OECD, 2023; Hallegatte et al., 2019).

Sequencing across instruments matters as much as choice among them. The realistic order for the coming decade runs: concessional and grant finance carries the core power and corridor programme while preparation capacity is built; PPPs carry the gateway, generation and digital assets where user revenues exist; blended structures bridge the projects between those categories; and market instruments arrive last, once a track record of performing assets exists to price them against. Attempting the sequence in reverse, bonds before bankable projects, PPPs before appraisal capacity, is the recorded route to expensive failure across the comparator set (Gutman et al., 2015; World Bank, 2018). Resilience economics argues these are not luxuries: designing assets for the climate they will actually face costs a few per cent more and avoids multiples in reconstruction, a

lesson the 2017 Freetown disaster taught at terrible price. Domestic infrastructure bonds await deeper pension and insurance pools; diaspora bonds have worked where trust and marketing infrastructure exist (Plaza & Ratha, 2011); municipal finance for Freetown depends on property revenue reform already begun. Sovereign wealth accumulation from mineral revenues, on the Botswana pattern, is a discipline worth legislating before the next commodity upswing, not after. **Islamic finance** structures, sukuk in particular, match asset-backed infrastructure and diversify the investor base (IsDB experience across West Africa supports feasibility). **Carbon finance** can monetise forest protection and clean cooking at the margin.

Table 7 orders the instruments; Figure 8 sketches the architecture.

Table 7 Financing Instruments Matched to Asset Classes

Asset class	Primary instrument	Supporting instruments
Feeder roads, rural water, resilience	Public investment, concessional finance	Climate finance
Trunk roads and corridors	Concessional finance	Tolling on viable segments
Generation (hydro, solar IPPs)	PPPs with blended finance	Guarantees, results-based finance
Transmission and distribution	Concessional finance (MCC, IDA)	Utility performance contracts
Ports and terminals	Concessions	Landlord port investment
Digital backbone and data centres	Private and PPP	Universal service fund for rural
SEZs and industrial platforms	PPP and private developers	Public trunk connections

Note. Source: Author's construction.

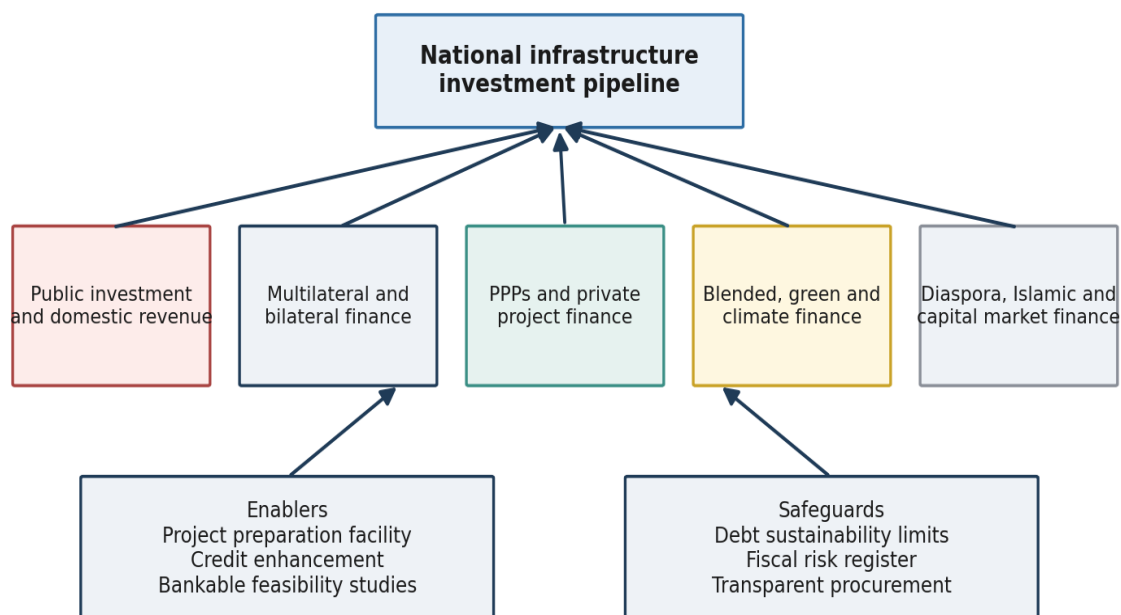


Figure 8. Blended financing architecture for the national pipeline. Source: Author's construction.

8.3 The Binding Constraint Is Preparation

Across instruments, the scarce factor is not capital but bankable projects. Global infrastructure investors report pipelines, not funds, as the constraint in low-income markets (Gutman et al., 2015; ICA, 2018). A national project preparation facility, seeded by development partners and housed at the NIB with Ministry of Finance oversight, is therefore the highest-leverage financing reform available: modest millions spent on feasibility, safeguards and transaction advice unlock orders of magnitude more in committed capital.

Preparation capacity also changes the country's bargaining position. A government that arrives at the table with its own feasibility studies, traffic forecasts and risk allocations negotiates; one that depends on the counterparty's numbers accepts. The renegotiation literature shows the cost of the second posture, with a majority of concessions in weak-capacity environments renegotiated on terms favouring the concessionaire (Guasch et al., 2014). Every dollar in the preparation facility is therefore also an investment in negotiating power, and it is the one financing reform that improves the terms of all the others.

9. STRATEGIC ANALYSIS

9.1 PESTLE Analysis

Figure 9 summarises the macro-environment. **Politically**, Sierra Leone has sustained competitive elections and peaceful transfers since 2007, an underpriced asset in regional perspective, but investment programmes reset with electoral cycles and inter-agency rivalry persists. **Economically**, a narrow export base, inflation episodes and leone depreciation raise the cost of imported capital goods and the risk premium on long-dated contracts (IMF, 2024). **Socially**, a young, urbanising population offers labour and market growth while pressing services; human development indicators remain among the world's lowest, and skills gaps in engineering and technical trades constrain construction and operations (UNDP, 2023). **Technologically**, subsea capacity, mobile money growth and falling solar costs create leapfrog options unavailable a decade ago (GSMA, 2024; IRENA, 2023). **Legally**, the PPP Act 2014, the NIB Act 2023 and the land reform acts of 2022, which clarified customary tenure and land registration, have improved the formal framework; enforcement and judicial speed lag the statutes (Government of Sierra Leone, 2023). **Environmentally**, high exposure to flooding, coastal erosion and rainfall variability threatens assets and qualifies the country for climate finance in equal measure (Government of Sierra Leone, 2024).

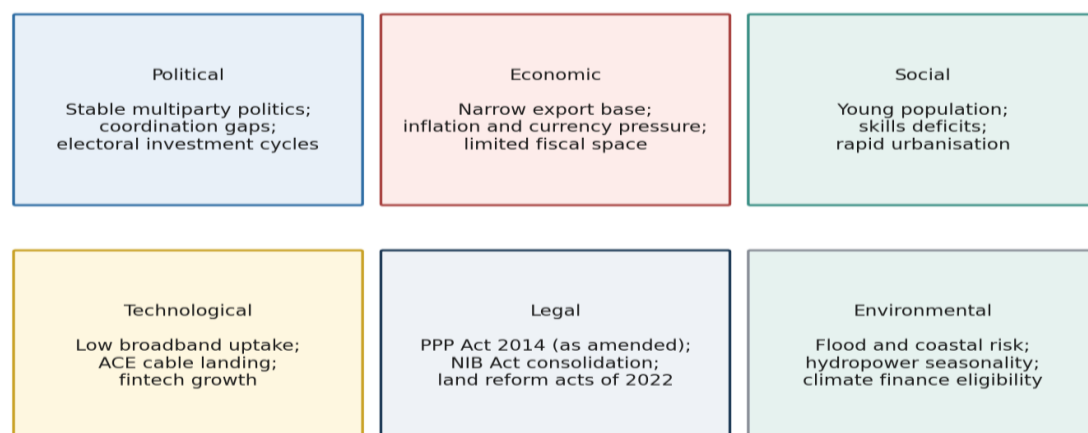


Figure 9. PESTLE framework for infrastructure-led investment promotion.

Source: Author's construction.

9.2 SWOT Analysis

Figure 10 presents the SWOT synthesis. The strategic reading matters more than the lists: Sierra Leone's strengths are latent (harbour, hydropower, minerals, location) while its weaknesses are operational (reliability, cost, coordination). Latent strengths and operational weaknesses define a conversion problem, and conversion problems are solved by institutions and sequencing, not by endowment discovery. The opportunity set, regional power trade, solar cost declines, AfCFTA market access, green finance, is unusually well matched to the weakness set, which is the strategic ground for optimism.

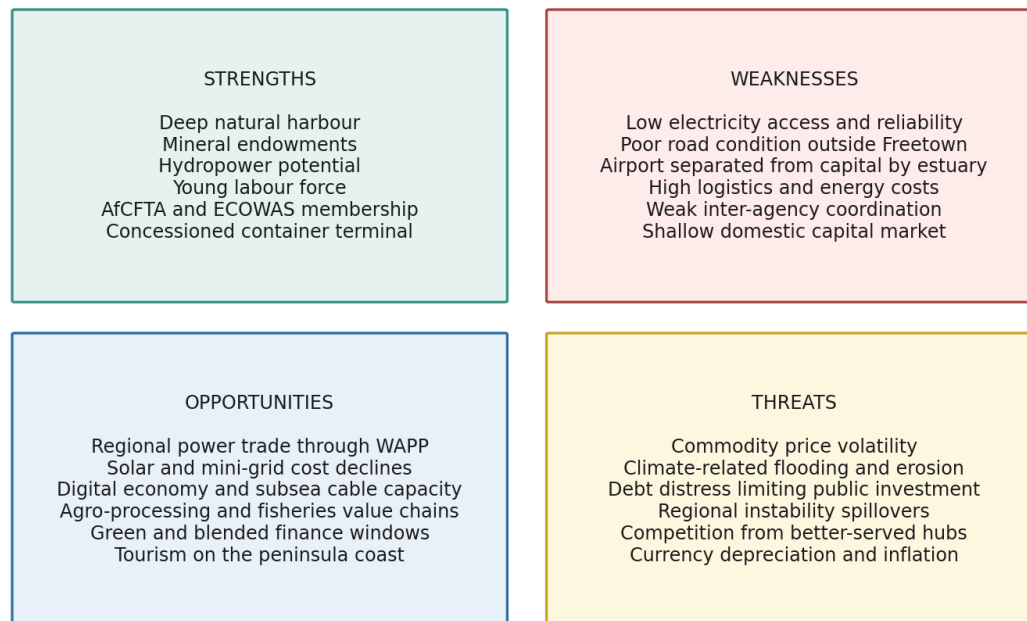


Figure 10. SWOT analysis.
Source: Author's construction.

9.3 Porter's Five Forces, Adapted to Locational Competition

Treating countries as competitors for mobile investment: **rivalry among destinations** is intense, with Senegal, Côte d'Ivoire and Ghana offering superior gateways within the same time zones; **the threat of substitutes** is the investor's option to serve West Africa from established hubs through trade rather than local presence, an option AfCFTA paradoxically strengthens for laggards; **buyer power** (investors) is high given global capital's choices and Sierra Leone's small market; **supplier power** manifests as construction cost premiums and thin local contractor markets; **entry barriers for the destination** itself are the fixed costs of credibility, gateway quality and power reliability. The analysis implies niche strategy: compete where rivals cannot easily replicate, the deep harbour, mineral-linked processing, marine resources and peninsula tourism, rather than head-on for footloose light manufacturing.

Niche strategy has a corollary for promotion: targeting beats breadth. An agency of the NIB's size cannot court every sector, and the five forces logic identifies where Sierra Leonean location advantages are defensible. Mineral-linked processing exploits ore bodies rivals cannot move; fisheries exploit an exclusive economic zone; the harbour exploits geography; tourism exploits an underdeveloped coastline within six hours of Europe. Each niche has a named infrastructure prerequisite, power for processing, cold chain for fisheries, landside access for the port, air links

and utilities for tourism, which converts promotion strategy directly into the investment priorities of Section 12.

9.4 Value Chain and Gap Analysis

Tracing representative value chains locates the binding links. For cocoa and cashew, the losses concentrate in feeder roads and storage before export; for fisheries, in cold chain and port handling; for tourism, in air access and last-mile utilities; for light manufacturing, in power reliability and industrial land. Gap analysis against the MTNDP targets shows the largest shortfalls in energy access trajectory and paved corridor kilometres, and the institutional capacity gaps cluster in project preparation, contract management and regulatory economics rather than in policy design, where documents are generally sound (Government of Sierra Leone, 2024; IMF, 2023a).

Value chain analysis also reveals where modest investments unlock disproportionate value. For rice, the national staple, milling and storage near production zones would cut import dependence more cheaply than farm-gate programmes; for cocoa, quality premiums are lost to humidity in transit that basic warehousing would prevent; for tourism, the binding link is not hotel stock but the arrival experience, which the ferry reform addresses at trivial cost relative to a bridge. The pattern across chains is consistent with the network economics of Section 2: value leaks at the weakest link, so investment should be assigned by link, not by sector prestige.

9.5 Political Economy, Risk and Scenarios

The political economy of infrastructure in Sierra Leone follows a recognisable grammar: visible new construction is politically rewarded, invisible maintenance is not; ribbon-cutting beats loss reduction; and emergency procurement creates rents that reform threatens (Collier et al., 2016; Flyvbjerg, 2014). Reform coalitions must therefore bundle unglamorous fixes with visible wins. Principal risks are commodity price shocks transmitting to revenue, climate events destroying assets, debt distress freezing the pipeline, and contract renegotiations damaging credibility. Three scenarios frame the stakes to 2035. Under **drift**, current trends persist: access creeps upward, FDI stays extractive, and the country remains a price-taker on its own development. Under **selective transformation**, the roadmap in Section 12 is executed on the power-gateway-digital core: non-resource FDI multiplies from a low base and diversification becomes visible in the flow data by 2030. Under **shock**, debt or climate crisis interrupts investment and the deficit compounds. Policy chooses among these more than fortune does.

Risk analysis translates the scenarios into management. The commodity risk argues for the stabilisation fund and for promoting sectors uncorrelated with minerals; the climate risk argues for resilience standards in every procurement and for insurance and contingent credit lines arranged before events; the debt risk argues for the concessionality-first financing hierarchy and the liability register; the credibility risk, the quiet one, argues for scrupulous performance of the state's existing contracts, because a single high-profile renegotiation would reprice every future project. Political economy analysis adds the implementation insight: each recommendation in Section 12 is paired where possible with a visible early win, since reforms that deliver nothing observable before the next election rarely survive it (Collier et al., 2016).

10. POLICY FRAMEWORK EVALUATION

The formal policy architecture is broadly adequate on paper. The **Medium-Term National Development Plan 2024 to 2030**, organised around the Big Five Game Changers including energy, technology and infrastructure, correctly identifies the constraint set and adopts a feed-the-nation and human capital logic consistent with this article's analysis (Government of Sierra Leone, 2024).

Its predecessor plan carried similar diagnostics (Government of Sierra Leone, 2019). The gap is the classic one between plan and public investment programme: costing exceeds fiscal space and prioritisation criteria are not binding.

The **PPP Act 2014** established procedures and a unit now folded into the NIB; the framework needs subsidiary regulations on unsolicited proposals, standardised contracts and a published contingent liability register (World Bank, 2022c). **Investment law** consolidation under the NIB Act 2023 is a genuine advance; the incentive regime, however, still leans on discretionary tax expenditures whose cost the National Revenue Authority has begun to publish (National Revenue Authority, 2023), and the evidence is clear that reliability of infrastructure and rules outperforms tax holidays in attracting the investment that stays (James, 2013; UNCTAD, 2023). The **land reform acts of 2022** address a first-order constraint for agriculture and zone development, subject to implementation of registration systems. **Energy policy** correctly prioritises loss reduction, CLSG utilisation and least-cost planning; delivery depends on utility governance more than on further strategy documents (World Bank, 2021b; Ministry of Energy, 2021). **Digital transformation strategy** and the procurement framework under the NPPA are directionally sound with capacity-bound execution (Ministry of Communication, Technology and Innovation, 2021; National Public Procurement Authority, 2022). **Regional integration** through ECOWAS corridor programmes and **AfCFTA implementation** raise the return to every gateway and corridor investment by enlarging the market that Sierra Leonean locations can serve, provided rules of origin and border management keep pace (UNECA, 2020; World Bank, 2020).

The evaluation verdict: Sierra Leone's binding constraints are not missing policies but unfinanced, unsequenced and weakly enforced ones. That verdict directs the recommendations towards institutions, preparation capacity and sequencing rather than towards new strategy papers.

One further evaluative point concerns policy stability. Investors price the probability that today's framework survives tomorrow's election, and Sierra Leone's alternation of governments has repeatedly re-litigated flagship projects, the airport question being the standing example. Cross-party instruments, parliamentary ratification of the pipeline, statutory protection for signed concessions, published appraisal criteria that constrain all governments equally, convert political competition from a source of investor risk into a source of accountability, and they cost nothing but restraint.

11. DISCUSSION

11.1 Theory Meets Evidence

The Sierra Leonean evidence behaves as the integrated framework predicts, with two instructive refinements. The eclectic paradigm's location logic is confirmed almost mechanically: where public location advantages are absent, FDI composition collapses onto immobile endowments, and the observed 50-plus per cent mining share is the paradigm's signature (Dunning & Lundan, 2008). Transaction cost and network reasoning are confirmed in the texture of the deficits: self-generation premiums, demurrage, stranded zones and an unfinished backbone are all transaction costs and broken network effects wearing local clothes (Williamson, 1985; Economides, 1996).

The first refinement concerns reliability. The econometric literature typically measures infrastructure stocks, kilometres, megawatts, lines per capita, yet the Sierra Leonean evidence shows variance doing the damage: firms plan around the worst week, not the average one. This supports the newer strand emphasising quality-adjusted measures (Donaubauer et al., 2016) and suggests that for policy purposes, an hour of assured power is worth more than a megawatt of nominal capacity. The second refinement concerns institutions as infrastructure. New institutional

economics is often read as a claim about property rights and courts; here its force is narrower and more operational. The plan-budget gap, the absent project pipeline and the uncoordinated appraisal standards are institutional deficits that generate physical ones on a lag. The country's infrastructure gap is, in an exact sense, a public administration gap with a construction lag attached (North, 1990; IMF, 2023a).

11.2 The Comparative Mirror

Set against the eight comparators, Sierra Leone's position is unusual in the size of the gap between latent and realised advantage. Mauritius and Botswana began with thinner natural endowments; Rwanda began with comparable devastation and a landlocked handicap Sierra Leone does not share. The harbour alone, on Morocco's evidence of what gateway strategy yields, is an asset most competitors would trade for. The comparative reading therefore rejects both fatalism and complacency: the deficits are severe, the remedies are demonstrated, and the differentiating variable across cases is sustained institutional execution rather than initial conditions (Acemoglu et al., 2003; Behuria, 2018; AfDB, 2023a).

The mirror also corrects a common framing error in national debate, which treats the infrastructure gap as primarily a financing gap. The comparators that closed their gaps did not begin with more money; they began with better project selection, procurement and maintenance, which then attracted the money. Finance follows execution capability far more reliably than execution capability follows finance, a causal ordering the aid-and-infrastructure literature supports and the failed project inventories of the region illustrate (Donaubauer et al., 2016; Ansar et al., 2016). The strategic implication is uncomfortable but liberating: the constraint most within Sierra Leone's control is the one that matters most.

11.3 Development Implications

Two implications extend beyond FDI. First, the same deficits that deter foreign investors tax domestic firms and households more heavily still, since they lack the scale for self-supply; infrastructure reform is distributional policy. Second, the composition effect matters for structural transformation: as long as infrastructure screens out labour-intensive sectors, FDI will raise exports without proportionate employment, reproducing the enclave pattern the development literature has long criticised (Asiedu, 2006; UNCTAD, 2023). Infrastructure policy is therefore industrial policy conducted by other means.

A third implication concerns the state's own learning. The analysis found policy documents largely sound and delivery systems weak, which suggests the binding scarcity is not knowledge of what to do but organisational capability to do it repeatedly: appraise, procure, supervise, maintain. Capability of this kind is built the way firms build it, through repetition on real projects with feedback, which is an argument for a steady, published pipeline of moderate projects over occasional mega-projects that exceed the system's carrying capacity and teach nothing when they fail (Flyvbjerg, 2014; IMF, 2023a). It is also an argument for honesty in sequencing: the comparative cases succeeded by doing few things completely rather than many things partially.

12. STRATEGIC RECOMMENDATIONS AND INVESTMENT ROADMAP

Recommendations are organised by actor and horizon; Table 8 provides the matrix, Figure 13 the phased roadmap. Three principles govern the whole: concentrate rather than scatter, prepare before financing, and publish commitments so credibility compounds.

12.1 Short Term (Years 1 to 2): Credibility and Quick Wins

Government and NIB. Operationalise the NIB one-stop shop with statutory response deadlines; establish the national project preparation facility; publish a single prioritised project pipeline with appraisal summaries; legislate the contingent liability register for all PPPs and guarantees. **Energy sector.** Execute EDSA loss-reduction contracts with metering roll-out; complete commercial arrangements to draw firm power through the CLSG interconnector; competitively procure 30 to 50 megawatts of solar with storage rather than extending emergency thermal contracts. **Transport.** Restore the fuel levy to maintenance-preserving levels; launch a port community system to cut dwell times; implement an interim Lungi solution through regulated fast-ferry services with published schedules while the fixed-link study is completed honestly. **ICT.** Complete backbone gap segments and enforce infrastructure sharing to cut wholesale prices. **Development partners.** Align behind the pipeline; fund preparation, not only construction.

Private investors in the short term should engage the published pipeline early, since first movers in power and logistics will shape standards, and should document infrastructure obstacles through the NIB's aftercare channel, which converts complaint into reform intelligence. **Regional organisations** should accelerate joint border post implementation on the Guinea and Liberia corridors, where the engineering is trivial and the coordination is everything.

12.2 Medium Term (Years 3 to 5): The Core Programme

Complete Bumbuna II and associated transmission; bring the first competitively procured solar IPPs to commercial operation; raise electricity access towards half the population with grid densification plus mini-grid concessions for district capitals. Rehabilitate the Freetown to Conakry and Freetown to Monrovia corridor segments with climate-resilient design and joint border posts. Deliver the port expansion under the existing concession framework with landside access investment sequenced first. Establish one fully serviced SEZ phase, power, water, fibre and road confirmed before ground-breaking, targeted at agro-processing and fisheries with cold chain as anchor infrastructure. Stand up a tier-three data centre through PPP. Local governments receive a matching facility for feeder roads and markets tied to maintenance performance.

12.3 Long Term (Years 5 to 15): Consolidation and Depth

Decide and finance the Lungi fixed link or relocation on published cost-benefit terms; develop hydropower sites beyond Bumbuna within West African Power Pool trading; extend corridors to the Kono and agricultural hinterlands; issue domestic infrastructure bonds as pension assets deepen, followed by diaspora and green instruments; legislate a stabilisation and intergenerational fund for mineral revenues before the next boom. Regional organisations and international financial institutions should treat the Freetown gateway as a regional public good serving Guinea's forest region and beyond, financing it accordingly under the corridor logic of the Programme for Infrastructure Development in Africa (AUDA-NEPAD, 2020).

Table 8: Policy Recommendations Matrix

Actor	Short term (1 to 2 yrs)	Medium term (3 to 5 yrs)	Long term (5 to 15 yrs)
Government centre	Pipeline, preparation facility, liability register	MTNDP-budget integration	Sovereign fund legislation
NIB	One-stop shop, aftercare unit, PPP gatekeeping	SEZ transactions, IPP procurement	Second-generation promotion targeting
Ministry of Finance	Fuel levy restoration, guarantee limits	Blended finance windows	Infrastructure and diaspora bonds

Energy institutions	Loss reduction, CLSG power, solar procurement	Bumbuna II, access to 50%	Hydro expansion, WAPP trading
Transport institutions	Port community system, ferry regulation	Corridor rehabilitation, port expansion	Lungi fixed link decision
ICT institutions	Backbone completion, sharing rules	Data centre, e-government scale-up	Regional digital hub positioning
Local government	Maintenance compacts	Feeder road facility	Municipal finance
Development partners	Fund preparation	Co-finance core programme	Regional gateway finance
Private investors	Engage published pipeline	IPP, SEZ, logistics entry	Long-dated instruments

Note. Source: Author's construction.

12.4 Roadmap, Monitoring and Expected Impact

Figure 13 sequences the programme. Monitoring should track a short indicator set published annually: hours of assured industrial power, distribution losses, port dwell time, corridor travel times, broadband price as a share of income, preparation facility throughput, PPP liabilities as a share of GDP, and non-resource FDI inflows. On conservative multipliers from the empirical literature, execution of the core programme is consistent with a doubling of non-resource FDI within seven years and measurable diversification of the inflow composition by 2032, alongside the growth and employment effects that infrastructure elasticities imply (Calderón & Servén, 2010; Timilsina et al., 2020).

Monitoring design matters as much as target setting. Each indicator should have a named institutional owner, a published baseline and an annual audited release, because credibility compounds only when failure is as visible as success. The roadmap's expected impact rests on mechanisms this article has documented rather than on optimism: assured power removes the self-generation tax that prices out manufacturing; gateway efficiency converts the harbour from geography into product; corridor rehabilitation reconnects agricultural supply to the port; and the digital backbone lowers the transaction costs of everything else. None of these mechanisms requires Sierra Leone to become exceptional; they require it to become reliable, which is a humbler and more attainable ambition.

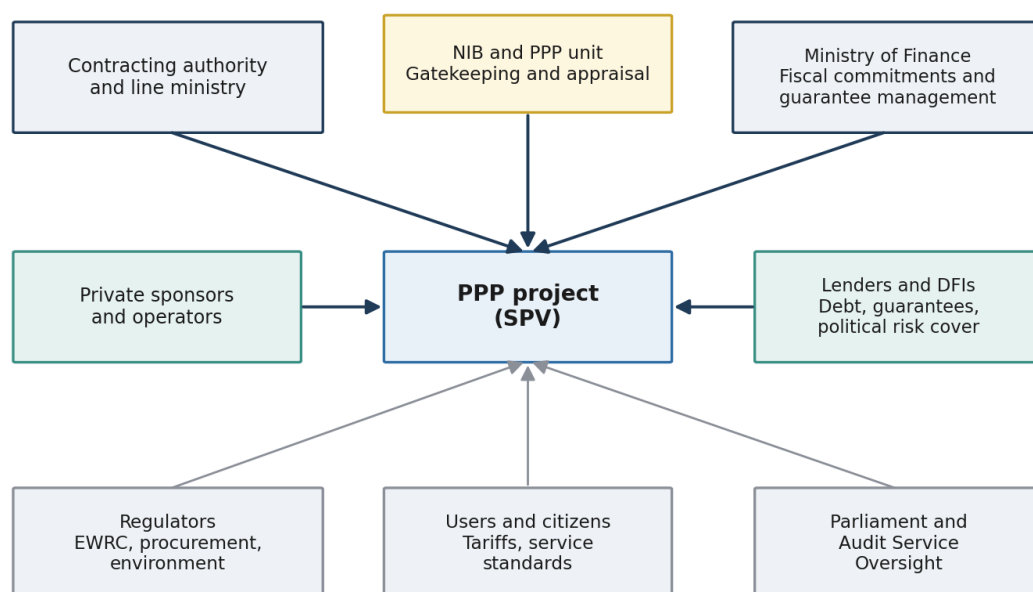


Figure 11. PPP ecosystem for infrastructure delivery. Source: Author's construction.

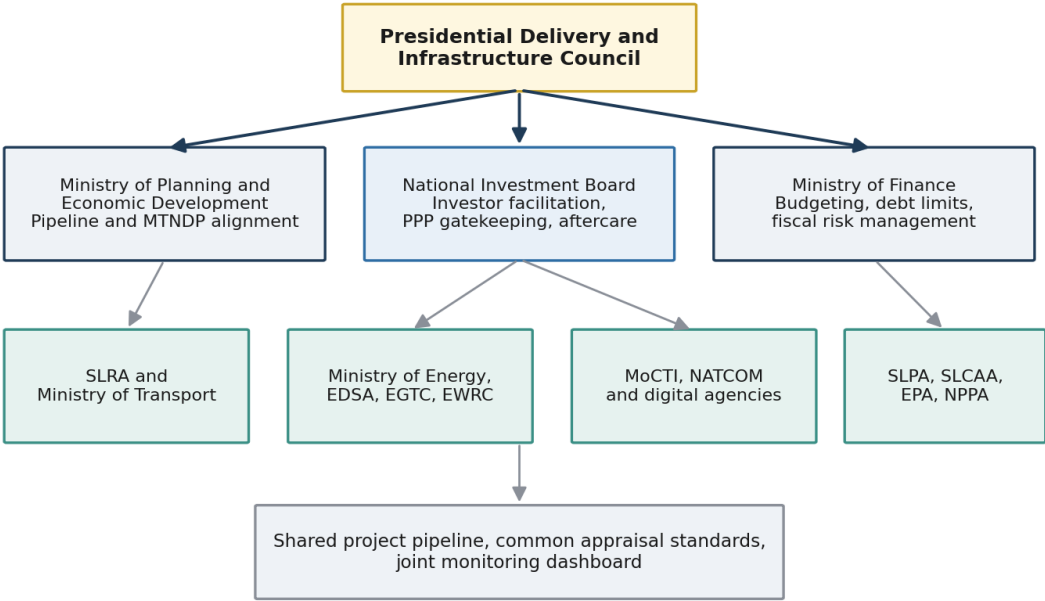


Figure 12. Proposed institutional coordination model. Source: Author’s construction.

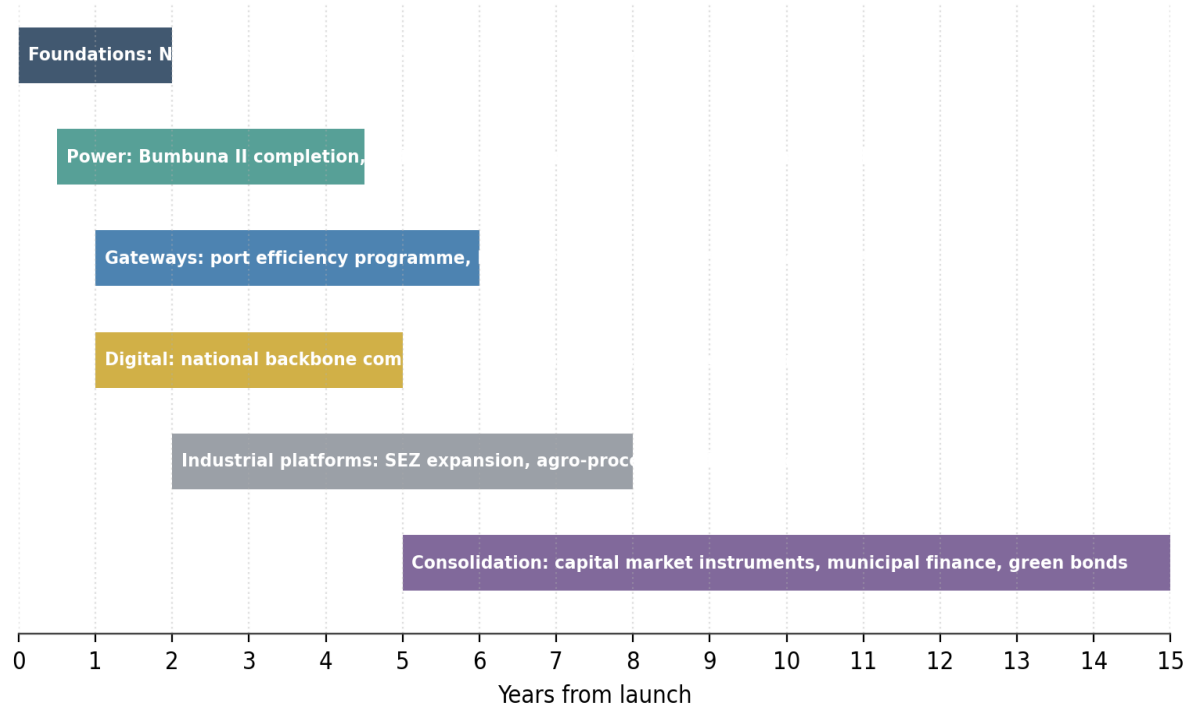


Figure 13. Phased strategic roadmap. Source: Author’s construction.

13. CONCLUSION

13.1 Key Findings

This article set out to explain how infrastructure deficits constrain FDI in Sierra Leone and what strategy could reverse the relationship. Five findings answer the research questions. First, the deficits are severe, broad and interlocking: electricity access near a third of the population with high losses and costs, a road network under a tenth paved, bottom-decile logistics performance, an incomplete digital backbone and minimal industrial infrastructure. Second, these deficits shape FDI

through cost, risk, market access and signalling channels, and their clearest fingerprint is compositional: inflows concentrate in mining, the one sector that can build its own infrastructure, while the employment-rich sectors national plans target are screened out. Third, unreliability and cost, not absence, are the operative constraints; firms plan around variance. Fourth, physical deficits are institutionally produced, through the plan-budget gap, weak project preparation, fragmented mandates and underfunded maintenance, so institutional reform is infrastructure policy. Fifth, comparative experience shows the position is remediable within a policy generation, and that Sierra Leone holds latent assets, above all the harbour and hydropower potential, that most successful comparators lacked at their starting points.

13.2 Policy Implications

The policy implication is a sequenced conversion strategy rather than a project list: credibility and preparation first; the power-gateway-corridor-digital core second; consolidation through capital market depth and the Lungi decision third. The financing architecture must be blended by design and disciplined by a published contingent liability register, because in a debt-constrained economy, credibility is the cheapest source of capital. For the National Investment Board specifically, the findings define the job: not the distribution of incentives but the removal of frictions, a published pipeline, statutory response times, honest aftercare and gatekeeping strong enough to say no to unbankable proposals. An agency measured on those outputs will do more for FDI than any tax holiday it could ever sign, and its first annual report should say so in numbers.

13.3 Theoretical and Practical Contributions

The article contributes to scholarship in several registers. To **infrastructure and development economics**, it supplies a documented small-economy case where quality and variance, not stocks, bind, supporting the quality-adjusted measurement agenda. To **FDI research and investment promotion**, it demonstrates a compositional test: infrastructure constraints reveal themselves in what kind of capital arrives, not only in how much, a diagnostic transferable to other resource-rich economies. To **institutional economics and public policy**, it traces the causal chain from administrative deficits to physical ones, giving new institutional claims operational content in a post-conflict setting. To **African development studies and political economy**, it adds a systematic comparative positioning of Sierra Leone against eight peers, resisting both the fatalist and the brochure readings of the country. To **strategic management**, it adapts locational five-forces and conversion-problem framing to national investment strategy. To **development planning**, it offers a phased roadmap whose sequencing is derived from theory rather than assembled from wish lists.

13.4 Future Research Agenda

Three lines of research would strengthen the evidence base this article could only assemble from secondary sources. First, firm-level work in Sierra Leone: discrete choice and survey experiments eliciting how investors trade off power reliability, logistics time and tax incentives would put local numbers on the mechanisms documented here. Second, evaluation designs attached to the coming investments, the MCC compact, CLSG utilisation and the SEZ programme, so that Sierra Leone generates causal evidence rather than only receiving it. Third, political economy fieldwork on maintenance: why preservation loses to construction in budget politics, and which institutional designs, earmarking, performance compacts, delegated management, survive electoral cycles in comparable settings. A final, harder question deserves theoretical attention: whether AfCFTA raises or lowers the FDI prospects of infrastructure laggards, since continental market access can be served from the best-connected hubs. The answer will decide how much time countries like Sierra

Leone have to convert their latent advantages, and this article's judgement is that the window is real but not indefinite.

Infrastructure will not attract investment because it is built; it will attract investment because it works, predictably, at a price firms can plan on. That standard is demanding, measurable and, on the evidence assembled here, within Sierra Leone's reach.

The country has met demanding standards before. It ended a civil war that many judged unendable, held peaceful transfers of power that many judged unlikely, and eradicated an epidemic that overwhelmed richer states. The infrastructure task is, by comparison, a problem of administration and patience: thousands of unglamorous decisions, metered connections, maintained culverts, published contracts, honoured commitments, each small, all cumulative. Nations are not condemned to their present logistics scores. The harbour has waited five hundred years for the economy it deserves; the argument of this article is that it need not wait another generation.

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Dr Dante Allie Bendu is widely regarded as the father of accounting in Sierra Leone and was the first chartered and certified accountant in the country to hold a doctorate. His qualifications span a BSc Honours in Accounting and Finance, the ACCA and CIMA professional designations, the FeICM fellowship, an MSc, an MA in Marketing and Management, and a PhD in Accounting and Strategic Management. He began lecturing in 1986 and rose to senior lecturer at Fourah Bay College, University of Sierra Leone, where he has taught from undergraduate to doctoral level and supervised a substantial number of theses. Seconded to KPMG between 1988 and 1990, he gained direct exposure to professional practice at the highest level. He leads national work on corporate governance through the African Peer Review Mechanism, has published journal articles and textbooks, and heads the Sarante Experts Group Consultancy.

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Together the authors join senior scholarship to applied practice. Dr Bendu contributes four decades of teaching and professional leadership in accounting, Mr Kargbo a research agenda in public financial management, Mr Conteh doctoral work in theoretical economics at Peking University, and Dr Mansaray long experience in public administration and human capital management. Their combined perspective grounds this work in both theory and the realities of Sierra Leone's development.

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