INFRASTRUCTURE SECURITISATION

WHERE CONCRETE MEETS CAPITAL MARKETS

About the Contributor

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Synopsis

Infrastructure development is a cornerstone of economic growth and social progress, particularly for a rapidly developing country like India. However, the financing requirements for infrastructure far exceed the available public resources, creating a significant funding gap. Traditionally, infrastructure financing has relied on a mix of budgetary allocations, bank lending, and corporate debt markets. Also, in recent years, instruments like Infrastructure Investment Trusts (InvITs) and asset monetisation schemes have emerged to diversify funding sources. Despite these efforts, a substantial shortfall remains, highlighting the need for innovative financing mechanisms such as infrastructure securitisation.

This Paper explores the concept and relevance of infrastructure securitisation in addressing India's infrastructure financing gap. It provides a comprehensive overview of how infrastructure securitisation works, including key asset classes, transaction structures, credit enhancement mechanisms, and investor profiles. The Paper then situates securitisation in the Indian context, identifying potential issuers, suitable asset classes, and examining regulatory and structural challenges, such as the minimum holding period and obligor concentration limits.

The investment landscape is also assessed, with a focus on the availability and regulatory treatment of long-term investors such as insurance companies, pension funds, and mutual funds. The analysis includes a comparison of securitisation with InvITs and the Government of India's National Monetisation Pipeline, evaluating their complementarities and relative advantages. The Paper also discusses the role of structured finance in infrastructure bonds, including partial credit enhancement structures, and concludes with case studies and policy recommendations to strengthen the infrastructure securitisation market in India.

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Introduction

India's ambition to become a US $5 Trillion economy by 2025[1] hinges significantly on its infrastructure development. The government has recognized infrastructure as a critical enabler of economic growth, job creation and productivity improvements across sectors. A series of ambitious projects, policy reforms and fiscal commitments have been made over the past decade to transform India's infrastructure landscape. According to the National Infrastructure Pipeline (NIP), an estimated ₹111 lakh crore were needed to meet infrastructure targets by 2025, with key sectors like energy, roads, urban infrastructure and railways requiring major investments[2].

This investment not only supports long-term economic objectives but also aims to accelerate development in underserved regions, enhance national connectivity and foster sectoral growth. However, while the government's focus has intensified, financing infrastructure remains a persistent challenge, requiring both public and private sector collaboration.

Importance of infrastructure development in India

Infrastructure development is fundamental to India's economic growth, social equity and structural transformation. As a rapidly developing nation with a large and youthful population, India's progress hinges on efficient transport, energy, digital and urban infrastructure.

Economically, infrastructure boosts productivity and competitiveness, with studies indicating that a 1% increase in infrastructure stock can raise GDP by a similar margin[3].

Socially, infrastructure reduces regional disparities by improving access to essential services, markets, and employment particularly in rural and underserved areas. Urban infrastructure is equally vital, as India's cities are projected to host over 600 million people by 2030[4], necessitating large-scale investments to manage urbanization. Thus, infrastructure is not merely a support system but a strategic instrument for inclusive and sustainable nation-building.

Challenges in financing infrastructure development

A. Financing challenges

The key challenges in financing infrastructure projects include:

a. Long development and gestation periods: Infrastructure projects require extended timelines for completion. These long gestation periods mean delayed returns, which deter potential investors, especially in the face of risks related to cost overruns and regulatory hurdles.

b. Project mispricing and risk aversion: Infrastructure projects often face mispricing due to incomplete feasibility assessments and overoptimistic revenue forecasts. This creates a lack of

[1] Speech by Hon'ble Prime Minister of India Shri Narendra Modi
[2] A strong V-Shaped Recovery of Economic Activity (Press Information Bureau)
[33] Calderón & Servén, 2010
[4] India's Urban Population to Reach 600 Million by 2036 (Primus Partners)

confidence among investors, particularly when it comes to under-construction projects, which are vulnerable to stagnation risks.

c. Limited-recourse lending: Infrastructure projects in India are characterized by nonrecourse or limited-recourse lending. The security package comprises project cash flows (through an escrow account), rights under a public–private partnership (PPP) agreement, and first charge on the project assets. Lenders require additional security from promoters in the form of guarantees or other sources. As a result, banks in India lend on a relationship basis, with riskier projects financed by banks because of ongoing lending relations between the bank and the promoter. Relationship-based lending seldom factors in a risk-based approach to pricing, resulting in a mismatch between the riskiness of the project and the low premium charged by banks for financing the high construction or operations risk.[5]

d. Asset-liability mismatch: Infrastructure assets are capital-intensive and require long-term financing with tenures ranging from 10 to 15 years. However, banks, which are the primary source of infrastructure funding in India, primarily rely on short-term savings and medium-term fixed deposits for their resources. This creates a significant asset-liability mismatch, as the long-term nature of infrastructure projects is not aligned with the short-term maturity of bank liabilities. As the demand for infrastructure finance continues to grow, this mismatch is expected to worsen. Long-term investors such as pension funds and insurance companies are naturally suited to finance infrastructure assets due to their ability to hold long-duration investments. However, regulatory constraints and the lack of a well-developed infrastructure bond market hinder their effective participation.

B. Funding demand

According to Crisil's Infrastructure Yearbook 2023[6], India will need to spend nearly ₹143 Lakh Crore on infrastructure in seven fiscal years through 2030 *i.e.* an average of ₹20 Lakh Crore per fiscal. Just for urban infrastructure alone, the funding requirement is estimated to be US $840 Billion per fiscal for the next 15 fiscals[7] which comes to an average spending of ₹ 0.43 Lakh Crore (at ₹ 83/US$). This is an equivalent of 1.18% of estimated GDP over this period.

[5] Securitization in India: Managing Capital Constraints and Creating Liquidity to Fund Infrastructure Assets (Romero-Torres et. al)
[6] Crisil Ratings
[7] *Ibid.*

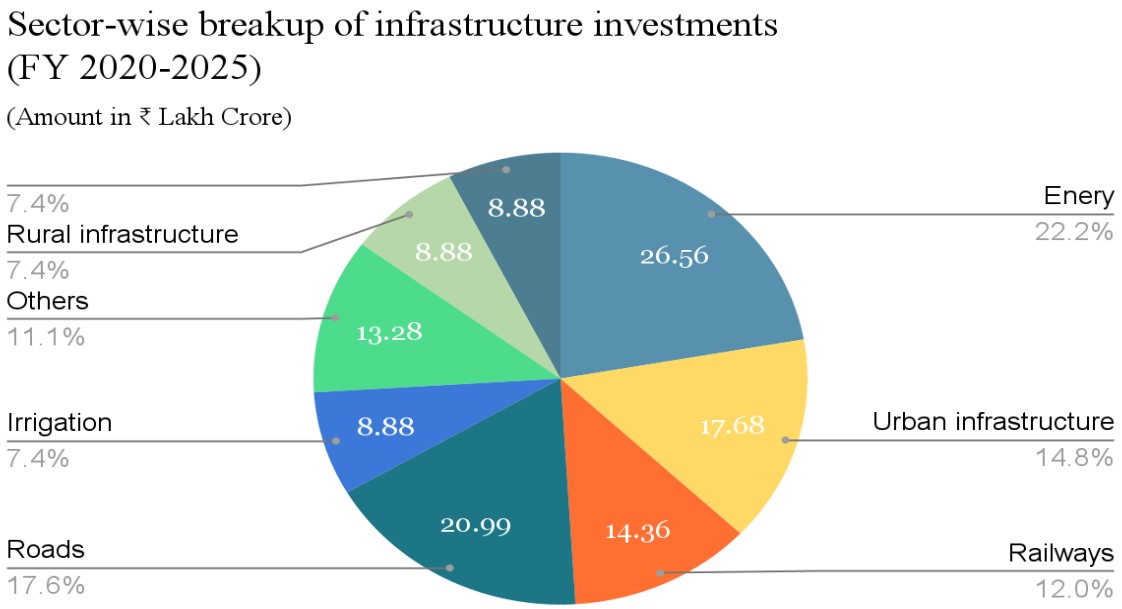

Figure 15: Sector-wise breakup of infrastructure investments as per NIP (FY 20-25)

Considering the above estimates and the investment targets of the Union government under the NIP[8], we can comfortably say that India needs to spend around ₹24-25 Lakh Crore per fiscal on infrastructure to meet the sector's complete funding demands.

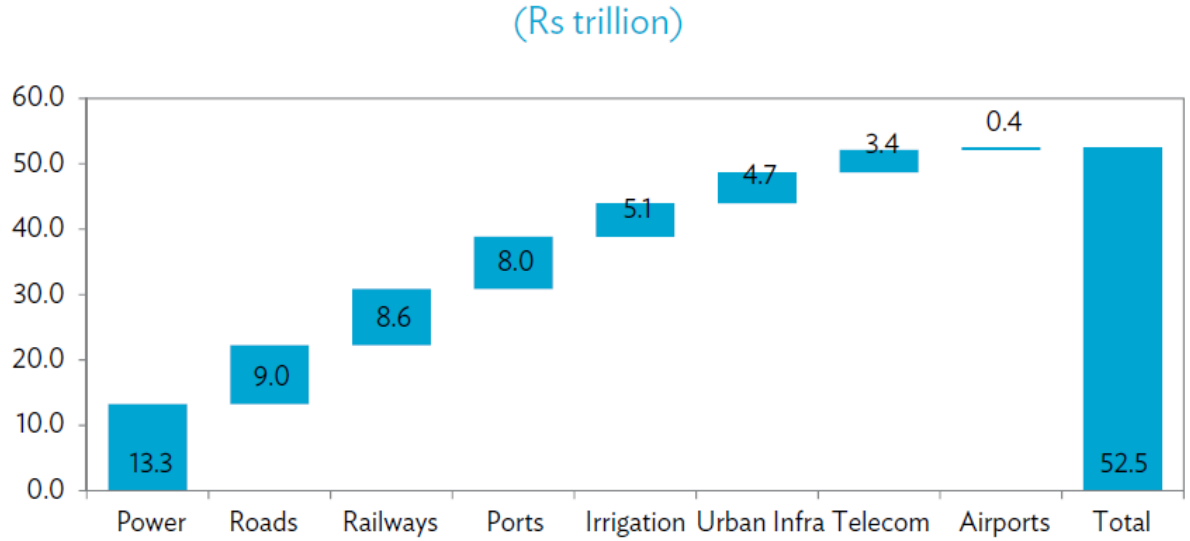

Figure 26: Sectoral break-up of infrastructure needs in India (FY 17-22)
Source: CRISIL research estimates

C. Funding sources

Having established the funding demand, we now turn to actual spending, which reveals a significant shortfall. In 2023, India's total infrastructure investment stood at US $151 Billion (₹12.53 lakh crore)[9], which is around half the actual funding requirement. It is, however, important to analyse the different

[8] *Based on National Infrastructure Pipeline projections for FY 20-25. Exchange rate for FY 24 (83.3) has been applied to the NIP investment size of ₹111 lakh crore to get sector-wise absolute investment numbers.*
[9] India Infrastructure: Reviving Private Investments (Knight Frank)

funding sources for infrastructure investments in India to get a complete understanding of the funding gap.

Government Funding: The Union Budget 2025 had allocated ₹11.21 lakh crore towards capital expenditure[10]. Note that only a part of this allocation and not the full amount will be used for infrastructure investments. For FY 2023, the split of central, state and private sector in the total capital expenditure stood at 51%, 44% and 5% respectively[11]. Therefore, government spending has the lion's share in infrastructure spending.

Contrastingly, between 2009-2013, private investments had the lion's share, which stood at US $160 Billion, equivalent to 46.4% of the total infrastructure investments during this period. However, multiple factors such as delays in project initiation and approvals, cost overruns, under performance of the infrastructure assets, low generation of revenues *etc.* hindered the uptake of private investments in infrastructure development in India[12].

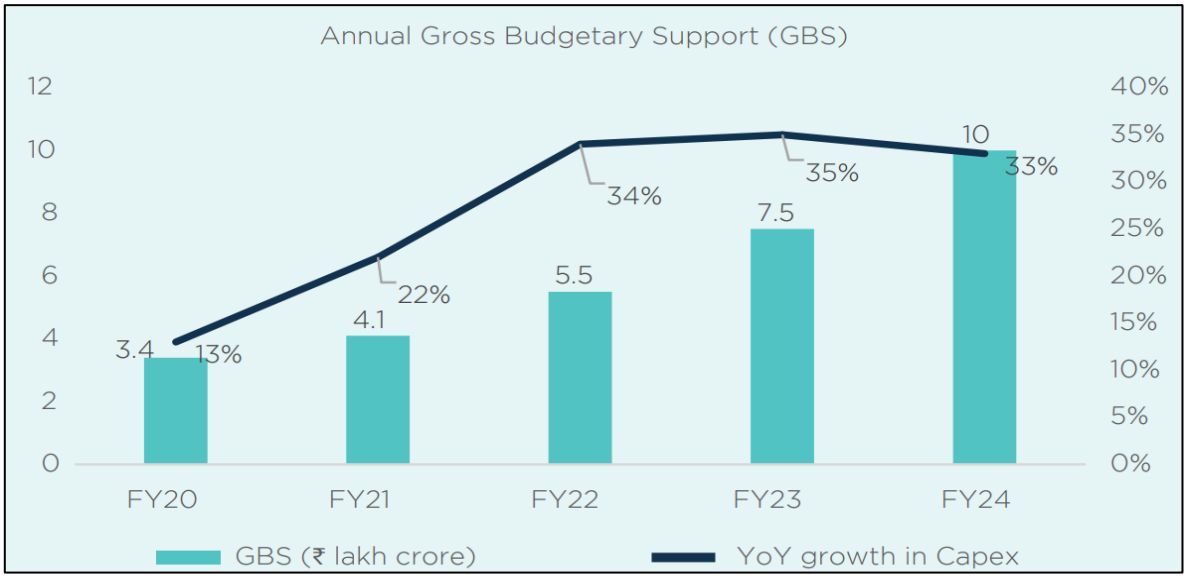

Figure 37: Annual Gross Budgetary support to infrastructure
Source: CareRatings

The gross budgetary support trend for FY20 to FY 24 shows that the Union Government is increasingly supportive of the infrastructure sector. Between 2013 and 2023, the Union Government's spending on infrastructure in India rose notably from 0.5% to 2.2% of GDP. Despite this growth, India's infrastructure spending remains relatively modest compared to several peer economies. For instance, Vietnam allocates approximately 6% of its GDP to infrastructure[13], while the Government of China averaged 4.8% of GDP in infrastructure spending from 2018 to 2023[14]. Notably, in the years preceding the COVID-19 pandemic, China's infrastructure investment ranged between a staggering 8% and 10% of GDP.

[10] Union Budget 2025-2026 (India.gov.in)
[11] India Infrastructure: Reviving Private Investments (Knight Frank)
[12] *Ibid.*
[13] Why Vietnam's Infrastructure is Crucial for Economic Growth (Vietnam Briefing)
[14] Inland transport infrastructure spending as share of GDP in selected countries 2022 (Cumbrera)

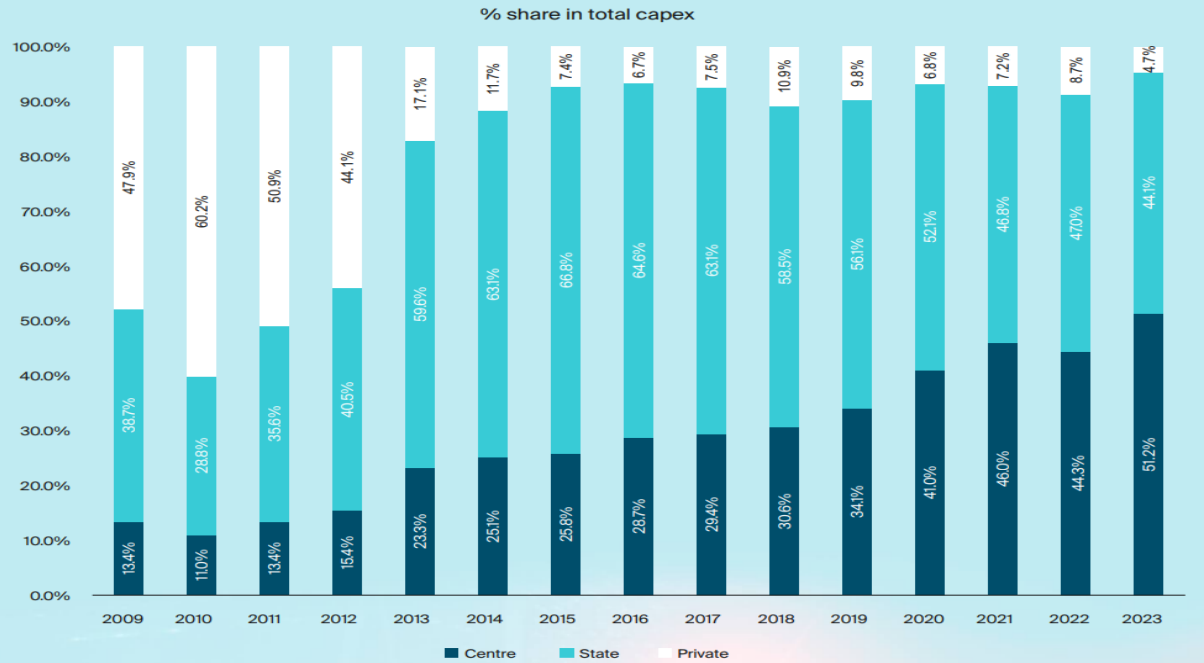

Figure 48: Share of central, state and private sector in total Capex
Source: Knight Frank

In contrast, developed economies such as the United States and the United Kingdom spent comparatively smaller proportions of their GDP on infrastructure, around 0.6% and 1.1% respectively during 2018–2023. However, in absolute terms, these figures translate into substantial annual investments, averaging US $162 Billion in the US and US $55 Billion in the UK.[15] It is important to note, however, that such comparisons may not be entirely appropriate, as these countries had already made significant infrastructure investments during earlier periods of economic growth.

[15] India Infrastructure: Reviving Private Investments (Knight Frank)

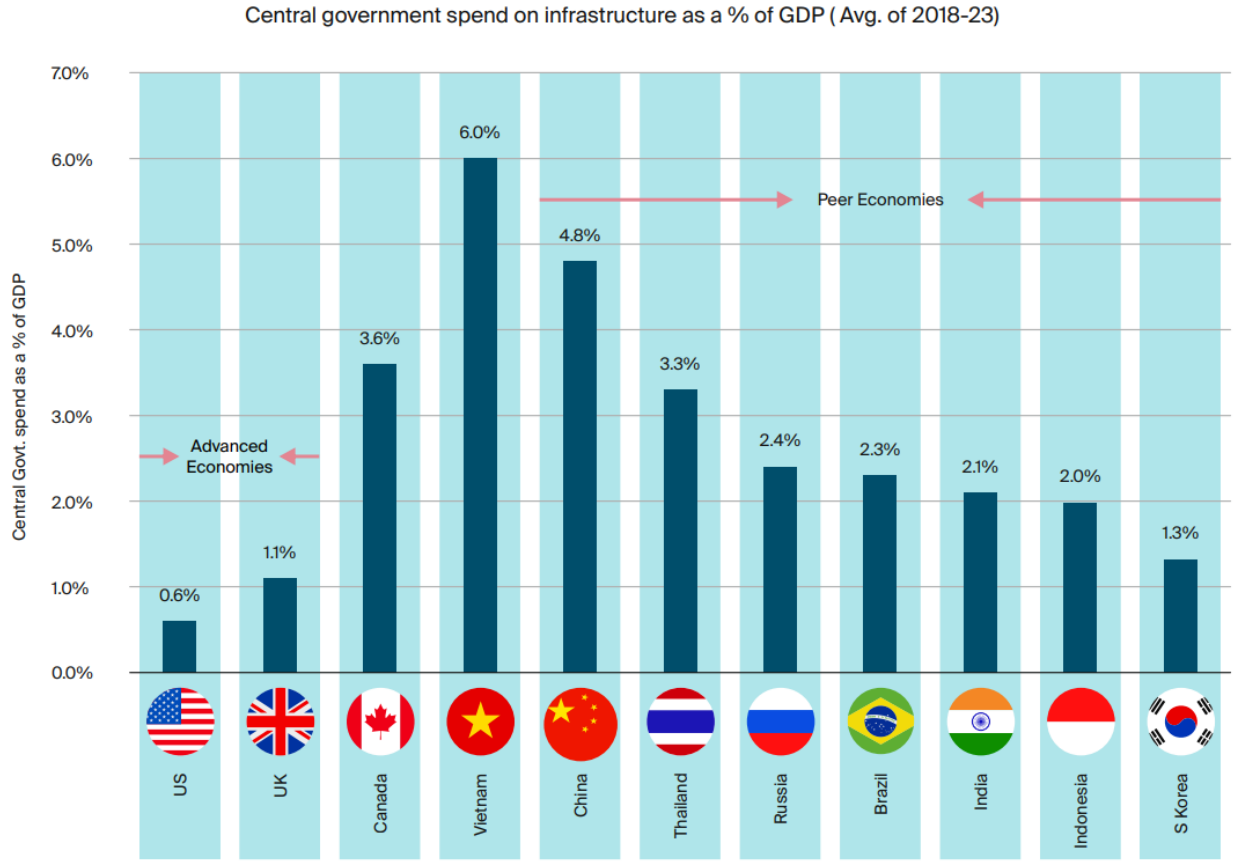

Figure 59: India's spend on infrastructure relative to peer economies
Source: Knight Frank

Banking Sector: Banks are the predominant source for infrastructure lending, with total exposure at around ₹ 12 Lakh Crore for FY23[16]. Lending to infrastructure by banks has grown significantly. It rose from ₹12.59 Lakh Crore in August 2022 to ₹13.06 lakh crore in August 2023, marking an increase of ₹46,359 crore[17]. Public sector banks, in particular, have been at the forefront of infrastructure financing, bolstered by policy measures.

Year	Power	Telecom	Roads	Airports	Ports	Railways	Other Infra	Total Infrastructure exposure by Banks
FY19	5.70	1.11	1.76	0.04	0.09	0.10	1.64	10.4
FY20	5.77	1.47	1.82	0.05	0.13	0.11	1.49	10.8
FY21	5.71	1.15	2.26	0.09	0.10	0.12	1.52	11.0
FY22	6.11	1.30	2.70	0.07	0.09	0.11	1.57	12.0
FY23	6.05	1.11	2.85	0.09	0.08	0.11	1.57	11.9

Figure 6: Infrastructure exposure by Indian banks (in INR Lakh Crore)
Source: Care Ratings

[16] Infrastructure: Financing Emerging Strong (CareRatings)
[17] PSBs may go slow on infra loans on FM's nudge (Financial Express)

Sector	Infrastructure investment (in ₹ Lakh Crore)
Roads	3.4 - 3.6
Powers	2.6 - 2.7
Railways	2.5 - 2.6
Urban infrastructure	1.8 - 1.9
Other infrastructure	2.4 - 2.5
Total infrastructure	12.2 - 12.7

Figure 7: Total infrastructure investment in 22-23
Source: Crisil Ratings (2023)

The total infrastructure credit by banks and Non-Banking Financial Company - Infrastructure Finance Companies (NBFC-IFCs) is estimated at Rs 24.7 lakh crore as on March 31, 2021[18]. State backed infrastructure lender National Bank for Financing Infrastructure and Development (NaBFID) plans to raise US $530 Billion (₹ 4.4 Lakh Crore) from the debt market in FY 2025[19].

Foreign direct investment (FDI): As illustrated in the chart below, FDI equity inflows into Indian infrastructure has been largely stagnant at around US $2 to 2.5 Billion per fiscal except for the spike in 2021, signaling a need for India to make infrastructure investment in India an attractive prospect for foreign investors.

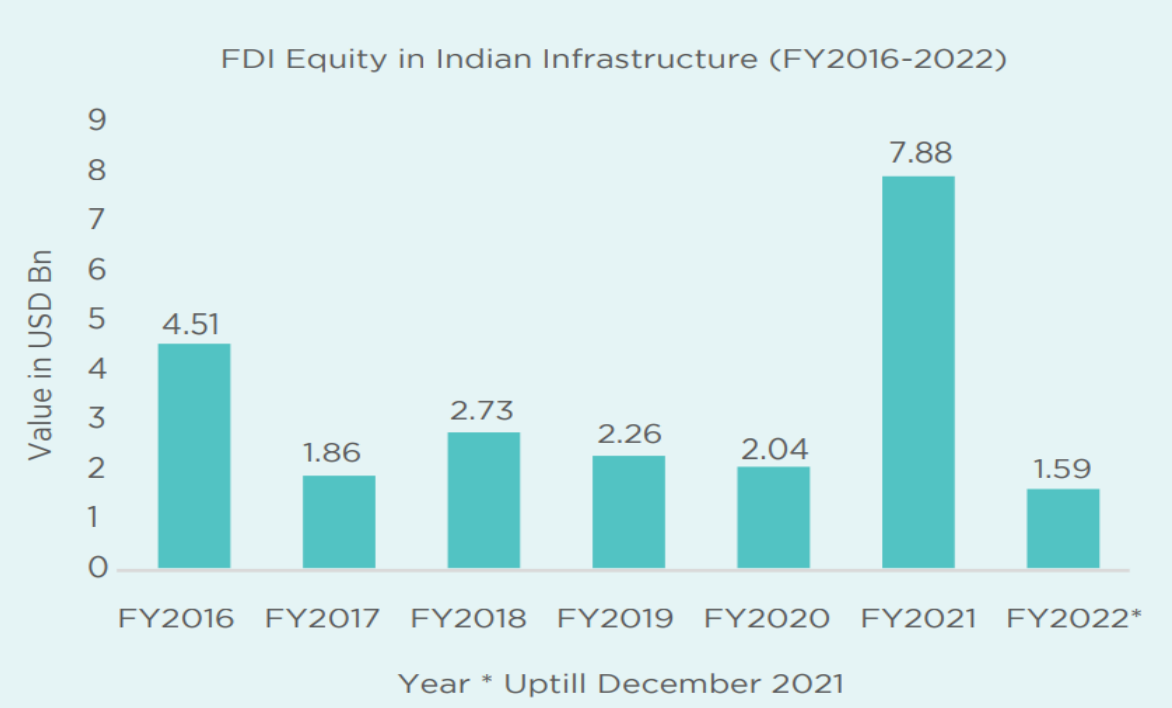

Figure 810: FDI equity in infrastructure sector in India
Source: Statista

[18] Infrastructure finance by banks, NBFC-IFC remains sluggish in Q1 FY2022 (Economic Times)
[19] Indian state-backed infra lender NaBFID plans 530 bln rupees debt raise in FY25, says official (Reuters)

D. Shortfall

Despite the significant funding mobilized through government allocations, private investments, and international loans, India still faces a significant infrastructure financing gap, exceeding 5% of GDP[20]. While the projected requirement stands at ₹24–25 lakh crore annually through 2030, actual investment in 2023 was just ₹12.53 lakh crore which is barely half the needed amount. Recognizing the shortfall, the Union Government has significantly increased capital expenditure, allocating ₹11.21 lakh crore in Budget 2025. Bank credit to infrastructure rose to ₹13.06 lakh crore by August 2023. Yet, these efforts are offset by subdued private sector participation and largely stagnant FDI inflows, limiting the overall financing momentum. Institutions like NaBFID have begun to mobilise long-term capital and complement public funding, but the current pace of investment remains insufficient to close the gap and realise India's ambitious infrastructure goals. A stronger push for private investment, deeper financial markets, and improved risk-sharing mechanisms will be critical to bridging this shortfall.

Description	Amount ($)	Period	Source
Total investment required	2.5 trillion	2015-2030	India's initial NDC
Average annual investment required	160 billion	2022-2030	IEA
Total investment required	10.1 trillion	By 2070	CEEW
Investment from conventional sources	6.6 trillion	By 2070	CEEW
Investment gap to bridge	3.5 trillion	By 2070	CEEW

Figure 911: Investment gap in infrastructure sector by 2070
Source: Crisil Intelligence

Role of securitisation in addressing the challenges

Securitisation is a financial process through which securities *i.e.* tradeable capital market instruments are created by pooling together underlying financial assets, typically receivables. Generally, the creation of securities is backed by a pool of assets that are transferred to a Special Purpose Vehicle (SPV), a legal intermediary that isolates these assets from the originator's balance sheet. The securities issued by the SPV are repaid primarily through the cash flows generated by the underlying asset pool and may be supported by credit enhancements such as guarantees or insurance, provided either by the originator or third-party entities.

Securitisation can offer an effective mechanism for recycling illiquid funds tied up in infrastructure project financing. It presents two key opportunities:

A. securitising loans extended to infrastructure projects, and

[20] Infrastructure: Financing Emerging Strong (CareRatings)

B. by securitising current or future receivables[21] generated by such projects.

By leveraging these options, securitisation can play a vital role in attracting much-needed institutional capital to the infrastructure sector. It can also enable banks, many of which already have substantial exposure to infrastructure lending, to free up their balance sheets.

If utilized correctly, securitisation can provide a range of benefits for infrastructure financing for the following stakeholders:

1. For investors

    a. **Wider access and marketability:** Securitisation transforms infrastructure cash flows into tradable securities, attracting a broader range of investors, including non-traditional ones seeking alignment with long-term cash flow profiles.
    b. **Improved liquidity:** Securities offer greater liquidity compared to traditional infrastructure loans, providing more flexibility to investors.
    c. **Transparent and risk-aligned pricing:** Unlike loans, which are often priced opaquely, securitised instruments tend to be more accurately priced in relation to the underlying risks.
    d. **Portfolio diversification:** By pooling cash flows from various infrastructure assets, securitisation allows investors to achieve better diversification.
    e. **Focus on credit risk:** These instruments are typically issued once projects have stabilised, or after construction and development risks are absorbed by specialised entities. This shifts investor focus to credit risk rather than overall project risk.

2. For financial institutions
    a. **Facilitates take-out financing:** Securitisation enables banks to exit from long-term project loans, enhancing liquidity and lending flexibility.
    b. **Improves leverage and balance sheet efficiency:** When structured as a true sale, securitised assets are removed from balance sheets, enabling banks to increase leverage and free up regulatory capital.
    c. **Enhanced asset management:** It aids banks and lenders, especially those with shorter-term liabilities, in better managing their asset portfolios
    d. **Risk-sharing:** Credit-enhancing institutions and intermediaries involved in securitisation help distribute the associated risks more broadly
    e. **Risk transfer to capital markets:** Banks can transfer infrastructure-related risks to capital markets, while retaining a manageable portion, thereby reducing concentration and credit risk.
    f. **Better asset-liability management:** Securitisation allows banks to align long-term infrastructure loans with long-tenor market instruments, mitigating ALM mismatches. It passes the duration risk to investors better suited to handle long-term exposures
    g. **Reduced exposure and capital relief:** By offloading infrastructure loans, banks can reduce exposure, ease capital requirements and manage concentration risks more effectively.

[21] Read our White Paper on Future Flow Securitisation

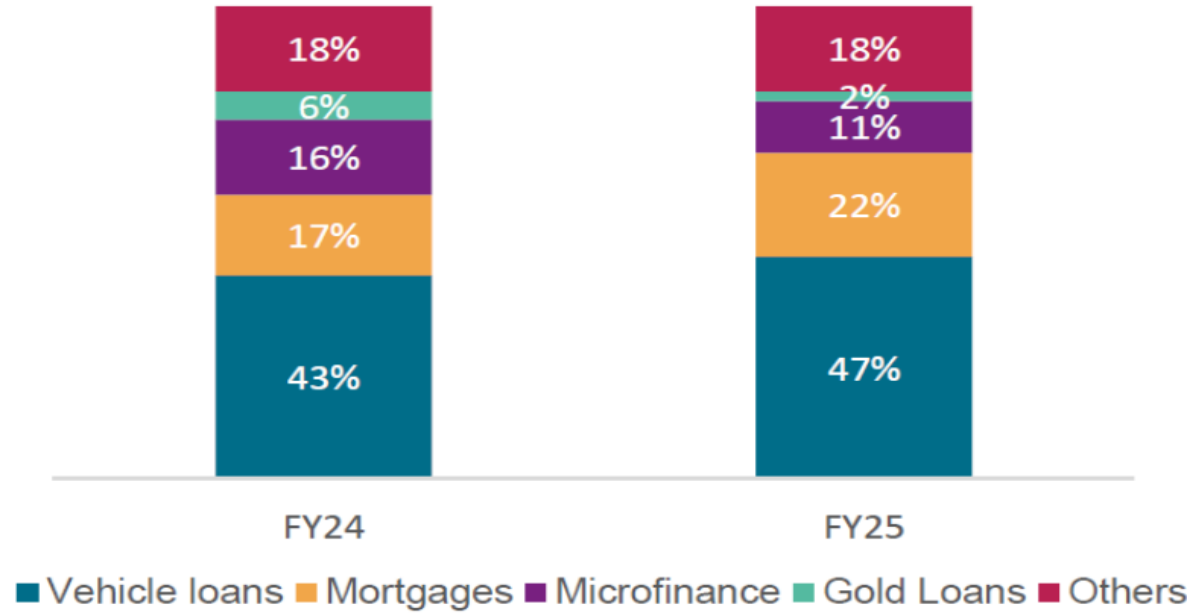

Figure 1012: Securitisation split in India by asset-class
Source: Crisil Ratings

Infrastructure Securitisation

In the context of infrastructure, securitisation presents a powerful tool for unlocking long-term capital. Banks and financial institutions can bundle existing infrastructure loans and convert them into asset-backed securities. These securities could then be sold to capital market investors, thereby transferring the associated risks and freeing up capital for the originating banks. This could enable banks and financial institutions to recycle their funds and extend new credit to upcoming infrastructure projects, fostering a sustainable cycle of infrastructure financing.

The process would involve pooling infrastructure loans into structured financial instruments, which are then divided into different tranches based on risk and return profiles. This tranching allows institutional investors with varying risk appetite to participate. Long-term investors such as pension funds, insurance companies, and sovereign wealth funds, which are better suited to hold long-duration assets, can invest in senior tranches with high credit ratings and stable returns. Meanwhile, investors with higher risk appetite may take exposure to subordinate tranches that offer higher yields.

Various aspects as involved in infrastructure securitisation are discussed below:

1. Asset classes in infrastructure securitisation

Infrastructure assets that are suitable for securitization are generally characterized by their ability to generate stable and predictable cash flows, often derived from user fees or secured through long-term contracts. These assets can be broadly categorized into several major classes -

Transportation infrastructure: This includes toll roads, airports, ports etc.. These form a vital asset class with stable revenue potential. Toll roads earn directly from users via tolls, offering predictable cash flows. Airports generate income from landing fees, passenger service charges and commercial activities. Gatwick Airport in the UK is a notable example of airport

securitization.[22] Ports earn through cargo handling fees. These assets are attractive for securitization due to their essential nature, stable income generation and relatively inelastic demand. However, their performance can still be affected by economic fluctuations and external shocks like global health crises, necessitating careful risk assessment

Energy infrastructure: This includes power plants, pipelines and transmission lines. Power plants, especially renewables like solar and wind, often operate under long-term power purchase agreements ensuring stable revenue. Pipelines and transmission lines also generate predictable income through long-term contracts or regulated tariffs.

Utilities infrastructure: This will cover water and wastewater treatment, telecom networks and waste management, which are again essential services with stable demand and predictable cash flows. Water facilities earn through regulated user charges, while telecom assets like fiber networks and towers generate income from subscriptions and leases. Waste management revenues come from tipping fees and long-term contracts.

However, the scope of securitizable assets is not confined to traditional infrastructure categories. Innovative approaches continue to emerge, as demonstrated by MUFG's securitization of smart meter infrastructure in Great Britain.[23] This example, along with the Gatwick Airport securitisation, underscores the flexibility of the model. Any asset class with stable, long-term and predictable revenue streams can be considered for infrastructure securitization. The key is to ensure that the underlying asset generates consistent cash flows and meets the risk-return expectations of investors.

Tabled below are few global examples of some non-conventional asset-classes utilised for infrastructure securitisation:

Asset Class	**Country**	**Deal Example (Name/Description)**	**Deal Size (Approx.)**	**Structure**	**Key Investors (Illustrative)**
Transportation	USA	Indiana Toll Road Lease[24]	$3.8 billion	Long-term operating lease	Private Equity (Ferrovial, Macquarie), Banks
Transportation	UK	Gatwick Airport Whole Business Securitizatio	£600 million+	Whole Business Securitizatio n	Institutional investors (through bond issuances)

[22] Fitch Affirms Gatwick Funding's Bonds at 'BBB+'; Outlook Stable (Fitch Ratings)
[23] Case study by MUFB Bank
[24] The Indiana Toll Road Lease as an Intergenerational Cash Transfer (Gilmour)

		n[25]			
Transportation	Australia	Transurban Bond Issuances[26]	€650m, £300m	Senior Secured Bonds	Institutional investors (through bond reopeners)
Energy (Renewable)	Germany	Enpal Solar Securitizatio n[27]	€240 million	Asset-Backed Securities (ABS)	European Investment Bank (EIB), European Investment Fund (EIF), Institutional Investors
Utilities	UK	Smart Meter Communicat ion Hub Securitizatio n (MUFG)[28]	Not Specified	Securitizatio n SPV Structure	Banks, Institutional Investors

Figure 11[13]: Some prominent global examples of infrastructure securitization

2. Kind of credit enhancements provided

Credit enhancements reduce credit risk and broaden investor appeal, potentially resulting in improved credit ratings and lower borrowing costs. These enhancements fall into internal mechanisms like overcollateralization (where asset value exceeds issued ABS), subordination (creating tranches with varying loss absorption priorities), excess spread (using surplus interest to cover shortfalls), sponsor loans to SPV (to provide initial liquidity to the SPV to fulfil the first few payment obligations) and external supports such as guarantees (from highly-rated issuers or third parties), insurance (like bond insurance ensuring timely payments) and letters of credit (bank commitments against default). Credit rating agencies critically evaluate these enhancements, with stronger mechanisms leading to higher ratings. Ultimately, the specific credit enhancements employed are carefully chosen based on the underlying asset risks and the targeted credit rating, significantly impacting the ABS's market reception and pricing.

[25]https://www.globalcapital.com/article/28mss7ctnpdchqanrbgti/corporate-bonds/gatwick-lands-safely-as-investors-queue-for-600m-bond
[26] Transurban secures €650M and £300M in Eurobond Issuance (www.tipranks.com)
[27] Enpal successfully prices Europe's first residential solar securitisation program with € 240 million offering
[28] *Supra*

3. Typical investors

Infrastructure-backed securities generally attract investors who are seeking long-term, stable returns and opportunities for diversification within their investment portfolios. The primary investor base for these securities is dominated by institutional investors such as -

Pension funds: Pension funds, with their long-term liabilities and need for stable, predictable returns over extended periods, are naturally drawn to the long-duration nature of infrastructure assets. Investment by pension funds in infrastructure has been rising steadily over time, from just 12% of pension funds investing in infrastructure sector in 2007 to 47.5% in 2018[29]

Insurance companies: They manage long-term liabilities and often find infrastructure-backed securities to be a suitable asset class for their investment strategies. MetLife, New York Life, and Prudential Financial, three of the largest life insurers in the United States, collectively hold an estimated US $60.2 Billion in infrastructure debt within their general account portfolios. The share of infrastructure debt as a percentage of total general account assets stands at approximately 4% for MetLife, 7.5% for New York Life and 3.6% for Prudential Financial, highlighting a significant institutional commitment to long-duration, stable-yield infrastructure investments.[30]

Sovereign wealth funds (SWF): Sovereign Wealth Funds (SWFs) are state-owned investment vehicles that typically pursue a dual mandate: generating robust financial returns while advancing broader national or economic development goals. Given the strategic importance of infrastructure to long-term economic growth and stability, infrastructure-backed securities naturally align with the objectives of SWFs. As such, these funds are well-positioned and likely inclined to invest in such assets. In 2018, their direct investments in infrastructure accounted for $6 billion, representing 13% of the annual total. However, by 2022, this figure had risen to over $17 billion, or 25% of total investments[31]. Interestingly, the largest direct investment in infrastructure in the year 2022 was the takeover of Autostrade per l'Italia, one of the largest toll road operators in Europe, by a consortium of investors led by CDP Equity, Italy's sovereign wealth fund, Blackstone Infrastructure Partners, and Macquarie Asset Management. The consortium purchased a 88% stake in the company from Atlantia, an Italian infrastructure group, in a deal reported to be in the realms of €8.1 billion.[32]

[29] Pension fund investments in infrastructure (Alexander Carlo *et. al*)
[30] Developing insurance markets (Tetsutaro Shindo *et. al*)
[31] Unlocking Yield: Sovereign Wealth Funds shift towards direct infrastructure investments. (IFSWF)
[32] *ibid.*

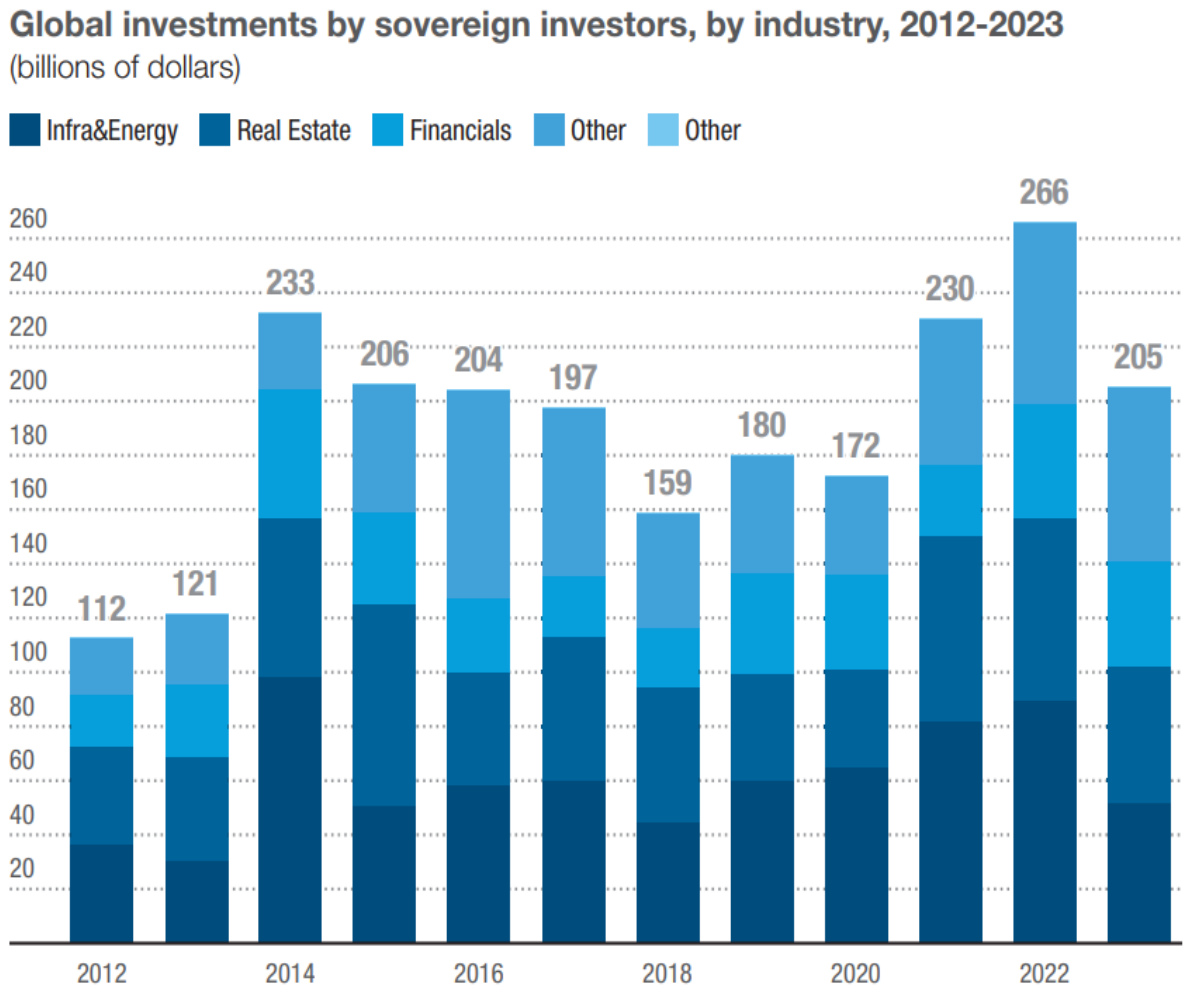

Figure 1214: Global investments by Sovereign investors by Industry
Source: Leveraging the Potential of Sovereign Investors for Infrastructure Investment in Africa

These investors possess the scale and the long-term perspective necessary to invest in infrastructure assets, whether directly or through securitized instruments. Institutional investors are indeed the cornerstone of the infrastructure securitization market. Their long investment horizons align well with the long lifespans of infrastructure assets and their need to match long-term liabilities with stable, long-duration investments.

Infrastructure securitisation in Indian context

Securitisation volume in India rose 24% on-year to ~Rs 2.35 lakh crore in FY 2025, the highest on record. Among asset classes, vehicle loans (including commercial vehicles and two-wheelers) accounted for the highest share of securitisation volume at 47%, compared with 43% in fiscal 2024. The share of mortgage-backed loans increased to ~22%, compared with ~17% in fiscal 2024. Overall, banks continue to be the dominant investors in the securitisation market even as other investors, including mutual funds, insurers and alternative investment funds are increasing their footprint.[33] Currently, the market heavily relies on retail loan securitisation. Expanding to new asset classes like infrastructure projects, MSME loans, and agricultural receivables would bring more players to the table and mitigate concentration risk.[34]

[33] Crisil Ratings
[34] Fortune India

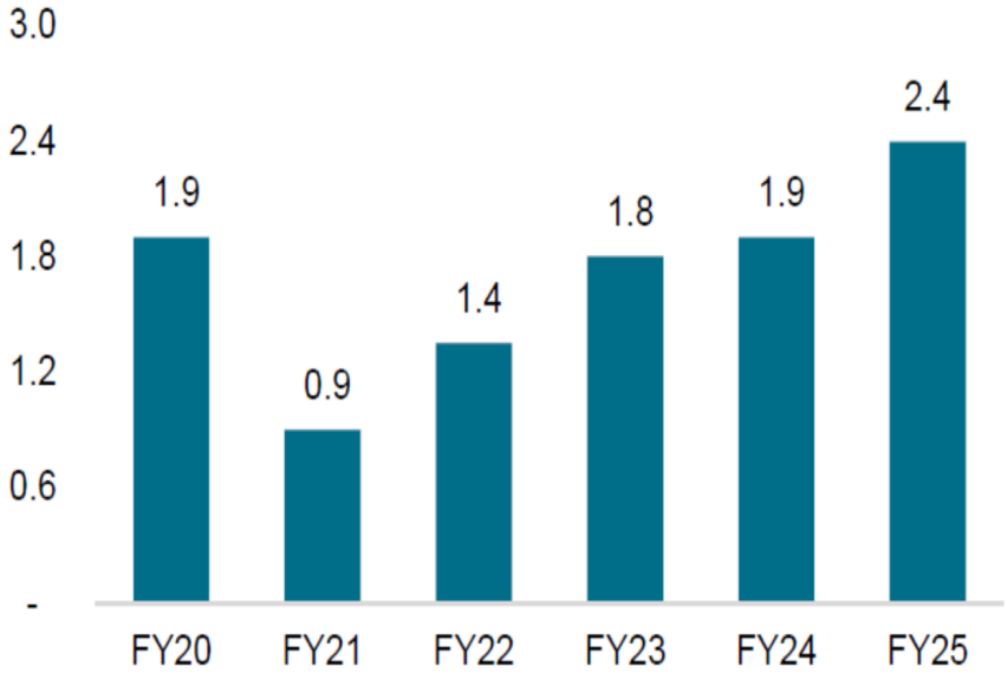

Figure 1315: Securitisation volume in India (in INR Lakh Crore)
Source: Crisil Ratings

However, infrastructure securitisation in India is still in its early stages, with activity largely centered around Infrastructure Investment Trusts (InvITs). These vehicles primarily raise capital from investors by offering stable, long-term returns backed by revenue-generating infrastructure assets such as toll road receivables and telecom infrastructure cash flows. However, with strong policy support, such as the government's National Infrastructure Pipeline, there is significant potential for securitisation in this sector to expand beyond InvITs and become a more mainstream financing tool.

A notable recent milestone was achieved by the National Highways Infra Trust (NHIT), the InvIT sponsored by the National Highways Authority of India (NHAI), which completed India's largest-ever highway monetisation transaction. NHIT successfully raised ₹18,380 crore through unit capital, attracting a diverse group of investors including domestic and international pension funds, insurance companies, mutual funds, banks, financial institutions, and foreign institutional investors. This landmark deal highlights growing investor confidence in infrastructure-backed securitisation and sets a strong precedent for future transactions in the sector.[35]

Infrastructure securitisation is still in its infancy in India, with little to no activity recorded so far. As a result, there is a lack of comprehensive data or case studies within the Indian context. This Paper aims to bridge that gap by laying the groundwork for developing an infrastructure securitisation market in the country. It seeks to initiate a broader dialogue by identifying suitable asset classes, potential originators, and prospective investors that could play a role in this ecosystem. By doing so, the Paper hopes to catalyse interest and action around infrastructure securitisation as a viable financing tool for India's growing infrastructure needs.

[35] Foxmandal

A. Selecting the right type of loans and underlying assets

Infrastructure assets can generally be categorized into two types: revenue-generating and non-revenue-generating[36]. The ones fit for securitisation are the former since they produce consistent income streams through user charges, tolls, fees or other means, thereby offering the potential for regular returns to investors. Typical examples include toll roads, power generation projects, and other utilities with established payment mechanisms as investors typically seek stable and predictable cash flows. Therefore, for a project to be considered viable for securitization, it must have a proven track record of steady cash flow generation. Against this backdrop, the pool of underlying assets must have achieved commercial operation and have demonstrated a minimum repayment history of 6 months to 1 year to make infrastructure projects less risky to investors.

In the Indian infrastructure landscape, following can be appropriate asset classes for securitisation:

1. **Toll road receivable:** Toll-based road projects generate stable and predictable cash flows based on traffic volumes. These have been among the most securitised infrastructure assets, often structured under the Hybrid Annuity Model (HAM) or Built-Operate-Transfer (BOT) formats.
2. **Renewable energy projects**: Receivables from operational solar and wind power assets with long-term Power Purchase Agreements offer low-risk cash flows. Given India's energy transition agenda, this class could be an attractive securitisation asset.
3. **Transmission and distribution assets:** Electricity transmission and distribution networks, particularly those backed by government payments or regulated tariffs, are considered low-risk and can be suitable for securitisation.
4. **Urban infrastructure:** Revenue-generating public utility assets such as water supply systems and metro rail networks can also be monetised via securitisation structures.
5. **Public-Private Partnership (PPP) Projects:** Government-backed annuity payments under PPP projects in roads, ports, and airports can be securitised, given their predictable nature and low counterparty risk.

B. Potential originators

In India, the typical originators of securitisation transactions are banks and financial institutions, who undertake such transactions primarily to achieve capital relief, improve liquidity, and optimise returns. In the context of infrastructure securitisation, the profile of originators is likely to remain largely the same, as infrastructure financing is predominantly extended by banks and specialised financial institutions such as Infrastructure Finance Companies (NBFC-IFCs). These institutions are well-positioned to originate securitisable infrastructure assets, having long-term exposure to project developers.

1. **Banks:** Banking sector advances to the infrastructure sector are estimated at ₹ 13 to 14 Lakh Crore as on June, 2024 of which the public sector banks have a lion's share of around 75%.[37] Historically they have contributed nearly 50% of the total infrastructure debt and remain a key source of project financing. As of March, 2024, Banking sector's total exposure to infrastructure sector as a % of their overall exposure was around 30%[38]. Securitization offers a strategic solution by allowing banks to offload loan assets to capital market investors who are not subject to such prudential

[36] *These would include public parks, street lightning and defence infrastructure etc.*
[37] Economic Times
[38] Crisil Ratings

norms. This enables banks to free up capital and create room for fresh lending, thereby maintaining their role in funding infrastructure growth.

Bank	Total Infrastructure Advances (Rs billion)	Share of Infrastructure Advances in Total Advances (%)
State Bank of India	2,089.00	12.84
IDBI Bank	771.70	19.55
Canara Bank	501.30	14.66
Bank of India	459.75	16.09
Union Bank of India	400.30	14.70
Bank of Baroda	280.21	9.41
Average (weighted)		14.54

Figure 14[16]: Infrastructure exposure of selected public sector banks (as on March 2017)

2. **Infrastructure Finance Companies (IFCs):** IFCs are specialized non-deposit-taking NBFCs mandated to allocate at least 75% of their assets to infrastructure loans. While this ensures a focused investment approach, IFCs often grapple with asset-liability mismatches, particularly in short-term funding buckets. As of September 2023, Infrastructure Finance Companies (NBFC-IFCs) in India had a total credit book of approximately US$181 billion (around ₹15 lakh crore), reflecting a steady growth from US$169 billion in March 2023 and US$154 billion in September 2022[39]

   In this context, securitization becomes a valuable tool, allowing IFCs to monetize their long-term loan assets and convert them into marketable securities, thus enhancing liquidity and supporting continued lending.

3. **Other NBFCs, including renewable energy financiers:** The challenges and opportunities faced by IFCs are equally relevant to other NBFCs operating in the infrastructure domain, particularly those financing clean and renewable energy projects. These entities invest in solar, wind, and other green infrastructure assets, and can similarly utilize securitization to recycle capital and enhance funding capacity. When the underlying assets meet environmental eligibility criteria, the securitized instruments can be labeled as “green securitization” or “green asset-backed securities (ABS)” a topic discussed in detail in another whitepaper by our organisation.

C. Structure

Securitization in India mainly takes the form of a trust structure, wherein the underlying assets are sold to a trustee company, which holds the security in trust for investors. The trustee company in this case is a special-purpose vehicle (SPV), which issues securities in the form of pass-through or pay-through certificates (PTCs). The trustee is the legal owner of the underlying assets. Investors holding the PTCs

[39] Private credit report H2 2023 by EY

are entitled to beneficial interest in the underlying assets held by the trustee. We envisage a similar structure for infrastructure securitisation in India.

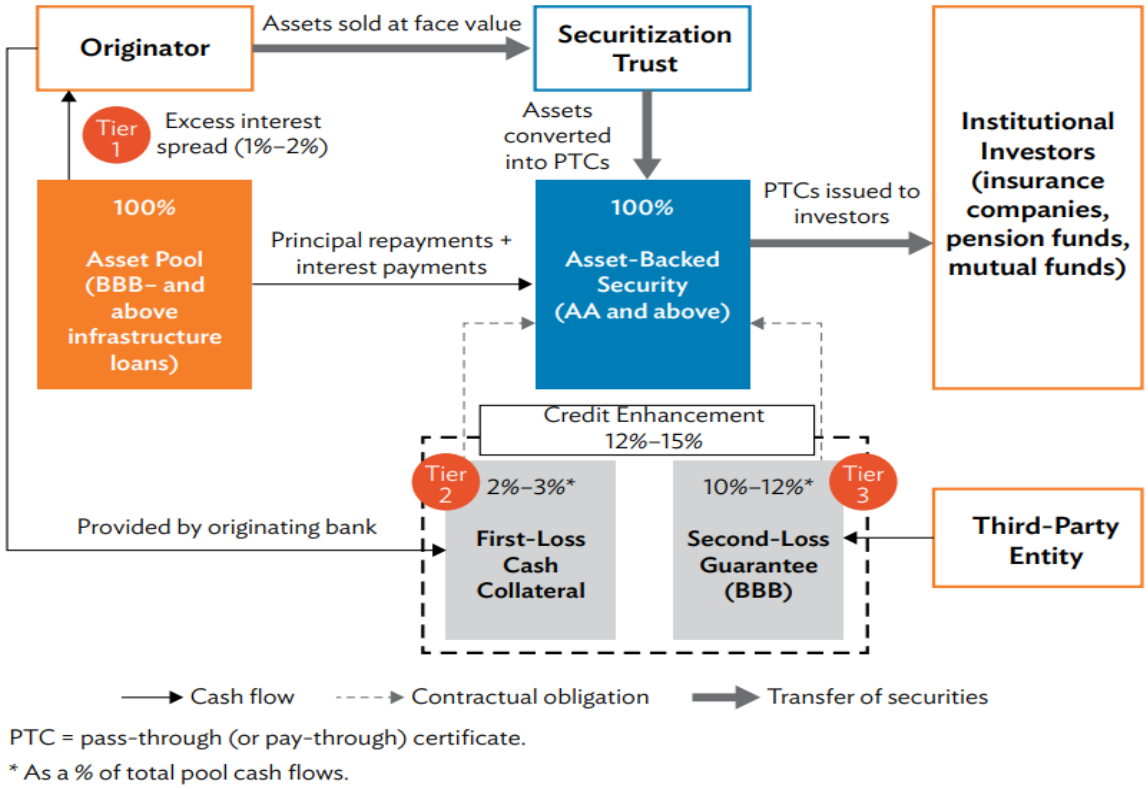

Figure 15[17]: Proposed infrastructure securitisation structure

In this structure[40], the lending institution (the originator) transfers infrastructure loans given to contractors and developers to a SPV. The SPV then issues pass-through certificates (PTCs) to investors. The senior tranche, which carries the highest credit rating, is subscribed to by institutional investors due to their preference for lower-risk investments and regulatory obligations. Credit enhancement by way of a mezzanine class is provided by a third-party. The originator retains the junior-most tranche.

Key parties involved in such securitisation process:

1. Originator: The original lender who extended loans to infrastructure developers and subsequently sells the receivables to the SPV for consideration.
2. Borrowers / Obligors: The individual or entity that receives a loan from the originator. Borrower repayments form the cash flows that service investor payouts.
3. Issuer (SPV): A SPV, usually structured as a trust in India, is established to issue marketable securities to investors and to manage the transaction in accordance with predefined terms.
4. Investor: Entities that purchase the securities issued by the SPV. In India, investors for infrastructure loan-backed securities could be banks, insurance companies, pension funds, sovereign wealth funds etc.
5. Rating agency: Agencies responsible for assessing the credit risk of the transaction. They recommend appropriate credit enhancements, assign ratings to the securities, monitor transaction performance, and adjust ratings when necessary.

[40] Securitization in India: Managing Capital Constraints and Creating Liquidity to Fund Infrastructure Assets (Romero-Torres et. al)

6. Credit enhancement provider: Usually the originator, who provides a mechanism to cover any shortfall between the borrower collections and investor payouts. Alternatively, third-party credit enhancement may also be arranged for a fee.
7. Servicer: The party responsible for collecting payments from borrowers, distributing payouts to investors, managing delinquent accounts, and providing regular pool performance reports to the rating agency. In India, the originator often also serves as the servicer

Currently, three main types of securitised instruments are commonly found in the Indian market. Asset-backed securities (ABSs) are backed by receivables from financial assets such as vehicle loans, personal loans, credit card dues, and other consumer credit, excluding housing loans. Mortgage-backed securities (MBSs) are supported by receivables from housing loans. Collateralised debt securities are backed by a pool of various debt instruments, including corporate loans and bonds.

The structuring of cash flows allows originators to customize instruments to align with investors' risk tolerance and maturity preferences. In India, the two most commonly adopted cash-flow structures are:

1. Par structure: Under the par structure, investors pay a consideration equal to the principal (par value) of the future cash flows. In exchange, they are entitled to receive regular principal repayments from the underlying asset pool, along with the agreed-upon yield (referred to as the PTC yield) on a monthly basis. Typically, the yield generated by the asset pool exceeds the PTC yield promised to investors, creating an excess cash flow known as the excess interest spread (EIS).
   For example, consider a pool of assets with a principal value of ₹1 billion and a collective yield of 10%, sold to investors at a yield of 8%. In this scenario, investors are entitled to receive the ₹1 billion principal along with an 8% yield. The remaining 2% yield constitutes the EIS, which acts as a cushion by providing protection against any potential shortfall in the cash flows from the asset pool.

2. Premium structure: In a premium structure, investors are entitled to receive the entire cash flows generated by the asset pool on a monthly basis. Unlike the par structure, investors pay a consideration that is higher than the principal amount of future cash flows. The purchase consideration is calculated as the net present value of the total expected cash flows, discounted at the agreed-upon PTC yield.
   This structure does not generate any excess interest spread (EIS). For instance, consider a pool of assets with a principal value of ₹1 billion and a yield of 10%, resulting in total cash flows of approximately ₹1.13 billion. Under the premium structure, investors are entitled to the full ₹1.13 billion in cash flows, for which they may pay a purchase consideration slightly above the principal amount — say, ₹1.05 billion.

Risk tranching, a common form of cash-flow tranching in India, involves structuring instruments with varying levels of risk. Senior PTCs (Pass-Through Certificates) are given the highest priority in receiving cash flows and are ranked based on their credit quality — from highest credit quality and lowest risk to lower levels of both. Subordinate PTCs, on the other hand, provide credit support to the senior tranches and typically carry lower credit ratings.

D. Potential investors

Banks in India often face a pronounced asset-liability mismatch when it comes to infrastructure lending. This stems from their reliance on short-term and demand deposits for funding, which contrasts sharply with the long-term capital requirements of infrastructure projects. In this context, mobilising capital from institutional investors—such as pension funds, insurance companies, and sovereign wealth funds—could be transformative. These entities typically manage long-term funds, making them well-suited to finance long-gestation infrastructure assets.

Despite the strategic alignment between the long-term nature of institutional capital and infrastructure investments, actual participation from these investors has been limited. While infrastructure assets are fundamentally attractive due to their stable and predictable returns, institutional investors remain cautious. This reluctance is primarily driven by their conservative risk appetite and regulatory constraints, which often restrict investments to high-grade instruments, typically rated "AA" or above. As a result, many infrastructure projects, which may carry lower credit ratings due to project-specific risks, fall outside their investable universe.

Industry sector	**Assets under management (In ₹ Crore)**
Insurance	61,56,849[41]
National pension scheme	13,98,725[42]
Employees Provident Fund Organisation	13,04,264[43]

Figure 16: AUMs of insurance companies, NPS and EPFO

One also needs to assess the regulatory position vis a vis the permissibility and exposure norms of these institutional investors to get a better understanding regarding their investment universe:

A. Pension funds and provident funds

Type of scheme	**Private NPS scheme**	**Schemes other than private NPS**	**EPFO**	**Non-government provident funds, superannuation funds and gratuity funds**
Limits[44]	Investment in ABS regulated by SEBI shall be up to 5% of the scheme size.	Investment in ABS regulated by SEBI shall be up to 5% of the scheme size.	Investment in ABS regulated by SEBI shall be up to 5% of the fund size.	Investment in ABS regulated by SEBI shall be up to 5% of the fund size.

[41] IRDAI Annual Report 23-24
[42] NPS Trust website
[43] EPFO Annual Report 22-23
[44] *including investment in InvITs, REITs and CMBS or RMBS, AIFs, AT1 Bonds*

Rating requirement	Minimum AA rating or equivalent	Minimum AA rating or equivalent	Minimum AA rating or equivalent	Minimum AA rating or equivalent
Due diligence and other requirements	Due Diligence shall be done before investing All risks associated therein shall be considered and documented	Investment exposure in a single industry shall not be more than 15%	Due diligence to be ensured to assess associated risks ABS shall be listed	Due diligence to be ensured to assess associated risks. ABS shall be listed

B. Insurance companies

The Insurance Regulatory and Development Authority of India (IRDAI), through the IRDAI (Investment) Regulations, 2016, and the accompanying 'Investments – Master Circular', specifies the permissible investment avenues for insurance companies. These investments are categorised as 'Approved Investments' and 'Other Investments', with the former subject to more favourable investment limits. Only those investments that satisfy prescribed criteria qualify as Approved Investments, while others fall under the category of Other Investments, which are subject to stricter quantitative limits.

Under these regulations, insurance companies are allowed to invest in Asset-Backed Securities (ABS) and Pass-Through Certificates (PTCs) backed by housing and/or infrastructure assets, subject to the following conditions:

i. Minimum sector allocation: Insurers are required to allocate a minimum of 15% of their investible funds to housing and infrastructure sectors combined.
ii. Exposure limits: For Life Insurers, investment in ABS/PTCs backed by housing and/or infrastructure assets must not exceed 10% of the respective fund. For General Insurers, the limit is capped at 5% of their total investment assets.
iii. Credit rating requirement: These instruments must carry a minimum credit rating of AAA or its equivalent to qualify as Approved Investments. Should the credit rating fall below AAA, the investment will be automatically reclassified as an 'Other Investment'.
iv. Default in cash flows: If cash flows from these instruments are not received on the scheduled due dates, such investments will likewise be automatically reclassified as 'Other Investments' from the date of default.
v. Risk diversification: As part of prudent risk management, insurers must ensure that investments in ABS, PTCs, and Security Receipts (SRs) are diversified across various issuers and maturities.

C. Sovereign Wealth Funds

Sovereign Wealth Funds (SWFs) are state-owned investment vehicles established by national governments to manage and invest surplus reserves, often derived from revenues such as oil exports, trade surpluses, or foreign exchange reserves. These funds typically pursue long-term returns and invest across a diversified global portfolio that includes equities, bonds, real estate, infrastructure, and alternative assets.

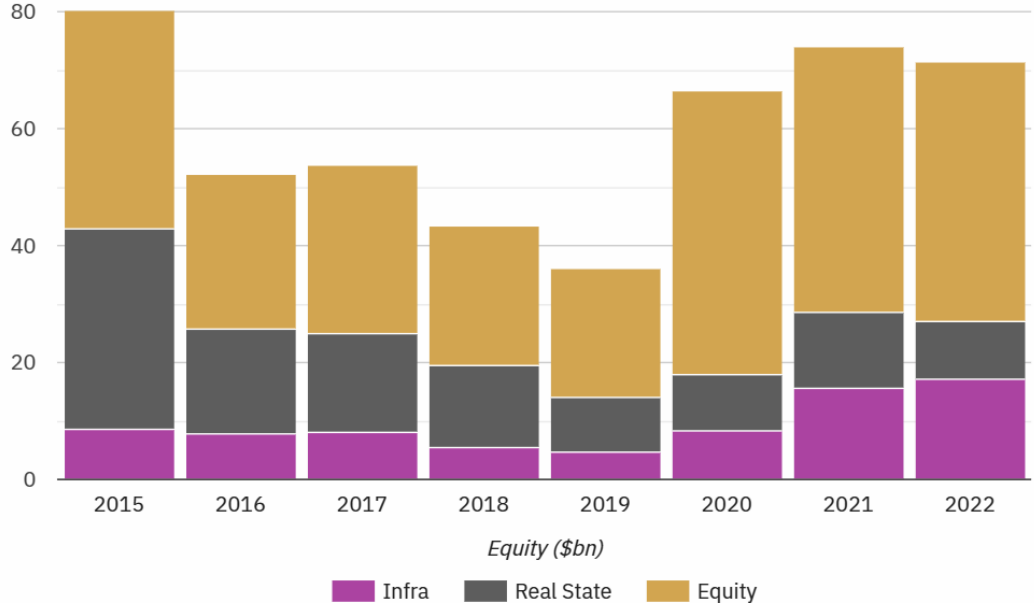

Figure 17[19]: Sovereign wealth fund direct investments in infrastructure growth
Source: IFSWF Database, 2022

To invest in Indian securities markets, SWFs must typically register as Category I Foreign Portfolio Investors (FPIs) under the SEBI (Foreign Portfolio Investors) Regulations, 2019. Category 1 FPIs are allowed to invest in SDIs as under[45]:

a. any certificate or instrument issued by a SPV set up for securitisation of asset/s where banks, FIs or NBFCs are originators; and/or
b. any certificate or instrument issued and listed in terms of the SEBI Regulations on Public Offer and Listing of Securitised Debt Instruments, 2008.

[45] https://www.rbi.org.in/scripts/BS_CircularIndexDisplay.aspx?Id=10718

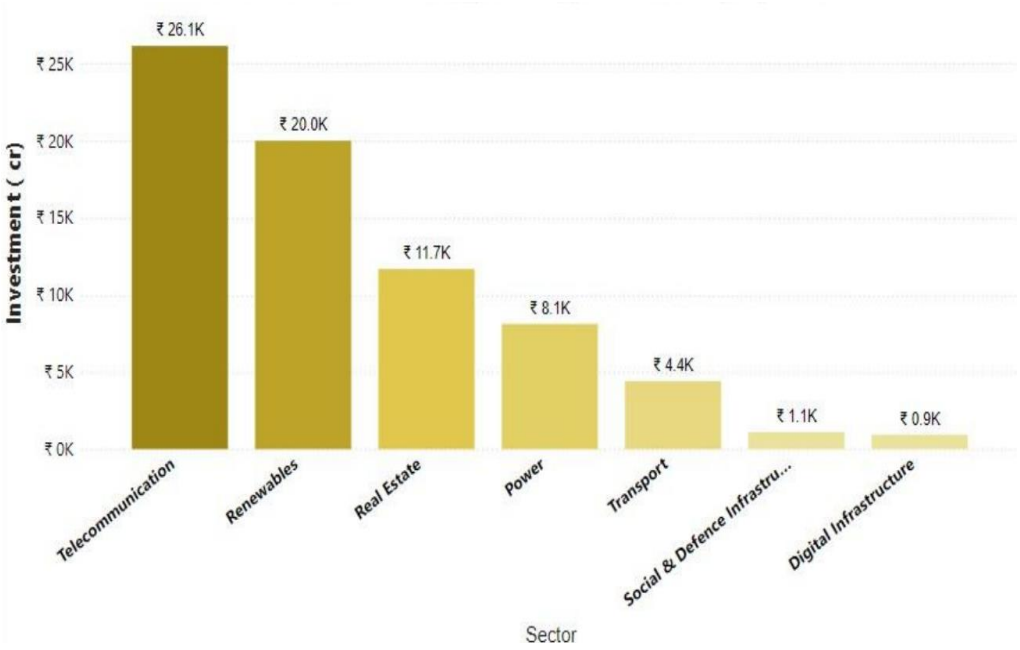

Figure 18[20]: Sector-wise investments of foreign Sovereign Wealth Funds in India
Source: Center for financial accountability

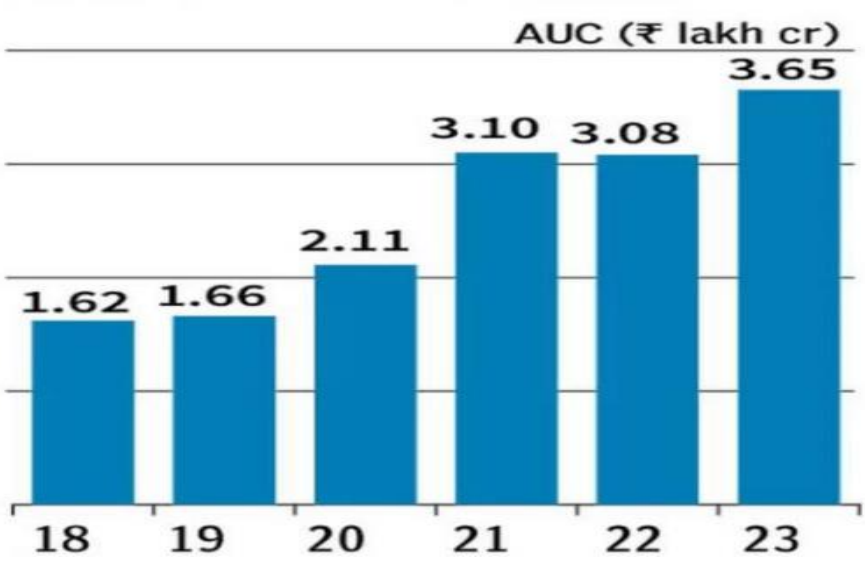

Figure 19[21]: Total assets under custody of Sovereign Wealth Funds as on August, 2023
Source: NSDL

D. Infrastructure Investment Trusts (InvITs)

Currently, InvITs are not allowed to invest in PTCs. However, considering their expertise in the infrastructure sector, regulators may consider allowing a part of their funds to be invested in infrastructure securitisation.

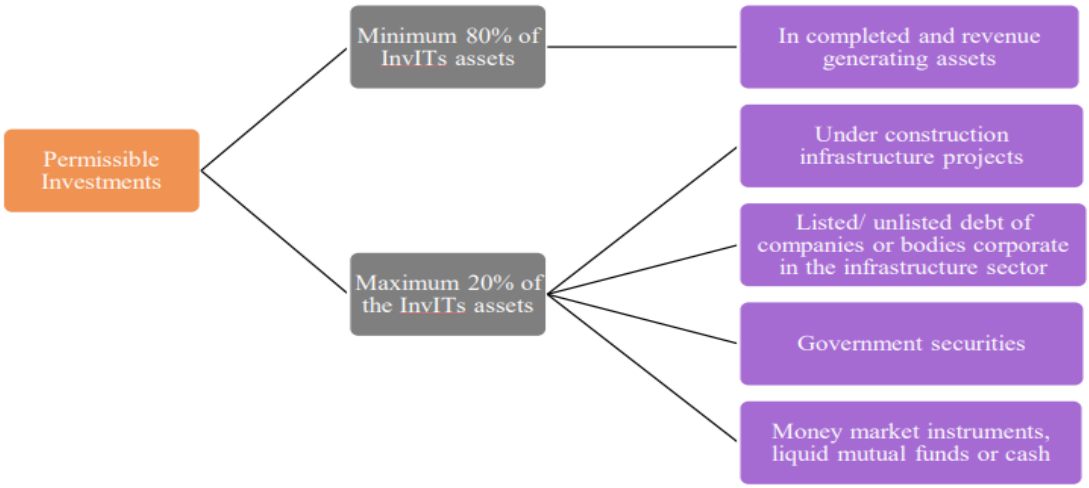

Figure 2022: Permissible investments for InvITs

E. **Mutual Funds:** Mutual fund schemes are restricted from investing more than 10% of their debt portfolio in debt instruments that carry structured obligations or credit enhancements. Additionally, the exposure to such instruments from a single group is capped at 5% of the scheme's debt portfolio. However, these investment limits do not apply to listed securitised debt instruments (SDIs), as defined under the SEBI (Public Offer and Listing of Securitised Debt Instruments) Regulations, 2008.

E. Appropriate credit enhancements

Infrastructure loans are typically characterized by higher risk during the initial construction phase, with risk levels declining once the project becomes operational. This risk profile is the opposite of that seen in conventional corporate loans, where risk often increases over time due to potential deterioration in the borrower's creditworthiness. In India, the average credit rating of infrastructure assets tends to be around "BBB," which is considered investment grade but relatively low on the rating scale. To make such assets attractive to a broader pool of investors, particularly institutional ones, credit enhancement mechanisms are often necessary. These enhancements help improve the credit rating of the securitized instruments—such as Pass-Through Certificates (PTCs)—to at least "AA," which is the minimum threshold for many regulated institutional investors.

While pooling multiple diverse loans offers a statistical benefit in risk mitigation, additional credit enhancements are crucial to improve ratings and attract a broader range of investors. In India, securitisation structures generally rely on a combination of:

A. Internal credit enhancements (built into the cash flow structure), and
B. External credit enhancements (provided by third-party entities).

A. Internal credit enhancement

Internal enhancements rely on the strength of the asset pool itself and are legally embedded within the transaction. The two main forms used in India are:

a. Credit tranching: The loan pool is divided into multiple tranches with varying risk–return profiles. Senior tranches receive payment priority, while junior tranches absorb first losses, thus protecting senior investors.

Example: A pool worth ₹1 billion with a 10% yield could be split into senior, mezzanine, and equity tranches. The mezzanine and equity tranches receive payments only after senior tranche obligations are met.
Challenge: In India's emerging market context, there is limited appetite for lower-rated junior tranches. Originators often retain these tranches, reducing the capital relief benefit of securitisation.

b. Excess interest spread (EIS): EIS is the difference between the actual yield of the underlying assets and the yield promised to investors.
Example: If the asset pool yields 10% but investors are paid 8%, the remaining 2% forms the EIS.
EIS can either be retained by the seller or locked into a bankruptcy-remote spread account. It acts as the first line of defense against payment shortfalls and is the most common internal credit enhancement in Indian securitisations.

B. External credit enhancement
External enhancements are provided by the originator or third parties, introducing counterparty risk but improving investor confidence. The two primary forms are:
   a. Cash collateral: A cash-collateral account holds liquid assets (often money market instruments) equivalent to at least one instalment of expected cash flows. This collateral is bankruptcy-remote and set up at the time of issuance to cover payment shortfalls.
   Rating agencies in India mandate cash collateral for securitisation deals, adding to originators' transaction costs.
   b. Guarantee facility: A guarantee facility is an unfunded, unconditional, and irrevocable commitment by the originator or a third party to cover payment shortfalls. The strength of the guarantee depends on the credit rating of the guarantor and the extent of coverage. Unlike cash collateral, a guarantee facility does not require upfront funding, making it a cost-effective enhancement tool

As per a study conducted by the Asian Development Bank[46], key success factors for securitisation of infrastructure loans will include the following:

1. Asset selection: Assets included in the transaction must meet the following criteria:
   a. Operational maturity: Only fully operational assets with at least one year of stable performance should be considered to ensure investor confidence.
   b. Homogeneity: Assets should have similar credit risk, tenure, and payment structures to enable predictable cash flows and timely investor payouts.
   c. Adequate scale: The asset pool must be sufficiently large and diversified to enhance marketability and provide risk mitigation through scale.

2. Credit enhancement: To align with the risk-return expectations of institutional investors, external credit enhancement is essential. Given the nascent stage of India's securitization market, commercial providers may hesitate to offer such guarantees. Thus, credit support can be:

[46] Securitization in India: Managing Capital Constraints and Creating Liquidity to Fund Infrastructure Assets (Romero-Torres et. al)

a. Provided by the originator, leveraging its balance sheet strength; or
b. Offered by a government-backed entity, acting as a market maker and intermediary.

3. Interest rate risk management: Infrastructure loans in India are typically linked to floating rates, which do not align with the fixed-rate preference of institutional investors. In the absence of a developed interest rate swap market, interest rate risk can be managed by:
    a. Originators, who can offer fixed returns to investors for a fee, leveraging their alignment with base rates;
    b. Investors, through higher coupons that reflect interest rate risk;
    c. Government-backed entities, offering fixed-rate guarantees alongside credit enhancement.
    d. Alternatively, the securitization trust may renegotiate fixed-rate terms with developers, post-sale. While full renegotiation may be challenging, even partial adjustments can help mitigate risk.

4. Institutional oversight: Robust monitoring mechanisms are essential to maintain asset quality. This can be achieved through:
    a. Infrastructure development institutions holding the securitized paper, taking on a monitoring role; or
    b. A dedicated, independent monitoring authority, established during the transaction phase.

5. Secondary market development: Given the long-term nature of infrastructure-backed securities, a secondary market is vital to provide liquidity and exit options for investors. In the initial stages, pass-through certificates (PTCs) are likely to be privately placed with institutional investors, requiring regulatory and policy support to gradually build market depth.

Regulatory challenge

In November 2024, SEBI rolled out a consultation paper[47], to re-look the SEBI (Issue and Listing of Securitised Debt Instruments and Security Receipts) Regulations, 2008 in order to align them with RBI's Securitisation of Standard Assets Directions as well as to update the SDI Regulations with the latest global best practices. Below is an analysis of the potential impact and challenges of each relevant recommendation for infrastructure securitisation in India.

1. No obligor shall have more than 25% exposure in the asset pool.

    Impact: This rule prohibits single-obligor transactions, effectively disallowing single asset securitisation structures that are common in infrastructure financing globally. It compels banks and originators to create diversified loan pools with exposure spread across multiple obligors, which can enhance credit quality and reduce concentration risk for investors.

    Challenges: Infrastructure projects are typically large-ticket, long-tenure loans with unique characteristics, often financed individually. Aggregating multiple such loans into a single pool with no obligor exceeding 25% exposure may prove difficult. Many infrastructure lenders

[47] Consultation paper on review of SEBI (Issue and Listing of Securitised Debt Instruments and Security Receipts) Regulations, 2008

(especially public sector banks and NBFC-IFCs) have concentrated exposure to a few large players, making diversification of obligors within the pool a structural challenge. This rule may limit innovation in project-specific securitisation structures, such as those built around a marquee toll road or airport asset.

2. Obligors must have a track record of operations of 3 financial years for the receivable being securitised

   Impact: This enhances the credit profile of the pool by ensuring that only mature, tested business models and receivables enter securitised structures. Encourages discipline among borrowers, promoting operational transparency and financial health over time.

   Challenges: However, this will exclude newly operational infrastructure assets or greenfield projects from securitisation, even if they have signed long-term contracts (e.g., PPAs or toll agreements) that assure cash flow stability. Further, it could hinder securitisation of projects developed under newer government initiatives (like Gati Shakti or Smart Cities) that are still ramping up operations. Lastly, it may delay the monetisation of performing assets by originators looking to recycle capital via securitisation.

3. Originator and obligor must have a business relationship of at least 3 years.

   Impact: This requirement ensures that the originator has had sufficient time to assess the obligor's financial behaviour and operational performance, improving due diligence and credit evaluation. It can enhance investor confidence, knowing there is a long-standing relationship between the lender and borrower.

   Challenges: Restricts securitisation of newer loans or recently onboarded obligors, even if they are high-quality entities or SPVs backed by strong sponsors. Limits participation by newer lenders, such as NaBFID or recently established NBFCs, who may not yet have a three-year relationship with potential obligors.

While the SEBI Working Group's recommendations were grounded in prudential risk management and align with global best practices, they posed practical constraints for infrastructure securitisation in India.

On 5th May, 2025, SEBI notified amendments in the SDI Regulations wherein it accepted all the above 3 proposals with the exception that track record requirements under 2 and 3 above shall not apply to a securitised debt instrument where the originator is an entity regulated by the RBI.

Given the capital-intensive and long-gestation nature of infrastructure projects, these rules may need to be adapted or phased in with carve-outs or exemptions (e.g., for PPP projects, InvITs, or operational assets with long-term contracts) to enable a viable securitisation market to emerge in the infrastructure space

National monetisation pipeline

The National Monetisation Pipeline (NMP), aligned with the National Infrastructure Pipeline (NIP), was launched to boost investments in infrastructure between FY2022 and FY2025[48]. With the NIP targeting an outlay of ₹111 trillion[49], the NMP aimed to contribute around 14% of the central government's share by monetising existing public assets. Announced in the Union Budget 2021–22, the intention behind NMP was to monetize existing public assets such as toll roads, pipelines, telecommunications networks, airports etc. Examples include the monetization of several road bundles by NHAI through its InvIT, long-term lease to private players for operation of airports, monetization of transmission assets by PowerGrid. InvITs are one of the means of achieving this monetisation. Securitisation could be another.

The concept of the NMP revolves around asset monetization, which is defined as the transfer of revenue rights of core infrastructure assets owned by the Government to the private sector for a limited duration. A critical aspect of the NMP is that it is not privatization. The ownership of the assets continues to remain with the Government, and these assets are intended to be handed back to the public authority at the end of the contracted transaction life. This distinction is important as it potentially leads to greater public acceptance compared to outright disinvestment, as there is no permanent transfer of ownership.

The NMP encompasses a wide array of infrastructure sectors that are crucial for the country's development. These sectors include Roads, Transport and Highways, Railways, Power, Pipeline and Natural Gas, Civil Aviation, Shipping Ports and Waterways, Telecommunications, Food and Public Distribution, Mining, Coal, Housing and Urban Affairs, and even Hospitality and Sports Stadiums.

The NMP uses a mix of direct contractual instruments and structured financing models to monetise public assets. Direct methods include PPP concessions, Operate-Maintain-Transfer (OMT) or Toll-Operate-Transfer (TOT) models for highways, Operate-Maintain-Develop (OMD) models for airports, and long-term leases for assets like telecom towers and stadiums. Structured models like InvITs and Real Estate Investment Trusts (REITs) pool investor capital for returns from infrastructure or real estate. In sectors like mining, auctions and the Mine Development Operator (MDO) model are also considered. The choice of monetisation instrument depends on asset type, market conditions, investor profile, and the desired level of control. Monetisation proceeds can come as upfront payments or investments by private players, allowing flexible strategies tailored to different assets and investor preferences.

NMP vs Securitisation

The NMP and securitisation are both financial mechanisms that aim to unlock value from existing assets, yet they differ in structure, purpose, and risk allocation. NMP is a government-led initiative to monetize public infrastructure assets by transferring operational rights to private players while retaining asset ownership. It seeks to generate upfront capital for infrastructure development through long-term concessions without creating new liabilities or transferring ownership.

In contrast, securitisation is a market-driven financial technique involving the pooling of income-generating financial assets (like loans or receivables) and selling their future cash flows to investors through tradable securities. This allows originators to raise funds, transfer credit risk, and improve

[48] National Monetisation Pipeline (Niti Aayog)
[49] *Ibid.*

balance sheet efficiency. While NMP is typically applied to large-scale physical infrastructure and aims to attract long-term institutional investors, securitisation is broader in scope and appeals to a diverse investor base through structured instruments offering varying levels of risk and returns.

Aspect	National Monetisation Pipeline	Securitisation
Primary objective	Unlock value from public infrastructure for re-investment	Raise capital and transfer risk via asset backed securities
Asset type	Physical infrastructure (road, airports, pipelines etc.)	Financial assets (loans, receivables)
Ownership transfer	No - only revenue rights transferred temporarily	Yes - “true sale” to SPV
Duration	Fixed concession period (often long term)	Permanent sale or until maturity of the securities
Risk transfer	Operational and revenue risk borne by concessionaire	Credit, interest rate and prepayment risk passed to investors
Investor base	Long-term institutional investors	Wide range - banks, insurance funds etc
Asset control	Retained by the government. Reverts post concession	Lost by originator; SPV manages repayment structure
Structure used	PPP concessions, InvITs, BOT, EPC models etc	Asset backed securities, tranching, SPV

Figure 21[23]: Difference between National Monetisation Pipeline and securitisation

Through the NMP, the government is intending to monetize public assets, the method selected by the government may be different such as InvITs or infrastructure bonds by public sector banks. As discussed, securitisation could also be one of the means to monetise public assets.

InvITs as a type of infrastructure cashflow securitisation

InvITs are innovative pooled investment vehicles introduced to democratize access to infrastructure investments for both institutional and retail investors. Designed to channel long-term capital into core infrastructure sectors, InvITs allow investors to participate in income-generating infrastructure assets such as roads, highways, power transmission lines, gas pipelines, and renewable energy projects.

Although still a relatively new asset class in India, InvITs have steadily gained traction since their introduction. The concept was formally operationalized with the registration of the first InvIT in April 2017. As of March 2024, 24 InvITs have been registered with SEBI, reflecting increasing investor confidence and market maturity.

Evolution and rationale behind InvITs

Before InvITs, investor exposure to the infrastructure sector was largely limited to purchasing equity in infrastructure companies or investing in infrastructure-focused mutual funds. However, given the capital-intensive nature of infrastructure development and the limited financing avenues available to developers, InvITs emerged as a strategic alternative to address India's infrastructure financing gap.

The key objectives behind introducing InvITs include:

a. Providing long-term refinancing for operational infrastructure projects
b. Releasing locked-in capital for infrastructure developers, enabling reinvestment into new projects
c. Replacing high-cost, short-term debt with long-tenure, low-cost capital
d. Reducing bank exposure to infrastructure loans and creating fiscal headroom for fresh project funding

How InvITs Work

Under the InvIT framework, infrastructure developers transfer operational infrastructure assets into a SPV, often held through a holding company. This SPV is then managed by a trust which issues units to investors. The capital raised from investors is used to repay existing debt or finance greenfield projects.

Investors receive returns in the form of regular distributions, derived from net cash flows generated by the underlying assets such as toll collections, transmission charges, or annuity payments. SEBI regulations mandate that at least 90% of net distributable cash flows be distributed to unit holders, ensuring consistent income.

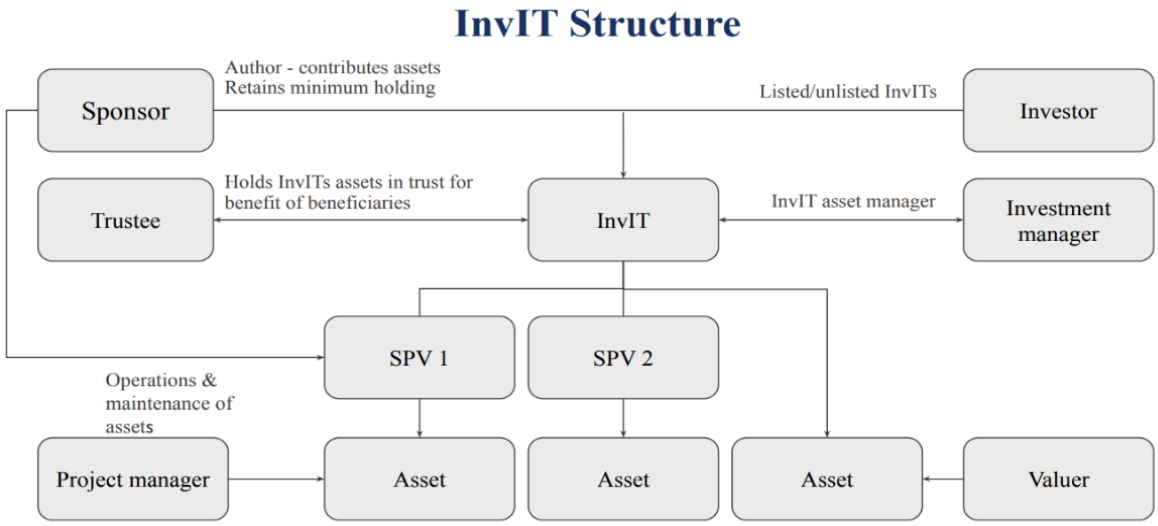

Figure 2224: Typical structure of an InvIT

Benefits for Investors:

a. InvITs offer several advantages that make them an attractive investment avenue:
b. Liquidity through market listing: Listed InvITs provide easy entry and exit options, enhancing liquidity for investors.
c. Low entry barriers: The minimum subscription amount has been reduced to ₹10,000–₹15,000 (from the earlier ₹1 lakh), encouraging participation from retail investors.
d. Stable, predictable cash flows: With underlying assets being operational and revenue-generating, InvITs offer relatively stable and consistent returns.

e. Diversification and reduced risk: Investors gain fractional ownership in diversified infrastructure portfolios, reducing concentration risk for developers and investors alike.
f. Tax efficiency: Under certain conditions, InvITs offer pass-through status for income distribution, minimizing tax leakage.

Most InvITs launched to date have been sponsored by private sector infrastructure developers, with public sector participation gradually increasing. Institutional investors such as sovereign wealth funds, pension funds, insurance companies, and foreign portfolio investors (FPIs) have shown growing interest in InvITs, given their alignment with long-term investment objectives

Since their inception in 2016, InvITs have emerged as a pivotal mechanism for channeling long-term capital into India's infrastructure sector. As of March 2024, the Securities and Exchange Board of India (SEBI) has registered 24 InvITs, reflecting a significant uptick in investor interest and confidence in this asset class.

The total Assets Under Management (AUM) of InvITs and Real Estate Investment Trusts (REITs) combined might surpass ₹7.5 lakh crore in FY 25[50], underscoring their growing prominence in the Indian financial landscape. This growth trajectory is indicative of the robust appetite among both domestic and international investors for stable, yield-generating infrastructure assets.
A significant portion of this capital has been directed towards operational projects in sub-sectors such as highways, power transmission, and renewable energy. The period between 2020 and 2023 witnessed a surge in registrations, with 11 out of the 20 InvITs being registered during this timeframe, highlighting the accelerating momentum in this space.

Investor enthusiasm is further evidenced by the substantial fundraising activities in recent years. In the fiscal year 2023-24, InvITs and REITs collectively raised ₹17,116 crore, marking a 14-fold increase compared to the previous year. This surge is attributed to the attractive returns and the structured, transparent nature of these investment vehicle

InvITs can be considered a form of infrastructure cash flow securitization due to the following reasons:

1. Pooling of assets: InvITs pool together revenue-generating infrastructure assets, such as toll roads or power transmission lines, which are expected to produce predictable cash flows.
2. Issuance of units: Similar to the issuance of securities in traditional securitization, InvITs issue units to investors. These units represent fractional ownership in the underlying infrastructure assets.
3. Cash flow distribution: The cash flows generated by the infrastructure assets (e.g., toll collections, tariffs) are collected by the InvIT and, after deducting operational expenses, a significant portion (at least 90% of the net distributable cash flow for listed InvITs) is distributed to the unit holders as dividends.
4. Monetization of future revenues: By investing in InvITs, investors are essentially investing in the future cash flows of the infrastructure projects. This allows the original developers or owners of these assets to monetize their investments and free up capital for new projects.

[50] AUM of InvITs, REITs seen topping Rs 7.5 lakh crore next fiscal (Crisil Ratings)

Therefore, InvITs function as a mechanism to securitize the future revenue streams from infrastructure assets, making them accessible to a wider pool of investors in a liquid and regulated manner.

Infrastructure sector	Future flow
Power	Receivables from bulk consumer
	Meter rentals
	Transmission tariff receivables from long-term customers
Telecom	Phone rentals
	Lease receivables from optical fibres
	Lease receipt from active or passive telecom infrastructure such as telecom towers
	Rentals/user charges from landing station in the case of telecom cable sea link
Transport infrastructure	Toll collection from commercial vehicles
	Stowage and loading revenues levied on ships
	Landing and parking fees for airports
	Airline ticket receivables.
	Lease receipt from containers/rolling stock
Coal, oil and gas	Revenue from sale of coal, oil, and gas.
	Royalty from mining and exploration
Urban infrastructure	Property tax collection by urban local bodies.
	User charges from a common effluent treatment plant.
	Lease receipt from infrastructure assets built using the financing

Figure 23[25]: Future flow securitisation opportunities in infrastructure sector
Source: Securitization and Credit Enhancement for Catalyzing Infrastructure Financing

Comparison of InvITs with traditional securitisation

While InvITs share some similarities with traditional securitization, there are key differences between the two:

Feature	InvITs	Traditional Securitisation
Underlying Assets	Primarily operational infrastructure assets (roads, power plants, telecom towers, etc.) generating long-term, stable cash flows	Can include a wide range of financial assets like auto loans, mortgages, credit card receivables and potentially infrastructure loans
Structure	Established as a trust with a defined structure involving a Trustee, Sponsor(s), Investment Manager, and Project Manager	Typically involves a SPV, often a trust, which purchases the assets from the originator and issues securities to investors.
Regulatory Framework	Primarily governed by SEBI (Infrastructure Investment Trusts) Regulations, 2014	Regulated by RBI guidelines on securitization of standard assets and SEBI (Issue and Listing of Securitised Debt Instruments and Security Receipts) Regulations, 2008
Investment Objective	Primarily focused on generating stable and predictable income through regular distributions (dividends) from operational infrastructure assets	Can have various objectives depending on the underlying asset class and the structure of the securitization, including liquidity enhancement for originators and offering diverse risk-return profiles for investors
Investor Base	Open to both institutional investors and increasingly accessible to retail investors through public listings with lower minimum investment amounts	Historically dominated by institutional investors, although regulations are evolving to encourage broader participation
Risk Profile	Generally considered to have a different risk profile compared to traditional securitized assets, often linked to the operational and economic risks of infrastructure projects	Risk profile varies significantly depending on the type and quality of the underlying assets

Figure 24[26]: Differences between InvITs and traditional securitisation

What is the relevance of infrastructure securitisation, if InvITs gain prominence?

Both InvIT and infrastructure securitisation are meant to monetize infrastructure assets. It is not a zero-sum game since both complement each other rather than substituting each other. One can argue that InvITs are better since they have a scope for retail participation as well. Further, single asset monetisation is possible by way of InvITs. However, InvITs may not achieve the scale which infrastructure securitisation can achieve. Securitisation excels at unlocking value from future cash flows without relinquishing asset ownership. Together, they offer a flexible and efficient capital recycling toolkit critical to meeting India's growing infrastructure needs.

Infrastructure bonds

Infrastructure bonds are financial instruments specifically designed to attract capital for long-term infrastructure development. These bonds help finance essential public facilities such as roads, railways, ports, energy systems, and utilities. Globally, infrastructure bonds vary in form—ranging from municipal special-purpose bonds to corporate-issued instruments. Among the leading markets for infrastructure bonds are the United States, India, Australia, Chile, and Kazakhstan[51]. When issued, the bond proceeds fund project planning, construction, and maintenance. Post-completion, revenues from user fees or tolls are used to repay bondholders. These cash flows serve as collateral, and terms like interest rates and maturity are clearly defined, offering transparency and predictable income to investors.

Infrastructure bond issuances face significant challenges that hinder fundraising. A key issue is the low credit ratings of early-stage projects, often rated BBB or below, deterring investors. High perceived risks—such as revenue unpredictability, regulatory barriers, construction delays, and cost overruns—further reduce attractiveness. Cash flows tied to user charges like tolls or fares add to uncertainty. Moreover, the long tenures of 10–30 years clash with investors' preference for shorter horizons. Limited participation from institutional investors, who favour high-rated, stable-return assets, exacerbates the problem.[52]

As per the National Infrastructure Pipelines, the total investment target was set at INR 111 trillion (USD 1.34 trillion) for the period between FY 20 and FY 25; and only 6-8% (INR 6.66-8.88) of the such targets were expected to be met by bond issuances. Reliance on bond markets is planned to the extent of 6% to 8% (INR 6.66 – 8.88 trillion). As per the said estimates, the average annual issuances should have been INR 1.480 trillion. However, between FY18 and FY22, the issuance of infrastructure bonds has been at INR 5.37 trillion, that is, an average of INR 1.07 trillion per annum, that is a shortfall of ~30% compared to the target.[53]

Partial credit enhancement (PCE)

Partial Credit Enhancement (PCE) is a risk-mitigating financial tool where a third party provides limited financial backing to improve the creditworthiness of a debt instrument. It ensures that investors are partially protected against default risk, making it easier for issuers to raise funds at better terms.[54] Partial

[51] Infrastructure Bonds (Nikita Bundzen, Cbonds)
[52]https://vinodkothari.com/2025/02/partial-credit-enhancement/
[53] *Ibid.*
[54] *Ibid.*

Credit Enhancement (PCE) significantly aids infrastructure bond issuances by improving their credit ratings. When a bank or financial institution provides support—such as guarantees or reserve funds—it lowers the bond's default risk. This enhanced credit profile attracts more investors. For instance, a BBB-rated bond can be upgraded to A with 20% PCE, or to AA with 50% PCE. Higher ratings increase investor confidence and broaden the investor base, especially among institutions like pension funds and insurers. Further, safer bonds are offered at lower interest rates than riskier ones, therefore, PCE can be used to reduce the cost of borrowings for an infrastructure bond issuer.

Recognizing the potential in PCE structures for infrastructure bonds, the Honorable Finance Minister during the announcement of the Union Budget 2025–26 introduced a pivotal reform aimed at deepening India's infrastructure financing landscape: the establishment of a government-backed PCE facility for corporate bonds linked to infrastructure projects. This facility, to be managed by the National Bank for Financing Infrastructure and Development (NaBFID), is intended to improve the credit quality of bonds issued by infrastructure companies, thus attracting a broader base of investors and encouraging greater private sector participation.

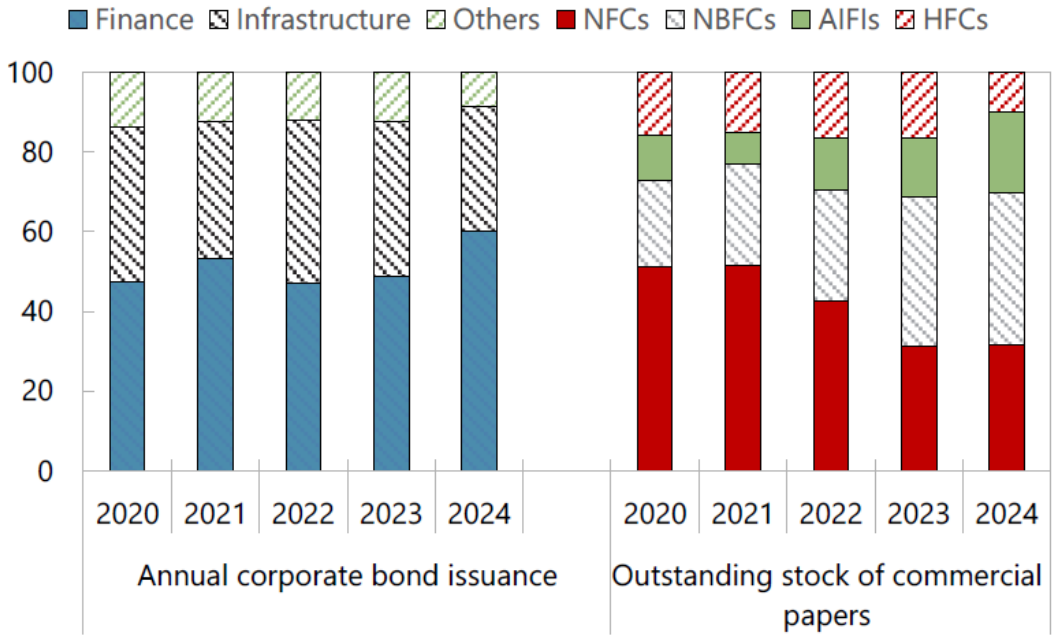

Figure 25[27]: Structure of corporate bond market in India by issuer type (in % of total)
Source: IMF's Financial sector assessment report 2025

Understanding the PCE mechanism

The PCE facility functions as a credit enhancement tool, where NaBFID (or a participating bank) provides an irrevocable, non-funded guarantee to back the issuer's repayment obligations under specified stress events—such as project failure, insolvency, or financial distress. This support enhances the credit rating of the bond, thereby increasing its appeal to long-term institutional investors like insurance firms and pension funds, which typically require high-rated instruments ('AAA' or equivalent).

However, the extent of the enhancement is capped: a maximum of 20% of the bond issue size can be covered by a single bank, and no more than 50% in aggregate by all banks combined. These thresholds are governed by the Reserve Bank of India's 2015 and 2016 circulars on partial credit enhancement to corporate bonds.

Eligibility and Operational Terms

According to RBI regulations, banks may only offer PCE for bonds that are already rated at least 'BBB–'. They must also:

a. Limit exposure to 5% of their single/group borrower cap.
b. Hold capital reserves equivalent to the difference in capital required between the bond's pre-enhanced and post-enhanced ratings, in line with Basel III norms.
   For example, if a ₹100 bond is upgraded from 'BBB' to 'AA', and the required capital reserve drops from ₹9 to ₹2.70, the bank must still set aside ₹6.30 to account for the enhancement risk.

Additionally, a 2017 RBI circular mandates that bonds under the PCE facility must be rated by at least two credit rating agencies, and the lower of the two ratings must be used for regulatory capital computation. This further increases compliance and operational complexity for participating banks.

Implementation Challenges

Despite its sheen, PCE's uptake has been limited due to several structural constraints. Key limitations include:

PCE limits: A single bank can provide PCE up to 20% of the bond size, with an overall cap of 50% from all banks combined.

Eligibility: Only bonds rated BBB- or above pre-enhancement qualify.

Capital requirement: A major deterrent is the capital requirement for banks. Instead of holding capital only for the PCE portion, banks must maintain capital based on the difference in risk weights before and after enhancement—calculated on the full bond size.
For example, if a ₹100 crore BBB-rated bond (100% risk weight) is upgraded to AA (30% risk weight) through ₹20 crore of PCE, the capital required is ₹6.3 crore (i.e., ₹9 crore minus ₹2.7 crore). This capital must be maintained until the bond's outstanding principal falls below the PCE amount, even though the actual risk exposure declines over time.

Since most infrastructure bonds are amortising and back-ended in risk, this extended capital lock-up increases costs for banks, reducing the scheme's attractiveness and making it commercially unviable in many cases.

In short: Banks are discouraged from providing PCE because they're required to hold capital for longer than the actual risk justifies, making the scheme costly and unattractive.

How can PCE be made more attractive?

To make the PCE framework more effective and commercially viable several reforms are needed:

1. **Expanded applicability:** Currently, the PCE framework is limited to banks. For entities such as NaBFID to participate in providing PCE, it should receive explicit approval from the RBI, even if only procedural. This formal recognition would ensure regulatory clarity and enable NaBFID to operationalize its role in credit enhancement smoothly.

2. **Greater flexibility in PCE limits:** The RBI's current framework restricts a single entity to providing only 20% of the total permissible 50% PCE for any bond issuance. This limitation is both impractical and inefficient for infrastructure finance, where a 20% PCE may not suffice to secure a meaningful credit upgrade. Removing this sub-limit would:
    a. Allow NaBFID (or any eligible institution) to provide the entire 50% PCE if needed,
    b. Enhance deal structuring flexibility,
    c. Reduce delays in coordinating multiple PCE providers, and
    d. Lower transaction costs and administrative overhead.

3. **Rationalised capital requirements:** The existing capital treatment—where banks must hold capital based on the full bond amount before and after enhancement—makes PCE transactions cost-prohibitive. A more efficient alternative is to adopt the Basel III SEC-ERBA (Securitisation External Ratings-Based Approach). This approach:
    a. Aligns capital requirements with actual credit exposure rather than the full bond size,
    b. Bases capital on the credit rating of the enhanced tranche and the degree of exposure,
    c. Better captures the time-varying nature of default risk, especially for amortising bonds with back-ended risk profiles, and
    d. Supports more sustainable and risk-sensitive capital treatment.

4. **Enable credit risk transfer:** The PCE framework should explicitly allow credit risk transfer by the PCE provider. This would enable institutions like NaBFID to offload part of their exposure through reinsurance or capital market instruments, thereby:
    a. Reducing the capital burden on the PCE provider,
    b. Lowering the cost of credit enhancement for borrowers,
    c. Encouraging more widespread adoption of PCE in infrastructure financing.

Case studies

Project Bauhinia

How Hong Kong Pioneered Its First $400M Infrastructure Securitisation

Background: In May 2023, the Hong Kong Mortgage Corporation Limited (HKMC) initiated a landmark transaction: Hong Kong's first-ever securitisation of infrastructure loans. The deal was structured through a special purpose vehicle named Bauhinia ILBS 1 Limited, which issued US$404.8 million worth of Infrastructure Loan-Backed Securities (ILBS). These securities were backed by a diversified pool of 35 project and infrastructure loans linked to 25 projects across 12 countries and nine sectors.

Five classes of investment-grade rated notes—Class A1-SU, A1, B, C, and D—were issued, totaling US$364.4 million along with a subordinate class notes totalling US$404.4 million (10% of the issuance). All notes were listed on the Hong Kong Stock Exchange, increasing their accessibility and market visibility.

Class	Principal Amount	Issue Price	Initial Interest Rate[2]	Maturity Date	Ratings (Moody's)
Class A1-SU Notes	US$100,000,000	100.0%	Benchmark + 1.60%	19 October 2044	Aaa (sf)
Class A1 Notes	US$199,600,000	100.0%	Benchmark + 1.70%	19 October 2044	Aaa (sf)
Class B Notes	US$36,500,000	100.0%	Benchmark + 2.50%	19 October 2044	Aa1 (sf)
Class C Notes	US$18,250,000	100.0%	Benchmark + 3.95%	19 October 2044	A2 (sf)
Class D Notes	US$10,000,000	100.0%	Benchmark + 5.95%	19 October 2044	Baa3 (sf)
Subordinated Notes	US$40,432,000	100.0%	Benchmark + 6.00%	19 October 2044	N/A

Figure 26[28]: Overview of the notes issued
Source: Information memorandum

HKMC took on several critical roles: it acted as sponsor, collateral manager and risk retention holder. It also held the unrated subordinated notes (the riskiest part of the structure) and provided a sponsor loan to help the issuer meet its first interest payments, ensuring stability at launch.

A unique feature of this deal was the US$100 million Class A1-SU sustainability tranche, backed by green and social infrastructure assets. The Asian Infrastructure Investment Bank (AIIB) participated as a key anchor investor, in line with its mandate to encourage private investment in sustainable infrastructure.

Summary of the portfolio: Bauhinia ILBS 1 portfolio consisted of 35 infrastructure loan obligations linked to 25 individual infrastructure projects, with an aggregate outstanding commitment amount of US$404.8 million. On average, each loan obligation had an outstanding commitment of approximately US$11.6 million, while the average outstanding amount per infrastructure project stood at US$16.2 million. The portfolio had a weighted average life of 5.7 years and offers a weighted average spread of 2.33% over the benchmark rate, reflecting the expected risk-return profile of the underlying assets.

Kind of credit enhancements provided: In the Bauhinia ILBS 1 transaction, several credit enhancement mechanisms were implemented to strengthen the credit quality of the issued securities and offer additional protection to investors:

1. **Over-Collateralisation:** The transaction was structured with significant over-collateralisation, where the total value of the underlying loan portfolio exceeded the total principal amount of the issued notes. This surplus collateral serves as a cushion against potential losses, thereby enhancing the overall creditworthiness of the securities. Overcollateralisation was in the range of 110%-120% depending on the class of notes. Further, coverage tests with triggers were provided to determine whether there should be any change in the payment priority or not among the class of notes.

Test Number	Test Description	Max/Min	Trigger	Current Result (A/B)	Adjusted Collateral Principal Amount / Interest Coverage Amount (A)	Principal Amount Outstanding for Relevant Classes of Notes / Scheduled Interest Payments on Relevant Classes of Notes (B)	Pass / Fail
1	Class A Minimum Collateralisation Test	Minimum	102.5%	141.3%	360,125,500.80	254,942,285.10	Pass
2	Class A/B Overcollateralisation Test	Minimum	115.5%	123.6%	360,125,500.80	291,442,285.10	Pass
3	Class C Overcollateralisation Test	Minimum	110.3%	116.3%	360,125,500.80	309,692,285.10	Pass
4	Class D Overcollateralisation Test	Minimum	108.1%	112.6%	360,125,500.80	319,692,285.10	Pass
5	Class A/B Interest Coverage Test	Minimum	110.0%	140.9%	12,699,262.92	9,014,825.36	Pass
6	Class C Interest Coverage Test	Minimum	107.5%	129.9%	12,699,262.92	9,778,164.46	Pass
7	Class D Interest Coverage Test	Minimum	102.5%	123.3%	12,699,262.92	10,296,432.46	Pass

Figure 27[29]: Coverage tests as on 31.03.2025
Source: Payment date report April 2025[55]

2. **Subordination Structure:** The issuance comprised five classes of notes arranged in a hierarchical structure. This tiered approach ensures that lower-ranking tranches absorb losses first, providing a layer of protection to the senior noteholders, thus safeguarding the higher-ranking securities from potential defaults.
3. **Retention of Subordinated Notes by the Sponsor:** HKMC, in its role as the sponsor, retained the unrated subordinated notes which amounted to a total of around 10% of the total issuance i.e. USD 40 Million. This retention ensures that the sponsor's interests are aligned with those of the investors.
4. **Sponsor Loan for Initial Interest Payments:** To ensure the timely payment of interest on the rated tranches during the early phase of the transaction, HKMC provided a sponsor loan of USD 3.5 Million at the closing. This financial support helped stabilize the transaction since it gave liquidity support to the issuer in meeting interest payments on the rated notes on the first payment date.
5. **External Credit Enhancements:** Approximately 3.8% of the portfolio was supported by external credit enhancements, including guarantees from export credit agencies or commercial insurance. These third-party guarantees improve the recovery prospects of the underlying loans, offering additional protection to investors in case of loan defaults.

Sub-Sectors	Number of Infra Loan Obligations	Aggregate commitment amount outstanding (US$ million)	Percentage of aggregate commitment amount outstanding in Portfolio
Power-Electricity Contracted (Coal/Gas)	4	83.7	20.7%
LNG	9	69.7	17.2%
Schools/Education	2	64.0	15.8%
Oil	8	59.7	14.7%
Power –Renewables: Solar	6	47.6	11.8%
Regulated Telecom	3	47.6	11.7%
Gas distribution or transmission	1	15.0	3.7%
Power –Renewables: Wind	1	12.2	3.0%
Power –Renewables: Hydro	1	5.3	1.3%

Figure 28[30]: Sub-sectors to which the portfolio loans were related to
Source: Information memorandum

[55]https://www.hkmc.com.hk/files/page/100/e_Bauhinia%20ILBS%201%2020250331.pdf

Location of infrastructure project*	Aggregate commitment amount outstanding (US$ million)	Percentage of aggregate commitment amount outstanding in Portfolio
United Arab Emirates	82.8	20.5%
India	47.6	11.8%
Brazil	46.8	11.6%
Qatar	43.9	10.8%
China	43.1	10.6%
Saudi Arabia	31.0	7.7%
New Zealand	29.8	7.4%
Australia	22.8	5.6%
SE Asia 1	15.0	3.7%
United Kingdom	13.6	3.4%
Vietnam	12.2	3.0%
SE Asia 2	5.3	1.3%
Bangladesh	5.0	1.2%
Indonesia	3.0	0.7%
Guyana	2.9	0.7%

**Note: Infrastructure assets which are vessels have been categorised according to the location of the relevant offtaker*

Figure 2931: Geographical concentration of the portfolio
Source: Information memorandum

Key Dates	
Closing Date	30 May 2023
Latest Effective Date	Closing date
Payment Date and Payment Frequency	21 April and 19 October of each year
End of Non-Call Period	19 October 2026
End of Replenishment Period	19 October 2026
Legal Final Maturity	19 October 2044
Key Parties	
Issuer	Bauhinia ILBS 1 Limited
Collateral Manager	The Hong Kong Mortgage Corporation Limited
Trustee	DB Trustees (Hong Kong) Limited
Transaction Administrator	Deutsche Bank AG, Hong Kong Branch
Account Bank	Deutsche Bank AG, Hong Kong Branch
Joint Global Coordinators	ING Bank N.V., Singapore Branch, MUFG Securities Asia
Class	**Effective Subordination(%)**
A1 Notes	26.0
A1-SU Notes	26.0
B Notes	17.0
C Notes	12.5
D Notes	10.0

Figure 3032: Securitisation structure characterisitics
Source: Moody's new issue report for Bahunia ILBS 1

The asset pool mainly included senior secured project finance loans (80.8%), known for their strong recovery prospects, along with telecom and utility corporate loans (15.5%) and corporate-guaranteed

project loans (3.7%). Additionally, about 3.8% of the portfolio had credit support from export credit agencies or insurers, which further improved recovery outlooks.

A three-year replenishment period was built into the transaction. During this time, any early loan repayments or proceeds from asset sales could be reinvested into new eligible infrastructure loans—provided certain risk and rating tests were sAatisfied. After this period, the notes begin to amortize sequentially (senior tranches repaid first), ensuring a clear paydown structure.

To reduce risk, all loans and securities were denominated in U.S. dollars, removing any currency mismatch. Also, all the underlying loans mature before the legal final maturity of the transaction, helping to avoid extension risk

Key Strengths of the Bauhinia ILBS 1 Transaction

1. **High-quality collateral**: The loan portfolio primarily consists of senior secured project finance loans, which have historically demonstrated strong recovery rates in the event of default.
2. **Robust credit protection**: The transaction benefits from substantial initial over-collateralisation (approximately 135%), along with a clearly defined and investor-friendly priority of payments structure.
3. **No currency or maturity mismatch**: Both the underlying loans and the issued notes are denominated in U.S. dollars, mitigating currency risk. Additionally, all loans mature within the legal maturity of the transaction, reducing extension risk.
4. **ESG integration**: A dedicated US$100 million sustainability tranche (Class A1-SU) is backed by green and social assets, with anchor investment from the Asian Infrastructure Investment Bank (AIIB), reinforcing the transaction's sustainability credentials.

Key Risks and Considerations

1. **Unrated underlying loans**: None of the underlying loans carry external credit ratings. Instead, credit quality was assessed internally, introducing additional model and estimation risk.
2. **Project and sector concentration**: The portfolio includes exposure to a limited number of large infrastructure projects, with notable concentrations in the energy sector. This raises sensitivity to idiosyncratic project risks.
3. **Country risk exposure**: Around 30% of the portfolio is linked to jurisdictions with lower sovereign credit ceilings, including India and Brazil, making the structure more vulnerable to macroeconomic or political instability in these regions.
4. **Participation risk**: Approximately 18% of the portfolio is held through funded participations with HKMC or other rated banks. This introduces counterparty risk, as the issuer depends on these entities to enforce rights and manage borrower performance.
5. **Undrawn loan commitments**: Roughly 1.5% of the portfolio was undrawn at the time of issuance; however, liquidity for this exposure was fully pre-funded and set aside in a dedicated reserve.

Runway to Revenue

How Gatwick Airport used securitisation to secure £1.5 Billion

Gatwick Airport, the UK's second-busiest airport, was acquired by Global Infrastructure Partners (GIP) in 2009 from BAA Ltd. (now Heathrow Airport Holdings). Following the acquisition, GIP aimed to refinance the airport's existing debt and improve its capital structure through an innovative financial mechanism—Whole Business Securitization (WBS).

The Transaction: In 2011, Gatwick Airport executed a £1.5 billion securitization *via* Gatwick Funding Limited, issuing a series of secured bonds backed by the airport's entire business operations and revenue streams.

a. **Structure:** Whole Business Securitization
b. **Issuer:** Gatwick Funding Limited
c. **Size:** Approximately £1.5 billion
d. **Instrument types:** Fixed-rate and inflation-linked bonds
e. **Investors:** Long-term institutional investors (pension funds, insurers)

The securitization was backed by predictable and diversified revenues, including aircraft landing and passenger fees, retail and car park income and regulated and contractual revenue streams. These cash flows were ring-fenced to prioritize bondholder payments, enhancing the creditworthiness of the bonds.

Credit structure & covenants

The WBS structure included:

a. Investment-grade ratings from major rating agencies
b. Debt service coverage ratio (DSCR) maintenance requirements
c. Restrictions on additional borrowing

These credit enhancements lowered the risk profile, allowing Gatwick to access capital at more favorable rates.

Objectives & Outcomes

a. Debt refinancing: Replaced acquisition-related debt with structured, lower-cost capital
b. Capital investment: Funded airport upgrades, including terminal expansions and runway improvements
c. Financial stability: Achieved long-term, low-cost financing
d. Market confidence: Positioned Gatwick as a model for future infrastructure securitizations

Significance

Gatwick's securitization was a landmark deal in UK infrastructure finance, demonstrating the viability of using WBS for major transport assets. It highlighted how stable, regulated cash flows can be leveraged to attract institutional capital and deliver long-term funding efficiencyThe securitization of Gatwick Airport in the UK, utilizes a whole business securitization structure, with the issuance of bonds through a dedicated entity called Gatwick Funding Ltd. This structure involves securitizing the entire operating business of the airport and its associated cash flows, providing a comprehensive and robust collateral base for the investors in the issued bonds. This example highlights the use of a sophisticated structural framework for a mature and stable infrastructure asset in a developed market.