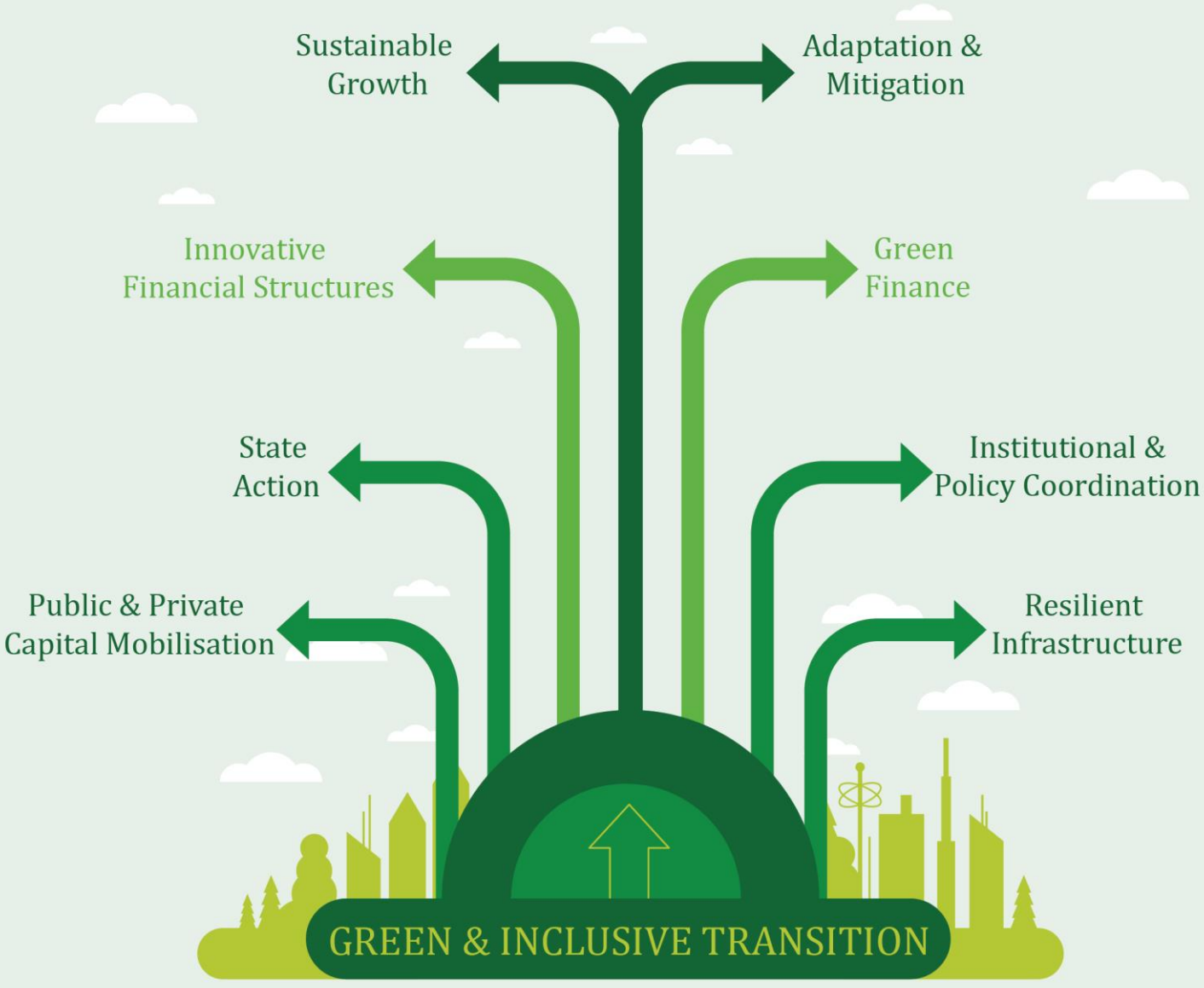
Financing Sustainable Transition in States

Policy Options and First Principles



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Climate Bonds INITIATIVE

In association with ESYA centre

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About the Report

Climate risks and disasters are real and have become more severe and frequent. It necessitates that infrastructure development - a precondition to economic growth - is climate proofed and sustainable.

States have a significant part to play in this endeavour as a large part of infrastructure is with states. While no state in India has carried out a comprehensive finance gap analysis, country level studies show a significant financing gap for the attainment of SDGs and Paris targets. Given the large financing gap and constrained government balance sheets, recalibration and augmentation of public and private capital at speed and scale will be a necessity. Many states are in the initial stages of understanding and responding to the financing challenge and opportunity presented by green and equitable transition.

The growing sustainable finance market presents new opportunities, but to capitalise those opportunities, a bouquet of policy options would need to be exercised, regulatory environment needs to be bolstered, practicing change in fiscal management would be necessary and first principles for states would need to be articulated and implemented.

Towards this endeavour the report is divided into five sections. The first section deals with finance gap analysis at the national level to establish the context, second section deals with emerging opportunities in the sustainable finance market, third section looks at how to expand the financial envelope through deployment of various innovative instruments, structures and institutions, and by collaborating with key national level institutions, the fourth section throws light on the need for Green Infrastructure plan at the state level and critical role of PSUs in green transition. The latter is explained through the example of energy sector. Finally, the last section is an articulation of the first principles and recommendations.

Acknowledgement

This report is an outcome of yearlong extensive research and consultations with domain experts, state government officials, infrastructure experts, public finance specialists and research organisations.

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1. Introduction

Green transition is imminent, and trillions of dollars are estimated for making this a reality. The current investment numbers suggest that the overall flow of finance is insufficient to meet climate and SDG goals. Numerous estimates indicate that India's total financing requirements for climate action could range from approximately 5 to 6 percent of the annual GDP by 2070. As per another estimate, an annual investment of about 2.5 percent of GDP is required to bridge the infrastructure gap by 2030.[1] This assessment, however, does not include investment required for mitigation and adaptation due to climate change. However, if that is accounted for, then the actual funding requirements are likely to be higher and in consonance with higher estimates suggested by various studies. (**See Table 1**)

Council for Energy, Environment and Water (CEEW) highlights that India would need cumulative investments of USD10.1tn to achieve net-zero emissions by 2070. These investments would mainly go into the power, industrial, and transport sectors but the majority i.e., USD8.4tn, would be required in the power sector alone. The shortfall highlighted in the report amounts to USD3.5tn to achieve the net-zero targets.[2]

Another report by Climate Policy Initiative (CPI) highlights that India needs approximately USD2.5tn by 2030 to fulfil the Nationally Determined Contributions (NDCs) while McKinsey suggests a decadal investment of around USD431bn by 2030.[3]

Table 1. A Macro Overview of Climate Finance Landscape

Organisation	Global Green Investment Requirements	India's Green Investment Requirements	
	NDCs by 2030	NDCs by 2030	NZ by 2050 or 2070
Estimates highlighted in RBI Report on Currency and Finance, 2023		Upwards of 2.5% of GDP by 2030 for Climate aligned Infrastructure.	5 – 6% of GDP by 2070 (may increase if NZ horizon is shortened)
Climate Policy Initiative, 2022[4]	USD4.5tn-USD5tn annually	USD170bn annually (2015-2030) Cumulative USD2.5tn by 2015- 2030	
McKinsey, 2022[5]		Cumulative USD1tn by 2030 (2.6% of GDP)	Cumulative USD7.2tn by NZ 2050 (3.5% of GDP) USD2tn by 2030-40 (3.1% of GDP) USD4.2 by 2040-50 (4.1% of GDP)

International Energy Agency, 2022[6]		USD160bn annually under Stated Policies Scenario (STEPS)	
CEEW, 2021		Cumulative USD542bn by 2030 (taking 2040 as peak emission year and 2070 as NZ year) Cumulative Decadal breakdown: 2030-40: USD0.89tn 2040-50: USD2.5tn 2050-60: USD2.8tn 2060-70: USD3.8tn	Total USD10.1tn by NZ 2070 Investment support of USD1.4tn needs to be mobilised (USD28bn per year from 2020 to NZ 2070)

The analysis conducted by all the aforesaid organizations reflects a preponderance of 'mitigation' strategies in energy (generation, transmission and distribution), transport, high emitting industrial sectors and green hydrogen. While absolutely critical, the locked in impacts of climate change make it fundamentally necessary to drive financing for adaptation and resilience; and loss and damages central to the sustenance and growth of the economy. **(See Table 2)**

Table 2. Preponderance of Mitigation over Adaptation

Organisation	Sectors/Areas Addressed	Focus
Climate Policy Initiative (CPI), 2022[7]	Green investments in Clean Energy (generation & access); Clean Transport (Low-emission Vehicles, Charging Infrastructure) & Energy Efficiency (Smart Grids green energy corridors, renovation & modernization of thermal power technologies, green buildings, renovation, upgradation, and modernization of existing building stock)	Mostly Mitigation
McKinsey, 2022	Green investments in power, automotive, aviation, steel, cement and agriculture along with technologies for carbon-capture usage and storage (CCUS), natural climate solutions (NCS), material circularity and green hydrogen	Mostly Mitigation
International Energy Agency (IEA), 2022	Green investments in Clean Energy & Grids that includes investment in renewable power, battery storage, renewables for end use, energy efficiency, EVs and chargers	Mostly Mitigation
CEEW, 2021	Green investments in electricity (generation, integration, transmission, distribution), hydrogen (production), and vehicles (manufacturing)	Mostly Mitigation

The Adaptation Gap Report, 2023, published by United Nations Environment Program (UNEP), reveals that although adaptation measures are funded internationally through Green Climate Fund, Global Environment Facility, Least Developed Countries Fund, Adaptation Fund and Special Climate Change Fund, developing countries together need at least USD215bn every year this decade to carry out meaningful adaptation measures.[8] In 2021, just about USD21bn went to

developing countries for adaptation projects, which was down from about 15% from previous years. Another report by National Institute of Public Finance and Policy (NIPFP) highlights that the external funding rate is lower for the developing countries and is dedicated for a specific purpose.[9] It is pertinent to highlight that several adaptation measures can also have a positive impact on mitigation of emissions and energy economics. However, it is not clear if the aforementioned studies take into account such correlations.

Pertinent to note that domestic sources account for majority of green finance with 87% and 83% in FY2019 and FY2020, respectively. Of these, private sector's contribution to finance has been 59% (INR157 thousand crores whereas the rest is public sector's contribution, evenly supported through Government Budgetary spends (Central and State) and PSUs at approximately 54% and 46% respectively.[10]

A report by the United Nations estimates that the direct costs of India's lack of disaster preparedness in the last two decades amounted to INR13.14tn (USD179.5bn). Extreme climate events have cost India over USD99bn in the last 50 years (UN 2020) and claimed close to 140,000 lives during this period according to the World Meteorological Department (WMO).[11] A Carbon Disclosure Project (CDP) analysis suggests that such events are likely to cost India INR7tn (USD100bn) and Indian banks over INR6tn (USD84bn) in the next five years.

McKinsey Global Institute estimates that climate change could cost 2.5% to 4.5% of India's GDP annually if not tackled timely, and climate models also predict that rapid changes in India's climate will increase stress on the country's natural ecosystems, agricultural output, and freshwater resources, as well as exacerbate infrastructure damage.

The cost of inaction gets compounded as the effect of climate risks are not always localized but easily get radiated across spatially and in different segments of the economy depending upon the severity of climatic events (**See Table 3**).

Table 3. Compounding effects of Climate Risks

Compounding of Climate Risks			
Direct First Order Effects		Indirect Second Order Effects	Spill Over Intra-economy and cross-border impact or contagion risks
Originate in sectors which are exposed to climate events more than others		Impact sectoral value chains at various levels	Impact arises from interactions between financial sector and trade (internal & external)
Acute Occurrence of extreme weather events	Chronic Gradual shifts in temperature and precipitation patterns		
Acute risks increase the risk profile of investments in Infrastructure while chronic also exacerbate acute risks		Can impact industrial productivity, supply chains, employment, inflation	Impacts resource availability across geographies

Report on Currency and Finance, RBI. (2023)

Thus, the imperative combines the challenge of steep decarbonisation, resilience and equity as India completes its development transformation. The target of 500 gigawatts of renewable energy (RE) capacity by 2030 cannot be achieved without the considerable participation of MSMEs, which are the backbone of economic activity in many states. Land use and agriculture, on which over 50% of Indians still depend, directly or indirectly, will need to become climate resilient. All sectors of the economy will churn simultaneously. Also, transitional sectors such as electricity and agriculture constitutionally lie in the concurrent and state lists making the role of states critical in steering and managing the transition.

In fact, the centre and states will need to evolve a comprehensive framework for coordinated action and demarcate their common and differentiated responsibilities. This is also enshrined in India's Nationally Determined Contributions and Long Term – Low Emission Development Strategy (LT-LEDS) which are essential pathways to achieve NDCs**. (See Table-4)**

Table 4. NDCs and Pathways

India's NDCs (Panchamrit)	Long Term - Low Emission Development Strategy (LT-LEDS) – Pathways to achieve NDCs[12]
• Reach 500 GW Non-fossil energy capacity by 2030 • 50 per cent of its energy requirements from renewable energy by 2030. • Reduction of total projected carbon emissions by 1bn tonnes from now to 2030. • Reduction of the carbon intensity of the economy by 45 per cent by 2030, over 2005 levels. • Achieving the target of net zero emissions by 2070	• Low Carbon Development of Electricity Systems Consistent with Enhanced Development Benefits • Develop an Integrated, Efficient, Inclusive Low-Carbon Transport System • Promoting Adaptation in Urban Design, Energy and Material-Efficiency in Buildings, and Sustainable Urbanisation • Promote Economy-Wide Decoupling of Growth from Emissions and Development of an Efficient, Innovative Low-Emission Industrial System • CO_2 Removal and Related Engineering Solutions • Enhancement of Forest and Vegetative Cover Consistent with Socio-Economic and Ecological Considerations. • Economic and Financial Aspects of Low-Carbon Development

It is important to note that for institutional intermediation and execution of India's LT-LEDS, a strong foundation is in place through existing extant agencies namely, the Executive Committee on Climate Change (ECCC) and the Inter-Ministerial Apex Committee for the Implementation of the Paris Agreement (AIPA). Going ahead, the LT-LEDS will be based on coordinated climate action that spans across several sectors and ministries, as well as all States and Union Territories, operating in a predictable, federalized structure of governance.[13]

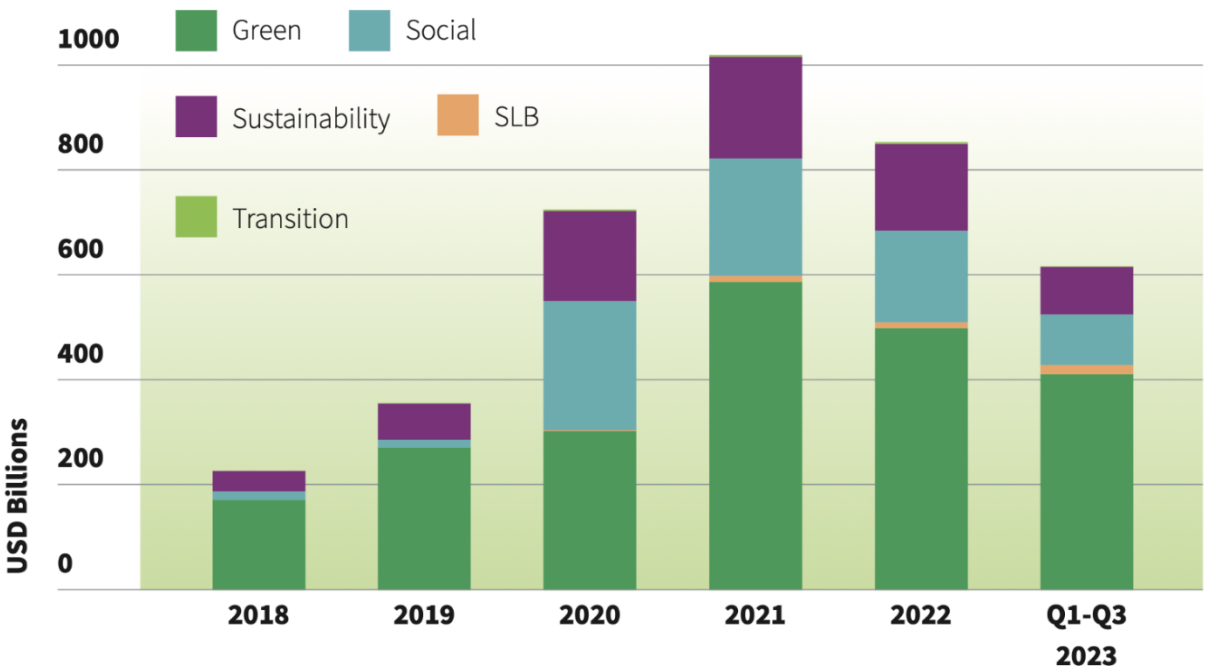
2. Emerging Financing Opportunities in Thematic Debt Market

NDCs and LT-LEDS provide a holistic framework for overall low carbon development, of which a large part will be driven by states. Therefore, required resources would need to be raised particularly considering limited public finance. As per the latest RBI report titled State Finances: A study of budgets (Revenue Dynamics and Fiscal Capacity of Indian States) 2023-24, outstanding liabilities may remain higher than 30% of gross state domestic product (GSDP) for many states.

With significant growth of Green, Social and Sustainability Bonds globally, new opportunities of cheaper finance through thematic bond market are available.

Figure 1 shows cumulative volumes of GSS+ debt reached USD4.2tn globally at the end of Q3 2023. The green theme contributed 67%, social bonds added 16%, sustainability bonds 14%, sustainability linked bonds 3%, and unscreened transition bonds made up the final 0.3%. Total GSS+ volumes reached USD858.5bn in 2022.

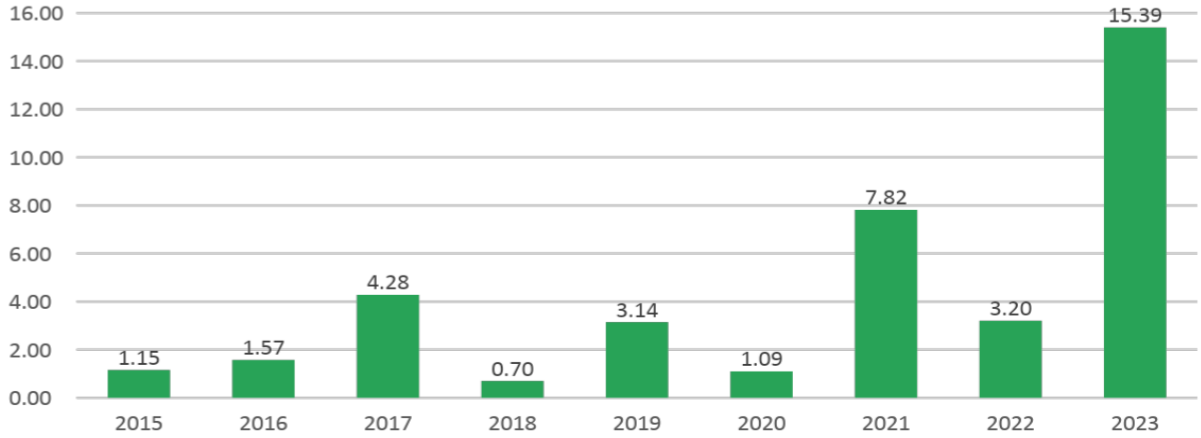
Figure 1. Opportunity in the Global sustainable thematic bonds market



Source: Climate Bonds Initiative

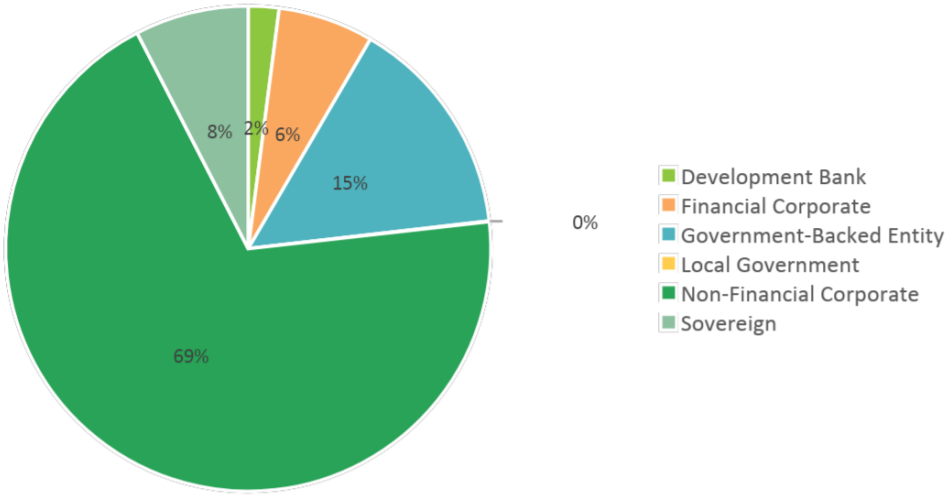
In India too, the growth of Green Bonds Issuance has seen a rapid growth as is highlighted in **Figure 2.** Cumulative Green debt stood at USD38.35 bn (2023) with Green Bonds amounting to USD23.52 bn & Green loans amounting to USD14.83bn.

Figure 2. State of Green Bond Isuances



Despite the overall promising growth of green bond issuances, public sector issuances remain limited. Figure 7 shows market composition by issuer type for 2023. A notable development is the issuance of the Indian sovereign green bonds. Financial Year 2022-23 marked the first Sovereign Green Bonds Issuance thus, setting the template for sub-sovereign action as well. This could materialise through a set of instruments, structures, and institutions.

Figure 3. Market Composition by Issuer Type,2023



Source: Climate Bonds Initiative

Table 5 below shows yield and spread of various financial instruments with respect to sovereign green bonds, highlighting the difference in the cost of borrowing.

Table 5. Yield and spread of various financial instruments with respect to sovereign green bonds

Instrument	Yield (%)	Spread vs 10 Year Green Bond (BPS)
10 Year Sovereign Green Bonds	7.29	
10 Year G-Secs	7.35	6
SDL (CCIL SDL INDEX)	7.44	15
Municipal bonds Index(NIFTY)	8.76	147
Commercial Lending (Infrastructure Loans)	8-13	71-571

Source: Indicc Associates

3. Expanding the Envelope of Green Finance at the State Level

States can leverage a range of instruments, structures, and institutions either independently or in conjunction with each other. This section delves into each of these mechanisms to provide critical insights and understanding.

3.1. Green State Development Loans (Green – SDLs)

Much on the lines of sovereign green bonds issuance, SDLs ear marked for green projects help finance such expenditures through state's market borrowing programmes, within the allowed fiscal limits. Currently, SDLs are typically colour blind, however, if they are earmarked to green projects, they can become doubly secure instruments. This is for two reasons, first, they are backed by sovereign guarantee and second, issuance of Green Bonds ensures use of proceeds to green projects thereby guaranteeing that the money is spent on the green purposes so stated. It also facilitates quantification of a state's fiscal commitment to green and sustainable activities.

A recent RBI paper on 'States' Fiscal Performance and Yield Spreads on Market Borrowings' (2022) argues that there is a lack of differentiation in the cut-off yields of State Development Loans (SDLs) issued by various Indian states as they are narrowly clustered in majority of auctions.[14]

The paper argues that this eliminates the market incentive mechanism for states to better manage their finances. In order to address this discrepancy, the RBI paper has put forth a holistic measure of the states' performance by developing a composite index (State Performance Composite Index – SPCI) that incorporates fiscal, debt and market-related indicators.

The index can be used by investors to make more informed investment decisions, which in turn, can enhance the efficiency of the price discovery mechanism of state government securities in India.[15]

Authors of the paper have found a statistically significant association of the index with SDL yield spreads, suggesting that better fiscal management and improved market liquidity can help states to reduce their cost of borrowing.

Inclusion of investments in green infrastructure may be included in the composite index with due weight. If such an index is revised to include green infrastructure expenditure and is institutionalised, states could accrue related benefits. In other words, this could serve as an indirect method for states to engage with investors through RBI on their green initiatives. Greater investor interest would help in expanding the size the of non-fungible green component in SDL.

3.2. Public Private Partnerships (PPP) in Green Infrastructure

PPPs have the potential to deliver infrastructure projects better and faster. Today the need is to substantially enlarge the envelope of infrastructure finance while ensuring that delivery of goods and services remains efficient. Towards this endeavour, PPP can be a useful mechanism as it

represents an important tool available to governments to plug the sustainable infrastructure deficits, while enhancing availability of services and addressing consumer demands.

The importance of PPP has been emphasised from time to time. Even the National Monetisation Pipeline touches upon PPP theme substantially across the programme document.[16] In 2015, Finance Minister in the budget announced strengthening of the Public Private Partnership (PPP) which led to setting up of the Committee on Revisiting and Revitalizing the PPP Model of Infrastructure under the chairmanship of Dr Vijay Kelkar. The committee has articulated a set of recommendations which are useful for state action.

To strengthen project preparation and approval process, it is necessary to have a robust project appraisal mechanism by the Government before the competent authority approves the project report and commences the selection process for Concessionaire. An important point to bear in mind is that PPP projects need to be differentiated from asset monetisation initiatives. The very purpose of PPP projects is to achieve a set of defined outcomes with social and economic benefits in the public interest and not to be construed as a means of raising financial resources only for the project sponsor based on the market value of underlying asset. Thus, the project development process for PPP Projects and asset monetization would typically differ.

Therefore, the Government should make appropriate guidelines and a tool to assess the specific nature of the project (PPP or Asset Monetization) to help various departments to have adequate clarity in this respect.

Further, in the context of climate action, it is important to reflect on conceptual areas such as classification of green infrastructure and PPPs, process changes and institutional framework. Keeping this in mind, a draft framework on PPP in green infrastructure has been prepared **(Annexure 1)**

Broadly, the draft discusses PPPs in three kinds of projects and programs – those that are classified clearly as 'Green' by recognized taxonomy, those services that will require modifications for 'Green' design over and above normally compliant projects and those that form a new category of time bound transition programs for 'demand management' and which have considerable potential gains for combating climate change.

Table 6. PPP in Green Infrastructure

PPP in Green Infrastructure (Projects and Programs)		
Green By Taxonomy	Incremental green projects in infrastructure (beyond normal environmental compliance required by law)	Managed Services for Demand Management

One key question in PPPs would be the cost of service which could potentially come down if the cost of finance is lower. Therefore, from the perspective of accessing finance, a significant area of

reform would be to allow PPPs to access concessional finance from MDBs/BFIs. This is because there is an implicit sovereign guarantee as the asset essentially remains public. In other words, while lending is to the private sector, the government or the sovereign guarantees the repayment. This would however require a broader agreement involving national governments and Multilateral Development Banks (MDBs)/Banking and Financial Institutions (BFIs). Another form through which PPPs could potentially access cheaper finance or raise additional capital is through securitising future gains from time bound transition programs for climate change.

3.3. Expanding Green Finance Envelope through Recycling of Finance

An important element to consider in the context of limited fiscal headroom is the principle of recycling of finance. This may entail two key policy interventions. The first one may be a regulatory intervention that would enable timely take-out finance or refinance. In turn, this would help unlock finance for infrastructure development both by the state government as well as by the financial institutions.

To elaborate further, typically high-risk stages of project development, where interest rates are high (Construction to Revenue), are financed by those banks whose appetite to finance is generally much shorter than lifecycle of the project. This results in asset liability mismatch for banks while exerting high debt servicing (higher interest) obligation on account of the public sector. This is why mandating risk-adjusted interest rates could be a possible solution to ensure timely unlocking of capital for reinvestment and reducing fiscal overhang. Since, RBI is the debt manager for states, an enabling regulation from RBI may be necessary in this regard.

The second intervention is through creation of take-out (refinance) structures or institution to avoid the fiscal overhang. In this regard, Infrastructure Investment Trusts (InvITs) and Infrastructure Debt Fund (IDFs) may be considered as policy options.

3.3.1 Infrastructure Investment Trusts (InvITs)

InvITs are very unique Indian financial instruments developed by the Government of India during 2013-14. The introduction of Infrastructure Investment Trusts (InvITs) by Securities Exchange Board of India (SEBI) through SEBI (Infrastructure Investment Trusts) Regulations 2014 and its subsequent amendments is an attempt to garner long term capital for the infrastructure sector.

InvITs are an investment vehicle like mutual funds that allow developers to monetise revenue generating infrastructure assets and at the same time enable investors to invest in that class of assets. This benefits both the developers and the investors as developers are able to thus use released capital to invest in new projects or repay their debt and retail/ institutional investors are provided with liquidity as units, both debt and equity, can be listed and traded on the stock exchanges.

For the purpose of explanation in this section an 'InvIT' would typically refer to the trust while in general an 'InvIT structure' would typically include sponsors, investors, trust, trustee, investment

manager and SPVs. InvITs structure can also be homogenous and heterogeneous in nature. While in the former, SPV and their assets are of the same type (for example transmission assets alone), in the latter they can be from different sectors.

In order to structure a calibrated glide path for fiscal deficit, three options may be considered. These would include the following combinations:

- Bank Finance and InvITs
- MDB Finance and InvITs (As MDB/BFI loans are against sovereign guarantees, government could also negotiate interest rates thereby bringing down the cost of finance further)
- Private Capital, Sovereign Wealth Funds and InvITs
- Combination of all of the above (Blended Finance)

Once the construction risk is over, revenues have stabilized, InvITs can be settled to monetize future earnings through issuance of units, freeing up capital for Bank/MDB/Private Capital as the case may be. By doing so, new debt can be contracted by the public sector without any overhang on fiscal deficit ceilings, and investments in new green projects can be undertaken. This virtuous cycle would assist governments to scale up the creation of green assets and also achieve transition smoothly and timely while accessing private finance in a much larger proportion.

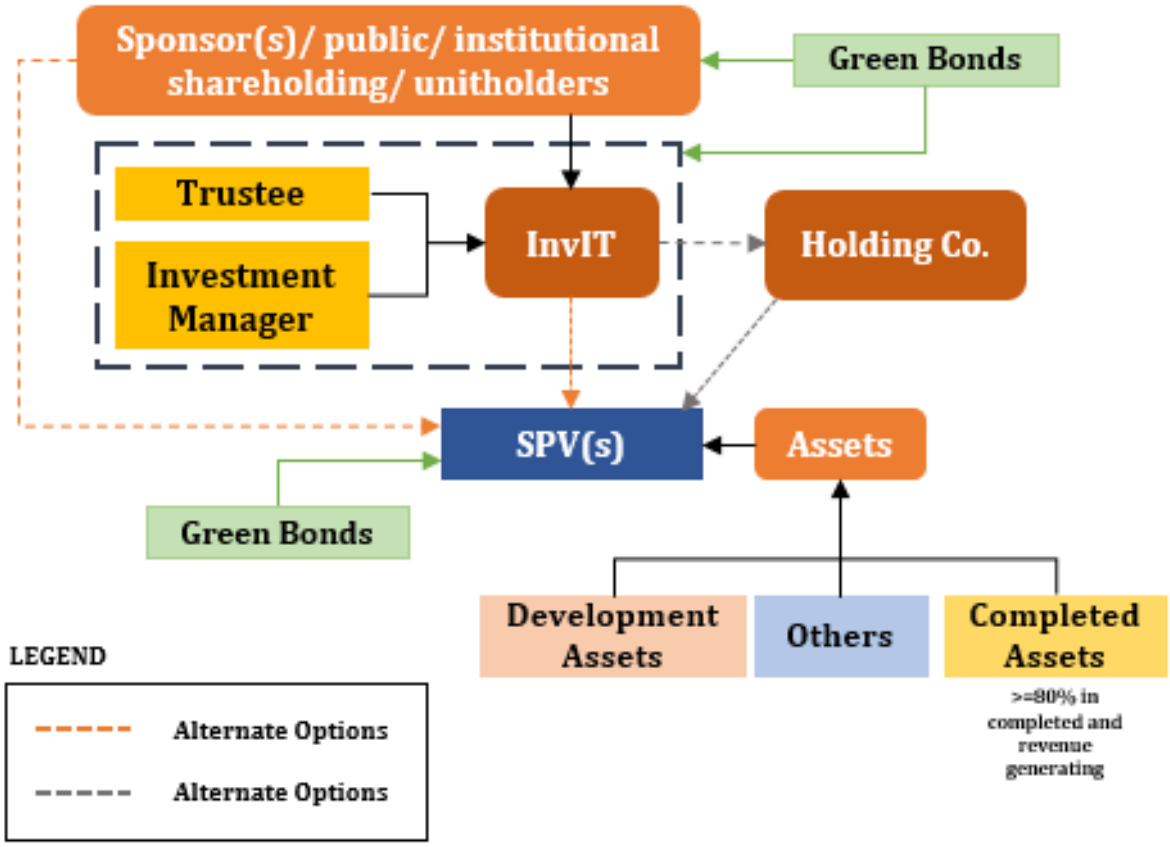
Once InvITs are settled, in addition to equity they can also raise debt at InvIT level or at the SPV level. In other words, there is an opportunity for Green Bonds at the InvIT level, or at the SPV level or at both InvIT and SPV levels.

In this context, an important consideration would be that of the credit ratings. In general, the credit quality of InvIT is assumed to be better than individual assets/SPVs. This is because of diversified pool of assets in InvITs which enables InvITs to have less volatile cash flows compared to the cash flows at the individual asset/SPV level.

Credit criteria for InvITs and SPVs would differ for homogenous and heterogeneous InvIT structures. In case of homogeneous assets, rating criteria applicable to specific asset type is applicable and accordingly the cash flows will be pooled together. In case of heterogeneous assets, each asset/SPV will be assessed separately using sector specific rating criteria for each SPV.[17]

The discussion of cash flow in case of InvIT is an important one. This is because cash flow is a key determinant of debt serving and overall leverage. The experience and track record of the trustee, investment manager and project manager signal operational efficiency and therefore are also equally important. Together these factors will have a substantive bearing on mobilisation of green finance into InvITs.

Figure 4. **Structure of InvITs with Green Assets**



Source: Representation by Indicc Associates

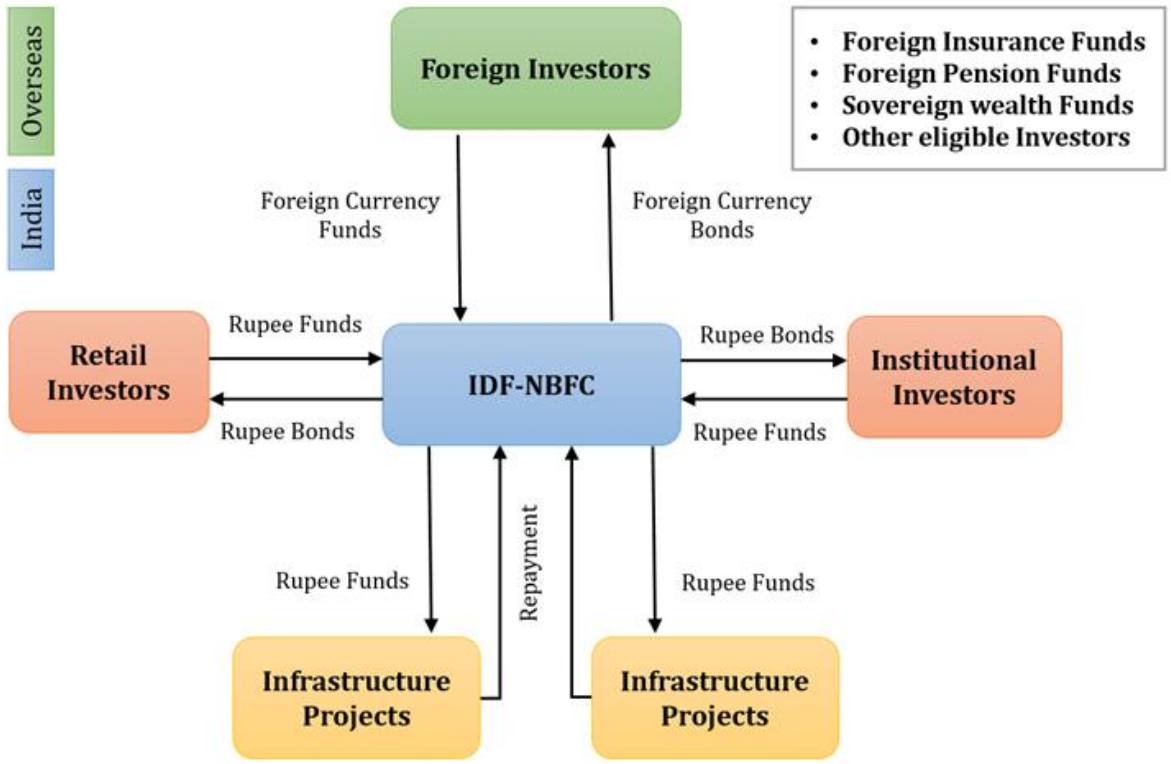
3.3.2 Infrastructure Debt Fund

Infrastructure Debt Fund (IDF) could be considered as another policy option to ensure recycling of finance. IDFs are important innovation in the infrastructure finance space, notified in 2011. As opposed to a structure like InvIT, IDF would be an institutional intervention.

An IDF in India may be listed as a Non-Bank Finance Company or a mutual fund (RBI, 2022). Whereas IDF-NBFC is regulated by RBI, IDF-MF is regulated by SEBI. One of the benefits of the IDF listed under the NBFC route is the possibility of long-term fixed loans, which is well suited for projects with a long horizon.[18]

An IDF-NBFC would be a non-deposit taking NBFC which is permitted to refinance post commencement operations date (COD) infrastructure projects that have completed at least one year of satisfactory operations.

Figure 5. Schematic of IDF-NBFC



Source: Representation by Indicc Associates

The debt fund means a pool of investment comprising of several fixed-income instruments, such as bonds or debentures. They are, in essence, take-out finance. Take out finance, as a business model, had not developed in the country till the introduction of the IDFs.

IDFs permit risk rated interest reset and elongation of loan repayment period, making the projects financially more stable.

It can raise funds through issue of either rupee or dollar denominated bonds of minimum five-year maturity. With a view to facilitate better asset-liability management (ALM), IDF-NBFCs can raise funds through shorter tenor bonds and commercial papers (CPs) from the domestic market to the extent of up to 10 per cent of their total outstanding borrowings. In addition to the bond route, IDF-NBFCs can also raise funds through loan route under external commercial borrowings (ECBs). However, such borrowings shall be subject to minimum tenor of five years and the ECB loans should not be sourced from foreign branches of Indian banks.

As per the new guidelines by RBI, the requirement for a sponsor for IDF-NBFC has been withdrawn, however, shareholders of IDF-NBFCs shall be subjected to scrutiny as applicable to other NBFCs. The central bank has also allowed IDF-NBFCs to finance PPP projects (toll operate transfer) as a direct lender. Earlier IDF-NBFCs were required to enter into a tripartite agreement with the concessionaire and the project authority for investments in the Public Private Partnership (PPP) infrastructure projects having a project authority.

The new norms have eased out both lending and capital raising functions for IDF-NBFC. These were earlier considered as reasons for IDF's limited uptake. However, now with new regulations, IDF can play a greater role in infrastructure financing provided banks are willing to relinquish operational projects – a situation that may prevail specially when credit growth is weak.[19]

This, as discussed earlier, could be addressed through enabling regulation mandating risk adjusted interest rates to facilitate recycling of finance. Potentially, an IDF could cater to multiple states.

3.4. Enabling Infrastructure Financing at the State Level through Alignment with National Institutions

- **National Bank for Financing Infrastructure and Development (NaBFID)**

The functions of NaBFID include extending loans and advances for infrastructure project, taking over or refinancing such existing loans, attracting investment from private sector investors and institutional investors for infrastructure projects, organising and facilitating foreign participation in infrastructure projects, facilitating negotiations with various government authorities for dispute resolution in the field of infrastructure financing, and providing consultancy services in infrastructure financing.[20]

It would perhaps be pertinent to call NaBFID an omnibus institution with appetite of taking up high risk stages of projects for financing as well as act as takeout finance institution, amongst other things.

NaBFID seeks to expand to bonds and derivative market in infrastructure financing. It can provide guarantee at concessional rate of 0.1% for borrowings extended from multilateral institutions, sovereign wealth funds, and foreign institutions.[21] Further, hedging costs in connection with any borrowing of foreign currency by the institution for the purpose of granting loans and advances or its repayment (to insulate the Institution from any fluctuations in the rates of exchange) may be reimbursed by the Central Government in part or in full .[22]

Another potential source for state financing can be the setting up of Joint Venture (JV) or a separate state level subsidiary of NaBFID to promote investments. As per The National Bank For Financing Infrastructure And Development Act, 2021, NaBFID may *'form subsidiaries or joint ventures or branches, in India or outside India, for carrying out its functions; and enter into any arrangement with such subsidiary company or joint venture or branch including for financing any such subsidiary company or joint venture or branch or guaranteeing any of their liabilities or make any other arrangement which may seem desirable to the Board*'.[23]

From states' perspective, it is possible to explore if state level development finance corporations can be repurposed for JV with NaBFID. This may also allow state entities to access capital at better terms as the ratings would be in line with the national level. To the extent of initial contribution made by the state, this will be an outgo from the budget and will be considered as capital expenditure by the state.

NABFID can also issue green bonds to lend to green projects in states, establish blended finance vehicles where careful selection of green projects from states could be taken on board which

could receive MDB and BFI capital and technical assistance. NABFID can also provide transaction advisory services to state governments and state backed entities for mobilisation of green finance.

- **National Investment and Infrastructure Fund (NIIF)**

The objective of NIIF would be to maximize economic impact mainly through infrastructure development in commercially viable projects, both greenfield and brownfield, including stalled projects. It could also consider other nationally important projects, for example, in manufacturing, if commercially viable.

NIIF solicits equity participation from strategic anchor partners. The contribution of Government of India to NIIF enables it to be seen virtually as a sovereign fund and can attract overseas sovereign/ quasi-sovereign/multilateral/bilateral investors to co-invest in it.

Relevant functions of NIIF would include the following:

- ✓ **Fund Raising:** This would include attracting anchor investors to participate as partners in NIIF; raise funds from markets/ others through suitable instruments including off-shore credit enhanced bonds as may be decided and allowed under the extant rules and regulations
- ✓ **Investing:** This would entail considering and approving candidate companies/ institutions/ projects (including state entities) for investments; and periodic monitoring of investments
- ✓ **Investing in AMC:** Investing in the corpus created by Asset Management Companies (AMCs) for investing private equity.
- ✓ **Advisory Services:** Preparing a shelf of infrastructure projects and providing advisory services. For this purpose, NIIF may gauge the commercial viability of infrastructure projects by using market-based selection criteria and checking for the robustness of project appraisals. NIIF would has full autonomy for project selection.

In the context of technical collaboration of NIIF with states, respective government departments can typically undertake the following:

a) Nominate senior officials to be a part of the 'Project Monitoring Group'

b) Assist NIIF's team and its external consultants in collecting necessary data and information by sharing relevant studies/documents and facilitate interviews with relevant state government departments/ agencies

c) Ensure availability for investors' workshops / meetings that are organized as part of the Project

d) Lead the identification of specific project sites for development of project

e) If, following the pre-feasibility assessment, the envisaged project is assessed to be workable then, engage a Transaction Advisor and fund the Transaction Advisory fee to execute activities

NIIF can typically undertake the following:

a) In coordination with the state government department, form a 'Project Monitoring Group' that can meet periodically to review progress of the planned project initiative, and facilitate support /resources to the project implementing team.

b) Nominate officials to be a part of 'Project Implementation Team' that will lead the Project activities on a day-to-day basis.

c) Engage a consulting firm to carry out 'Pre-Feasibility Stage' works.

d) Provide the project advisors inputs in the context of preparation of any initial concept for the envisaged initiative.

e) Provide support to state government departments in development of TOR for engaging a transaction advisor for the project.

f) Provide inputs on structure of projects, such that feedback from investors and lenders with an objective of developing a workable and bankable project structure.

- **Power Finance Corporation/Rural Electrification Corporation**

Recently, the Union power ministry had pitched the proposals of PFC (earlier Power Finance Corporation) and REC (earlier Rural Electrification Corporation) to get DFI status for steering global climate funding and net zero investment in the country.

As per reports, while their proposals were declined on the grounds that infrastructure lending already has a DFI in the form of NaBFID and energy transition is effectively a part of it, the two institutions can avail various provisions and benefits similar to NaBFID on a case-to-case basis.[24]

Since these institutions are actively involved in financing state level projects, they will have significant role to play towards state climate action. In this regard, it is pertinent to note REC Limited has recently successfully issued its inaugural JPY61.1bn (5-year, 5.25-year and 10-year) Green bonds under its USD10bn Global Medium Term Notes Programme. Proceeds from the issue of the Bonds will be applied to finance the Eligible Green Projects in accordance with the Company's Green Finance Framework, RBI's External Commercial Borrowings Guidelines and the approvals granted by it from time to time.[25]

3.5. Blended Finance

Another important instrument to expand the finance envelope and de-risk finance is Blended Finance. Essentially, it entails strategies to improve the risk-adjusted return profile of a deal thus making it more appealing to investors.

It is considered complex due to participation of many actors such International Development Agencies, Philanthropic organisations, Private Investors, MDBs and DFIs each having different mandates and constraints. Several private investors who represent pooled capital also have different risk-adjusted return preferences adding to the layer of complexity. But since projects typically have different stages of risks and risk factors, blended finance can be the most apt tool to de-risk transactions and crowd in private investments. Blends can come in the form of capital (concessional finance, guarantees) as well as technical assistance and project/transaction advisory.

Amongst all investor categories, it is usually the MDBs and DFIs that have the most investment expertise due to their deep engagement and networks in various geographies. Both have development mandates and lend to the public sector but they also lend to the private sector through their private sector arm. As such, they sit at the intersection of concessional/catalytic and commercially-oriented capital, making them well-qualified to structure deals that achieve both financial returns and development results. Given this expertise, they often act as the intermediary in blended finance transactions.[26]

In that sense, apart from channelling capital from investor to investee, MDBs and DFIs can act as transaction advisors to help reduce transaction costs and information barriers via a network of in-house and external specialists. This could include preparing financial, marketing, and legal documents and conducting due diligence, amongst other things.

To enable greater state action on blended finance, it will be useful to pool in the vast expertise of MDBs and DFIs, in particular and other financial institutions in general. This will also help new DFIs in India to play a greater role in state level green finance transactions.

4. Enablers for Instruments and Structures to Perform Optimally

The previous section deals with multiple policy options to unlock capital for state climate action. It has also touched upon possible regulatory interventions that will facilitate greater optimisation of those policy options particularly in light of maintaining fiscal discipline. But there are other pre-requisites as well that can help systematise the flow and quantum of finance to states. These can be broadly divided into four categories:

- State Plan for Financing Green Infrastructure
- Calibrating the role of Public Sector Undertakings and need for regulatory clarity in sectoral approach

These elements are discussed in detail below.

4.1. State Plans for Financing Green Infrastructure

A plan for green infrastructure in states can be executed through three concurrent activities which would entail use of recognised sustainable finance taxonomy, a fiscal management strategy and establishing appropriate institutional mechanism.

- **Sustainable Finance Taxonomy:**

A robust green taxonomy entails science-based definitions of sustainable investments consistent with the goals of the Paris Agreement. It is essentially a classification system, establishing a list of sustainable economic activities, assets or projects that deliver on key climate, green, social, or sustainable objectives with reference to identified thresholds and/or targets. In other words, taxonomy typically establishes clear definitions and criteria for eligible sustainable activities across the economy.

Robust taxonomies are preferred by investors as they are:

- ✓ **Clear:** They clearly lay out what constitutes a sustainable activity
- ✓ **Credible:** They are science and evidence-based and developed by independent experts. This allows investors to make sensible and credible decisions without worrying about reputational fallout
- ✓ **Usable:** They are granular enough to be usable to investor/service providers to identify sustainable investments

To elaborate more:

- ✓ Taxonomy acts as guidance for investors, policymakers, regulators i.e. blueprint for greening the economy
- ✓ Translate climate objectives into measurable goals and budget tagging
- ✓ Reduced due diligence for investors and issuers
- ✓ Help avoid reputational risks i.e. avoid green washing
- ✓ Put environmental data into economic context
- ✓ Key instrument in directing the flow of capital
- ✓ Facilitate cross border flow of preferential capital for green projects

Over 20 countries around the world have taxonomies complete or in development stage, with more being added all the time, including in India, nearly half the green issuances (by volume), until mid-2022, follow the international certification scheme based on Climate Bonds' Standard which is built upon the taxonomy.

With respect to states, it is possible that state green action in infrastructure is driven by both states as well as the Union government through allocation of funds, subsidies and grants. Therefore, it is recommended that a dashboard of taxonomically aligned green assets and projects is created at the state as well as the Union level to bring greater coherence and avail the related benefits. This, in addition to budget tagging, will allow greater state engagement with investors which is otherwise not possible under the SDL route except through a possible institutionalisation of composite index (discussed earlier).

- **Fiscal Management Strategy**

It is a well settled proposition that private capital mobilisation is an imperative to meet infrastructure requirement in the country. International and domestic decarbonisation mandates coupled with investor preferences necessitate a greater focus on greening the infrastructure. This means that additional borrowing would need to be undertaken, most of which will have to be at the state level. However, in light of limited state finances, it is important that a fiscal management framework is instituted simultaneously. Strengthening this argument further is the latest RBI report titled State Finances: A study of budgets (Revenue Dynamics and Fiscal Capacity of Indian states) 2023-24, which highlights that outstanding liabilities may remain higher than 30 per cent of gross state domestic product (GSDP) for many states.

Table 7. **Component of Fiscal Management Strategy**

Elements to Consider for Glide Path for States		Relevant Departments and Entities
Determinants of Fiscal Space	• Assessment of Fiscal Trends (Historical) • Assessment of Fiscal Trends MTFP (include gains from climate action and possible materialisation of risks) • Assessment of Off-Budget Accounts • Assessment of Fiscal Resources that can be freed up for recycling • Coherent assessment of financial implication of activities requiring interdepartmental coordination • Scope for Carbon Taxes/State Cess/Carbon Credits • Assessment of Transition Costs • Using RBI Stress Test Data as proxy for state exposures with various Financial Institutions	Finance Department/PFM Division/Project Consulting/RBI
Determinant of Quantum of Assets for Green Financing	• Earmarking of Non-Fungible Expenditure Items	Finance Department /PFM Division in consultation with State Government
Allocation & Accountability Mechanism	• Creation of Dashboard to include Green Assets and Projects • Green Tagging in the Budget • Creation of Fiscal Risk Register as a top-down tool to identify different fiscal risks - their potential fiscal impact and the likelihood of materialization (Odisha & UP) • Creation of Consolidated State Account to escrow potential gains together for debt servicing/meeting transition costs etc.	• Finance Department / PFM Division • CAG for Audit

While the **Table 7** is self-explanatory, one important element deserves special focus. Similar to usual practice in infrastructure financing where future revenues of a portfolio of projects are securitised to raise capital, gains from climate action could also be potentially securitised to lower the cost of borrowing or use the same to meet transition costs.

For example, a CEEW study suggests that in the case of Rajasthan natural farming practices like adding cover crops, intercropping, and application of bio stimulants could improve the soil health and its water retention capacity and encourage water infiltration, in turn reducing irrigation water requirement by up to 60 per cent. This will improve the farm resilience in water-scarce regions. Moreover, merely 20 per cent of the state's farmers adopting natural farming could save the government's annual power subsidy outlay by INR7.81bn.

Moreover, the reduced or no chemical input could save cultivation costs by up to 60 per cent for crops such as wheat. The cost savings can potentially improve farm incomes by 30-40 per cent, likely to reduce the farmers' indebtedness. Improving farm incomes can help reduce the state's outlay on debt-waivers, which amounted up to INR75.50bn during 2018-20, and fertilizer subsidies (around INR79bn as of 2021-22 for Rajasthan).

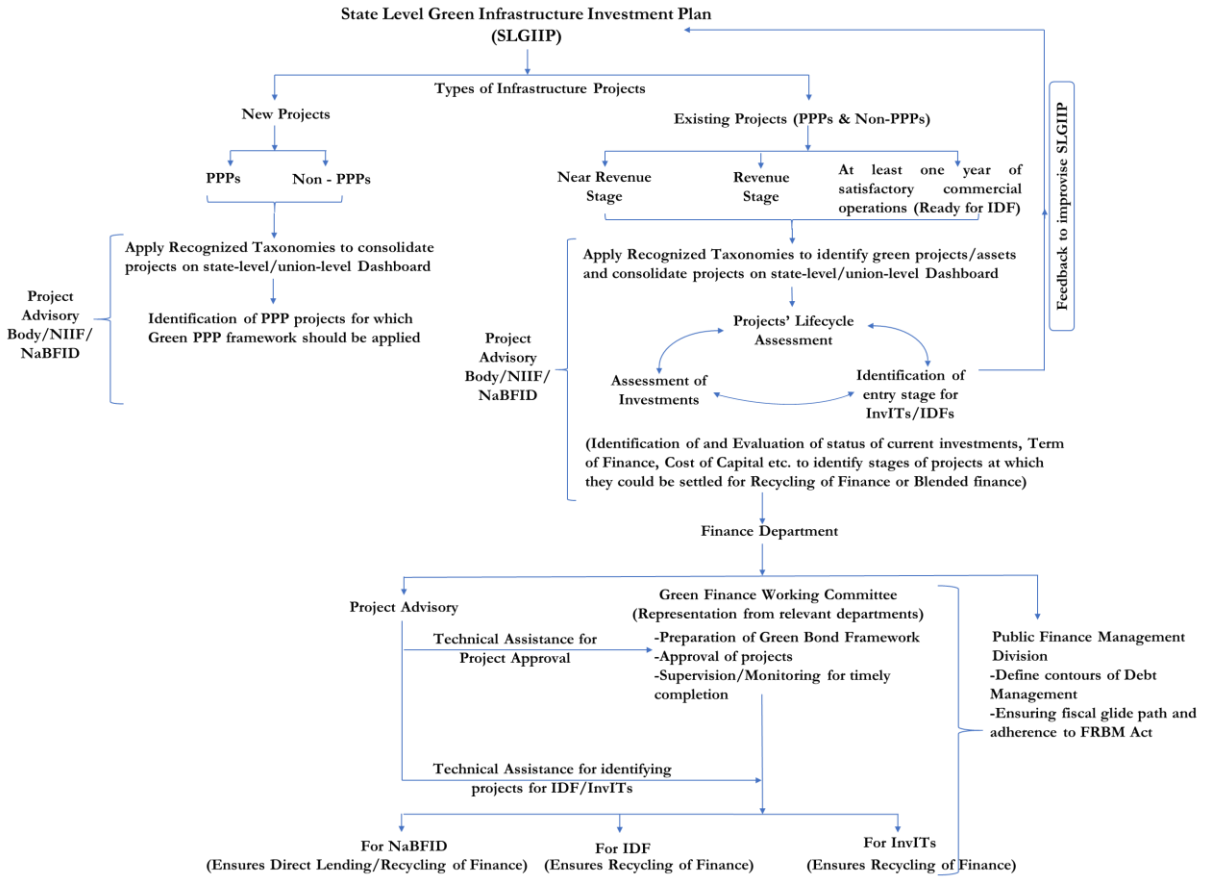
These gains, often accrue on balance sheets of different departments thus precluding a coherent strategy on fiscal management. Their careful calibration can lead to several innovations in finance, including designing schemes with tangible benefits but without budgetary outlay. For instance, PM Programme for Restoration, Awareness Generation, Nourishment, and Amelioration of Mother-Earth (PM-PRANAM) scheme entitles states to get grant in lieu of fertiliser subsidy saved on account of sustainable practices in agriculture. Interestingly, the scheme has no separate budget and is financed through the savings of existing fertiliser subsidy under schemes run by the Department of Fertilizers.

It is recommended that a separate state account of co-benefits is maintained to leverage it for introducing further innovations in financing state climate action and climate aligned infrastructure.

- **Institutional Framework to Attract Private Capital for Green Infrastructure Financing**

To systematically operationalize the use of above strategies/instruments/structures, states may formulate State Level Green Infrastructure Investment Plan. The contours of the plan can be sketched out and implemented immediately through a top down and bottom-up approach **(Figure 6)**.

Figure 6. Institutional Framework to Attract Private Capital



Source: Representation by Indicc Associates

For this purpose, as a first step states may task their project advisory bodies or engage NIIF or NaBFID through their project consulting mandate to facilitate private sector investment in green infrastructure. A state dashboard (discussed earlier) with details of green assets and projects would help.

The project advisory bodies would need to be capacitated on Green Taxonomy as well as Green Bond Framework.

The projects could be divided into two categories – new projects as well as existing projects. These projects could be in PPP or non-PPP mode, managed by different entities including Public Sector Companies, Public Finance Institutions et al.

Thereafter, each project could be evaluated using following filters:

- Near Revenue Stage
- Revenue Stage Projects
- At least one year of satisfactory commercial operation

Such a classification helps to determine the degree of risk from finance perspective. Since the projects are likely to have different lifecycle and investors, it is also important to assess 'investments-risk-duration' dynamics. This is likely to reveal asset-liability mismatch and hence can provide an informed idea of that stage of the project where new and cheaper sources of finance can come in through Blended Finance, Infrastructure Debt Funds or where projects can be hived off in a de-risked special purpose vehicle for re-financing through InvITs.

This will not only help in unlocking public finance to crowd in more private capital for new infrastructure projects but may also substantially reduce fiscal overhang by introducing recycling of finance.

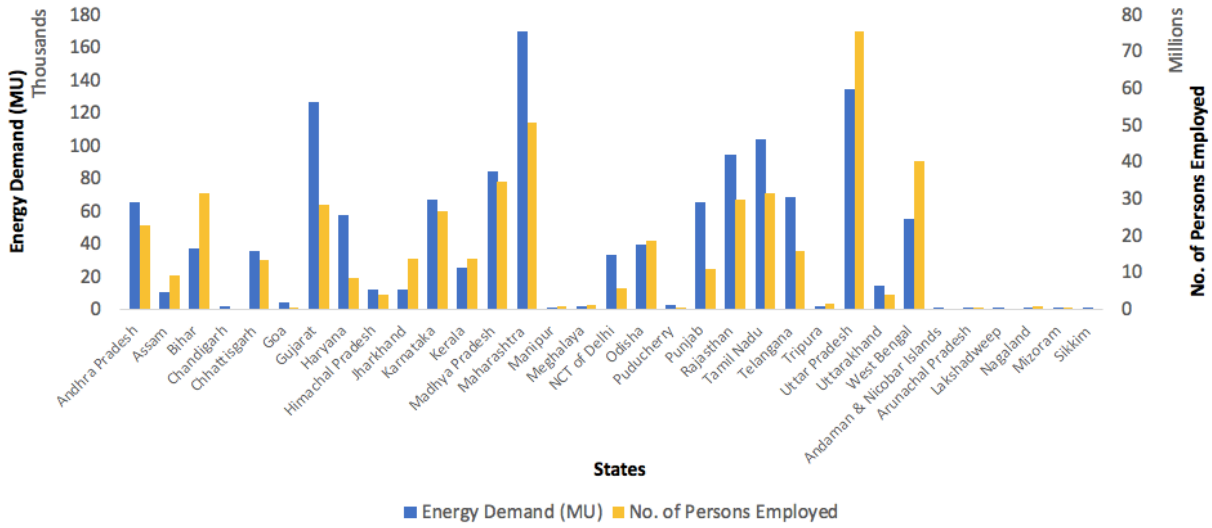
Finance Department of the state government can set up a Green Finance Working Committee, for the issuance of Green Bonds and approval of projects. Such a committee can again benefit from project advisory bodies' expertise while a dedicated Public Finance Management division (presently funded by the World Bank in some states) can simultaneously aid in public debt management.

4.2. Calibrating the Role of PSUs and Need for Sectoral Clarity in Investments

With respect to criticality of subnational action, it appears that the State Public Sector Undertakings (PSUs) along with Central PSUs will have an important role to play in the foreseeable future. An example from the energy sector, which attracts maximum climate financing, would help illustrate this further.

Here, at the outset it is important to note that provision of energy is directly correlated to employment as shown in **Figure 7.** In other words, energy demand (in Million Units(MU)) across states corresponds to proportionate employment. Therefore, in a sense, energy can be considered as a proxy for investments, thereby, establishing its criticality in the economy.

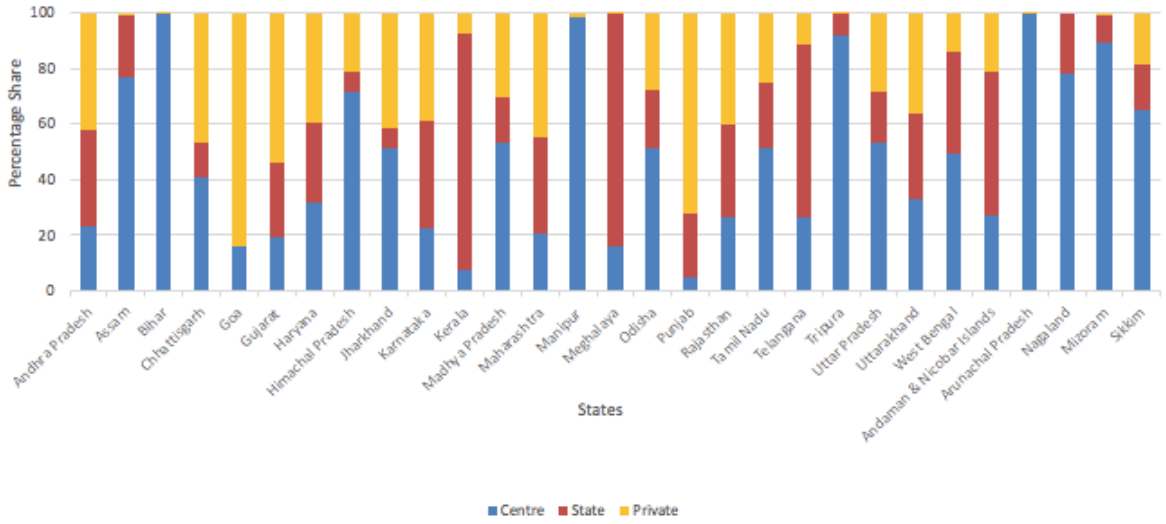
Figure 7. Correlation between Employment and Energy Demand across States



Source: Power Supply Position Report 2022-23 (Ministry of Power), Worker Population Ratio (Periodic Labour Force Survey, National Statistical Office)

Since the nodal point of decarbonisation in the energy sector is essentially on the generation side, it will help to look at current state of public sector involvement in generation. **Figure 8** shows that public sector (Centre and States) has more than 60% ownership of generation utilities.

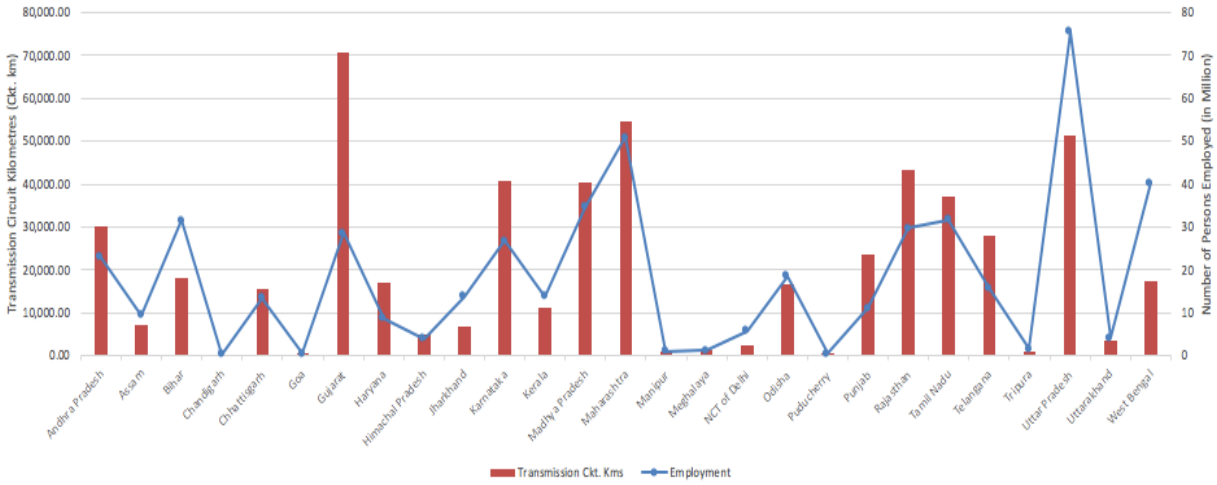
Figure 8. Composition of Centre, State and Private-sector contribution to Generation Utilities



Source: Centre for Monitoring Indian Economy (CMIE), States of India Database.

The transmission infrastructure is even more skewed in favour of public ownership and also displays a direct correlation with employment as is shown in **Figure 9**.[27]

Figure 9. Correlation between ransmission Infrastructure and Employment across States



Source: Centre for Monitoring Indian Economy (CMIE), States of India Database.

On the distribution side – a predominantly public sector enterprise, efficiency will have to be improved in order to accommodate more green power. A recent study by Centre for Social and Economic Progress (CSEP) lays special emphasis on planning and DISCOM management in the context of increasing decarbonisation and market structure redesign in the backdrop of potential increase in decentralised energy systems.[28]

This requires a careful calibration across generation, transmission, and distribution. Since state Public Sector Undertakings (PSUs) along with central PSUs have a high footprint in energy provisioning, the PSUs would therefore need to adopt a 'strategic' transition planning and management approach looking at the current/future demand and their role in it – a factor which seems to be currently missing from the policy thinking at the sub-national level. Clarity on this account would be crucial in planning green investment horizon in the energy sector.

This is where the role of sectoral regulations become important. A case in point is the state of Rajasthan – the state with a high potential for renewable energy. Despite its potential, the state PSUs in the energy sector are yet to have a strategic outlook with respect to its share in energy provisioning over a long term.

On the generation side, the state generation utility has no renewable foot print yet even though its share in meeting state's own demand is nearly 50%. The current energy demand in the state is 16 GW and is project to increase to 24 GW by 2030. This also affects the RPO compliance of the state.

On the transmission side, the state transmission company has not undertaken capital expenditure of more than INR2.5bn (250 crore) since 2022, due to state regulation to promote tariff-based competitive bidding in the transmission sector. This is despite the availability of low interest MDB/BFI financing and critical need for investment in infrastructure, including investments in proposed green corridor. This could potentially result in litigation and long delays. Pertinent to note that similar regulations have been introduced in other states, but regulators have provided exemptions in some while not in other.

Lack of uniformity in regulations can lead to distorted flow of finance in states. A possible solution would be by mandating a clear regulatory path for a particular time horizon and technology, and where uncertainty over technology remains a concern, leaf could be taken from multiple PPP experiences which encompassed rapid technological change. It is also important to see the infrastructure opportunities from ground up to ensure inclusivity, for instance urban infrastructure is an important area where states and cities can work together to pool-in assets to access green financing through innovative mechanisms including blended finance.

5. Summing Up

Indian states represent a great deal of diversity. Some are more ecologically sensitive than others, in some economic growth and per capita income are higher while some others display the potential of high growth yet there are some that need greater financial support than others. But nearly all states display some common characteristics. The change in weather pattern on account of climate change has started to threaten economy and livelihoods rather tangibly. This has necessitated a more granular approach to planning while incorporating mitigation and adaption measures.

Incidentally, new avenues using sustainable debt markets have surfaced as a key factor towards a sustainable pathway for states. Therefore, it will help if first principles across all states are clearly defined to enable channelling of sustainable finance. **(see Table 8)**

Accompanying such first principles should be larger policy and institutional mechanisms that can be instituted at the central level. A significant one amongst those would be Fiscal and Monetary Policy Coordination. This is because debt management is essentially a part of the macroeconomic stability guaranteed by macroeconomic policy whose objective is to achieve sustainable economic growth in the context of price stability.

This requires close degree of coordination between monetary and fiscal policies (of both Union and States). Without such coordination, financial instability could ensue, leading to high interest rates, exchange rate pressures, rapid inflation, and an adverse impact on economic growth.

Another reason to highlight this interconnection is because Reserve Bank of India (RBI) is a member of Network of Central Banks and Regulators for Greening the Financial System (NGFS) and has set up a Sustainable Finance Group (SFG) to effectively counter climate risks. RBI has released a discussion paper on integration of climate scenarios and stress tests and accompanying disclosures for regulated entities, on which further guidance is forthcoming.

RBI is also the debt manager of states and therefore a fiscal stress test for states must also be put in place which can further facilitate better coordination of centre- state financial arrangement. Medium Term Fiscal Policy statements by Union and States, can be the key tool facilitating a better centre-state coordination.

Exercise of first principles and sectoral regulatory clarity will help avoid forum shopping by investors, will lead to a more competitive landscape for infrastructure investment, diversify risks for investors, lead to exchange of good practices and will allow DFIs, MDBs, BFIs, FIs to expand and de-risk their portfolio.

Towards this endeavour, the following deck presents a snap view of institutions, innovative structures, areas where they can intervene, instruments that can be used, and practice and policy requirements (first principles) needed for optimum outcomes.

Table 8. Policy and Institutional options to increase the envelope of financing

KEY INSTITUTIONS

National Institutions

- **NaBFID**
  a) Can enter into Joint Venture (JV) with States or can incorporate a separate state-level subsidiary to promote investments
  b) Credit Enhancement for banks/Financial Institutions
  c) Extending loans and advances for infrastructure projects
  d) Can help in Blended Finance
  e) Taking over or refinancing existing loans (ensuring recycling of finance)
- **NIIF**
  a) Financing of Investors, Asset Management Companies and Projects for state action
  b) Preparing a shelf of infrastructure projects and providing advisory services
  c) Asset Monetization
- **REC/PFC**
  a) Can increase the envelope for cheaper finance for state climate action through special provisions similar to DFIs
- **IDF-NBFC** – IDFs could be created for a group of states to enable take-out financing and ensure recycling

State Institutions

- **State Project Advisory Bodies** – To enable development of a shelf of projects, Detailed Project Reports, apply green PPP framework and provide necessary inputs to Finance Departments for developing a fiscal glide path
- **State PSUs** - Would require relevant accounting hygiene and regulatory clarity on investment outlook

International Institutions

- **MDBs/BFIs**

a) Funding can be channeled into, State PSU, pre – InvITs, InvITs and pre-IDF and IDF stage
b) Can help in Blended finance

Financial Institutions

- **Banks/NBFCs** – Ideal for projects in High Risk Stages

POSSIBLE INNOVATIVE STRUCTURES TO AID SUB-NATIONAL ACTION

- **InvITs (Structure)** To ensure recycling of finance
- **PPPs -** A Green PPP framework needs to be institutionalized for the lifecycle of projects
- **SDL –** Quickest method to mobilise Green Finance. The envelope of SDL could be enlarged by earmarking non- fungibility

AREAS WHERE INSTITUTIONS & STRUCTURES CAN INTERVENE

- Execution of State Policies
- State action driven by Union government initiatives and policies
- Policy action from States that can lead to green financing opportunities for the private sector
- Other Mandates that drive State action (National Green Tribunal etc.)

INSTRUMENTS & REQUIREMENTS FOR THEIR OPTIMAL UTILISATION

Instruments

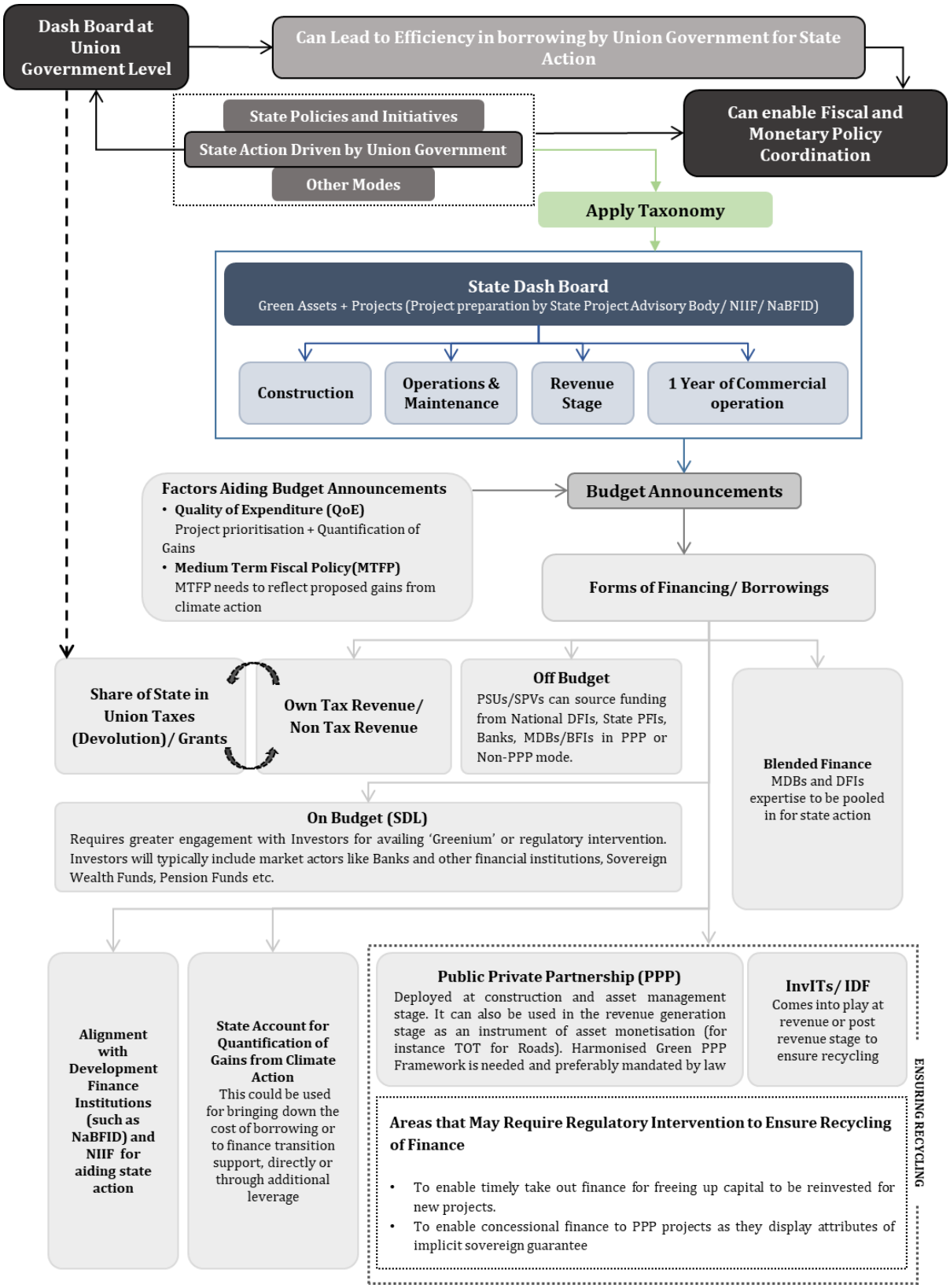
- Green Bonds
- Taxonomy

First Principles

- Alignment with LT –LEDS for greater Centre-State Coordination. Should be accompanied by representation of states in Apex Committees for LT-LEDS (ECCC and AIPA)
- Clarity on investments through sectoral regulations
- Development of MTFP to reflect the projected gains from Green Finance
- Legal framework on Green PPPs
- Green Budgets and Programmatic reviews
- Capacity building of auditors on green budget
- Emission inventory to enable carbon-credits
- Quantification of benefits in separate state account for climate action
- Dashboard of all Green Assets and projects to ensure visibility to investors at the state level and Union level (for areas where Union government drives state action)
- Credit rating of InvITs, assets and SPVs is needed to enable debt financing at a lower cost
- Data of Stress Test by RBI to be integrated into state action to assess exposure of financial institutions at state level
- Coordination between fiscal and monetary policies for overall macro-economic stability
- MDB/DFI expertise to be pooled to enable blended finance

Additionally, **Figure 10** shows key requirements that will allow a systematic flow of funds, highlights key gaps, and shows a coordination mechanism for mobilisation of Green Finance and management of Public Debt.

Figure 10. Structural Roadmap for mobilising private capital at state level



Finally, the combined essence of this section and the report is listed below in the form key recommendations, suggestions and comments.

Key Structural Recommendations

- Map state policies as per LT-LEDS and ensure greater state representation at Apex Committee for the implementation of Paris Agreement (AIPA) for better centre-state coordination.
- Use internationally recognised taxonomy for green classification of assets
- Create Public Dashboard at State level on Taxonomically aligned Green Assets and Projects for direct engagement with investors. Indirect engagement can be facilitated by reforming the composite index proposed by the RBI on SDL. Similar Dashboard must be created at the Union Level
- Create Task Force on interdepartmental coordination for climate action and transition management and create an emission inventory to develop carbon credit market.
- Create and strengthen Public Finance Management of states to work closely with Project Advisory bodies for fiscal glide path.
- Align MTFP of states and the Union incorporating climate dimension.
- Maintain subnational accounts with details of potential gains from climate action and quantify them for bringing the cost of capital down
- Constitute Project Consulting Corporations, like PDCOR Ltd in Rajasthan to assist states in structuring green projects better or use the services of NIIF/NaBFID for transaction advisory on Blended Finance amongst other things
- Introduce a Green PPP framework and institutionalise the same
- Put in place enabling regulations for ensuring timely take-out finance
- Pool in MDB and DFI expertise to enable greater blended finance opportunity
- Constitute a Fiscal and Monetary Coordination Committee on Mobilisation of Green Finance

An area of concern in Sovereign ratings of countries is that there is too much reliance on subjective criteria namely political factors and willingness to pay. A concerted bottom-up action from states could help change that as well.

Annexure – 1

Public Private Partnerships (PPP) in Green Infrastructure

Green infrastructure broadly falls into the following three categories:

- **Green by Taxonomy:** This would include renewable energy (solar, wind, hydro), forest expansion and management, and offset programs for normal activities (example: green cover in buildings and real estate development). As such the entire sector or project is classified as 'Green'. No significant changes are required here in any government process, other than the monitoring, evaluation and certification. However, there may be some elements related to infrastructure through PPPs that may be required here which are discussed later
- **Greening of Conventional Infrastructure Services:** Conventional infrastructure development may include transportation systems, sanitation, waste management systems, energy delivery systems, to name a few. In Rajasthan (and India), the focus is on cost-efficient systems that can effectively deliver services to all citizens. Given that a segment of citizens in the lower income groups may be unable to pay or bear full costs of such services, the government usually defrays these costs from its budgets to the extent it can.

  Since 'Green' design can substantially impact climate change related targets, it is possible that such green design may add to costs per unit of service delivery due to enhanced capital investments and/or operations costs.

  For instance, a switch to Electric Vehicles (EV) in urban transportation systems may require accompanying infrastructure by way of charging stations and battery banks, amongst other things. EV themselves may entail higher costs. Thus, both capital and operations costs could increase. Similarly, capturing methane emissions from distributed off-grid septic management systems, which are present in substantive number, would require additional investments for capture, enforcement and monitoring. Even switching goods transportation systems to biofuels, something already under implementation by California State, may require investments in bio-fuel agriculture, extraction plants, entire collection and recycling systems for used oil, amongst other things.

  There is thus a clear distinction between conventional project design that is compliant with national and state level laws and 'Green' project design that will specifically use abatement systems, technologies and processes.

- **Emerging PPP Scenarios for Infrastructure Development and Services:** Infrastructure as defined above entails supply side interventions i.e. provision of services. However, equally important is the demand-side intervention that will contribute considerably to reduction of resource usage i.e. 'Green' consumption. For instance, domestic demand from household appliances can be aligned to climate imperatives through new technology such as light bulbs or ceiling fans (DC) which consume anywhere between 30-80% less energy for the same service level output. Such changes may require households to switch from their current appliances to green-tech appliances. The latter are sold at a considerably higher price when compared to normal appliances.

  These examples indicate a need to embark on transition programs which can be undertaken in the PPP mode but not classified currently as 'infrastructure' or even 'public services'. They can be funded by government grants along with some commercial finance (blended finance

routes). As a one-off example, government actively sought and supported private sector partners for COVID vaccination in a time-bound manner with elements of complete subsidy (free) and normal user charges for citizens.

To summarize, there will be PPPs in three kinds of projects and programs – those that are classified clearly as 'Green' by recognized taxonomy, those services that will require modifications for 'Green' design over and above normally compliant projects and those that form a new category of time bound transition programs for 'demand management' and which have considerable potential gains for combating climate change (**See Table**)

Table1. PPP in Green Infrastructure

PPP in Green Infrastructure (Projects and Programs)		
Green By Taxonomy	Incremental green projects in infrastructure (beyond normal environmental compliance required by law)	Managed Services for 'Demand Management'

Source: Prepared by Indicc

As discussed above, while the first category projects do not require significant changes apart from monitoring and certification, the latter two would require process changes.

Essentially, this would include, project design from concept to bid process where Expressions of Interest (EOI) are sought from potential partners to the government in the PPP bid process and evaluation for 'Green' elements, as additionality to existing processes on infrastructure PPPs, and in processes during implementation and after commencement of operations. This will relate to verification, certification, and quantification of Green impacts.

A clear process of modifications, dispute settlements that may emerge due to systemic risks associated with newer, emergent 'Green' technologies and systems also may need to be factored into processes used for PPPs currently.

These elements are explained in ensuing paragraphs.

At the design and DPR stage, it will be necessary to develop and design the project at two levels i.e. best cost design compliant with all existing rules and laws for conventional sector projects (Level 1) and with additionality of 'Green' elements in design after clearly identifying incremental capital costs, investment as well as operations related costs, if any (Level 2).

Additionally, intangibles need to be also earmarked as 'Green' costs. These could include programs of behavioural change, awareness and community partnerships to aid implementation and monitoring.

The above highlighted two-level feasibility tests need to go through a rigorous system of evaluation prior to approval. This will inter alia include – check on the robustness to see if proven 'Green' technology is appropriate to the scale of the project and suitability for the context of the project (geography, socio-economic profile, personnel availability to operate services, etc). Specific recommendations relating to monitoring and evaluation including operations and for the project life cycle may also be made for incorporation into contracts and costed accordingly.

This can be done by constituting a panel of 'Green' technology experts who will be part of development approval committees for the project PPP. Experts from this panel may join the conventional approval committees so that 'Green' additionality is integrated into the existing

systems. One expert group could work with the Project Manager/PPP cell in project development, while another set of experts could be part of project approval committees of government, sourced from within and outside the government.

The costs arising from design modifications approved by such committees, relating to 'Green' design, may be identified as incremental costs to the project.

It is desirable that the project approval committee approve a specific design for the PPP based on recommendations of the Project Manager/PPP Cell. The DPR process should also include consultation with Green domain experts to arrive at the recommendations.

At this stage, the Government will also be clear about the financial support (and any other required measures such as regulation changes) for the selected design. It must be highlighted that this will also help government indicate 'Green' component of financial requirements to relevant national and international institutions. Such commitment, based on selected project design, may be specifically stated in the bid documents.

In addition to the above, in the case of 'Green' infrastructure, it is necessary to spell out specific competencies to identify suitable project design and execute Green elements, as decided by the approval committee that includes the Green panel and to accommodate a consortium style bidding to enable prime bidders to bring on board the competent agencies and personnel.

Given the nascent growth of Green projects, it is likely that no prior and proven expertise may exist with bidders. However, it is not different from the government's initial foray into airports, where no domestic experience of managing airports existed.

Bidders must, as part of the bid documents sought, clearly indicate their agreement to identifying 'Green' components of their bid, as part of their overall and final bid quotations. Rationale for such classifications may be provided with the bid-quote, on matters that are particularly grey.

The decision of the PPP project approval committee in such matters may be deemed final for the purposes of bid-evaluation. The approval committee therefore must include relevant Green technology experts as highlighted earlier.

Additionally, bidders may be given an incentive, by way of additional points in scoring the overall bids for innovations in the design, that may enhance the Green credentials of the project. On the other hand, bids will separately indicate the innovation done vis-à-vis design defined in the invitation to bid, and the additionality by way of Green impacts, lower costs and any such relevant matter.

The contract agreement for the PPP should also spell out the following incremental aspects relating to Green elements of the project.

- **Monitoring and certification of implementation as per contracted design:** Such certification must also include non-physical aspects of the implementation such as behavioural change programs. Certification will also enable processes regarding accessing finance and reporting Green impact gains.
- **Monitoring and certification of operations over project life cycle:** Similar monitoring of Green elements over the project life cycle, as opposed to contracted project tenure are necessary. For the purposes of the PPP contract, such monitoring and certification through independent agencies should be part of the contract 'Green' costs. This is because such costs would not have been incurred but for the transition.

The additions in process and personnel on Green elements are discussed below for each of these areas.

- **Contractual payments:** The role of an Independent Project Manager (IPM) in post-contract management of PPP projects for government will be crucial. Such an IPM will need to be qualified for expertise relating to green compliances as per the contract. This will be the basis for normal contractual payments, plus triggering of additional initiatives to obtain green finance (ex. carbon credits, additional grant funds and incentive for performance achievements etc.). The process should be time bound as per conventional PPP contracts.
- **Dispute Settlement:** The IPM should also be responsible for managing disputes in a time bound manner. The appointment of an IPM may be agreed upon by both parties, soon after execution of the contract, as a time bound condition in the PPP contract. Dispute settlement including Green elements must also be handled as part of this process with the IPM being suitably pre-qualified to decide such issues.
- **Renegotiation:** Green technologies and systems are in various stages of development and operations around the globe. There are some inherent risks to such programs, including the robustness of the technology in scale in a given geography or context. As part of the monitoring mechanism, it is desirable that the IPM, independently flags matters that could constitute significant risks to the Contract terms and likely to create a case for renegotiations and the same may be captured in an annual review. The recommended process for renegotiations has also been extensively described in the above stated report.
- The institutional framework to manage the new dimension of 'Green' infrastructure services can be best accomplished by institutions already tasked with PPP projects (from concept and design till post-operations matters)
- **Empanelment of Expertise – personnel and / or institutions for different roles:** For this, government can empanel institutions and individuals with relevant expertise for climate change/Green technologies. The advantage of such open-ended empanelment is that those who are competent to discharge the specific tasks can be pre-qualified and appointed to specific roles in the project development process. This will also integrate the Green dimension into existing processes without creating another institution and point-of-approval for new project development
- **Project Manager (PM) / PPP Cell for Project Development Enhancement:** It has earlier been recommended to appoint a Project Manager (PM) for development of PPPs working with government PPP Cell for project development and implementation. The PM should also have Green technology and systems competence as part of its executive team. The PM, with Green expertise on board, will thus undertake evaluation of bids including Green design components and can *provide* recommendations relating to final design, contracting and post-contracting systems for monitoring and evaluations.
- **Independent Project Manager for Post-Contracting management of disputes, payments, recommendations for renegotiations:** Separately, there needs to be empanelment of institutions for the role of Independent Project Manager (IPM) that are distinct from those involved in other aspects of PPP projects. This will ensure that there is no likely conflict of interest where an agency is involved in bid evaluation, and monitors the same project on which it has evaluated the winning bidder. The integrity of the IPM is thus maintained.

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