



Task Force 3
LiFE, Resilience, and
Values for Wellbeing



FINANCING INFRASTRUCTURE FOR THE FUTURE: CRITICAL CHALLENGES FOR EMERGING ECONOMIES OF THE G20

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Abstract







The longevity of infrastructure projects and the capital required to finance large projects makes it a risky sector for investments. Much of the climate-related adaptation and resilience-building effort depends on the ability of the infrastructure sector to absorb future shocks and ensure a thriving economy despite them. The risks associated with large


projects create a role for governments of emerging economies to improve conditions for financing. This Policy Brief outlines the role of planning for uncertainty, improving government contracting processes for infrastructure, and prioritising operations and maintenance (O&M) of assets towards ensuring adequate and consistent financing for the infrastructure needs of the future.



The Challenge

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In the perspective of the vast challenges to infrastructure development on account of climate and disaster resilience and adaptation, the development and financing of public infrastructure remains a focus of economic growth across the world. Financing for infrastructure of any kind is generally deemed risky, owing to the longevity of the construction period as well as the high costs of asset management. Climate-related unpredictability necessitates that the definition of ‘resilience’ be distinct for each city, even as it remains a core consideration for all.

Over the last two decades, the infrastructure sector, globally, has witnessed a dramatic shift in the extent of access to formal capital. The changing needs of the sector in the context of climate change and disaster resilience require that greater focus on planning for future climate scenarios be built into development plans, with higher volumes of committed financing. G20 countries stand at different stages with respect to their infrastructure development. For example, India is similar to South Africa and Brazil but very different from the US and the UK. After decades of dependence on

public financing for infrastructure, the Indian state established regulations as part of the liberalisation reforms in the 1990s to attract private and foreign capital. Across the world, regulatory commissions are set up to provide the private sector greater ease of business with a more balanced principal-agent relationship, as compared to one with a Ministry.¹ Meanwhile, countries like the US and the UK seldom build new roads at present, but largely upgrade and expand existing roads.²

The central problem: The longevity of asset creation timelines gives rise to a vast degree of risks that slowly unfold over decades, including economic risks, political risks, and changes in scope and law. Safeguarding private entities and bank financing in such situations is critical to ensure repeat investments, but this is hardly a consideration made by the public entity in charge of development and procurement. Weak contract enforcement capacity across judiciaries in emerging economies also means that when projects run into dispute, there is a lack of confidence in courts to resolve the matter, often resulting in a stalemate and delays in project completion.³ The failure to attract bidders and conduct competitive public



asset auctions signals low interest
from private firms and financiers, and


therefore the need to design innovative
financing models going forward.



The G20's Role



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As a grouping of both advanced and emerging economies, the G20 is a platform for building bridges and is well-suited to resolving frictions that impede consensus-building at multilateral forums. The structure of G20 presidencies as a year-long engagement spread out across various working groups and task-forces also lends itself to sustained policy dialogues. This Policy Brief highlights infrastructure financing as a keystone to large-scale infrastructure development of economies, and consequently to the agenda of climate action. It identifies key challenges that emerging economies in the G20 must overcome, and provides policy recommendations to facilitate financing for future infrastructure.

South Asian and South East Asian countries within the G20 have experienced setbacks in the past, on account of high-risk investments in infrastructure.⁴ Some of the negative impacts of these risks are highlighted in the following paragraphs.

Reviving private investment and bank financing for infrastructure

To chart a strategy for catalysing investments in infrastructure and revitalising formal finance for the same, it is important to understand the risk allocation framework of infrastructure contracts that has stalled the pace of infrastructure capacity creation. This framework is what guides the financial and commercial returns from the project, and consequently demonstrates its profitability and bankability. Table 1 shows the varying degrees of risk modelled under each contracting type.

Models based on user charges are termed as pure PPPs owing to the higher allocation of financial risk to private parties. These are risky, but effective and profitable if project planning and the ecosystem for contract management is robust. If ambitious plans such as the National Infrastructure Pipeline in India, and the National Infrastructure Plan 2050 in South Africa are to be achieved,

Table 1: Division of Risks Between Public and Private Sector in Key Infrastructure Contracting Models

	EPC/ Item rates/ BOQ	User charges-based models	Asset monetisation models (roads/ power)
Asset category	Greenfield only	Greenfield/ Brownfield	Brownfield only
Concession period	6-7 years	25 years	15-20 years
Mode of revenue	Financed through budgets	Returns from user charges	Returns from cash flow
Financial risk	Public sector	Private sector	Private sector
O&M responsibility	Public sector	Private sector	Private sector
Ownership	Government	Single or consortium (limited lease)	Single or consortium (limited lease)

Source: Author's own, based on guidelines and contract structures for each model.


consistent investments and flourishing competition across each sub-sector (roads, airports, ports and telecom) must be promoted for creation, upgrade, and maintenance of assets.

Mitigating political economy challenges in public infrastructure development

Infrastructure sectors are lucrative on account of the large value of tenders and the duration of the construction period that facilitates rent-seeking practices. The strong nexus between politicians and contractors (especially roads, power and mills) is well-documented

and acknowledged as a root cause of corruption in local administration.⁵

Several reforms have been undertaken in the field of public procurement, most notably the guidance to award single bids if sufficient criteria have been met, to avoid costs attached to re-tendering. This is a curious phenomenon considering the high volume of such bids, especially at the state level, and is telling of the sub-optimal competition levels.⁶ There is also evidence to show that contracts are often bundled to reduce administrative costs of tendering; MSMEs are often unable to participate due to high qualification



criteria that act as entry barriers to markets. Such practices can reduce the competitiveness of markets and emphasise the lack of contracting strategy deployed by players in the government across tiers.

Prioritising operations and maintenance (O&M) of existing assets

The World Bank's *Benchmarking Infrastructure Report 2020*⁷ scored various emerging economies as 'low performers' on infrastructure asset management (O&M). This is an indicator of low capacity to undertake efficient asset management (of which

operations and maintenance are a core component).

Asset recycling or monetisation is a well-experimented method to roping in private-sector capacity and expertise to manage assets once they have been constructed. While the airports and civil aviation sector has mastered this, with a majority of global airports being controlled and managed by private enterprises for a pre-determined period of lease, other sectors such as roads and power have been unable to package assets attractively. This is mostly due to the poor conditions of these assets and the lack of incentives for a private player to step in for more efficient management.



Recommendations to the G20



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The risks highlighted in Section 1 limit the appetite of private financiers to take on large projects, creating a rationale for the government to take steps to (i) reduce risks, and (ii) improve the environment for private firms to contract with the government.

It builds on the existing bottlenecks faced by sectors of infrastructure across emerging economies, recognising that climate-resilient infrastructure development will not take off until infrastructure financing can be reformed. Table 2 proposes a

three-stage framework to think about stages or components of the life-cycle of infrastructure across time, and the elements that impact access to greater financial inflows to the sector:

- (i) Augmenting planning processes to build a systematic climate lens into it, **to plan better**;
- (ii) Reforming government contracting practices, and building institutional structures for green public procurement **to procure better**;
- (iii) Strategising for infrastructure O&M to improve service delivery in the long-term and **maintain assets better**.

Table 2: Framework for infrastructure creation and financing

	Planning	Procurement	O&M
Institutional capacity			
Legal frameworks			
Financing			

Source: Author's own, based on XKDR Forum's framework for government contracting

Note: The table denotes the need for inputs such as institutional capacity, legal frameworks, and financing to be specific but distinct across the stages of planning, procurement and O&M, to highlight the specific skillsets required to manage each of the phases.

Stage 1: Building a climate lens into infrastructure planning


Experts from different parts of the world are stressing on the need for resilience frameworks for urban planning to include bioclimatic urban design, nature-based solutions, multifunctional urban spaces and sector-specific strategies.⁸ This is underpinned by the fact that despite the strides in climate modelling, significant uncertainty and unpredictability exists, necessitating flexible and agile approaches to this field. To maintain dynamism and spontaneous planning processes, the development of human capacity is required, where planners and government officials are able to recognise the challenges at hand and tweak their planning methods accordingly.

The lack of consensus on climate prediction models, and the complexities involved in foreseeing climate risks further reduces the ability of governments to plan for the future.⁹ Further, the practice of developing 'master plans' for 10- and 20-year horizons eliminates the flexibility required to adapt to the uncertainty of climate-related pressures. These plans

are also built for cities in silos, without adequate consideration for the city's interaction with the fringes. Planning systems must essentially be a medium for promoting coordination across tiers of government, across horizontal departments and amongst urban local bodies.

Recommendations:

1. Policymakers must break away from the conventional approach of long-period master plans for metro cities with narrow goal-setting and develop an agile sense of urban policy, constantly practice assessing, adapting and augmenting. Resilience must be approached as an intersection of infrastructure, communities, human and state capacity, and governance institutions, with each being equal stakeholders.
2. The tendency to work with certain fixed scenario-based models is ingrained in urban planning. But an alternate stream of Planning Support Systems (PSS) has gained traction owing to its ability to provide an evidence basis to understand, model and manage growing cities.¹⁰ Application of this to city-level planning requires large-scale capacity building of public officials, as well as the



fostering of urban corporation research units within larger, denser urban local bodies in emerging economies.

3. An important component of planning for infrastructure is for the government (at any level) to decide whether it must ‘make/build’ it, or ‘buy/procure’ it. To enable sound decision-making in this regard, public officials must be trained to adequately undertake an assessment of their internal capabilities. When deciding to make or build, the manufacturing and construction of the public authority is under question, and when deciding to buy or procure, the capabilities of the market is critical, along with the ability of the authority to effectively choose the right bidder.

Stage 2: Reforming government contracting practices and building institutional structures for green procurement

Estimates suggest that for G20 countries, public procurement comprises nearly 20-22 percent of GDP. As bulk procurers, governments can shape purchasing trends and incentivise private sector suppliers, enabling a

market transformation in the direction of larger policy goals.¹¹ Optimising public expenditure through improved public procurement methods is useful to improve the cost effectiveness of purchases for G20 economies, and spare funds for further asset creation.

The global quest towards a just transition away from fossil fuels requires the electricity and energy sector to undergo the greatest transformation. There are numerous policy pathways to achieving an energy transition, but the urgency of the climate problem requires actions on several fronts to ensure successful and swift outcomes. Green public procurement is a critical tool for G20 country governments to enhance, mainstream and embed climate action within public expenditure towards achieving environmental policy goals relating to climate change, resource use and sustainable consumption and production.

For G20 economies that spend trillions on procuring goods, services, and works each year, how must we modify procurement processes to mainstream green purchases within the infrastructure segment? How must planning processes be augmented to enable factoring in

of climate risks and their mitigation strategies? How can we plan better to attract more predictable funding? Table 2 proposes a framework implying that institutional clarity and capacity on the planning, procurement processes for infrastructure creation, and post-construction asset management are core considerations to be made whilst securing financing.

Recommendations:

1. Address bottlenecks in infrastructure procurement such as low competition, declining private investment by discouraging payment delays and contract non-enforcement / reneging.¹² The burden of financing for infrastructure creation is too large for the public sector to bear by itself, and private capital inflows are pertinent.
2. Formalising tender strategy and training procurement officials to undertake the same. The decision to bundle contracts, and price each bundle determines exactly the number of bids it will receive and the cost advantages it is able to gain from competition. Strategising tenders to attract the right kind of bidders is crucial,

involving significant market knowledge/ survey and industry linkages through positive feedback loops.

3. Develop use cases for green public procurement: while large entities (such as the Indian Railways) may initiate GPP reforms on their own, scaling up across government requires buy-in from policymakers, procuring agencies, the markets they buy from, and the public they serve. This is inevitable considering the global acceptance carbon border adjustment mechanisms are finding today. An incentives-based system through procurement is likely to work more effectively than certifications and GPP laws that are more of a top-down approach.
4. Training and skilling procurement officials at the level of ULBs / local governments is necessary to ensure that even in the event of them outsourcing elements of the procurement pipeline, the officials are able to determine the ask of this work and monitor the outputs provided to them. This capacity is critical to equip officers with not just an understanding of 'procuring' but also a nuanced understanding of 'green'.



Stage 3: Strategising for infrastructure O&M

The energy sector, globally, attracts a significant share of capital from institutional investors such as Canadian pension funds and Australian investment houses. This has contributed to the growth of the ESG and green finance ecosystem the world over, though emerging economies have only begun promoting this in the last decade. The slowdowns in the aftermath of the pandemic, and the lower rates of returns have led to stakeholders questioning the mechanical nature of ESG investing, the increasing investor scrutiny of ESG norms and whether these eventually result in greener development.

Similarly, asset monetisation for large public infrastructure is a preferred investment location for institutional investors across the world, who are on the look-out for avenues to park sums of capital that can generate a steady stream of cash flow. Asset monetisation has not fully taken off in G20 countries due to several reasons.¹³ Financing certainty is a result of institutional capacity to manage funds, and policies/laws that emphasise planning and predictability in implementation. Low-incentive

structures for public officials to reform systems, make private players view their investments as a bad deal because of the risks associated with taking on government-built infrastructure. This is attributed to both – public infrastructure authorities' low attention to O&M and the poor quality of infrastructure built across certain countries.

Infrastructure is a sector that speaks the language of large capital. To finance large and resilient infrastructure in emerging economies, mechanisms to attract large volumes of capital must be developed. This is a factor of both, existing regulatory burdens for the private sector and the rate of economic growth in the country that determines returns on investment. Indonesia is in the process of formalising its TOT (toll operate transfer) model, and India has not managed to attract much capital through its TOT models and asset monetisation drives.

Recommendations:

1. Moving to a 'measurement of investment impact'¹⁴ approach rather than a disclosures-driven agenda on ESGs and impact investing. Reducing regulatory burdens may help, and in turn



incentivise investors to serve the causes their investors care about, rather than complying with a checklist mandated by regulators such as the Securities and Exchange Board of India. ESG is a means for investors to invest in green growth, and it must be enabled to play that role.

2. Instead of experimenting with untested models such as the recent Ministry of Power notification in India to undertake Acquire-Operate-Maintain-Transfer (AOMT) for the transmission sector, or the Toll Operate Transfer models in India and Indonesia, the InvITs (investment trust) model works more favourably for institutional investors who get to diversify their risks in a pooled investment
3. Improving mediums for ease of doing business in Asia. Large investors require contract enforcement and recourse that is credible, and does not suffer from the infirmities of the legal system in emerging economies.¹⁵ Arbitration is one such option that is now embedded into infrastructure contracts in various countries, but the decision to appeal arbitral awards in higher courts is often an egregious one.


mechanism of this sort. Additionally, promoting an AOMT/TOT over the InvIT model signals a preference for construction and development giants as compared with institutional investors that choose models like InvITs for investment, owing to their diversified asset pool and minimal risk concentration.



Conclusion

4





Escalating geopolitical tensions across Europe and Central Asia, and a sharp rise in policy uncertainty has dampened the global infrastructure investments outlook for emerging economies.¹⁶ Worse, there will be stronger headwinds on the private sector playing a more active role in filling the infrastructure gap as economic stimulus slows and credit conditions tighten. In addition to these existing tensions, climate finance flows so far have demonstrated that greater scrutiny of the nature of these funds is warranted, to ensure financial sustainability for emerging economies.¹⁷

Sophisticated planning methods and discipline is essential to develop internal capacity to be agile and dynamic towards the demands of uncertainty. Second, unless contract practices and market captures at the local level, and contract enforcement capacities are not enhanced, large capital will not trust assets. Third, thinking about and implementing green procurement across the range of goods, services and works being procured is timely and urgent. Fourth, encouraging large investors

to invest in infrastructure will require changes to the regulatory ecosystems across emerging economies. Last, cities are at the heart of national emissions as well their economic activity; addressing the resilience question will have to emerge from city-centric solutions across countries that include enhancing the capacity of local bodies to rise to the challenge.

The proposed framework is useful to implement in stages, on account of systemic changes required to address the core of the challenge in the infrastructure sector for G20 economies. Several municipalities suffer from the lack of sophisticated technology, skilled personnel and contingency funds. Budgetary allocations must be aligned towards greening, with climate action being integrated within public expenditure plans. It is incumbent upon countries to build pathways to financing resilient infrastructure themselves. Strengthening the enabling environment for the development of climate-resilient infrastructure for the future must begin with improving the challenges faced by the sector today.

Attribution: Charmi Mehta, "Financing Infrastructure for the Future: Critical Challenges for Emerging Economies of the G20," *T20 Policy Brief*, June 2023.

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