



Governance and Timeliness: Leveraging Land Value Capture in Indian Metro Rail Projects

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Major Indian cities are experiencing higher traffic congestion and vehicular pollution with increasing use of personal vehicles. Mass transportation options offer a solution to this problem. Intra-city metro rail systems – which can bypass limited road space, have high passenger carrying capacities, and offer faster travel times across expanding cities – are a particularly attractive mass transportation option. However, metro rail systems are capital intensive and Indian cities are under-financed, with local city governments depending heavily on state and national governments, as well as multinational development banks for urban financing (Clarke Annez, 2010 and Baidur and Kamath, 2009). In the last two decades, several cities have started to explore an alternative financing strategy, Value Capture Financing (VCF), and more specifically, the capture of land and property values, Land Value Capture (LVC), to develop metro rail systems.

India’s Metro Rail Policy, 2017 mandates that all metro rail systems must include a component of VCF. The policy also requires a public-private partnership (PPP) component, common in projects using VCF, in order to obtain financial assistance from the central government. In 2017, the central Ministry of Housing and Urban Affairs released a Value Capture Finance Policy Framework detailing various VCF tools. Although VCF strategies potentially offer financing solutions to India’s current deficit in urban infrastructure investment, their successful implementation on the ground is premised on navigating complex urban governance systems and balancing the interests of both public and private stakeholders (Mahalingham, 2010; Pathak, 2013; Mathur, 2019; Dhindaw, 2021).

This policy briefing focuses on governance gaps, as well as questions of timeliness and time-bound phasing of VCF and LVC implementation for metro-rail systems in Indian cities. It draws on research findings from the Metropolitan Development and Land-Based Financing research stream, under the PEAK Urban programme. The analysis covers Bengaluru’s Namma Metro project, currently under implementation.

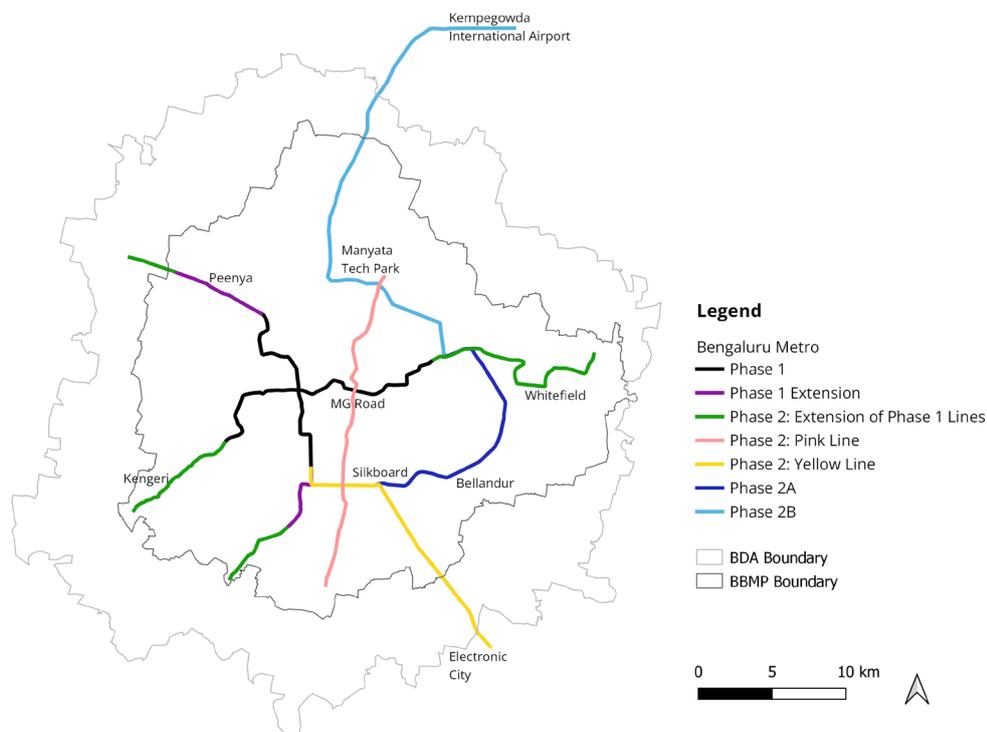


Figure 1: Metro lines of Bengaluru
Source: The Metro Rail Guy, 2022

Key findings:

1. Implementation of metro rail projects involves multiple public agencies, due to India's complex and fragmented urban governance systems.

Policy directives for VCF for metro rail projects focus on modalities of public-private partnerships. However, they do not highlight that successful implementation of these projects also involves multiple public agencies and public-public partnerships, due to complex and fragmented urban governance systems in India. There is lack of clarity around policy regarding the framework that would hold and facilitate collaborations between multiple government agencies and public bodies with overlapping jurisdictions and roles in urban governance. This also translates to time-intensive multi-institutional VCF negotiations, to discuss the share of revenues between government authorities. In Bengaluru, many details of VCF, such as jurisdictional control over revenue collection, implications of integration across multiple modes of public transportation in the city, and the modalities of revenue sharing between different public bodies are still in the inter-institutional negotiation stage.

2. Although several VCF tools rely on private development interest in metro-corridor land, the timeframe for finalising planning guidelines, and potential delays in construction, create uncertainty for developers.

Several VCF tools are predicated on tapping into the increased private development interest in land along metro lines. However, the waiting period associated with the finalisation of planning guidelines and potential delays in construction creates uncertainty for real estate developers, particularly local landowners and small-scale developers interested in utilising additional Floor Area Ratio (FAR) – the ratio of total floorspace to plot area – around metro stations.

3. Delays in preparing and notifying special local corridor-level plans to give statutory backing to public LVC often means the private sector captures land value early and compromises public agencies' LVC potential.

Private LVC along metro corridors often takes place through direct land development and property sales by private developers and corporates, on the basis of extant Master Plan guidelines. Delays in preparing and notifying local corridor-level plans, which create a statutory basis for public LVC for the metro corridor, often result in private-sector actors capturing land value before local plans can be notified. It is difficult to impose new development levies and external development charges on private developers after notification of new local plans, as developers have often already completed project sales and exited these locations. Levying these fees on homebuyers and other end-users, instead of developers, effectively double-charges them, as they have already paid developers speculative prices that incorporate land value increases, based on infrastructure yet to come. It is also difficult to institute higher property tax on new homebuyers in the area, since the subject is politically fraught. Higher property taxes make homes even more unaffordable in a market where high prices and housing inequality are already significant challenges.

4. A uniform, one-size-fits-all VCF strategy across the city is not suitable for the spatial diversity of development across metro corridors.

The varying characteristics of urban development patterns, growth patterns, and increases in land and property values in different parts of the city highlight the need to design context-specific and multiple models of VCF and LVC. For example, in areas with available land parcels there are possibilities of Rail and Property (R+P) development. Areas that are already dense and built up offer redevelopment opportunities, as well as potential for tax-based value capture instruments. A uniform, one-size-fits-all VCF strategy across the city is not suitable for the spatial diversity of development across metro corridors.

Complexity of governance and inter-institutional VCF negotiations

Bengaluru's Namma metro line is being implemented by a dedicated Special Purpose Vehicle (SPV), Bengaluru Metro Rail Corporation (BMRCL), to facilitate timely and financially efficient project implementation. This SPV is operationally nested within Bengaluru's urban governance system, which includes multiple government bodies with roles such as planning, land development and urban service provision, as is typical of urban governance in India. Even sector-specific planning and implementation of urban and transport infrastructure is carried out by multiple organisations, including BMRCL, Bangalore Metropolitan Transport Corporation, Bangalore Development Authority and Bangalore International Airport Area Planning Authority, among others. A Bengaluru Metropolitan Land Transport Authority (BMLTA) Bill is under discussion, in response to the complexity of governance arrangements to address the city's transport infrastructure and land-use planning.

Each of these government bodies is authorised by its own statutory act to collect user charges and fees, creating a complex and often overlapping system of urban revenue collection. This has implications for inter-institutional VCF negotiations and the time they require.

The BMRCL is a 50:50 equity partnership between the Government of India and the Government of Karnataka, with loans from both and from financial institutions including multilateral and bilateral organisations, and funding from secured Non-Convertible Debenture bonds. A Metro Infrastructure Fund and a Transport-Oriented Development (TOD) fund have also been proposed. These funds are to be shared between city institutions and used for infrastructure upgrading, but the statutory details are still to be finalised.

The operational negotiations of Value Capture Financing (VCF) are therefore made both complex and time-intensive due to: 1) the existence of multiple government bodies with simultaneous authority to collect urban levies and taxes, 2) the need for individual government bodies to maintain their own financial autonomy, 3) the responsibilities of individual

government bodies to spend their share of the city's infrastructure budgets, and 4) inter-institutional coordination between government bodies for planning, implementation and revenue sharing.

While policy directives for VCF for metro rail projects focus on modalities of public-private partnerships, they do not highlight that successful implementation of these projects also involves multiple public agencies and public-public partnerships, due to complex and fragmented urban governance systems in India. There is a lack of policy clarity regarding the framework to facilitate partnerships between public agencies, which translates into time-intensive, multi-institutional VCF negotiations. In Bengaluru, many details of VCF are in the inter-institutional negotiation stage.



Credits: Pooja Rao, Suman SD

Timeliness concerns for VCF tools linked to planning, construction and policy delays

The implementation of a metro rail system involves a number of time-intensive processes which are subject to delays, including the preparation of a Detailed Project Report (DPR), approvals from the state and central governments, land acquisition, selection of contractors via open tendering, construction, and institutional operationalisation – including questions of ticketing and management systems. This results in a time-gap of 4-10 years between the announcement of a metro line corridor and its operationalisation. Bengaluru's 2015 Master Plan currently allows for an

increased FAR of four within a 150-metre radius around the metro terminals, but stipulates that this would be applicable “only after the completion of the metro stations”. This means a wait of 4-10 years for developers interested in this incentive.

A draft TOD policy for Bengaluru was released in 2019, 16 years after the DPR for the first phase

of the metro was prepared and eight years after the first metro line was made operational in 2011. The final TOD policy is yet to be released. The draft Revised Master Plan for Bengaluru - 2031, prepared to replace the 2015 Master Plan, was released in 2015. However, the new plan did not include a TOD vision for the city and the Master Plan is being reworked, to align with the city's TOD policy.

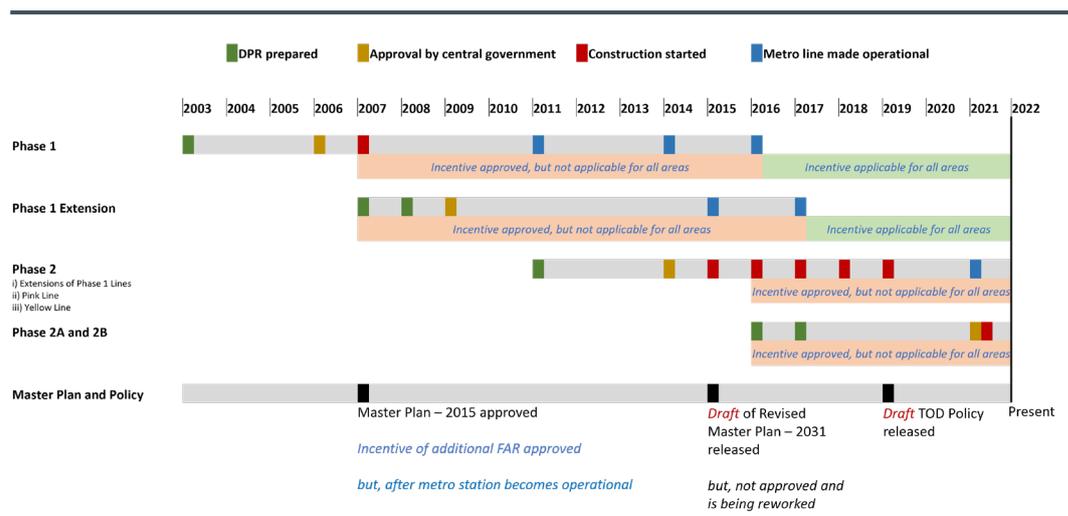


Figure 2: Timeline of metro development and associated plan and policy in Bengaluru

Source: Compiled from The Metro Rail Guy, BMRCL website and newspaper archives.

Note: Each line under a phase can have a separate DPR and tender, which may involve different construction agencies. Some phases therefore have multiple years marked for DPR preparation and the start of construction. Different sections of a particular metro line may also be made operational at different times, so each phase can have multiple years for when the metro line is made operational.

Several VCF tools are predicated on tapping into the increased private development interest in land along the metro route. However, the waiting period associated with finalisation of multiple planning documents and potential delays in implementation of metro rail projects creates uncertainty for real estate developers, particularly local landowners and small-scale developers, interested in utilising additional FAR around the metro stations.

Ongoing discussions are taking place over Memoranda of Understanding between BMRCL and large-scale private-sector actors for metro station development, especially where direct access to a station is an incentive for the private actor, although there is limited data publicly available regarding these negotiations. These discussions highlight private-sector interest in the metro project, despite the delays mentioned above. More clarity on the modalities of VCF-linked public-private

partnerships has the potential to open up the process to private actors across different scales.

Urban growth dynamics precede metro construction and operationalisation

Bengaluru is India's fastest growing city. Its built-up area doubled from 196.6 square kilometres in 2001 to 404.2 square kilometres in 2016, which coincides with Phase 1 of the metro project, announced in 2003. All the Phase 1 lines opened in 2016, enabling developers to use additional FAR along its corridor.

The second phase of the Bengaluru metro project (see Figure 3) includes the ongoing construction of:

1. Phase 1 lines extension
2. Pink Line – a new line from the central city to the south
3. Phase 2, Yellow Line – a new extension towards Electronic City
4. Phase 2A – a new line along the south-eastern Outer Ring Road
5. Phase 2B – a new line along north-eastern Outer Ring Road and to the international airport via Airport Road.

Despite delays in construction, plan preparation and implementation of VCF tools, land development activities by individual landowners, developers, corporates and other private-sector actors along the next phases of metro construction have not stopped or slowed. The areas near Electronic City and along the south-eastern part of the Outer Ring Road, which accommodate Information Technology (IT) parks, have witnessed a boom in real estate development over the past decade (Rao and Suman, 2020). Areas along the Airport Road, where Phase 2B is being constructed, saw a land-price surge when the international airport in Devanahalli was announced and built, with significant private land consolidation by developers. Several residential, mixed-use and IT-park projects are being constructed in this area.

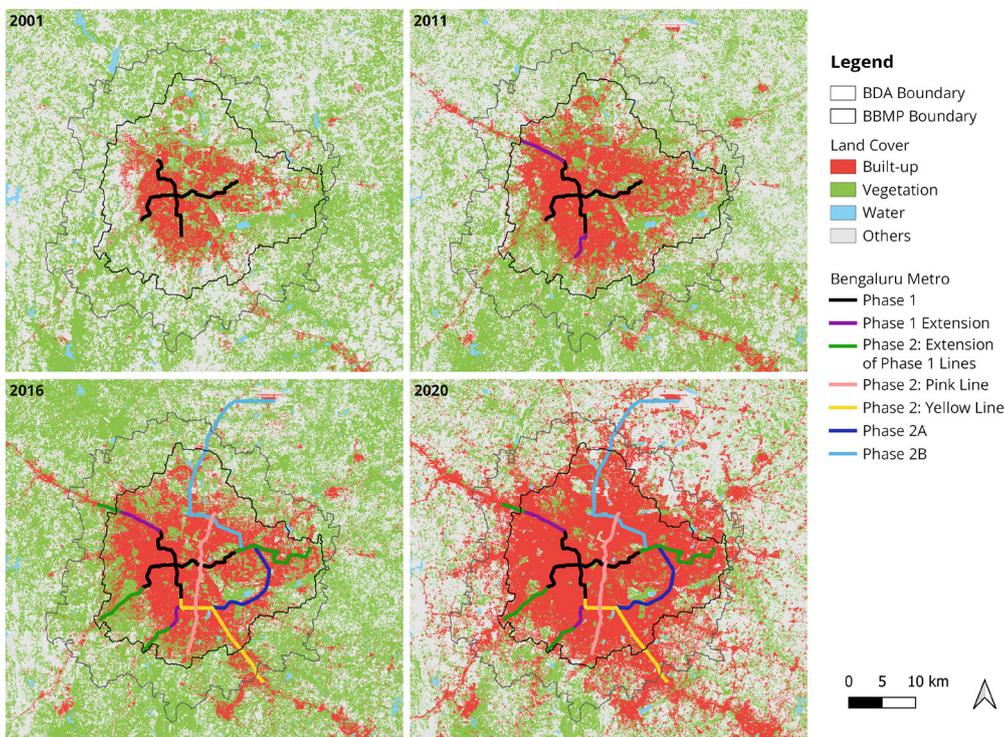


Figure 3: Timeline of Bengaluru's metro overlaid with its urban growth

Source: IIHS-GSL, 2022

We undertook primary research in Kadubeesanahalli and Nagasandra (along the second phase of the metro development), and supplemented it with secondary data on real estate prices and supply of developer-built formal housing in the area. The findings highlight that these areas are still awaiting several basic urban infrastructure services, such as roads and water supply. Yet private developer-led speculation in residential sale prices is high. In many projects, developers have successfully tapped into people's willingness to pay higher prices for future metro connectivity and future provision of basic infrastructure and services in these areas.

In effect, the private LVC in these areas has occurred well before public LVC will become possible. This compromises the success of future VCF tools, which would be premised on recouping land-value increases. It would be difficult to levy fees on developers, who would have exited by then, and levying fees on homebuyers would effectively double-charge them, as they have already paid developers speculative prices that incorporate future land value increases. Targeting VCF tools at homebuyers would also be difficult, as it

would make housing even more unaffordable in a market already facing the challenge of significant inequality.

In addition, the urban development characteristics along the different metro corridors vary significantly. While certain areas along the proposed corridors have witnessed rapid real estate growth and consolidation of private land banks, areas along new extensions of Phase 1 lines have not experienced a similar boom and are seeing steady growth.

The varying characteristics of urban development patterns, growth patterns, and land and property value increases along different metro corridors highlight the need for context-specific and multiple models of VCF and LVC. For example, in areas with available land parcels, there are possibilities of Rail and Property (R+P) development. Areas that are already dense and built up can offer redevelopment opportunities, as well as scope for tax-based value capture instruments. A one-size-fits-all, uniform VCF strategy across the city is not suitable for the spatial diversity of development across metro corridors.



Credits: Pooja Rao, Suman SD

Conclusions and recommendations

Governance coordination and timeliness play a critical role in ensuring success for VCF implementation, as development and land value markets are dynamic and quick to adapt to changing conditions due to infrastructure announcements and market demand. Private players are swift to enter areas around metro lines which are expected to see a demand

surge, and to undertake land aggregation and development. They capture land value in these areas many years before public land-value capture becomes possible. Post-fact recoupment of development levies is also constrained, as developers prefer to complete property sales and exit from these projects without waiting for VCF incentives.

Policy focus is essential to bridge the current gaps regarding governance and timeliness.

1. Develop a single-window system to provide information on project eligibility for VCF incentives and applicability of VCF levies

Delays faced by end-users such as citizens and private developers in navigating multiple jurisdictions can be mitigated through a single-window system. This would provide information on project eligibility for VCF incentives and applicability of VCF levies. It should be designed to provide single-window permissions from relevant authorities, and allow an integrated platform for payment of all taxes and fees.

An example is the No Objection Certificate Application System (NOCAS) from the Airport Authority of India. NOCAS allows users to check the approximate permissible elevation for a land parcel, as per airport regulations, and allows them to apply for construction permission. The system also generates automatic approvals for simple cases.

2. Integrate VCF and LVC instruments into land-use planning as a part of Local Area Planning

VCF and LVC instruments should be integrated into land-use planning as a part of local area planning. Strategies for value capture need to be grounded in local development dynamics, infrastructure accessibility and potential local economic development. Closing this gap is critical, since Transport-Oriented Development (TOD) and LVC are being envisioned as projects that will make Indian cities more sustainable and influence local economic growth and social development.

3. Plan VCF and LVC with mechanisms designed to capture the dynamism in urban growth and governance structures

Given the changing nature of urban growth dynamics in Indian cities, with complex governance structures that also change over time in terms of jurisdictions, cities need to consider VCF and LVC planning with mechanisms designed to capture such forms of dynamism, both spatial and temporal. Policymakers should give special focus to the time period between metro rail line announcement and operationalisation.

4. Consider multiple models of VCF and LVC design in urban planning, appropriate to intra-city differences in spatial and temporal development and demand.

Urban planning must also consider multiple models of VCF and LVC design, appropriate to intra-city differences in development patterns and demand dynamics. VCF and LVC planning and design which is responsive to the spatial and temporal dynamics of land and property micro-markets at neighbourhood and station levels offers a greater likelihood of success than a one-size-fits-all approach. As Nair (2019) points out, blanket policies and norms without any context-specific plan are unlikely to prove fruitful.

The current experiences of VCF and LVC offer a number of valuable policy inputs for their redesign in the future. These highlight policy pathways to robust TOD-LVC design in Bengaluru and other cities, so that future metro corridors can harness increased value via VCF.

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About us

The PEAK Urban programme aims to aid decision-making on urban futures by:

1. Generating new research grounded in the logic of urban complexity;
2. Fostering the next generation of leaders that draw on different perspectives and backgrounds to address the greatest urban challenges of the 21st century;
3. Growing the capacity of cities to understand and plan their own futures.

In PEAK Urban, cities are recognised as complex, evolving systems that are characterised by their propensity for innovation and change. Big data and mathematical models will be combined with insights from the social sciences and humanities to analyse three key arenas of metropolitan intervention: city morphologies (built forms and infrastructures) and resilience; city flux (mobility and dynamics) and technological change; as well as health and wellbeing.

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Our framework



The PEAK Urban programme uses a framework with four inter-related components to guide its work.

First, the sciences of **Prediction** are employed to understand how cities evolve using data from often unconventional sources.

Second, **Emergence** captures the essence of the outcome from the confluence of dynamics, peoples, interests and tools that characterise cities, which lead to change.

Third, **Adoption** signals to the choices made by states, citizens and companies, given the specificities of their places, their resources and the interplay of urban dynamics, resulting in changing local power and influencing dynamics.

Finally, the **Knowledge** component accounts for the way in which knowledge is exchanged or shared and how it shapes the future of the city.

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