CASE STUDY

India

1. Noteworthy practices for project preparation

EXISTING ENABLING ENVIRONMENT

Programmatic approach to project development through specialised institutions established by the government

Specialised sectoral institutions, set up by national and sub-national governments, help to streamline and standardise project development in their respective sectors. These institutions also liaise extensively with development agencies to help strengthen capacity for project preparation. Over time, these institutions have evolved to house capabilities for developing projects within their sectors and provide advisory support to other government agencies in their sector.

Dedicated entity within the Prime Minister's Office to fast-track national strategic projects

In response to project implementation delays in India, the Project Monitoring Group (PMG) was set up under the Prime Minister's Office (PMO) to provide an efficient and transparent mechanism to monitor and fast-track the implementation of strategically important infrastructure projects. The progress of all projects tracked by the PMG is also published on a real time basis on a dedicated portal maintained by the PMO.

Strengthening enabling frameworks for project preparation at the sub-national level through nodal agencies and project development funds

In order to support project preparation activities at the sub-national level, various state governments in India have instituted nodal agencies through the enactment of legislative frameworks. These agencies help strengthen the capacity of state infrastructure development institutions. Further, some states have also set up dedicated project development funds to fund project preparation activities. These funds are in partnership with international development institutions, such as the World Bank, Germany's Kreditanstalt für Wiederaufbau (KfW), and the Japan International Cooperation Agency (JICA), and thus function to bring in international project development standards for projects at the state level.

PROJECT IDENTIFICATION AND CONCEPT DEFINITION

Long-term strategic plans at the sector level, tied to implementation through government supported multi-year schemes

Individual line ministries at the national level have defined long-term visions and goals for infrastructure development within each sector. These long-term plans are then implemented through multi-year schemes with defined project pipelines, thereby supporting project identification and prioritisation in alignment with the sector's strategic priorities.

PROJECT FEASIBILITY AND STRUCTURING

Use of standardised sectoral toolkits for the quantitative evaluation of PPP projects

India's Ministry of Finance (MoF) has designed sector specific toolkits that aid in quantitatively evaluating PPP projects at the pre-feasibility and feasibility stages. These toolkits are easily available on a dedicated portal managed by MoF and cover four aspects of project preparation – project screening, financial viability, value for money analysis, and project structuring. Further, model concession agreements (MCAs) prescribed for each sector help to standardise risk allocation and mitigation in PPP projects.

2. Snapshot of project preparation activities

India's project preparation framework is steered by its line ministries and sub-national governments, who are adopting a streamlined and systematic approach to project development.

States in India are critical for infrastructure development. While at the national level, there is a focus on developing key infrastructure sectors like national highways, telecommunications, power, railways and airports, the development of other sectors like water and sanitation, health, and education are shared and often vested in the state governments. Improving the maturity of India's project preparation activities has placed it well amongst the emerging infrastructure and PPP markets around the world.

INSTITUTIONAL FRAMEWORK

Project preparation activities in India are decentralised and are largely driven by contracting authorities. Line ministries, state and local governments at the sub-national level are responsible for their own project preparation.

The Department of Economic Affairs (DEA), the apex agency for project development in India, is housed within the Ministry of Finance (MoF). The Infrastructure Policy and Finance (IPF) division of the DEA is responsible for analysing public investment proposals for infrastructure projects, and handling all matters related to non-PPP projects of the line ministries. The IPF division of DEA also hosts a specialised team under the central PPP Cell section, which functions as the nodal point of contact for PPPs in India. It is responsible for: (i) drafting the national PPP policy and programs; (ii) managing the India Infrastructure Project Development Fund (IIPDF) for PPPs; (iii) undertaking capacity building programs; (iv) appraising and approving national PPP projects; (v) managing and approving financial support for PPPs under the Viability Gap Funding (VGF) scheme; and (vi) liaising with development institutions through technical assistance programs to build local capacity for project development.

The Department of Expenditure, also housed under the Ministry of Finance, is the nodal department for overseeing the public financial management system at the national level and overseeing matters related to the state finances. It is responsible for pre-sanction appraisal of major schemes or projects and overseeing the expenditure management of the central line ministries.

The National Institution for Transforming India (NITI Aayog), the premier planning unit, provides directional and policy inputs for infrastructure and PPP development in India. Through its Project Management Unit (PMU), NITI Aayog aims to support project preparation at the sub-national level, helping states identify, screen, prioritise, and develop PPP projects for implementation. On the policy front, it has also been tasked with preparing the three-year action plan, along with the seven-year strategy and 15-year vision document for the development of the country.

Role of the Project Monitoring Group (PMG) to fast-track national projects

In order to efficiently implement infrastructure projects, the government established the Project Monitoring Group (PMG) in 2013, to monitor and fast-track stalled public infrastructure and PPP projects. PMG is an institutional mechanism set up under the Cabinet Secretariat, reporting directly to the Prime Minister's Office, to resolve a variety of issues at both central and state levels required for faster commissioning of large-scale public infrastructure and PPP projects.

The processes followed by PMG are available on their website (*https://esuvidha.gov.in/*) with the objective of achieving transparency and efficiency. This helps in fast-tracking the entire process of approvals by enhancing communication between the investor and the government. PMG has also initiated the process of accepting applications for forest and environmental clearances online. After the success of PMG at the national level, a similar kind of mechanism has been implemented by states like Odisha, Uttarakhand, Rajasthan and Uttar Pradesh to address the issues faced by infrastructure projects within their states.

At the national level, India has also established specialised contracting authorities that focus on infrastructure development in specific sectors. While these institutions are associated with the line ministries, and owned by the central government, they work as independent entities, carrying out most of the project preparation and development activities on their own or by hiring external consultants and advisors. To strengthen project preparation, these institutions develop a set of standardised guidelines and frameworks for projects that fall within their jurisdiction. Most of these specialised institutions have been tasked with running a large-scale, long-term, national level program.

Empowered sector-specific public institutions to drive infrastructure investment – The case of the National Highways Authority of India (NHAI)

NHAI was established in 1988 with a mission to develop, maintain and manage national highways in India. It has been mandated to develop 125,000 km of national highways under schemes like the National Highways Development Project (NHDP) (50,000 km) and Bharatmala (75,000 km). It has been instrumental in mobilising private funding for the development of highways and has pioneered the transition in infrastructure financing from traditional public procurement to PPPs within a very short period.

In the mid-nineties, PPPs in the highways sector received a lukewarm response from the private sector, owing to poor project preparation and a lack of standardised contractual frameworks. NHAI was among the first to introduce model concession agreement (MCAs) for national highways, under the Build-Operate-Transfer (BOT) model. Subsequently, NHAI has standardised MCAs for different modes of project execution, thus improving efficiency and transparency on the sharing of risks. Concurrently, NHAI has also developed and maintained a standardised set of procedures to be followed while undertaking project preparation activities. NHAI also routinely hires external consultants or experts to prepare quality project preparation documents. To enable quality assurance, NHAI undertakes independent reviews of project feasibility studies, through a specialised team within NHAI or through the empanelment of peer consultants.

As the apex agency for national highways projects in India, NHAI also routinely undertakes market consultation exercises, to glean feedback from developers, investors and bankers on the challenges faced for national highway projects and redressal mechanisms to be explored.

As of today, NHAI has awarded more than 610 projects out of which approximately 300 projects were undertaken using the PPP model.

At the state level, the State Public Works Departments (State PWDs), divisions of the state governments, undertake the majority of the infrastructure planning and developing activities. Some states in India that have an explicit legal framework for private investment in public infrastructure are Andhra Pradesh, Gujarat, Karnataka, Tamil Nadu, Uttar Pradesh, Madhya Pradesh, Rajasthan, Bihar, Orissa, etc. Apart from State PWDs, states have also established contracting authorities that focus on the development of state highways, irrigation, urban development and other infrastructure. For example, the development and maintenance of state highways is usually undertaken by state road development corporations. To streamline project preparation at the state level, most states have enacted state-specific legislation for PPPs, and instituted nodal agencies for project planning and development. These nodal agencies also provide financing support for project preparation. For instance, the State of Gujarat's Gujarat Infrastructure Development Board (GIDB) plays a pivotal role in project structuring and planning. It is a focal point organisation for infrastructure development in the state, mandated under the Gujarat Infrastructure Development Act.

At the municipal level, infrastructure development activities are undertaken by municipal corporations. Some metropolitan towns and tier 1 cities[1] have established their own development authorities to plan and develop infrastructure within their administration. For example, the Mumbai Metropolitan Region Development Authority (MMRDA) is responsible for planning, the formulation of policies and programs, implementing projects, and directing investment in the Mumbai metropolitan region.

PROJECT PREPARATION LANDSCAPE

Project preparation financing. Funding for project preparation activities is largely through budgetary allocations and internal resources of contracting authorities. For PPP projects, the national government provides funding support through the India Infrastructure Project Development Fund (IIPDF). Established in 2008, the IIPDF is a revolving fund with an initial amount of approximately US $15 million funded by the Government of India to support the process of preparing projects that are viable and bankable. IIPDF can be utilised for the preparation of feasibility studies, environmental impact studies, project structuring, and for funding a portion of the cost of hiring consultants and transaction advisors. The fund can finance up to 75% of the total project development costs to the sponsoring authority. Upon successful bidding, the project development costs would be reimbursed to the successful bidder and in case of failure in the bidding process, the sponsoring authority would be liable to refund the amount of financial assistance provided.

To empower project development activities at the state level, many states have also established their own project development funds. To illustrate, the Government of the State of Tamil Nadu has set up the Project Development Grant Fund (PDGF) for supporting project preparation in the urban infrastructure sector. The fund has been financed by development agencies such as the World Bank, KfW and JICA. The PDGF is used to provide grants to carry out consultancy assignments, to operate and manage resource mobilisation programs, and to implement capacity building, development and training. The Government of Orissa has also established a state level project development fund, in partnership with KfW, to finance project preparation and the development of bankable projects. In addition to funding project feasibility studies, it also supports the preparation of city development plans and pre-feasibility studies for infrastructure projects.

Project conceptualisation and planning. Currently, the NITI Aayog in India has undertaken the preparation of a national level infrastructure development plan for India. Apart from this, individual line ministries and departments or other contracting agencies in India prepare long-term strategic plans and visions for each sector. Projects are then identified and

[1] Tier 1 cities are cities with a population of 100,000 people or more.

prioritised based on their alignment with the sectoral strategic priorities. For instance, the Ministry of Railways has established a Vision 2030, which defines, in quantitative terms, the key developments in the rail sector targeted for the period of 2018 - 2030. Typically, these long-term plans are then programmed through multi-year centrally sponsored schemes and initiatives, such as Bharatmala for the development of national highways, Sagarmala for the development, upgrade and modernisation of ports, Pradhan Mantri Awaas Yojana (PMAY), an affordable housing scheme, and Atal Mission for Rejuvenation and Urban Transformation (AMRUT) and SMART City Mission, which are combined schemes for water supply, sanitation, urban development and housing. Each of the line ministries then include their financing proposals to execute the identified and approved public investment projects (non-PPP projects) in the Demand for Grants document, which forms the input for preparation of the central annual budget by the Ministry of Finance.

Project feasibility and structuring. For public investment projects, a concept paper is prepared at the project formulation stage for seeking in-principle approvals, holding stakeholder consultations, conducting pilot studies etc. Project preparation commences with the preparation of feasibility study reports and includes a Detailed Project Report (DPR), pilot experiments and studies for schemes, and the preparation of environmental management and social management plans.

The Ministry of Environment, Forest and Climate Change (MoEFCC) has made Environment Impact Assessments (EIAs) mandatory for infrastructure projects. All infrastructure projects are classified under two categories, A and B, on the basis of locational aspects, impact on human health, and natural and man-made resources. Category A projects are approved by MoEFCC, while Category B projects are approved by the sub-national Environment Impact Assessment Authority. Further, under the Right to Fair Compensation and Transparency in the Land Acquisition, Rehabilitation and Resettlement Act, 2013 (LARR 2013), procuring authorities are mandated to conduct Social Impact Assessments (SIAs) of major infrastructure projects within six months of the project start date.

To aid in PPP project preparation and decision-making, a series of detailed guidance papers and a PPP Structuring Toolkit has been developed by the DEA. These guidance papers aid in improving the quality of PPP projects being developed and cover the entire lifecycle of PPP projects. Further, DEA's PPP Guide for Practitioners also assists the project implementing agencies and authorities to develop their capacity for undertaking PPP projects.

Project approvals and quality assurance. After preparation of pre-investment documents, inter-ministerial consultations are held to appraise project proposals. Project proposals are appraised and approved by the Public Investment Board (PIB) or the Delegated Investment Board (DIB), depending on the project size and complexity.

PROJECT APPRAISAL		PROJECT APPROVAL	
Cost (US $ mn)	**Appraisal by**	**Cost (US $ mn)**	**Approval by**
< 15	Financial Advisor	< 15	The Secretary of the Administrative Department
15 – 75	DIB chaired by the Secretary of the Administrative Department	15 – 75	The minister in-charge of the Administrative Department
> 75	PIB chaired by the Secretary, Department of Expenditure	75 – 150	The minister in-charge of the Administrative Department and the Finance Minister
		> 150	Cabinet or Committee of the Cabinet

For projects costing less than US $15 million, the projects are appraised by the Standing Finance Committee (SFC) or the Expenditure Finance Committee (EFC).

3. Guidance for project preparation

Guidance	PPP TOOLKIT
Owner	Ministry of Finance (MoF)
Project development stage	Overall PPP process
Details	The PPP Toolkit is a web-based resource, designed to help improve the quality of PPP projects that are developed in India and also assist in improving decision-making for infrastructure PPPs. This toolkit covers five sectors, namely highways, water and sanitation, ports, municipal solid waste management and urban transport. The toolkit is for use by PPP practitioners across India in both the public and private sectors. It has been designed with a focus on helping decision-making by project officers at the central, state and municipal levels. However, other users, including PPP practitioners in the private sector, are also likely to find the material useful. It should be used as a learning tool and as a resource guide for best practice in PPPs. The toolkit is further divided into three modules: 1) Project background module: The module provides explanatory and reference material about PPPs. It is a refresher course on important PPP concepts and mainly useful for people who are fairly new to PPPs. 2) PPP process module: This module describes the process of developing a PPP through four phases, from identification of potential PPP projects to preparation and clearance, to procurement and on to management of PPP contracts during the operational life of the project. 3) Tools and resources module: This module contains a set of decision-making tools to help PPP practitioners at important stages of the PPP process. This module also contains downloads and links to other PPP resources and a set of 15 case studies detailing the PPP project experience in India. **Link for further details:** *https://www.pppinindia.gov.in/toolkit/*

Guidance	PPP GUIDE FOR PRACTITIONERS
Owner	Ministry of Finance (MoF)
Project development stage	Overall PPP process
Details	This guide is built for PPP practitioners within the government and its different tiers across the country, to assist them in conceptualising, structuring and implementing projects via the PPP route. This guide will serve as a manual for practitioners to develop projects through the appropriate PPP framework, improving the quality of PPP projects in the country. The PPP Guide is divided into 17 modules mainly focusing on key takeaways, best practices, case studies, PPP concepts, etc. **Link for further details:** *https://www.pppinindia.gov.in/documents/20181/33749/PPP+Guide+for+Practitioners/*

Guidance	NHAI WORKS MANUAL
Owner	National Highways Authority of India (NHAI)
Project development stage	Project feasibility and structuring
Details	The NHAI Works Manual details the project preparation and approval processes followed by NHAI for the implementation of public investment projects, as well as PPP projects. This manual details the contents and the parameters to be focused on while preparing the pre-feasibility study, feasibility study, preliminary project report, and Detailed Project Report for both public investment projects and PPP projects. This manual also details the quality assurance mechanisms, such as peer consultant reviews and proof consultant reviews, to be followed in order to maintain the quality of the project preparation documents. **Link for further details:** *http://www.nhai.org/Doc/Manual/NHAI%20Works%20Manual%202006_new.pdf*

Guidance	APPRAISAL AND APPROVAL OF PUBLICLY FUNDED SCHEMES AND PROJECTS
Owner	Ministry of Finance (MoF)
Project development stage	Appraisal and approvals
Details	The Appraisal and Approval of Publicly Funded Schemes and Projects provides a systematic process to be followed for the formulation, appraisal and approval of publicly funded schemes and projects. The guidance document lists the project preparation documents that are required along with their general structure. It also highlights the institutional arrangement for the appraisal and approval of schemes and projects, along with the delegation of appraisal and approval responsibilities in the case of projects with a lower total cost. Further, the documents also provide the timeframe required for the appraisal and approval of publicly funded schemes and projects. **Link for further details:** *https://www.finmin.nic.in/sites/default/files/GuidelinesAppraisal_Approval_Schemes_Projects_0.pdf*

Guidance	GUIDANCE FOR FORMULATION, APPRAISAL AND APPROVAL OF CENTRAL SECTOR PPP PROJECTS
Owner	Ministry of Finance (MoF)
Project development stage	Appraisal and approvals
Details	The Guidance for Formulation, Appraisal and Approval of Central Sector PPP Projects provides the detailed process to be followed for the appraisal and approval of PPP projects. It describes the institutional structure, along with details of the responsibilities of the entities involved. It also describes the structure of the memorandum required to be prepared for the PPP Appraisal Committee in order to obtain its 'in-principle' and final approval. Further, this document also specifies the time required for various steps under the appraisal and approval procedure for PPP projects. It also describes the delegation of appraisal and approval responsibilities in the case of PPP projects with lower costs. **Link for further details:** *https://www.pppinindia.gov.in/documents/20181/21751/PPPAC_GuideLines_2013.pdf*

Guidance	MODEL CONCESSION AGREEMENTS
Owner	National Highways Authority of India (NHAI), Ministry of Shipping
Project development stage	Project structuring
Details	Standardised contractual documents, such as sector-specific Model Concession Agreements (MCAs), which lay down the standard terms relating to the allocation of risks, contingent liabilities and guarantees, as well as service quality and performance standards, have been developed by various central ministries in India. These documents help to structure projects and provide standardised guidance on project risk identification, allocation and mitigation mechanisms at the preparation stage. **Link for further details:** *https://www.pppinindia.gov.in/standardized-bidding-documents*

4. Project case example: Delhi Metro Rail Corporation (DMRC) – Delhi Mass Rapid Transit System (MRTS) Phase I

PROJECT BRIEF

The Delhi MRTS project was one of the largest metro projects and the second MRTS in India after the Kolkata Metro. It is considered a good example for public sector infrastructure projects in India, mainly because the project finished within the stipulated time and budget. Delhi MRTS has been profitable since the start of its operations and is among very few metros worldwide that do not depend on government subsidies.

Delhi MRTS was proposed to cover the entire city, along with the adjoining areas like Gurugram, Noida, Ghaziabad etc., with a total network of about 405 km. The construction was divided into four phases spread over a duration of more than 20 years. Delhi MRTS was important for the city of Delhi, as it would alleviate Delhi's ever-growing transport congestion and vehicle pollution.

The Government of India (GoI) and the Government of the National Capital Territory of Delhi (GNCTD) established a 50:50 joint venture firm named Delhi Metro Rail Corporation Limited (DMRC) in 1995 for the purpose of constructing Delhi MRTS. Phase I of the Delhi MRTS project of 65 km in length was sanctioned by the Union Cabinet in September 1996. Delhi MRTS started its operations in 2002 with an eight km line (the red line) connecting Shahdara and Tis Hazari (Phase I).

Delhi MRTS Phase I was constructed with a total investment of US $2.1 billion at an average cost of US $32 million per km. Extensive pre-investment activities were undertaken by Rail India Technical and Economic Services Ltd. (RITES), an engineering services company and Government of India enterprise, during the project development phase. RITES was, in turn, supported by financing from the Japan International Cooperation Agency (JICA), who funded around 60% of the total project cost of Phase 1 in six tranches, starting from 1997. The rest of the funding was mainly secured from the GoI and GNCTD.

QUICK FACTS

VALUE (IN US $ BILLION)

2.1*

STATUS

Operational

PROJECT OWNERSHIP

GoI and GNCTD

SOURCE OF PROJECT PREPARATORY FINANCING

GoI and GNCTD

SUPPORT AGENCIES

RITES, Delhi Development Authority (DDA), JICA

*Estimated Exchange Rate: Rs. 1 = US $0.014 (as of December 2018)

PROJECT TIMELINE

- **1989** Preparatory activities for developing the MRTS system were commissioned by GNCTD and GoI
- **1991** Preparatory activities completed by RITES
- **1994** Central cabinet provided their go-ahead for the Delhi MRTS and directed GNCTD to take up preparation of DPR in July
- **1995** RITES finalised the DPR in May
- **1995** DMRC, a joint venture between GoI and GNCTD, was established in May
- **1996** The union cabinet sanctioned the Delhi MRTS Phase I in September
- **1998** Construction was commissioned in October
- **2002** Commercial operations for part of Delhi MRTS Phase I
- **2006** Delhi MRTS Phase 1 was fully operational

LEARNINGS FOR PROJECT PREPARATION

1. Strong leadership, along with the necessary institutional support and enabling framework, allows for smooth progress of the project

For the successful implementation of large and complicated infrastructure projects, it is critical to have strong leadership and vision. The majority of credit for the successful implementation of the Delhi MRTS goes to strong leadership under the management of DMRC, who developed capabilities for completing projects on time and within budget through a culture of punctuality, integrity, professional competence and social responsibility.

2. An independent and effective institutional setting

DMRC was established as a joint venture (JV) between the GoI and GNCTD, where neither the central nor the state governments had majority control. The management of DMRC had complete freedom, which allowed them to make decisions free from compulsion, and depended on the government only for funding and land acquisition. This institutional setting proved effective in minimising interference from politicians and bureaucrats.

In the initial phase of the project's implementation, a Japanese firm, Pacific Consultants International, and its JV were appointed as a general consultant to provide a team of international and Indian experts. Due to political interference, DMRC was urged to withdraw their association with the Japanese firm but DMRC defended its decision. This decision helped in the initial phase of the project, as the selected consultant team not only acted as a bridge between DMRC and JICA, but also provided the necessary technical and management expertise and knowledge of tunnelling technologies, management ethos and value for time, leading to capacity building of the DMRC staff and thus reducing the dependence on international experts in the subsequent phases of Delhi MRTS.

3. Collaboration with international institutions for capacity development during the initial phase of Delhi MRTS

Collaboration with the Japanese experts and cross-learning was an integral part of the project design. DMRC engineers were encouraged to learn tunnelling technologies, management ethos and value for time, along with other management techniques from their Japanese counterparts. To strengthen their own technical expertise and human resources, DMRC made sure that its staff members were central to the project and did not rely overly on the general consultants. Starting with Phase I, DMRC planned to reduce their dependence on the external experts in subsequent phases by deploying their own personnel in consulting services and allowing them to obtain relevant technical experience from the start. DMRC established a training institute to pass on technical expertise from its own personnel to the implementers of new metro projects in India. DMRC also began to disseminate its knowledge and expertise through consulting work on new projects in India and abroad. These efforts allowed DMRC to effectively accumulate technical expertise and systematically leverage it to establish a strong reputation for itself.

4. Effective stakeholder coordination

For the necessary land acquisition, DMRC submitted the amount required for resettlement and compensation to the GNCTD and the required processes were carried out by the land acquisition officer of the government. Further, it was also important to have project engagement and interactions with the local authorities and other agencies especially during the planning and construction of underground sections of the MRTS. Before the ground was excavated, a complicated network of water supply and sewerage pipes had to be shifted or diverted. Cooperation, involvement and communication with other government agencies in charge of these utilities was important in getting their buy-in and participation. To improve and increase collaboration with these government agencies, DMRC also recruited retired personnel from the said agencies. Due to this, DMRC ensured that grievances from various stakeholders were minimised and the project timelines were adhered to.

5. Availability of adequate and sustained project preparation financing

GNCTD commissioned RITES Ltd. to conduct the project preparation activities for the integrated multi-modal MRTS for Delhi. As the project preparation activities for Delhi MRTS were funded by GNCTD and were carried out by a Government of India enterprise, extensive project preparation activities were undertaken to study the viability of the project. The DPR for Delhi MRTS had around 50 technical reports, 101 tender packages and 2,066 drawings. These reports addressed various aspects of the proposed Delhi MRTS.