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# Project Information Document/ Integrated Safeguards Data Sheet (PID/ISDS)

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Concept Stage | Date Prepared/Updated: 29-Aug-2017 | Report No: PIDISDSC20633



**BASIC INFORMATION**

**A. Basic Project Data**

Country India	Project ID P159782	Parent Project ID (if any)	Project Name Mumbai Urban Transport Project 3 (P159782)
Region SOUTH ASIA	Estimated Appraisal Date Aug 20, 2018	Estimated Board Date Dec 18, 2018	Practice Area (Lead) Transport & ICT
Financing Instrument Investment Project Financing	Borrower(s) Mumbai Railway Vikas Corporation (MRVC)	Implementing Agency Mumbai Railway Vikas Corporation (MRVC)	

**Proposed Development Objective(s)**

The Project’s Development Objective is to improve the network connectivity, service quality and safety of Mumbai’s suburban railway system with particular attention to female passengers, and better integrate the system with the Mumbai Metropolitan Region Plan both at the network level and through transit oriented development initiatives at specific stations.

**Financing (in USD Million)**

Financing Source	Amount
Asian Infrastructure Investment Bank	500.00
Borrower	1,500.00
International Bank for Reconstruction and Development	500.00
<b>Total Project Cost</b>	<b>2,500.00</b>

Environmental Assessment Category A-Full Assessment	Concept Review Decision Track II-The review did authorize the preparation to continue
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Other Decision (as needed)



## B. Introduction and Context

### Country Context

1. Infrastructure development is integral to the Government of India's (GoI's) economic strategy and efficient transport systems one of its building blocks for sustaining economic growth<sup>1</sup>. That growth is expected to be mainly driven by manufacturing, processing, information and communications technology and services sectors, which are now predominantly located in cities and metropolitan regions. Nearly a third of India's citizens live in urban areas and this proportion is likely to exceed 40 percent by 2035<sup>2</sup>. Combined with the underlying growth in total population, India's urbanization involves the formidable challenge of making cities work effectively for their enterprises and industries while meeting the social and economic mobility needs of their citizens.

2. State governments bear the main responsibility for managing cities (and most urban transport systems) but the national economic implications of urbanization and city efficiency mean that GoI also has a strong policy interest in this sector. The GoI's National Institution for Transforming India (Niti Aayog), has adopted as one of its key goals (Goal 11) to make cities and human settlements inclusive, safe, resilient and sustainable<sup>3</sup>. The Ministry of Urban Development's **Smart Cities** program is to promote cities that provide core infrastructure and give a decent quality of life to its citizens, a clean and sustainable environment, and which utilize 'Smart' Solutions<sup>4</sup>, including the application of transit-oriented development policy guidelines as recently issued by the Ministry.

3. The intention of these programs is to better integrate urban land-use with transport planning. Such integration has multiple benefits: improved accessibility to jobs, education and other social needs; improved access of urban businesses to markets; greater use of and co-ordination between public transport modes; and better environmental and safety performance of transport systems as a whole. However, apart from its national policy interest in cities generally, GoI has a specific operational responsibility in Mumbai's transport: its Ministry of Railways (MoR) operates Mumbai's suburban railway, the city's principal mode of transport.

4. Nowhere in India are the policy challenges of urbanization more evident than in Mumbai, India's largest city and economic powerhouse. Mumbai Metropolitan Region (MMR) is home to around 22 million people. It contributes about 8 percent of India's GDP but although it is an economically powerful city, around 10 million people live in slum conditions. Its urban densities are among the highest in the world with 36,890 people per square kilometer of built up area in 2014<sup>5</sup>, and the City's population continues to increase as does the developed land area. The Mumbai Metropolitan Regional Development Authority (MMRDA) expects the population in MMR to grow by about 42 percent to 28.4 million in 2025 and by 54 percent to 30.87 million in 2036. MMRDA recently released its updated Plan for medium to long-term development of the region<sup>6</sup> for consultation, proposing major new growth poles outside the

<sup>1</sup> Government of India. Journey of Transforming India. <https://transformingindia.mygov.in/category/infrastructure/>

<sup>2</sup> Government of India: National Institution for Transforming India. <http://www.niti.gov.in/content/overview-sustainable-development-goals>

<sup>3</sup> Government of India: National Institution for Transforming India.(op cit)

<sup>4</sup> Government of India. Department of Urban Development. <http://smartcities.gov.in/content/>

<sup>5</sup> Atlas of Urban Expansion.

<sup>6</sup> MMRDA 2016. Mumbai Metropolitan Regional Plan 2016-2036 (Sept 2016).



existing congested city area, providing opportunities for affordable housing and sites for modern industries that can help better distribute employment opportunities across the MMR, provided these growth poles are well connected.

#### Sectoral and Institutional Context

5. Mumbai's dense and monocentric metropolitan structure contributes to the City's strong tidal commuter flows to and from the CBD and to heavy transport congestion, which in turn degrades the performance of transport services. The Mumbai suburban railway, with just three main routes, currently carries around three quarters of all motorized passenger travel in the MMR (78 percent of passenger-km). Private cars, taxis and auto-rickshaws carry around 20 percent of passenger-km and the nascent metro system 2 percent.<sup>7</sup>

6. Mumbai's suburban railways consists of 376 route-kms and 119 stations on which are operated 2,900 trains each day carrying around 8 million passengers. It is one of the busiest suburban railway operations in the world measured by the utilisation of lines and trains. For instance, more suburban passengers use Mumbai's two major city termini than the total number of passengers using all eight of London's main rail termini put together. However, the system consists of individual routes rather than a network. The three-existing radial suburban routes serve the northern, eastern and southern suburbs of the MMR. A number of new metro lines are in operation, under construction or being planned that will complement the suburban railways but the importance of the backbone suburban railway will remain.

7. The railway operation is technically very productive in terms of high-density train operations and mass movement of people but its user experience lags international standards due to overcrowding in the peaks, sub-optimal station infrastructure, and non-airconditioned train-sets of more traditional design. System safety, for passengers and persons trespassing on the lines, is of great concern to city policy-makers and the community and there have been personal safety challenges for women and girl passengers at station areas and on trains: special female-only carriages on trains has been helpful but has not eliminated all problems.

8. Since 2002, the Bank has supported investments and other measures to improve the Mumbai suburban railway system and two major loans have been made for improvement programs known as MUTP and MUTP2A<sup>8</sup>. World Bank engagement with Mumbai in the first MUTP project (2002-2011) was an integrated effort to improve the suburban transit system through rail capacity improvement, East-West connectivity and traffic management. MUTP has been a landmark project in urban transport and resettlement & rehabilitation (R&R) in India and worldwide. A Comprehensive Transport Study (CTS) was carried out for Mumbai as part of Mumbai Urban Transport Project (MUTP) to assess the transport need of the city and corresponding investment by 2031. Outcomes from the CTS helped define the contours of MUTP2A (2010 – 2016) as well as finalize the activities to be taken up for implementation. MUTP2A was aimed at further improving the capacity of the suburban rail system including efficiency and institutional capacity. MUTP2A has laid the foundation for a larger improvement agenda through its various institutional development studies such as development program for suburban rail services, long-term strategy for suburban rail, new institutional set-up, reduction of trespassing and improvement of safety of the track, non-fare box revenue, etc. The implementing agency

<sup>7</sup> LEA Associates South Asia Pvt. Ltd (2016) for MMRDA. Mumbai Comprehensive Transport Study (CTS).

<sup>8</sup> MUTP: P050668, MUTP2A: P113028



was the Mumbai Railway Vikas Corporation Ltd (MRVC) a special purpose company which, with Bank encouragement and support, was set up in 1999 to manage capital investment. MRVC is owned in shares of 51:49 by the MoR and Government of Maharashtra (GoM). MoR and GoM share the funding of capital improvements to the system on an equal basis.

9. Indian Railways has recently adopted new Policy on its Suburban Rail Systems (April 2017). The new Policy proposes *'an institutional structure for project implementation and operating the suburban rail system of a Special Purpose Vehicle (SPV) with equal equity participation from respective State Governments and Indian Railways'*. One facet of the Project Concept is to try to support progress in implementing this new governance model whereby MRVC or a new company, equally-owned by GoM with MoR, would become responsible and accountable for the service quality and financial sustainability of an identifiable, Mumbai-branded suburban rail system.

#### Relationship to CPF

10. The Project would contribute to each of the three themes in CPS 2013-2017: integration, transformation and inclusion. It would:

- help to better integrate the Mumbai Metropolitan Region economy and society by supporting the proposed coordinated land-use/transport proposals in the Mumbai Metropolitan Regional Plan;
- be institutionally transforming by supporting actions to reduce the fragmentation of responsibilities and moving toward a single-branded suburban railway system vested in one entity; and
- while improving services, safety and amenity for all passengers, build-in features focused on the special safety and security needs of women and girls throughout their journeys at stations, on platforms and on trains: non-users would also benefit through trespass control at route black-spots thereby reducing deaths and injuries.

### C. Proposed Development Objective(s)

**Note to Task Teams:** The PDO has been pre-populated from the datasheet for the first time for your convenience. Please keep it up to date whenever it is changed in the datasheet.

The Project's Development Objective is to improve the network connectivity, service quality and safety of Mumbai's suburban railway system, and better integrate the system with the Mumbai Metropolitan Region Plan both at the network level and through transit oriented development initiatives at specific stations.

#### Key Results (From PCN)

11. The Project is expected to achieve positive results in the following broad areas, which would be confirmed, refined and quantified during project preparation as the precise components of the project are determined (see Project Description):

- a. Creation of new railway capacity in defined corridors.
- b. Creation of cross-regional network connectivity between the three current radial lines in the system.
- c. Improved efficiency of utilization of resources – including water, energy and safe work conditions for man power



- d. Procurement of new air-conditioned trains that will improve safety and amenity through features such as automatic door operation, walk-through design and faster acceleration and deceleration characteristics.
  - e. Implementation of track segregation on high-priority inter-station sections of existing lines to prevent pedestrian trespass.
  - f. Drafting of Station Area Development Guidelines for the MMR region together with the preparation of detailed station area plans for a number of pilot stations.
  - g. Progress in implementing in Mumbai the Government's new Policy for Suburban Railways.
12. Intermediate indicators will be formulated during Project preparation corresponding to staged achievement of the key results, which will include at least one beneficiary feedback indicator in the results framework.

#### **D. Concept Description**

13. MoR and GoM identified five main components listed below. There are several alternative options for allocation of Bank funds and balancing its support among the various sub-components. Some relevant considerations for determining Bank priorities among the options are provided in the text following the list.

##### **Component I: Network expansion**

- I.1 Virar-Danahu Road (63 km) – extension of the northern corridor
- I.2 Virar Panvel (70 km) – chord line connecting the three radial lines (see below)
- I.3 Panvel-Karjat (28 km) – extension of the southern corridor

##### **Component II: Efficiency and safety**

- II.1 Kalwa to Airoli link – a local connector of about 4 km elevated rail to avoid a congested station.
- II.2 Trespass control measures on priority sections.
- II.3 Pre-feasibility study of Communication Based Train Control (CBTC).
- II.4 Integrated ticketing and access control.
- II.5 Capture and use of solar energy at stations.

##### **Component III: Station development and redevelopment**

- III.1 Benchmarking for new stations and existing stations on new lines.
- III.2 Redevelopment for 10-12 existing stations targeting private sector participation including improved passenger amenities, security arrangements, gender-sensitive design and features, and Station Area Traffic Improvement Scheme (SATIS).
- III.3 Station area plan applying Transit-oriented Development (TOD) principles at selected stations.
- III.4 Trespass control measures.

##### **Component IV: Fleet modernization**

- IV.1 Procurement of expanded fleet of air-conditioned trains.
- IV.2 Exploration of program of leasing of the existing fleet replacement requirement through private companies over next decade.

##### **Component V: Institutional strengthening, capacity building and technical assistance**

- V.1 Support in establishing new institutional arrangements (see below).
- V.2 Support in developing a 10-year business strategy for suburban services.



- V.3 Capacity building in EPC contracts.
- V.4 Assistance in station development DPR.
- V.5 Support in developing new stations with no cost to railways.
- V.6 Exploration of new zone-based fare structure.
- V.7 Enterprise Resource Planning (ERP) system for MRVC.

14. In terms of **Network Expansion** (component I), Bank financing could in principle be allocated towards some of the sub-component projects, or parts of them. This would include train stabling and maintenance facilities. However, sub-component I.2 is a line that would connect the three existing routes via a contiguous new sub-regional rail corridor outside the existing congested city to facilitate and serve MMRDA's planned growth poles for generating employment and affordable housing in areas such as Virar-Vasai, Kharbao, Nije, Taloja and Shedungand. As such, it has particular transformational value to Mumbai's land-use transport development.

**Efficiency and safety** (Component 2) is an area where the Bank could add value in several areas based on its sector expertise and its wider agenda of economic, safety and environmental performance of railways. Sub-component II.1 is proposed by MRVC to carry out by themselves. Sub-component II.2, by protecting lines from trespass, would very directly reduce deaths and injuries. Sub-component II.3 would bring together both efficiency and safety considerations because if a CBTC system were to be found feasible in Mumbai it could be used to increase the safe utilization of capacity of existing lines. Sub-component II.4 would bring about convenience and security to the passengers of suburban railway and other public transport modes. Sub-component II.5 provides a focus on innovative technologies and operational approaches to save energy as well as reuse of water and reduce operating costs and providing safe working conditions in maintenance facilities for the trains.

15. The program of **Station Development and Redevelopment** (Component III) is an area in which the Bank could specifically deploy the techniques it has developed to promote TOD<sup>9</sup>. It is also an area where attention must be given to the special safety and other needs of women and girls. Finally, MRVC would like to seek private participation in financing and development of major stations, building on international good practices.

16. Bank lending for **Fleet modernization** (Component IV) is a potentially productive area for the Bank to support MRVC by international expertise and experience both in developing new vehicle specifications matched to Mumbai's operating environment and increasing passenger aspirations and to help structure a viable leasing arrangement for longer-term replacement of the existing fleet through leasing arrangements. Number of new trains will be finalized during preparation.

17. In **Institutional strengthening and technical assistance** (Component V). Sub-components V.1 and V.2 reflect new GoI policy on Suburban Railways. Many key aspects of implementing this policy would benefit from technical assistance and institutional strengthening.

18. The project is proposed to be jointly financed with AIIB.

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<sup>9</sup> World Bank (2017) *Transforming cities through Transit-Oriented Development: The 3V Approach*. Serge Salat and Gerald Ollivier,



## **SAFEGUARDS**

### **A. Project location and salient physical characteristics relevant to the safeguard analysis (if known)**

The project area is within the Mumbai Metropolitan Region (MMR) which is about 4350 sq.km. which has lush green hills and some of the most congested slums. MMR is in the North Konkan region, which lies between 18o33' and 19o31 ' north latitude and between 72o45' and 73o28' east longitude. The region consists of mainland of North Konkan and two large insular masses of Salsettle -Trombay and Mumbai separated by shallow creeks and tidal marshes. It is a low land with mean elevation of 11 meters above sea level and experiences a tropical savanna climate.

The environmentally sensitive locations in Greater Mumbai are mainly the coastal stretches, some of which have mangroves, and the Sanjay Gandhi National Park, having dense forests. Mumbai's coastline exhibits beautiful natural mangrove vegetation. In the proposed expansion routes – two areas notified by the Government of India as sensitive – Dahanu and Matheran – could be impacted by activities for expansion of the Virar-Dahanu and Panvel-Karjat Sections respectively. Sizable urban development is taking place along these proposed rail routes and lot of development such as housing, farm housing, transport go- downs, service stations, etc. are coming and lot of demand suburban services will be there.

The project will result change in the land use due to proposed heavy infrastructure and will pass through sanative areas such as costal, mangrove, natural park with dense forest ,etc. Thus it is anticipated sensitive environmental impacts in this project. In addition, the project requires substantial private land acquisition and will involve physical displacements. Due to these environmental and social impacts, the project is categorized as category A.

### **B. Borrower's Institutional Capacity for Safeguard Policies**

MRVC has previous experience of implementing Bank supported projects – MUTP and MUTP2A. Hence, it is familiar with requirements of the World Bank safeguards policies. It is certified to ISO 14001 and SA 8001 during the preparation of MUTP2A. However, given the scale and scope of the likely impacts of activities proposed under MUTP3, it is essential to increase its capacity to manage environmental and social issues. This can be done with either training of in-house staff with necessary qualifications or could be outsourced for the duration of the project. This choice needs to be made very early during the project preparation phase. MRVC has exposed to the Bank's social safeguards requirements through previous projects. The land acquisition needs will be met through concerned district administration and resettlement will be dealt through Mumbai Metropolitan Development Authority (MMRDA). Thus, MRVC need to play an important coordination role in managing timely land acquisition and resettlement through other agencies. MRVC required to have a social safeguards specialists familiar with land acquisition and resettlement issues for effective coordination and managing the consultants and interactions with the Bank on these issues and additional support will be met from consultants support.

### **C. Environmental and Social Safeguards Specialists on the Team**

I. U. B. Reddy, Social Safeguards Specialist  
Gaurav D. Joshi, Social Safeguards Specialist  
Deepa Balakrishnan, Environmental Safeguards Specialist





D. Policies that might apply

Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	Yes	The project activities will cause impacts on the biophysical and socio economic environment which need to be assessed and suitable mitigation measures identified for implementation during the project life. The project activities could include creation of substantial heavy infrastructure, including new rail lines, construction and improvements to stations and appurtenant facilities to maintain and operate the new trains. It will also result in changes to land use, including in areas currently under mangroves close to water channels that are proposed to be crossed and cause significant impact. In order to assess these, an EIA will be undertaken for the project activities.
Natural Habitats OP/BP 4.04	Yes	The project is likely to include some construction in areas currently vegetated with mangrove. Other areas of importance could also be impacted by the construction of project facilities. In order to ensure that the impacts on Natural Habitats are properly managed, this policy is triggered.
Forests OP/BP 4.36	TBD	Depending on the final project configuration, if there is any forest area impacted or health of any patch of forest affected, the policy will be triggered and suitable management plan prepared for implementation. This will be confirmed early during identification of issues as part of the EIA.
Pest Management OP 4.09	TBD	Though not likely, the task team will review the EA preparation in a timely manner to establish whether any activities under the project require the use of pesticides. It is noted that the project is not supporting any agriculture related activities or any vector control activities.
Physical Cultural Resources OP/BP 4.11	Yes	The project is passing through inhabited areas which can have locally important cultural properties. These and chance finds would need to be managed and the necessary measures would be identified during the EA and integrated with the EMP for each activity.
Indigenous Peoples OP/BP 4.10	TBD	The proposed Social Impact Assessment will determine whether OP 4.10 will apply or not.
Involuntary Resettlement OP/BP 4.12	Yes	The proposed infrastructure will involve private land acquisition and displacement of people. The exact nature and magnitude of impacts will be known once social impact assessment is carried out for the



proposed investments.

The land acquisition and resettlement impacts are assessed for two corridors- Virar-Dhanu Road (63 KS) and Panvel-Karjat (28 Kms) sections. For these two sections, 89 hectares of private land and another 26 hectares of Government land is needed in addition to already available railway land. Due to this land acquisition, about 200 families will suffer physical or economic displacement. The specific detail are being worked out. The impacts in Virar-Panvel ( 70 kms) section is not available since the social impact assements is yet to be commenced for this section.. In case of Kalwa to Airoli link ( local connector), it is expected substantial physical displacement of more than 1200 families. However, MRVC has indicated that this sub-project will be excluded from the scope of the project.

Safety of Dams OP/BP 4.37	No	The project is not likely to include any work with dams.
Projects on International Waterways OP/BP 7.50	No	There are no project activities that are likely to impact international waterways.
Projects in Disputed Areas OP/BP 7.60	No	There are no disputed areas where project activities are proposed.

**E. Safeguard Preparation Plan**

Tentative target date for preparing the Appraisal Stage PID/ISDS

Mar 30, 2018

Time frame for launching and completing the safeguard-related studies that may be needed. The specific studies and their timing should be specified in the Appraisal Stage PID/ISDS

EA is underway for Virar-Dahanu and Panvel-Karjat sections. EA for the Panvel-Vasai-Virar section will be contracted out by MRVC, which will also cover newer activities, and cumulative impacts considerations. This study will take about 6-8 months from date of award. It is expected that Appraisal Stage ISDS on basis of all these studies can be drafted around March 2018.

MRVC is in the process of commissioning social impact assessment and based on nature and magnitude of social impacts identified in the study, appropriate mitigation plans in the form of Resettlement Acton Plan will be prepared. If social impacts for all project components are not possible to identify by appraisal, a separate Resettlement Policy Framework will also be prepared which will provide basis for subsequent preparation of RAPs.

The project will be co-financed by AIB and the World Bank’s safeguard policies will apply to all components to be defined under the scope of the Project including any other activities if all three criteria defined under OP 4.12 is applicable for other activities. The lessons learned under previous Mumbai Urban Transport Project will be applied as appropriate.



**CONTACT POINT**

**World Bank**

Atul Agarwal, Shigeyuki Sakaki  
Sr Transport. Spec.

**Borrower/Client/Recipient**

Mumbai Railway Vikas Corporation (MRVC)  
Ravi Agarwal  
Director (Technical)  
edmrvc@gmail.com

**Implementing Agencies**

Mumbai Railway Vikas Corporation (MRVC)  
Ravi Agarwal  
Director (Technical)  
edmrvc@gmail.com

**FOR MORE INFORMATION CONTACT**

The World Bank  
1818 H Street, NW  
Washington, D.C. 20433  
Telephone: (202) 473-1000  
Web: <http://www.worldbank.org/projects>

**APPROVAL**

Task Team Leader(s):	Atul Agarwal, Shigeyuki Sakaki
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**Approved By**

Safeguards Advisor:	Takeaki Sato	29-Aug-2017
Practice Manager/Manager:	Karla Gonzalez Carvajal	05-Sep-2017
Country Director:	Hisham A. Abdo Kahin	19-Sep-2017



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