

## Environmental and Social Data Sheet

### Overview

Project Name:	BANGALORE METRO RAIL PROJECT - LINE R6
Project Number:	2016-0816
Country:	India
Project Description:	Construction of a 23 km metro line and purchase of a fleet of about 96 metro cars in Bangalore, Karnataka, southern India.
EIA required:	No
Project included in Carbon Footprint Exercise <sup>1</sup> :	No

### Environmental and Social Assessment

#### Environmental Assessment

If located in the EU, the project would fall under Annex II of EIA Directive 2011/92/EU, in which case it would be subject to screening by the Competent Authority who would decide whether an EIA procedure is required or not. As per provisions of the Indian EIA Notification dated September 2006, any new project or the expansion or modernization of any existing industry or project listed in Schedule I of the notification shall submit an application for clearance to the Ministry of Environment and Forests (MOEF), Government of India. Since metro rail projects are not included in Schedule I of the Notification, the project does not require an environmental clearance certificate from the MOEF nor a related EIA procedure.

Nevertheless, the Promoter has voluntarily carried out an Environmental Impact Assessment (EIA) in line with EIB standards and prepared an EIA report consistent with the requirements of the EIA Notification, 2006. The final EIA report will be submitted to the State EIA Authority for information and has been disclosed locally and on the EIB website.

The project concerns the construction of a new metro line, so called "Reach 6", together with the necessary metro fleet. 14.5 km of the line and 12 stations will be underground and the balance elevated. A maintenance depot is to be constructed at Kothanur and stabling yard at Nagavara. The EIA covers all elements of the project. The project is a major element of the second phase of the staged construction of a longer network of metro lines in the city. The first phase of the metro system of 42 km length has been placed incrementally into commercial operation over the period 2011-17. Phase 2 comprises two new lines, including one as now supported under this EIB operation, plus four extensions of the lines built under Phase 1, in aggregate totalling 72 km.

During the earlier planning stages of the project, the feasibility of several metro corridors was considered by the relevant local authorities based on traffic and engineering studies. The criteria for selecting the now proposed corridor for Reach 6, an investment forming part of the city's Comprehensive Traffic and Transport Plan 2011, included traffic demand/ridership, accessibility and integration with existing public transport nodes, available right of way within major roads, ground conditions, capital and operating costs, availability of land for the depot

<sup>1</sup> Only projects that meet the scope of the Pilot Exercise, as defined in the EIB draft Carbon Footprint Methodologies, are included, provided estimated emissions exceed the methodology thresholds: above 100,000 tons CO<sub>2</sub>e/year absolute (gross) or 20,000 tons CO<sub>2</sub>e/year relative (net) – both increases and savings.

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and stations as well as minimum disturbance/avoidance of heritage structures. The selected alignment follows the central median of a major road artery in the south of the city whilst in the most densely populated central and northern area the alignment is underground. Station locations have been selected to maximise ridership and ease intermodal connections.

The main residual negative environmental impacts of the project include: (i) permanent conversion of about 33 ha of open land to depot; (ii) cutting down of about 810 trees; (iii) finite use of scarce, sometimes carbon intensive, materials, such as cement; (iv) noise, vibration and visual intrusion for properties adjacent to the alignment; and (v) generation of about 1.1 million m<sup>3</sup> of waste material excavated from the proposed tunnel. All other negative impacts are temporary and localised. The project does not impact any nature conservation areas or urban parks.

The main mitigants proposed are as follows: (i) compensatory reforestation in line with local rules; (ii) various energy saving measures such as regenerative braking and use of solar panels; (iii) noise reduction measures (i.e. rubber dampers on the rails and use of a U girder for the elevated part of the alignment which acts in part as a noise barrier); and (iv) reuse of excavated material where feasible and disposal to waste in a regulated manner. Environmental measures are documented in an Environmental Management Plan (EMP) and as appropriate, included as part of the works contract conditions. Potential settlement of buildings situated above the tunnels will be monitored and adequate insurance cover put in place to compensate or address potential damage, if any.

The main positive environmental impacts of the project, resulting from reduced private vehicle use include: reduction in local polluting air emissions, road noise and vibration; road safety improvements; and a modest reduction in greenhouse gas emissions.

The project is not subject to any particular climate change risk.

### **Social Assessment**

The main adverse social impact is related to involuntary resettlement. The project entails the acquisition of about 22.4 ha of land held by private owners, affecting about 1,950 households, as well as about 3.2 ha of land held by various public entities. A complete assessment of land acquisition and resettlement will be known once the design and census of affected households for all sections is completed. All attempts will be made during the final execution of the project to minimize land acquisition, resettlement and adverse impacts on people in the project area through careful localised engineering design.

The promoter has prepared a Resettlement Policy Framework (RPF) consistent with EIB requirements. The RPF has been subject to consultation with Project Affected Persons and disclosed on the website of the Promoter and EIB. Resettlement Action Plans (RAP), consistent with the RPF, shall be prepared concurrently with detailed designs and then implemented in a manner consistent with the handover of site to works contractors. To avoid any disproportionate negative environmental and/or livelihood impacts on vulnerable groups, identified vulnerable households will receive additional financial and in-kind assistance.

In addition to private commercial and residential buildings, there are some common property assets such as religious structures and local utilities that may be affected due to the proposed alignment – approximately 27 in all. The unavoidable loss of such assets will be compensated through replacement elsewhere or a suitable financial mechanism.

The project does not impact any cultural or archaeological assets.

Other potential social risks arising due to the project are: (i) poor application of relevant labour standards related to employee working conditions during construction and operation; and (ii) poor occupational and community health and safety during construction. These will be addressed primarily through the inclusion of contractual obligations for the first tier suppliers and contractors, which will be enforced by the Promoter's supervision team.

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### **Public Consultation and Stakeholder Engagement**

The promoter has performed several rounds of administrative consultation as well as several rounds of public consultation during the preparation of the various design and EIA reports in 2011 and 2016. The draft RPF was subject to consultation in 2017. The issues raised by the public focused on resettlement and construction management aspects which are being addressed by the Promoter.

The EIA report, along with a non-technical summary, have been made public on the website of the Promoter and EIB as well as suitable local offices, and a period of time allowed for interested parties to comment.

### **Other Environmental and Social Aspects**

The Promoter will be responsible for overseeing and ensuring implementation of the EMP and RAP(s). The Promoter has sufficient qualified staff within the organisation many of whom have gained experience from implementation of Phase 1. An independent monitoring and evaluation consultant will be commissioned, who will periodically monitor and report on delivery of the EMP and RAP as well as perform a mid and end of term evaluation of RAP implementation.

### **Conclusions and Recommendations**

The EIB will condition its loan disbursements on: (i) implementation of RAP(s), as agreed with the Bank, in accordance with its/their respective schedules and the RPF; and (ii) commissioning and maintenance of third party monitoring and reporting of the EMP and RAP implementation throughout the construction and early operation period.

In addition, the Bank will seek commitments from the Promoter to: implement the project in accordance with the agreed EMP, RPF and RAP(s); report regularly on the status of RAP and EMP implementation; and present mid and end of term evaluation of RAP(s) implementation prepared by a third party.

Subject to the above mentioned environmental and social conditions being met, the overall residual environmental and social impacts of the Project are expected to be acceptable.