

RISK ASSESSMENT AND RISK MANAGEMENT PLAN

| Risk Description | Rating | Mitigation Measures | Responsibility |
|---|----------|---|----------------|
| Technical | | | |
| 1. Design and project preparation is inadequate | L | The project roads are planned and designed adequately and conform to current Indian standards, ensuring they are safe, sustainable, and resilient to climate change. Detailed designs have been prepared by consultants recruited by the PIU, and reviewed by ADB project preparatory technical assistance consultants. | PIU |
| 2. Initial delays occur in project implementation | M | The PIU has prepared the detailed design for all the roads, and has completed safeguard-related surveys and reviews. Procurement actions for works contracts have commenced, with bids have been received August 2017. However, the hybrid annuity contracts require private sector willingness to participate, which is not predictable. Assessment of bids on a value-for-money basis is also not straightforward. While this risk has been mitigated to some extent by making the upfront payment equivalent to 75% of the estimated project cost, the risk of initial delays remains moderate. | PIU |
| 3. Maintenance is not up to standards | L | Karnataka performs well compared to other states in India in terms of maintenance of state highways. However, the average roughness of the state road network is high (IRI >4.5 m/km). Pavement for the project is designed and will be built for 20-year durability, with 7-year maintenance the responsibility of the hybrid annuity contractor. | PIU |
| 4. Road safety is not improved | M | Karnataka has the third-highest fatal road accident rate in India (below only Tamil Nadu and Maharashtra). To minimize accidents, all project roads are subjected to a road safety audit during design and are designed for speeds that conform to the terrain and land use, which will reduce accidents likely to occur because of poorly designed and constructed road infrastructure. To improve safety on the state's general road network, a road safety component is being proposed under the project. However, studies in India indicate that more than 80% of accidents are caused by driver error. The proposed new Motor Vehicle Act has stringent penalties for poor driving and should facilitate improved road safety. | PIU, KPWD |
| Economic and Financial | | | |
| 5. Transport demand is impacted by severe economic reversals in Karnataka | M | The project roads are existing state highways, with substantial traffic. The extent of upgrading is planned based on reasonable traffic projections. Karnataka's economy performs consistently, but the risk of sudden economic reversals resulting from unpredicted external causes cannot be fully mitigated. | PIU |
| Governance | | | |
| 6. The PIU lacks capacity in managing multilateral agency funded projects | L | The financial management assessment indicates the PIU maintains and manages finances and accounts to meet the standards, record keeping, and audit of government agencies. It typically uses government budgetary, cash-based, single-entry accounts (standard for Indian government agencies). However, for ADB and World Bank-funded projects, project accounts are maintained in a double entry system using Tally software. The state Audit office, and the Comptroller and Auditor General | PIU |

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| | | (National Auditor for State Owned Corporations) audits the accounts. A review of the audit reports at the project level for FY2013 to FY2016 reveal no major adverse audit comments. | |
| 7. Fund flow: Counterpart funds for the project (implementation and hybrid annuity payments) are not available on time. | M | Project funding will be provided through a combination of the ADB loan, private sector finance, and the state budget, via agreements and contracts. Assurances are placed in the project agreements that counterpart funds for the project (implementation and hybrid annuity contract payments) will be made available on time. | PIU, Hybrid Annuity Concessionaire |
| 8. The PIU is not adequately staffed to meet the requirements of the project | M | The positions of the deputy secretary (Finance) and joint controller of accounts at the PIU are vacant. However, the PIU is conducting normal operations with regards to its Finance and Accounts function, with the finance manager (a Chartered Accountant on contract) managing the requirements. The PIU has met ADB and World Bank project requirements, but the situation is not optimal. Key positions need to be staffed. | PIU |
| 9. Procurement Management is weak | L | The PIU has 15 years of experience in procuring works, goods, and services for various projects including those funded by ADB and the World Bank. Procurement of large contracts may be delayed by the need for multi-level approvals within the government, and multiple-stage approvals by funding agencies. However, the PIU has advanced the bid process substantially, with oversight and approvals from ADB. | PIU-KSHIP |
| 10. Corruption and Transparency impact project implementation | L | The Karnataka Transparency in Public Procurements Act, 2000 makes open bidding compulsory and aims to streamline procedures for inviting, processing, and accepting tenders. Karnataka has adopted E-procurement to ensure transparency and promote efficiency. Key decisions will be made by the project steering committee, and project governing body, and all procurement will follow ADB procurement guidelines and procedures. | PIU |
| 11. Accountability is unclear | L | The procurement process renders various engineers and officers accountable for actions they take relating to procurement. The steering committee and project governing body will review and approve procurement at key stages. Independent engineers (supervision consultants) will be engaged to provide quality assurance of infrastructure to be developed under the loan. These teams will also facilitate changes of scope and other contract variations that may be required during execution of hybrid annuity contracts. | PIU, KPWD |
| 12. PIU staff do not have requisite capacity and skills for project implementation | L | Staff are qualified, well trained, and familiar with multilateral development bank procurement procedures. Projects are completely prepared and bids for hybrid annuity contracts and consultant recruitment are at an advanced stage. The PIU is also supported by a team of technical and transaction consultants. | PIU, KPWD |
| 13. Major turnover in key project staff during implementation | M | There is a risk of unanticipated movement and turnover of key staff. While this is mitigated by proper advance preparation, including on procurement and land acquisition, the risk remains moderate. | PIU, KPWD |
| Safeguards | | | |
| 14. Social Impacts are severe | M | Project improvements will require procurement or acquisition of an average of one hectare of land (with about 20 families | PIU |

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| | | affected) for every km of road. Robust legislation and policies coupled with relevant PIU experience will make it possible to mitigate the impacts. Resettlement plans have been prepared, discussed with the PIU, and disclosed. The substantial land acquisition requires classification of the project as category A for involuntary resettlement. | |
| 15. Environmental Impacts are severe | L | The project roads are environmentally less sensitive and would not require environmental clearance from the Government of India. The project is classified as category B (low to moderate impact). Implementation of well-prepared environmental management plans will result in a low risk. | PIU |
| 16. Delays in land acquisition process | M | About 464 hectares of land will be acquired for the project, primarily through negotiation and direct purchase. If some land cannot be acquired in this way, it may need to be acquired under the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013. | PIU |

ADB = Asian Development Bank; IRI = international roughness index; km = kilometer; KPWD = Public Works, Ports & Inland Water Transport Department of Government of Karnataka; m = meter, PIU = project implementation unit for the Karnataka State Highways Project

H = high, S = substantial, M = moderate, L = low.

Source: Asian Development Bank.