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Program Information Documents (PID)

Appraisal Stage | Date Prepared/Updated: 07-Jan-2024 | Report No: PIDA270256

BASIC INFORMATION

A. Basic Program Data

Country	Project ID	Program Name	Parent Project ID (if any)
India	P178581	Assam Resilient Rural Bridges Program	
Region	**Estimated Appraisal Date**	**Estimated Board Date**	**Practice Area (Lead)**
SOUTH ASIA	20-Apr-2023	28-Mar-2024	Transport
Financing Instrument	**Borrower(s)**	**Implementing Agency**	
Program-for-Results Financing	India	Public Works Roads Department, Government of Assam	

Proposed Program Development Objective(s)

The program development objective (PDO) is to build green, inclusive, and resilient connectivity in rural Assam and strengthen the Assam Public Works Roads Department's roads and bridges management capability.

COST & FINANCING

SUMMARY (USD Millions)

Government program Cost	1,390.00
Total Operation Cost	587.50
Total Program Cost	552.50
IPF Component	33.83
Other Costs	1.18
Total Financing	587.50
Financing Gap	0.00

FINANCING (USD Millions)

Total World Bank Group Financing	470.00
World Bank Lending	470.00
Total Government Contribution	117.50

Decision

The review did authorize the team to appraise and negotiate

B. Introduction and Context

Country Context

1. ***India's growth is expected to moderate in FY23/24 to 6.3 percent, from 7.2 percent in FY22/23, due to fading rebound effects from the pandemic, easing consumption growth and weakened external demand.*** Despite the global growth slowdown, real GDP expanded by 7.2 percent in FY22/23[1], though a deceleration from the previous year. This robust growth was underpinned by solid private consumption and strong expansion in investment activities especially the sustained increase in public investment. In contrast, government consumption only grew marginally due to the central government's consolidation focusing on reducing current spending. Nevertheless, the growth momentum eased in the second half of FY22/23 reflecting the dampened private consumption associated with tapering-off of the post-pandemic catch-up spending and increased borrowing costs following the policy rate hikes. The inflationary pressures moderated toward the second half of FY22/23 and trended down till May 2023 to 4.3 percent, within the Reserve Bank of India's tolerance range (2 – 6 percent). Uneven and erratic rainfall resulted in disruptions to the supply chain and pushed up food prices, driving headline inflation up to 7.4 percent as of July 2023. Real GDP growth is expected to moderate further to 6.3 percent in FY23/24[2] and gradually revert to the potential growth of between 6-6.5 percent over the medium term. In FY23/24, consumption is likely to be constrained by rising borrowing costs, slower growth in incomes and continued fiscal consolidation on current spending; the constraints are expected to abate over the medium term. The government's sustained investment push, healthy corporate profits, and a reduction in bank NPLs will likely keep investment buoyant despite reduced risk appetite and elevated input costs. Despite expected elevation in public investment, a larger extent of consolidation on current spending will likely to continue narrowing overall fiscal deficit, to 8.7 percent in FY23/24 from 9.0 percent in FY22/23[3]. The cut in current spending primarily reflects the withdrawal of some pandemic-related support programs. The debt-to-GDP ratio is projected to remain stable around 82 percent of GDP over the medium term[4].

2. ***India has made remarkable progress in reducing extreme poverty over the past two decades. The share of the population living on less than $2.15 per person per day (2017 PPP) declined by three-fourths between 2004 and 2019***.[5] However, the pace of poverty reduction has slowed in recent years, with key welfare indicators being slow to improve.[6] Mitigation measures put in place by the government helped limit the adverse impact of the COVID-19 pandemic, with extreme poverty rates (US$2.15) increasing by only 2 percentage points. Economic recovery, along with expansion in food and jobs entitlements, helped extreme poverty decline to 11.9 percent in 2021-22, 0.9 percentage points below its pre-pandemic (2019-20) level. Still, nearly half of India's population

[1] World Bank real GDP forecasts published in India Development Update, April 2023.
[2] World Bank real GDP forecasts published in India Development Update, April 2023.
[3] World Bank fiscal forecasts published in India Development Update, April 2023
[4] World Bank debt forecasts published in India Development Update, April 2023
[5] Estimates are based on the methodology documented in a World Bank Policy Research Working paper by Roy and van der Weide (2022), which relies on imputed consumption from the Consumer Pyramid Household Surveys (CPHS) implemented by the Centre for Monitoring the Indian Economy, a private data company. The CPHS sample is re-weighted to make it more nationally representative. The series has been revised to incorporate recent survey years (Macro Poverty Outlook, Spring 2023). In 2004, India's extreme poverty rate was 39.9 percent using the same international poverty line. In 2011, this rate was 22.5 percent.
[6] World Bank Poverty and Inequality Platform. https://pip.worldbank.org/country-profiles/IND.

(46.5 percent) lived below the lower-middle income poverty line ($3.65 per capita per day, 2017 PPP) in 2021-22.[7] Inequality in consumption has remained stagnant, with a Gini index of around 35 over the past two decades. Child malnutrition has remained high, with 35.5 percent of children under the age of 5 years being stunted and 67 percent of children aged 6-59 months being anemic during 2019-21.[8] Headline employment indicators have improved since 2020 but concerns about job quality and real wage growth remain.[9]

3. Assam has diverse topography, including hills, floodplains, and riverine areas. The large state is split horizontally by the mighty Brahmaputra and is threaded by its numerous tributaries. The hilly regions are often physically inaccessible, making it difficult to develop and maintain transportation infrastructure and services in these areas. The flood-prone areas also pose challenges for transport, as periodic flooding damages the infrastructures, disrupts connectivity and hence affecting the availability and reliability of transportation services.

4. **Lack of all-season connectivity is an impediment to promote inclusive growth and access basic services and relief during disaster events in rural Assam.** Due to lack of bridges, the rural population[10] in Assam, including the marginal and smallholding farmers, women, and schedule tribe (ST) and schedule caste (SC) settlements have no all-season access to remunerative markets, agricultural inputs, technology, and credit. Moreover, rural women relying on household level textile and handcraft production for their livelihoods have no market outlet due to lack of connectivity. In addition, the floods, and landslides interrupt connectivity and isolate the rural population from basic services, including access to health facilities for women in labor, children, and the elderly, as well as education and relief during a disaster event. Such events are exacerbated by earthquake[11]. Therefore, given Assam's proneness to earthquake, landslides, floods, and erosion, bridges design needs to consider multi-hazard risks.

5. **Assam's unique topography, ranging from southern hills to the Brahmaputra - Dhubri plains, is likely to be affected dramatically by changing weather patterns.** According to the Climate Vulnerability Index (CVI), Assam is highly vulnerable to extreme climate events such as floods, droughts, and cyclones. Fifteen of India's 25 districts that are most vulnerable to climate change are in Assam. As per the Assam State Action Plan on Climate Change (2015-2020), district level climate projections for the period 2021–2050 indicate projected changes in various climate parameters till the mid-century. Temperatures will continue to rise and may increase by 1.7- 2.0°C with respect to the baseline. The western part of the State will experience a slight decrease in rainfall, while the rest of Assam is projected to have an increase in rainfall. There is likely to be an increase in extreme rainfall events by 5 to 38 percent with respect to the baseline. Drought weeks are expected to rise, with Southern districts showing a marginal reduction in drought weeks, while the remaining districts showing an increase of more than 75 percent with respect to the baseline. Floods are expected to rise by more than 25 percent in the southern parts of Assam. As a result of these extreme weather patterns and increase in extreme weather events, transportation infrastructure has been directly damaged, posing a threat to life safety, and causing significant disruptions and associated economic and social impacts. It is therefore imperative to address the vulnerability of such infrastructure.

6. **Assam is lagging in the use of electric vehicles and green logistics for rural freight and public**

[7] World Bank Poverty and Inequality Platform. https://pip.worldbank.org/country-profiles/IND.
[8] Government of India, Ministry of Health and Family Welfare, 2022. National Family Health Survey (NFHS - 5), 2019–21 report.
[9] World Bank Macro Poverty Outlook. Spring 2023. Estimates from PLFS data.
[10] Economic survey of Assam 2020-21, 85.9 percent of the total population of Assam (31.2 million) lives in rural areas while 85 percent of farmers are either marginal or small, with an average land holding size of around 0.36 hectare. In addition, the schedule tribal and schedule caste rural settlements constitute 12.4 percent and 7.1 percent of the Assam population, respectively.
[11] Assam falls in earthquake Zone V (Very High Damage Risk Zone, MSK IX and above) and is vulnerable to moderate to very high-intensity earthquakes; small to moderate magnitude events are common.

transportation. Although, the use of electric vehicles, including three-wheeler pickups and taxis, small trucks, farm tractors, and busses for rural freight and public transportation is an emerging trend in India, Assam is lagging on the promotion of rural e-mobility. Innovations in e-Mobility (electric vehicles) could lead to zero emission on the first mile (rural roads) network where the volume of agricultural and rural household textile, handicrafts, and dairy produce, as well as public transportation services demand are small and fragmented. The existing electric vehicle policy of Assam lacks focus on enhancing the use of electric vehicles in the agriculture and, micro and small enterprises (MSE) supply chain. In addition, the rural transportation hubs and terminals for freight and public transportation are underdeveloped and the use of solar power for the facilities is nonexistent.

Sectoral and Institutional Context

7. **The logistics eco-system in Assam is underdeveloped and restricts the competitiveness of agricultural and industrial products in the domestic and regional markets.** Assam ranks last among the 21 major states in the Logistics Ease Across Different States (LEADS) Index, 2021[12] with poor scores across the quality of infrastructure, services, and operating and regulatory environment. Assam was rated the lowest in the availability and quality of transport infrastructure and logistics services, including reasonableness of road freight rates and timeliness of cargo delivery. Assam's "One-District – One Product (ODOP)" policy, which enables districts to specialize in one value chain, requires the development of rural roads and bridges along the first-mile agricultural and rural micro and small entrepreneurs' supply chain to integrate smallholding farmers and female-headed household textile/handicraft producers with the district industrial parks. In addition, integrating the rural population with the regional economy requires improving the logistics ecosystem in Assam, including the freight terminals at critical nodes and the transport infrastructure on the regional economic corridors, whilst also updating the logistics policy.

8. **Roads dominate transport in Assam**. The total road network of over 57,000 Km is comprised of 3,900 Km National Highways (NH), about 2,500 Km State Highways (SH), about 4,300 Km Major District Roads (MDR), about 1,700 Km Urban Roads (UR), and about 44,600 Km Rural Roads (RR). The secondary network continues to be relatively small due to the reclassification of the secondary network as national highways. The railway network is about 2,500 Km. Assam has 15 navigable rivers with a total length of about 2,000 Km, including the Sadiya to Dhubri stretch (891Km) of the Brahmaputra River (NW-2) and the Lakhipur to Bhanga stretch (121 Km) of the Barak River (NW-16). Assam has a regional airport (Guwahati) and several air strips.

9. **There are several distressed and temporary bridges vulnerable to the high flooding risk that need to be replaced by climate resilient bridges. In addition, the rural network is missing several bridges, including in the Pradhan Mantri Gram Sadak Yojana (PMGSY) rural roads financed by the flagship program, which disrupt connectivity during the monsoon season.** Currently, Assam has over 8,800 registered bridges (excluding bridges under construction) in its entire sub-national road network. The bridge inventory includes about 1,000 timber and semi-permanent steel bridges and 965 permanent narrow bridges. The temporary bridges are overtopped by flood and are often washed out. The PMGSY program until recently excluded the construction of bridges over 25 meters, due to funding constraints and weak institutional capacity. Hence, about 34,000 Km of rural roads in Assam that were paved under the PMGSY contain gaps which were longer than 25m. Overall, there are about 1,400 such gaps in the rural roads network, which disrupt connectivity.

10. **The Assam Public Works Roads Department (APWRD) is responsible for the development and**

[12] Assam ranks last among the 21 major states in the Logistics Ease Across Different States (LEADS) Index of the Union Ministry of Commerce - LEADS 2021 Report, Ministry of Commerce, India

maintenance of sub-national roads and bridges in Assam. The NHs in Assam are developed by the Ministry of Road Transport and Highways (MoRTH) and the APWRD is delegated to maintain them, using funds allocated by the Ministry. APWRD has established a Bridge Management Unit, which is responsible for the planning and preparation of engineering designs for bridges under various schemes. Supervision of bridge construction is carried out by the APWRD field offices and Construction Supervision Consultants. In addition, under the World Bank supported Assam State Road Project (ASRP), which closed in October 2019, APWRD developed a Road Asset Management System (RAMS), that incorporates a Bridge Inventory System (BIS) and a standardized precast bridge element design. APWRD, which was established to maintain a limited network of roads and bridges using direct labor and undertake deign by inhouse staff, needs to be reorganized to effectively manage the growing sub-national road network and growing commercialization. Moreover, the bridge maintenance planning process is yet to be established. Hence, yearly maintenance budget allocations and expenditures are erratic[13].

11. **Women's access to technical jobs is central to the goals of GoA's logistics policy.** The female workforce participation rate in Assam is 14.2 percent, considerably lower than the India average of 28.7 percent[14]. Further, women are largely involved in agriculture-related activities and operate micro, self-owned establishments that are sustenance-oriented, require rudimentary technical skills, and are not always profitable[15]. In India's north-eastern region, which includes Assam, women's transition to opportunities in the non-traditional workforce in sectors such as construction, transport, and other infrastructure remains low. APWRD's own estimates show that women only account for 8.3 percent of employees, of whom only 3.5 percent are engaged in technical roles. Key constraints that prevent women from accessing employment opportunities in transport and other non-traditional sectors include lower skill levels, information gaps, perceptions of lack of safety, limited availability of childcare arrangements at workspaces and limited inter-sectoral mobility[16]. APWRD female employees report safety issues during night shifts, requirements to travel at late hours, and lack of childcare provision at work sites as impediments to advance in their careers. The Program will therefore prioritize women's participation in technical job roles such as bridge design, construction, and maintenance, as well as operations related to e-warehousing and digital transportation platforms. Further, it will invest in on-site facilities and amenities to support women.

PforR Program Scope

12. The investment for the proposed PforR Program "P" is estimated at INR4,700 Crores (US$587.5 million) of which US$470 million is the proposed World Bank (IBRD) loan. The Program comprises a PforR component of US$442 million and an IPF component of US$26.83 million. The counterpart financing is estimated at INR 940 Crore (US$117.5 million). Whereas the World Bank loan (US$470 million) accounts for 33.8 percent of the total government bridge program, estimated at US$1.36 billion. The "P" is part of Phase I of the government rural bridges program.

13. The PforR Program's boundary is restricted to improving 1184 bridges on the rural roads network – "rural bridges", whilst building the road and bridges management capability of APWRD. The Program interventions will support resilience and institutional building initiatives (process DLIs), including: (i) strengthening Environmental and Social management capability; (ii) strengthening APWRD's financial management and procurement

[13] As per APWRD data, maintenance expenditure for 2020-2021 was 14 times lower than the expenditure for 2017-2018
[14] Periodic Labor Force Survey (PLFS); 2020-21
[15] Out-migration from Northeast Region to Cities: Unemployment, Employability and job aspiration; Journal of Economic and Social Development, 2017
[16] NITI Aayog, 2016

capability (iii) strengthening the capacity for managing roads and bridges and (iv) enhancing the resilience of bridges. In addition, the Program supports electric vehicle policy updating and establishing green rural transport and logistics hubs. On the other hand, the physical interventions to be implemented under the Program will include rural bridges: (i) maintenance; (ii) widening; (iii) replacement and construction of temporary, distressed, collapsed/washed out and new bridges. The IPF Component will support TA activities including preparation of the Program bridge investments; monitoring and managing Program implementation; verification of results; support the implementation of the PAP; studies, individual consultants, training, and administrative and legal expenditures. To reduce the risk of dropping bridges proposed to be implemented under the PforR Program, a list of screened bridges will be included in the Program Operation Manual (POM). The Program will exclude the following:

(a) Bridges on roads that are outside the rural roads network under the jurisdiction of APWRD.

(b) Bridges that are likely to have significant adverse impacts that are sensitive, diverse, or unprecedented on the environment and/or affected people. Specifically, this will exclude bridges in national parks and designated environmentally sensitive areas.

(c) Any bridge where land acquisition and relocation has not been completed as per the requirements of the Environmental and Social Policy-Indigenous People Policy (ESP-IPP) and Resettlement Policy Framework (RPF) and the prevailing law.

(d) Any bridge works that would comprise a high value contract as defined by the Bank Procurement Program[17]

(e) Bridge works that are financed in whole or part by other sources of Official Development Assistance, including other World Bank or other multilateral supported operations.

14. Expenditures associated with works on excluded bridges will not factor into the Program's total expenditure. In addition, expenditure on land acquisition (LA), Resettlement and Rehabilitation (R&R) and utility shifting, and ineligible expenditures as determined by the World Bank, or the Program auditors will be excluded from Program Expenditures. The GoA will meet the cost of LA and R&R from its state budget.

Table 1. Summary of the GoA Bridge program and the Proposed Bank-supported Bridge Program

Objective	Government program	Program supported by the PforR	Extent of alignment
Duration	2022-2034	2024-2030	PforR Program is supporting only part of the first phase GoA. program.
Geographic coverage	All the state	All the state	Aligned

[17] At the time of appraisal, high value contracts are defined as those that involve the procurement of: (i) works, estimated to cost US$75,000,000 equivalent or more per contract; (ii) goods, estimated to cost US$50,000,000 equivalent or more per contract; (iii) non-consulting services, estimated to cost US$50,000,000 equivalent or more per contract; or (iv) consultant services, estimated to cost US$20,000,000 equivalent or more per contract. No such contracts are currently anticipated under the proposed Program.

Results areas	RAs 1 to 3	RAs 1 to 3	Aligned
Overall Financing (US$)	1.39 billion	587.5 million	Excludes certain Phase 1 GoA program costs

C. Proposed Program Development Objective(s)

Program Development Objective(s)

15. The program development objective (PDO) is to build green, inclusive, and resilient connectivity in rural Assam and strengthen the Assam Public Works and Roads Department's roads and bridges management capability.

D. Environmental and Social Effects

16. ***Program Exclusion:*** ESSA provides an exclusion criterion to screen high risk activities not consistent with the regulatory frameworks, related to land acquisition resulting in significant loss of land/ livelihoods/ access, child labor, significant impact on indigenous people and vulnerable, cultural heritage, forced eviction, permanent restrictions on access to resources, and significant adverse impacts and/or falling within critical habitat, including designated protected areas. The likely to be shortlisted sub projects are not in the vicinity of any natural habitats or cultural heritage sites. And no significant, cumulative, induced, and indirect impacts are anticipated due to the proposed sub projects. During implementation, it will be required to ensure that all such activities remain excluded from the Bank financed program.

17. ***Environmental:*** APWRD has been adopting the environmental management systems (including project monitoring & supervision activities) as per the respective program/s under various externally funded projects. However, for bridge works undertaken through internal funds, gaps exist with regards to the environmental management systems when compared to international best practices. It is assumed that majority of the bridge works proposed under the program will fall under the Category B2 and will not require an environmental impact assessment report as per the existing national regulatory framework[18]. However, the ESSA document identifies focus areas requiring strengthening which includes, stakeholder engagement, risk screening for adverse environmental impacts and climate resilience; integration of site specific ESMP measures in bridge contracts to be undertaken under the PforR program. For the proposed PforR, APWRD already mobilized a consultancy firm to update an existing Environmental and Social Framework and make it a guidance tool for the Program. The ESMF will be supporting the E&S system of APWRD for screening the sub-projects, identify the scope of E&S assessment for sub- projects and guiding the selections of the sub-projects, define the stakeholder engagement and E&S document disclosure methods, preparing ESMPs for using in construction bidding documents and supervising/monitoring contractors during construction and staying compliant with international E&S best practices during operating the bridges. The ESMF will be integrated into the E&S system of APWRD and is

[18] As per the EIA **notification of September 14, 2006, and its amendment dated December 1, 2009**, which states that all state highway expansion projects in hilly terrain and/or ecologically sensitive areas shall be classified as Category B. However, the P for R program involves constructing bridges across the rural network and the scale of the sub-projects, it is likely that most projects would fall under category B2, which are not obligated to prepare an EIA report.

expected to be implemented independent from the source of financing (international lending or national budget).

18. ***Social:*** The assessment has identified certain gaps, especially on adequacy of social management system and institutional capacity (staff, budget, availability of implementation resources, training, etc.) to carry out defined responsibilities. APWRD does not have full-time staff to manage social risks related to labor, community health and safety, land, and livelihood. Currently, social risks screening and assessments prior to commencement of civil works are only being carried out under externally aided projects. However, under this program, DPR and ESA consultants have been engaged for E&S screening/assessments and preparation of mitigation frameworks and plans for all PforR operations. Clauses on labor standard compliance are integrated in the contractors' contracts/bid documents, however there are no standardized monitoring systems to report on health, safety, and security of workers and communities. Citizen engagement and grievance redressal process also lack adequate resources in terms of staff, budget, documentation, monitoring and training to make it accessible, efficient, and responsive.

19. ***Recommendations:*** The Program's institutional strengthening and implementation support should focus on building the environmental and social management capacity of PWRD through: (i) hiring of E&S staff in the Environmental and Social Management Unit (ESMU) at the headquarter and designating supporting focal persons at divisional offices; (ii) standardising E&S screening, monitoring and reporting procedures to track overall performance of E&S risks management; (iii) strengthening contract provisions pertaining to E&S for civil works under the Bank program; (iv) focusing on awareness and competence building on E&S issues, (v) strategies to address unsafe migration/potential SEA/ SH risks under the program and (vi) augmenting the grievance management system of the PWRD. (vii) The proposed program will build upon the existing Bridge Information System (BIS), a GIS based integrated solution that supports the collection, analysis, and dissemination of bridge information. The actual bridge construction, rehabilitation and upgrading activities have been so chosen that they have limited environmental impacts, i.e., not in eco sensitive areas / forests and limited tree cutting. It is proposed to have additional support through external supervision consultants, who will be available till the completion of the investment. The contractors engaged with these bridge works will have the environmental capacity to adhere to the EHS provisions in the bids / contracts.

Legal Operational Policies

	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

Summary of Assessment of Environmental and Social Risks and Impacts (With IPF Component for PforR)

E. Financing

Program Financing (Template)

Sources	Amount (USD Million)	% of Total
Counterpart Funding	**117.50**	**20.00**
Borrower/Recipient	117.50	20.00
International Bank for Reconstruction and Development (IBRD)	**470.00**	**80.00**
Total Program Financing	**587.50**	

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Borrower/Client/Recipient

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Implementing Agencies

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