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# Project Information Document (PID)

Appraisal Stage | Date Prepared/Updated: 29-Aug-2025 | Report No: PIDIA01366



**BASIC INFORMATION**

**A. Basic Project Data**

Project Beneficiary(ies)	Region	Operation ID	Operation Name
India	SOUTH ASIA	P510002	Assam Disaster Resilient Hill Roads Development Project (ADRHRDP)
Financing Instrument	Estimated Appraisal Date	Estimated Approval Date	Practice Area (Lead)
Investment Project Financing (IPF)	25-Mar-2025	07-Oct-2025	Transport
Borrower(s)	Implementing Agency		
Department of Economic Affairs (DEA)	Assam Public Works Department (Roads) EAP		

Proposed Development Objective(s)

The proposed project development objective is to enhance the climate disaster resilience of hill roads and promote sustainable and inclusive development in hilly areas of Assam.

**Components**

- Climate Resilient Road Infrastructure
- Rural Freight Logistics and Mobility Infrastructure Development
- Network Level Climate Resilience

**PROJECT FINANCING DATA (US\$, Millions)**

**Maximizing Finance for Development**

Is this an MFD-Enabling Project (MFD-EP)?	No
Is this project Private Capital Enabling (PCE)?	Yes

**SUMMARY**

<b>Total Operation Cost</b>	<b>443.75</b>
<b>Total Financing</b>	<b>443.75</b>
<b>of which IBRD/IDA</b>	<b>355.00</b>

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<b>Financing Gap</b>	<b>0.00</b>
<b>DETAILS</b>	
<b>World Bank Group Financing</b>	
International Bank for Reconstruction and Development (IBRD)	355.00
<b>Non-World Bank Group Financing</b>	
Counterpart Funding	88.75
Borrower/Recipient	88.75

Environmental And Social Risk Classification

High

Decision

The review did authorize the team to appraise and negotiate

Other Decision (as needed)

**B. Introduction and Context**

- Assam is the gateway for the Government of India’s “Look East” policy, which aims to enhance regional trade with the Southeast and South Asian markets.** Guwahati, the capital of Assam, is developing as a trade hub for Northeast India (NEI). It is connected by the "Trilateral Highway"—interconnecting NEI, Myanmar, Thailand, Laos, Cambodia, and Vietnam—and the East-West Highway (NH 27), which links to the Chattogram seaport in Bangladesh, as well as Dhaka and Kolkata. Guwahati has the largest multimodal logistics park in NEI, connected by rail, waterway, highway, and air. The Barak Valley, which crosses three hilly<sup>1</sup> districts in upper Assam (Dima Hasao, Karbi Anglong, and West Karbi Anglong), is the only traversable route for the “Trilateral Highway,” as well as the East-West Highway and the railway from Guwahati to Bangladesh seaports via Silchar<sup>2</sup>. Developing efficient transport infrastructure in the NEI will support the "Look East" policy, boost regional trade, and integrate tribal communities and smallholding farmers into the economy.

<sup>1</sup> Hilly district, namely Dima Hasao is primarily inhabited by tribal communities. Based on projections from the 2011 India census, 214,102 people were living in Dima Hasao, of which 71 percent are members of tribal communities. The lowest population density is found in Dima Hasao, indicating an abundance of area suitable for farming and afforestation using tree crops.

<sup>2</sup> Silchar is the second largest trade hub in Assam and a critical node where the traffic from the NEI and western Bangladesh convert. Silchar has the potential to grow into the main logistics park in the “Trilateral Highway” collecting freight from the NEI and Bangladesh

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2. **Mudslides, landslides, and flooding in Assam's Himalayan Foothills and lower Brahmaputra valley restrict year-round access to markets, services, and disaster relief.** Dima Hasao, with 80 percent hilly and 20 percent plain terrain, is susceptible to floods, landslides, and earthquakes that affect its transport infrastructure and connectivity. The Assam Public Works (Roads) Department (APWRD) estimates that annual flood damage to the road network costs US\$77.5 million, accounting for 11 percent of the total road and bridge development and maintenance expenditure. Floods and landslides disrupt transport between central and southern parts of the state, especially during the monsoon season<sup>3</sup>. In May 2022, heavy rainfall damaged Dima Hasao's roads and bridges, including NH-27, isolating communities in Haflong for almost a week from vital services. The floods and mudslides killed six people, damaged 462 hectares of crops, 770 dwelling houses, and nine schools. Debris covered the platform at New Haflong railway station, causing several train coaches to overturn. However, the damage in nearby hilly district, Karbi Anglong (40 percent hilly and 60 percent plain terrain) was limited.
3. **As per the “Climate Vulnerability Assessment for Adaptation Planning in India Using a Common Framework” report, out of 35 districts in Assam, 33 districts including Dima Hasao are vulnerable to floods.** Assam ranks among the five most vulnerable states with a Climate Vulnerability Index (CVI) score of 0.616. Ninety percent of its districts are prone to extreme weather events such as floods, droughts, and cyclones. This vulnerability stems from low road density, dependence on rain-fed agriculture, and reduced forest cover. Climate projections for 2021–2050 indicate temperature rises by 1.7–2.0°C under the SRES A1B/RCP 6.0 scenario. While the western part may see less rainfall, the rest of Assam is expected to have increased rainfall and extreme weather events by 5 to 38 percent. Floods could increase by over 25 percent in southern Assam. The hilly terrain and heavy monsoon rains make the region particularly prone to landslides, posing significant environmental and infrastructural challenges.
4. **Road transport is the predominant mode in Assam while the state has high potential to use inland water transportation (IWT) and railways.** The total road network of over 57,000 km is comprised of 3,900 km of National Highways (NH), about 2,500 km of State Highways (SH), about 4,300 km of Major District Roads (MDR), about 1,700 km of Urban Roads (UR), and about 44,600 km Rural Roads (RR). In comparison, 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 (891 km) 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 airstrips. Around 80 percent of the farmers in Assam are smallholding farmers and there more than 50,000 women household level textile and handicraft industries, and MSMEs. Due to lack of resilient transport infrastructure, the population in Assam—including the marginal and smallholding farmers, women, and scheduled tribe (ST) and scheduled caste (SC) settlements—have no all-season access to remunerative markets, agricultural inputs, technology, and credit.
5. **Gender:** The workforce participation rate in Assam stands at 38.36 percent, with a female participation at only 22.46 percent, significantly lower than the male participation rate of 53.59 percent, primarily due to limited opportunities and skill gaps. Educational attainment remains low for women, with fewer than a third (29.6%) completing ten or more years of schooling, and persistent literacy gap – 75 percent among women compared to 82 percent among men - continues to restrict their economic prospects.<sup>4</sup> To ensure women have economic opportunities, approximately 2,100 Self-Help Groups (SHGs) supporting around 20,000 women are active in Dima Hasao district. These SHGs operate

<sup>3</sup> Assam South Asia Subregional Economic Cooperation Corridor Connectivity Improvement Project: Transport Sector Assessment Summary

<sup>4</sup> Women in Assam Fact Sheet. 2022. ETP Global. <https://etp-global.org/wp-content/uploads/2023/10/Women-in-Assam-Fact-Sheet.pdf>



under Assam State Rural livelihoods Mission (ASRLM), with facilitation from the District Rural Development Agency (DRDA) in coordination with Dima Hasao Autonomous Council (DHAC).<sup>5</sup> While economic activities in these communities are centered around agriculture, horticulture, handicrafts, livestock rearing and tourism development, infrastructure and investment initiatives are being pursued to drive economic growth.<sup>6</sup>

## Sectoral and Institutional Context

6. **The Assam Public Works Roads Department (APWRD) is responsible for the development and maintenance of subnational roads (SH, MDRs, RR, and UR) and bridges in Assam.** Its zonal offices manage roads within districts, working in conjunction with the District Autonomous Councils to acquire land for road improvement projects and communicate effectively with the local population. Despite covering 23 percent of Assam's total land area, the state's three hilly districts—Dima Hasao, Karbi Anglong, and West Karbi Anglong—only account for 10 percent of the road network, with 1,753 km, 2,386 km, and 1,831 km of roads, respectively. Most of these roads are single-lane, except for a few four-lane highways. Specifically, Dima Hasao has only one four-lane highway, Karbi Anglong has four, and West Karbi Anglong has recently designated one of its four-lane highways as a National Highway (NH). Dima Hasao is particularly challenging to connect due to its location dissected by the Barak Valley, requiring all roads to traverse hilly terrain prone to landslides. This leads to the high cost of construction and maintenance of roads in Dima Hasao.
7. **The State of Assam has made significant strides in road safety with the recent establishment of the Lead Agency for Road Safety** that coordinates across and brings together dedicated personnel from various sectors, including police, transport, education, health, and others. Since the formation of the Agency, the state has elected district-level representatives who are responsible for implementing different priorities identified during the Lead Agency's meetings and reporting on the progress in agreed targets. Despite these commendable institutional improvements, Assam still faces challenges in reducing road fatalities. In 2022, Assam, with a population of 36,159,000, reported approximately 2,994 deaths due to road crashes (around 8.3 fatalities per 100,000 people), representing over 75 percent of the total road crash fatalities in Northeast India. In 2023-24, the state recorded 3,298 fatalities. This equates to a tragic loss of three lives every day on Assam's roads, underscoring the critical need for a coordinated and strategic response on this issue.
8. **The World Bank is supporting a series of operations to develop resilience of roads and bridges in Assam. The ongoing Assam Resilient Rural Bridges Program (ARRBP – P178581) is a pivotal initiative designed to bolster connectivity, resilience, and integration of smallholding farmers and tribal communities** The ARRBP focuses on three core objectives: enhancing management capabilities for bridges, improving the resilience of these infrastructures and the communities they serve, and providing inclusive, reliable connectivity to rural areas, especially during disaster events. The proposed **Assam Disaster Resilient Hill Area Roads Development Project (ADRHRDP)** aims to enhance the climate disaster resilience of hill roads and promote inclusive market access in Assam's hill areas.

<sup>5</sup> ASRLM leads SHG formation and management, while DHAC provides infrastructure development and skill enhancement programs to strengthen SHG initiatives.

<sup>6</sup> As part of the National Green Highways Mission, which aligns with the Green Highways Policy 2015, NHAI has signed an MOU with ASRLM to involve SHGs in planting trees and shrubs along vacant spaces besides Assam's national highways.



9. **The proposed Project supports India’s 2022 Nationally Determined Contribution (NDC) under the Paris Agreement by promoting environmentally friendly road network improvement and clean road transportation services.** The operation is also aligned with the World Bank’s Climate Change Action Plan 2021– 2025 (CCAP), which aims to advance the pathway towards low greenhouse gas emissions and climate resilience development. One of the key mitigation strategies highlighted in India’s Nationally Determined Contribution ( NDC) is the promotion of low-emission transport through the deployment of electric vehicles (EVs) for road transportation, a sector to which the proposed operation will significantly contribute. Additionally, looking ahead, transportation services on the rural road network are envisioned to be facilitated by EVs, including light/small trucks, buses, three-wheeler pickups, four-wheeler pickups, and taxis, thereby propelling the nation’s transition to low carbon emissions. The project is also aligned with India’s Long-Term Low-Carbon Development Strategy released in 2022, aiming to create an integrated, efficient, and inclusive low-carbon transport system. The project areas face increasing risks from natural hazards due to climate change. Consequently, the operation encompasses strategies to mitigate the effects of climate hazards to a manageable level. With no alternative connectivity options like railways, the communities rely heavily on road transport. Overall, the operation aligns with the objectives of the Paris Agreement, aiming to minimize mitigation risks and bring adaptation risks to acceptable levels.

### C. Proposed Development Objective(s)

#### Development Objective(s)

The proposed project development objective is to enhance the climate disaster resilience of hill roads and promote sustainable and inclusive development in hilly areas of Assam.

#### Key Results

10. The Implementation of the core initiatives of the project is expected to result in:

- a) Hill roads in resilient condition – hill roads built with climate-resilient features against floods and landslides.
- b) Travel time and transportation cost reduction.
- c) Share of procurement contracts related to infrastructure initiatives awarded to women's self-help groups.
- d) Direct users that benefit from improved access to sustainable transport infrastructure and services.

### D. Project Description

The Project will undertake the following activities:

**Component 1. Climate Resilient Road Infrastructure:** The project will cover select areas in the hill districts of Dima Hasao. The following activities will be undertaken:

**Upgrade and rehabilitate damaged roads** with climate-resilient features against flooding and landslides; Upgrade alternative routes to be used during road blockage; and rehabilitate selected roads.

**Enhance road safety** - Deploy a digital system for inspection and real-time monitoring of projects roads to prevent incidents during construction; Review and strengthen the capacity of the Road Safety Lead Agency under the Department of Transport in Assam; Integrate work zone safety in the project lifecycle; and carry out of an independent road safety audit.



## Component 2. Rural Freight Logistics and Mobility Infrastructure Development.

The project will develop a green rural freight and public transportation system through a package of investments and services that will:

- Establish rural logistics centers (transportation hubs) that include truck bays; loading and unloading ramps; container bays; charging points for electric vehicles; workshops for electric vehicle support services; solar-powered containers; and install solar panels within the hub compounds to ensure clean energy supply.
- Establish a freight terminal integrated with the district industrial park, thereby enhancing last-mile connectivity between production and markets.
- Pilot demonstration ropeways to transport farm products from hill areas, thus reducing travel time, costs, and emissions.
- Develop georeferenced multipurpose transport stations—bus, taxi, and truck stops—strategically located at farm-product collection points and habitation clusters to improve accessibility and efficiency.
- Enable digital services and real-time logistics management at the hubs.
- Provide facilities for packaging and primary processing, storage, sanitation, and standards control at the rural logistics centers to reduce post-harvest losses and improve quality compliance.
- Provide roadside amenities and marketplaces to support users and stimulate local commerce.

In addition, this component will finance consultancy services for the preparation of Detailed Project Reports (DPRs) for rural freight logistics and mobility infrastructure, ensuring technically sound design and implementation.

## Component 3. Network Level Climate Resilience

**Develop a climate adaptation framework based on multi-hazard risk analysis to enhance the resilience of roads.** The project will identify potential hazard hotspots; evaluate and prioritize feasible mitigation measures; undertake cost-benefit analyses to maximize road utilization, minimize life-cycle costs, and ensure road safety; and, ultimately, integrate tailored adaptation measures into road infrastructure to address the impacts of climate-related disasters.

**Develop a Flood and Landslide Early Warning System (FLEWS).** The project will strengthen systems for landslide and flood monitoring, forecasting, early warning, and alerts to inform road users and adjacent communities so they can take timely action. Specifically, it will assess the adequacy of existing flood and landslide forecasting systems along road corridors and establish the requirements for FLEWS development; and it will operationalize FLEWS by communicating alerts to road users and communities via multiple media and by integrating the system into the Assam Public Works Roads Department's (APWRD) Road Asset Management System (RAMS). This will include introducing a module that systematically incorporates climate and disaster risk profiles of the road network as part of the asset inventory.

**Strengthen institutional capacity for emergency preparedness and response.** The project will formulate a robust transport emergency management and response plan to ensure rapid recovery and restoration of transportation infrastructure following disasters.

**Component 4. Contingent Emergency Response Component.** This component will support APWRD in responding promptly and effectively to an eligible crisis or emergency.



Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Area OP 7.60	No

Summary of Screening of Environmental and Social Risks and Impacts

12. The Assam Hill Roads Project presents significant environmental and social risks due to its implementation in the ecologically sensitive and topographically complex Dima Hasao district. Environmental risks include soil erosion, slope instability, landslides associated with hill cutting and excavation, and pollution from dust, noise, wastewater, and improper waste disposal. The project area lies within the Indo-Burma biodiversity hotspot. It includes road corridors near Key Biodiversity Areas (KBAs), Reserved Forests, and Critical Habitats, posing potential risks to endangered flora and fauna. Additional concerns include the extensive generation of surplus excavated earth during construction, which, if not correctly managed, could lead to sedimentation, disposal issues, and environmental degradation. Indirect and cumulative impacts, such as increased traffic, sedimentation, and overlapping infrastructure investments, may contribute to long-term environmental degradation if not properly managed.

13. On the social side, the project involves land acquisition and livelihood impacts, particularly affecting Indigenous/Tribal communities in the Dima Hasao district. These impacts include both physical displacement and loss of income-generating assets. Labor influx during construction poses additional risks, including pressure on local services, increased exposure to communicable diseases, and potential for sexual exploitation, abuse, or harassment (SEA/SH). Road safety is a significant concern in steep and landslide-prone areas, especially for communities close to the alignment. Culturally significant sites have also been identified along the corridors—for example, two inscribed stones were found near one of the priority road alignments—and while direct impacts are not anticipated, chance find procedures will be applied to all civil works to manage any discoveries. Over the long term, improved road connectivity may lead to changes in settlement patterns, land use, and social dynamics, which will require careful monitoring and inclusive stakeholder engagement. To address these risks and meet the requirements of the World Bank’s ESF, the borrower has prepared and disclosed a draft Environmental and Social Impact Assessment (ESIA), ESMPs, a Resettlement Action Plan, and Indigenous Peoples Development Plan (IPDP) for 120.13 km of priority road corridors. Additional ESIA’s and mitigation instruments will be prepared for the remaining corridors and other infrastructure supported under the project. These plans follow the mitigation hierarchy—avoiding, minimizing, mitigating, and offsetting impacts as needed—and are supported by early warning systems, capacity strengthening of APWRD field teams, and inclusive stakeholder consultations to ensure long-term environmental and social sustainability.

E. Implementation

Institutional and Implementation Arrangements

14. **APWRD is the lead implementing agency of the proposed project.** An integrated Project Implementation Team (PIT) led by the Chief Engineer and comprising Financial Management, Procurement, Planning, and Environmental and Social Management officers has been constituted. APWRD will strengthen its design capacity by forming a design unit of key experts. The Project will be implemented by the divisions in Dima Hasao and one division in Guwahati will cover the central activities. The project will benefit from APWRD's expertise in community engagement, safeguard implementation, and civil work supervision.

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15. **Environment & Social(E&S):** The PWRD will hire additional support staff at the APWRD state level office and divisional office (Maibang and Haflong) to strengthen its existing Environmental and Social Management Unit (ESMU) for implementing the sub-project-specific E&S instruments, including a dedicated Occupational Health and Safety (OHS) and road safety specialist. Since the E&S risk is rated as High, an independent ESIA consultancy firm has been hired to prepare the required E&S instruments.
16. **Citizen Engagement:** The project design includes a robust citizen engagement approach, including: 1) participatory planning, particularly in the context of the principles of Free, Prior, and Informed Consent (FPIC) from indigenous communities; 2) third-party monitoring in the form of engaging a reputable academic institution to support project monitoring; 3) satisfaction surveys to track the satisfaction of beneficiaries of the project interventions; 4) continuous consultations during project preparation and implementation to engage with local communities; and 5) a comprehensive digital Citizen Feedback Mechanism, which encompasses the Grievance Redressal Mechanism (GRM) established by APWRD. The Project will also set up a system to gather and address public feedback on transparency of procurement processes, contract management, and the quality of civil works.
17. **To help close workforce participation gap, the project will contract women’s self-help groups in road maintenance and repair, with the goal of increasing their income.**<sup>7</sup> The implementing agency will partner with autonomous councils to: (i) conduct outreach and mobilization campaigns to raise awareness of procurement opportunities; (ii) strengthen SHG’s ability to pursue and manage government contracts; and (iii) train SHGs on roadside maintenance work. In parallel, the project will also generate jobs at rural transportation hubs and district freight terminals, reserving about 30 percent for women. These contracts will be financed during implementation, with the government expected to continue funding existing contracts that meet performance standards post-project. These interventions will benefit rural women<sup>8</sup> and their households, while expanding SHGs’ procurement capacity.<sup>9</sup> The project will help create employment opportunities for the members beyond the project.<sup>10</sup>
18. **Implementation Support Strategy.** The World Bank will regularly review project implementation to ensure satisfactory progress, including compliance with fiduciary and safeguard requirements. The Bank will also regularly review progress and quality assurance reports prepared by the PMC, CSC, and TAC.

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**CONTACT POINT**

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<sup>7</sup> Most of the jobs have to do with keeping soil in place, and upkeep of roadside vegetation for road safety.

<sup>8</sup> The project plans to engage 40 percent of the women from villages along the project corridors, equivalent to approximately 14,000 women.

<sup>9</sup> Currently, SHGs manage procurement up to INR 8 lakhs under ASRLM Finance Manual.

<sup>10</sup> The benefits of strengthening SHGs has already been demonstrated in the Bihar Transformative Development Project (P159576), where many women have become independent and transformed themselves within their households by undertaking entrepreneurial activities. These women now aspire for the next level of economic opportunities for business development and market access.



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**APPROVAL**

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**Approved By**

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