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Project Information Document (PID)

Appraisal Stage | Date Prepared/Updated: 25-Feb-2025 | Report No: PIDIA00525



BASIC INFORMATION

A. Basic Project Data

Project Beneficiary(ies)	Region	Operation ID	Operation Name
Bangladesh, Bangladesh, Bhutan, Nepal, Nepal, Nepal	SOUTH ASIA	P181278	Accelerating Transport and Trade Connectivity in Eastern South Asia - Bhutan Phase 2 Project
Financing Instrument	Estimated Appraisal Date	Estimated Approval Date	Practice Area (Lead)
Investment Project Financing (IPF)	18-Feb-2025	17-Apr-2025	Transport
Borrower(s)	Implementing Agency		
Kingdom of Bhutan	Ministry of Infrastructure and Transport, Department of Forest and Park Services, Government Technology Agency		

Proposed Development Objective(s)

The development objective is to increase the efficiency and resilience of trade, transport, and digital connectivity along selected corridors in Bhutan.

Components

Digital Systems for Trade
Green and Resilient Infrastructure
Institutional and Policy Strengthening

PROJECT FINANCING DATA (US\$, Millions)

Maximizing Finance for Development

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

SUMMARY

Total Operation Cost	300.00
Total Financing	300.00



of which IBRD/IDA	300.00
Financing Gap	0.00

DETAILS

World Bank Group Financing	
International Development Association (IDA)	300.00
IDA Credit	154.00
IDA Grant	146.00

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

Country Context

- Bhutan, a small Himalayan kingdom, is a unique blend of ancient traditions and modern aspirations.** Nestled between India and China, this landlocked country is characterized by its dramatic mountain landscapes, deep inaccessible valleys, and scattered settlements. With a population of around 787,000, it is one of the world's least populous countries. Since adopting a constitutional monarchy in 2008, Bhutan has prioritized Gross National Happiness (GNH) over traditional economic growth metrics. Classified as a lower-middle-income country with GDP per capita of about US\$3,718 (2023), Bhutan has achieved remarkable economic progress, averaging an annual growth rate of seven percent over the past decade. This resilient growth has significantly reduced poverty and improved gender equality, with extreme poverty nearly eradicated. Hydropower is the backbone of Bhutan's economy, contributing 16 percent to its GDP and over a quarter of its export earnings and domestic revenue. The non-hydropower sector, primarily services (47 percent of GDP), includes tourism, construction, information technology (IT), and limited manufacturing. Agriculture, though contributing only 19 percent to GDP, sustains nearly half the population, especially rural communities. Bhutan is a global leader in environmental conservation, and is recognized as one of the few carbon-negative countries. Its commitment to sustainable development is evident in



its extensive forest cover and biodiversity initiatives. However, the country remains vulnerable to natural disasters and the impacts of climate change.

2. **Bhutan's development vision is set out in its 13th Five-Year Plan (FYP) (2024-2029).** The 13th FYP aims to revitalize the country's economy by addressing labor shortages, attracting foreign investment, and stimulating job growth to curb outmigration. The plan also seeks to reduce the trade deficit through export diversification, trade modernization, and policy reforms. The 13th FYP highlights that improving access to affordable and reliable digital connectivity is essential to accelerate digital transformation and develop the private sector for jobs and economic diversification. To further drive economic growth, Bhutan is exploring new sectors like mining, forestry, high-value products, creative industries, and wellness tourism. A key initiative is the Gelephu Mindfulness City (GMC) project, announced in December 2023, which aims to transform Gelephu into a gateway city, a regional multimodal trade hub, and an international commercial center, with authentic Bhutanese culture, values and respect for biodiversity. This ambitious project, located at the southern border with India at the junction of the Southern East -West Highway (SEWH) corridor and three central north-south transport routes, will require significant public and private investment in energy, digital infrastructure, and transportation, including roads, railways, waterways, logistics, facilities, and an international airport.
3. **The Bhutan ACCESS Phase 2 project is a strategic investment that will contribute to Bhutan's economic growth, regional integration, and long-term development.** The project is expected to achieve the following strategic objectives in line with the 13th FYP's emphasis on economic diversification and regional trade:
 - a) **Economic Diversification and Job Creation:** Bhutan's economy, heavily reliant on hydropower, needs diversification. The project aims to create direct construction jobs and help stimulate non-hydropower related economic growth in the poorer south-central districts (zongkhags) of Bhutan, centered around the Gelephu Special Administrative Region (including the GMC). The project investments (road, digital, and trade) are expected to be foundational to GMC development, with digital connectivity serving as a catalyst for economic diversification and growth.
 - b) **Regional Connectivity and Trade:** Improved multimodal connectivity and logistics will enhance trade with India and Bangladesh, reducing costs and increasing efficiency. The project includes the provision of digital connectivity and solutions, designed to eliminate manual and paper-based processes, to ensure efficient and streamlined trade and border crossings.
 - c) **Sustainable Infrastructure with Enhanced Resilience:** The project aims to (i) enhance green and resilient road connectivity and support multimodal connectivity (Railway/Inland Waterway Transport (IWT)); (ii) improve road infrastructure and enable sustainable road maintenance and asset management; (iii) enhance biodiversity conservation and its sustainable management in the project area; and (iv) enable disaster recovery capabilities of the government data center. The largest project component comprises the construction of the greenfield Gelephu-Tareythang road section of the SEWH, a vital regional transport corridor, which will be a climate resilient alternative to the existing road connecting Gelephu-Tareythang.

Sectoral and Institutional Context

4. **Regional trade in eastern South Asia (Bangladesh, Bhutan, India, and Nepal) continues to lag.** Trade within the region is around 5 percent of total trade, which compares poorly to other regions such as East Asia (50 percent) and Sub-Saharan Africa (22 percent).¹ Recognizing the untapped potential of intra-regional trade, the World Bank has developed the ACCESS MPA with the goals of reducing trade and transport costs through an adaptive and continuous engagement. The MPA enables the World Bank to anchor the regional agenda in a holistic program,

¹ Herrera Dappe, M. and Kunaka, C. 2021, *Connecting to Thrive*. International Development in Focus. Washington DC: World Bank



while offering country-specific national approaches and gradually building complementary policies and institutions through a shared objective and common platform. This project forms the second phase of the MPA.

5. **As a landlocked country with a small domestic market, Bhutan could significantly benefit from greater regional integration and cross-border connectivity.** While Bhutan's trade has grown robustly over the past decade, opportunities for growth through trade remain largely untapped. Bhutan's trade suffers from delays when passing through seaports in neighboring countries, inefficiencies at land border crossings, limitations on routes for transit cargo, and overreliance on road transport, resulting in high costs of trade. These challenges are compounded by complex trade processes, inadequate transport and trade-enabling infrastructure, non-tariff measures, and a trust deficit within the region. Bhutan is heavily dependent on trade; in 2022, Bhutan's trade as a percentage of GDP was 85.57 percent. India is by far Bhutan's largest trading partner, accounting for 80 percent of Bhutan's total exports and about 82 percent of imports.² Bhutan's main export commodities (excluding electricity) are ferro-silicon, cement, and minerals, while its main import commodities are petroleum products, followed by equipment and machinery, and iron ore.⁴ Bangladesh is Bhutan's second largest export market. Bhutan's exports to Nepal have also increased in recent years.
6. **Bhutan's trade gateways lack adequate infrastructure capacity for the traffic and freight volumes they handle.** Bhutan's trade passes through 16 land border crossing posts shared with India, with Phuentsholing, Samtse, Gelephu and Samdrup Jongkhar as the most significant in terms of trade volumes. The country is overly reliant on the congested Phuentsholing border crossing, which handles 76 percent of its trade. The same border crossing points and road corridors are also used for trade with Bangladesh and Nepal. The Government is seeking to develop additional crossing points for trade, notably Gelephu, which has been identified as a trade gateway for Bhutan.

Digital Adoption and Connectivity

7. **Bhutan has made major strides in improving digital connectivity as a critical driver for the country to integrate into the global digital economy; however, access to affordable and reliable fixed broadband remains a challenge, resulting in high international bandwidth costs.** Over 90 percent of the population now has access to 4G mobile broadband offered by the two operators – B-mobile (Bhutan Telecom) and Tashi Cell. Fiber optic cables link all 20 districts and 201 gewog administrations, while the Druk Research and Education Network (DrukREN) and the Government Network (GovNet) connect government institutions, higher education institutes, and hospitals to high-speed Internet. However, Bhutan's international segment of the broadband value chain remains constrained largely due to its reliance on India to access undersea cables. Bhutan's international bandwidth cost is currently almost double that of neighboring India and Bangladesh.² As a result, access to fixed broadband remains below 1 percent of households and is unaffordable for smaller businesses and the poor. Geographical constraints, particularly the country's mountainous terrain, also continue to pose obstacles to connecting remote areas of the country.
8. **Digital acceleration is hindered by weak digital resilience, nascent foundations to support data sharing, and limited digital capabilities.** While efforts have been made to consolidate fragmented systems through the establishment of a centralized Government Technology Agency (GovTech), the lack of data sharing and interoperability undermine digital transformation at scale. In addition, poor data governance, limited cybersecurity capacity, and weak data infrastructure make critical systems and data vulnerable to the risks posed by natural disasters and cyber-attacks. The lack of digital capabilities and skills has also hindered implementation and adoption of effective digital solutions across sectors.

² In 2021, Bhutan's international bandwidth price was ~US\$7 per Mbps/month, higher than neighboring countries Nepal (US\$4), Bangladesh (US\$3.25), India (US\$4), Pakistan (US\$2).



9. **Trade transactions in Bhutan lack end-to-end digital solutions, relying on paper-based processes that add complexity, delays, and costs.** Bhutan has implemented only 28 percent of the 31 key trade facilitation measures identified by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP).³ Full implementation of these measures, along with the World Trade Organization (WTO) Trade Facilitation Agreement and paperless trade, could reduce trade costs by around 30 percent.⁴ To address this, Bhutan is keen to develop a National Single Window (NSW) for trade to integrate existing certificate, license, and permit issuing services into a unified platform for an end-to-end digital service solution for businesses and traders. Implementing the NSW can significantly enhance trade efficiency by streamlining document submission, reducing costs, and accelerating clearance times, as evidenced in countries like Thailand, Pakistan, and Nepal⁵. Additionally, developing subregional trade and logistics corridors creates an opportunity to harmonize data and interoperability standards, facilitate secure data exchange at borders, and strengthen digital connectivity for trade.

Transport Connectivity

10. **While Bhutan's central region is well connected in the east-west direction through the northern highway, the country lacks adequate north-south links, and a continuous southern highway that provides reliable and resilient east-west connectivity.**⁶ The incomplete SEWH, which runs along the border with India, is considered by the Royal Government of Bhutan (RGoB) as one of the major pieces of missing infrastructure in the country. Its absence forces Bhutanese traffic to travel south and use Indian roads to move between different parts of the country. This results in (i) border clearance costs in the form of time to comply with transit entry and exit procedures for both countries, (ii) delays enroute when Bhutanese traffic is impacted by traffic waiting to clear state procedures between Assam and West Bengal, and (iii) increased unreliability due to congestion on Indian routes.
11. **Road transport remains the dominant mode of transport in Bhutan, carrying more than 90 percent of trade traffic.** The country is served by a road network of 18,343 km⁷ (June 2023) with 126,500 registered vehicles (June 2023). The road network has expanded significantly, but only about 30 percent is paved. National Highways (primary and secondary) account for some 1,930 km of the network. Internal road connectivity has improved markedly in both coverage and quality⁸, although a few critical missing links remain. The Government is keen on exploring the feasibility of alternative modes of transport, including Inland Waterway Transport (IWT) and Railways. IWT offers a clean and energy-efficient mode of transport with potential to reduce logistics costs, emissions, and traffic congestion. IWT may also be used together with rail to form new green multimodal linkages.
12. **Bhutan currently has neither an internal rail network nor railway connectivity with neighboring countries.** The nearest railheads in India are located 16-70 km from the border towns. Under a bilateral agreement with the Government of India (GoI) to assess the feasibility of establishing railway links to five border towns in Bhutan, the first rail link to be implemented would be a 57-km line from Kokrajhar (Assam) to Gelephu to bolster multimodal regional connectivity. It would connect Bhutan with the Indian and Bangladesh rail networks, the latter via the recently re-established 12-km Haldibari-Chilahati link. The reopening of additional railway links between India and

³ UNESCAP, 2017, Trade Facilitation and Paperless Trade Implementation in Asia and the Pacific: Regional Report 2017.

⁴ UNDP, 2021, Diagnostic Trade Integration Strategy Update (DTISU).

⁵ UN ESCAP and UNECE reports on NSWs have consistently reported implementation benefits. Thailand's report UN NeXT Brief from August 2012 illustrates this very well. Most recently in 2024, an assessment of the Pakistan Single Window reported significant reductions in clearance times for a range trade procedures.

⁶ The Comprehensive National Development Plan 2030 highlights the need to develop an efficient and reliable road network to (i) provide alternative routes; (ii) address rural-to-urban migration and address regionally balanced development; and (iii) reduce travel times for the north-south corridors to 8 hours and for the east-west corridor to 16 hours or less. The Asian Development Bank (ADB) is currently supporting the RGoB in the preparation of a road master plan.

⁷ Primary and secondary national highways account for 16%, Dzongkhag roads (district roads) account for 14%, and the balance of 70% are urban, farm, access roads.

⁸ Road infrastructure availability increased from 6 km to 23.4 km per thousand population between 2010 and 2022, while Road infrastructure density increased from 111 to 481 meters per sq.km during the same period. Vehicles per thousand population increased from 29 to 131 vehicles per thousand population between 2000 and 2022. About 23% of rural population (180,000) lacked all-season road access in 2023. <https://asiantransportoutlook.com/documents/115/Bhutan-greenroads.pdf>



Bangladesh has the potential to enhance rail transit for Bhutan. Bhutan is also considering the development of rail connectivity along its southern border.

13. **Civil aviation is essential for Bhutan's growth as it provides vital support for the development of tourism, trade, and manufacturing.** International tourism receipts have fluctuated between 10 and 15 percent of Bhutan's total exports during 2015-2020. Bhutan currently has one international airport (Paro) and three domestic airports (Yongphulla, Bathpalathang, and Gelephu). The Paro International Airport (PIA) is constrained by limited operational hours, and the runway's peak capacity is seven aircraft movements per hour. With annual passengers estimated to reach over 900,000 by 2030, passenger volume will exceed the PIA's ultimate capacity by 2033.⁹ As part of its vision for a multimodal transport and logistics hub, RGoB is prioritizing the development of the second international airport in Gelephu.
14. **Bhutan's transport and digital networks are highly vulnerable to the impacts of climate change.** Extreme weather events, such as floods and landslides, frequently damage roads, bridges, and other critical infrastructure. For example, the Gelephu-Tareythang road experiences closures annually, highlighting the need for resilient transport systems. Limited redundancy in transport and communication networks further compounds the risks, affecting access to essential services and disaster response capabilities.

Response to Connectivity Challenges

15. **The proposed project responds to the challenges in digital connectivity and climate resilient physical connectivity through investing in (i) digital systems for trade, and (ii) green and resilient transport and logistics infrastructure.** The digital component will include implementation of a digital platform to provide a secure end-to-end service solution for businesses and traders and strengthen digital infrastructure, cybersecurity, and digital resilience. The regional transport connectivity component will aim to enhance green and resilient road connectivity, strengthen road asset management, and explore multimodal transport alternatives. It will also enhance biodiversity conservation and management.
16. **In summary, the regional connectivity benefits of the Bhutan ACCESS – Phase 2 project include:**
- a) **Providing digital solutions** designed to eliminate manual and paper-based processes for faster and cost-effective trade and border crossing.
 - b) **Upgrading Bhutan's SEWH** – resulting in increased climate resilience of transport, reduced time and cost of domestic and international travel, and bridging missing links between the export-oriented industrial and mineral-rich centers along the southern border with India.
 - c) **Developing trade-enabling infrastructure** – mitigating the dependence (and resulting congestion) of the Phuentsholing border crossing and facilitating the emergence of Gelephu as a freight consolidation center with links to industrial and mineral hubs, and a trade gateway with potential for multimodal connections to India and Bangladesh.
 - d) **Furthering multimodal connectivity** – notably through rail and inland waterways to facilitate export of bulk commodities, in particular boulders and minerals mined in the southern part of the country, mainly to India and Bangladesh.
17. **Public sector financing is warranted to mitigate the substantial early development risks associated with the proposed project, which is the first foundational infrastructure investment of the GMC.** For the proposed project, private investment will be financially impractical given the expected high risk-adjusted-return of investment due to substantial risks associated with technical design, environmental and social safeguards, and construction. In addition, Bhutan does not have a track record of Public Private Partnerships (PPPs) in the transport sector. Fully

⁹ ADB. 2019. Kingdom of Bhutan: Enhancing Aviation Sector Development Capacity.



aware of the challenges and recognizing the strategic role of the proposed project in Bhutan's transport and logistics sector development, the RGoB requested World Bank support for financing and technical assistance.

18. **As a public-good infrastructure project, it will generate significant long-term social and economic externalities.** Public financing is critical to creating an inclusive, competitive, and resilient transportation system. In turn, this will attract international investment, expand exports, reduce trade and fiscal deficits, and create local job opportunities. The Bank's involvement will add value through best practice sharing, capacity building, and ensuring high-quality project design and implementation beyond its catalytic financing. Insights gained from similar projects in neighboring countries, such as India, Bangladesh, and Nepal, will enhance "value for money", facilitate the adoption of modern technologies and best practices, and generate productive synergy through deepening regional connectivity and cooperation.
19. **The Project is aligned with the World Bank Maximizing Finance for Development (MFD) approach.** Sub-component 2.3 supports the potential for private financing through pre-feasibility and feasibility studies on IWT and railway operations, and trade logistics infrastructure; Sub-component 2.1 supports the feasibility assessment of the Tareythang-Panbang Road and will include assessment of potential private sector participation for long-term operation and maintenance. In addition, the proposed project will be a critical enabler for private investment in the GMC development, including a special economic zone, logistics facilities, and various industries. Similarly Sub-component 1.4 will procure long-term international bandwidth at reduced network costs to improve domestic services, thereby attracting private investments to increase network access and availability. Development of the NSW along with complementary digitalization efforts supported under Subcomponents 1.1 and 1.2 will also facilitate increased private sector investments in trade, logistics, and industries. The Project has been tagged as MFD-enabling.

C. Proposed Development Objective(s)

Development Objective(s) (From PAD)

The development objective is to increase the efficiency and resilience of trade, transport, and digital connectivity along selected corridors in Bhutan.

Key Results

20. The overall ACCESS Program is expected to; (i) increase the throughput at priority border points; (ii) reduce the average travel time for vehicles along selected regional corridors; (iii) reduce annual fatalities on program corridors; and (iv) increase in the number of people provided with improved climate resilient road access along regional corridors.
21. PDO outcome indicators have been selected to measure (i) efficiency and resilience in trade and digital connectivity; (ii) efficiency in transport connectivity; and (iii) resilient connectivity. The Results Framework also includes Corporate Scorecard indicators, as well as indicators for Gender, Citizen Engagement, and Climate Change.

D. Project Description



Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	Yes
Projects in Disputed Area OP 7.60	No
Summary of Screening of Environmental and Social Risks and Impacts	

Component 1: Digital Systems for Trade (US\$42 million) will enhance trade efficiency and resilience by strengthening digital infrastructure and connectivity, and improving cybersecurity and disaster recovery capabilities.

22. Subcomponent 1.1: Implementation of National Single Window for Trade (NSW) (US\$14 million). This subcomponent is expected to implement an NSW for trade to improve transparency and integrity, reduce trade transaction costs, enhance inter-agency coordination, and decrease the time required to clear goods. The project will finance: (i) the design, development, and implementation of an NSW solution, including the procurement of software, IT equipment, and project management and quality assurance expertise; (ii) necessary policy reforms and modernization of customs and other border management agency requirements; and (iii) trainings and capacity building to support effective implementation and adoption of the NSW, including targeted awareness raising and trainings for women traders. The Government is presently developing a blueprint for the NSW, utilizing the project preparation advance (PPA). The blueprint will outline the governance structure, operational model, fee structure, integrated helpdesk mechanisms, and change management system for effective NSW implementation. Preliminary assessment indicates that there are up to 16 existing systems for certificates, licenses, permits or other types of authorizations and 22 government agencies that could potentially be integrated under the proposed NSW. Additionally, many of the business processes associated with these systems are still entirely paper-based or semi-manual. A multi-sectoral NSW management committee and a subsidiary working group are carrying out structured and regular engagement across NSW stakeholders, including with traders, to ensure that the proposed solutions adequately meet Bhutan's needs to facilitate cross-border trade. Digitalization of trade processes will also support both climate mitigation (by reducing the amount of paper-based processes and reductions in carbon footprint associated with travel to government offices and border crossing points) and adaptation efforts (by preserving paper records in a digital format and reducing the risk of damage associated with extreme climate events).

23. Subcomponent 1.2: Strengthening Digital Enablers (US\$5 million). This subcomponent supports the deployment and modernization of the reusable, horizontal foundations for seamless and efficient digital transactions and services across the public and private sectors, referred to as digital public infrastructure (DPI) or the government's "digital stack", with trade as the targeted initial use case. Specifically, the project will aim to enable the digitalization of electronic transactions and services and promote trusted data sharing through a two-pronged approach: (i) technical assistance for legal, regulatory, and institutional enablers and safeguards for trusted data sharing, including cross-border transactions. This includes the development of data protection impact assessments and implementation of risk mitigation measures for secure digital trade, and may also encompass assessments, policies, guidelines, standards, and capacity building in areas such as data protection, electronic transactions, and digital identification; and (ii)



technical assistance, trainings, and procurement of software/IT equipment and services to implement enhancements to the functionality and adoption of DPI – including the national digital identification (NDI) system, a digital data and business intelligence hub, and support to the integration of DPI with the NSW and other trade-related systems and databases. The purchase of the energy-efficient equipment will be in accordance with internationally recognized best practices on energy efficiency and meet or exceed Bhutan's minimally accepted standards.

24. Subcomponent 1.3: Enhancing Cybersecurity (US\$6 million). This subcomponent seeks to strengthen Bhutan's cybersecurity capacities to ensure a trusted environment for the secure implementation of digital trade systems and the safe transfer of data and goods across the regional trade corridors. This includes (i) setting up a Governmental Security Operation Center (G-SOC) to provide monitoring, detection, response, and recovery services to respond to cyber-attacks; (ii) developing a critical infrastructure protection (CIP) plan to strengthen the robustness and mitigate the risks of digital trade systems; (iii) employing common security measures across critical government systems (e.g., firewalls, encryption protocols, and intrusion detection systems); (iv) an options assessment to strengthen the cybersecurity legal framework, that may also encompass the development of assessments, policies, guidelines, standards, and capacity-building initiatives; and (v) fostering regional partnerships with cybersecurity agencies of neighboring countries. The G-SOC will serve as a one-stop shop for incident handling services provided with a prioritized focus on digital trade systems. The project will finance both the conceptualization and operationalization of the G-SOC: conceptualization will define the governance model, stakeholders, services, development of standard operating procedures, and capacity building requirements; and the operationalization phase will finance the procurement of IT hardware and software, systems, licenses, adoption of standard operating procedures, and trainings.

25. Subcomponent 1.4: Improving Digital Connectivity and Data Infrastructure Resilience (US\$17 million). This subcomponent seeks to improve digital connectivity and data infrastructure to facilitate resilient and reliable trade. Specific activities include: (i) supply of bulk international bandwidth capacity for Government Networks under an indefeasible right of use (IRU) agreement or through refill of capacity from other neighboring countries; (ii) enhance last mile access for targeted trade, agricultural, and logistics centers, building on existing infrastructure to expand or upgrade connectivity; and (iii) enhance and strengthen disaster recovery capabilities of the existing Government Data Center (GDC). This will be done by financing a demand assessment for additional data hosting capacity to support the NSW, procurement of modern IT equipment and cloud-enabled software to enhance the GDC, and upgrade the backup data center in Bumthang to an active-active disaster recovery (DR) configuration. Connectivity between the GDC and DR sites will also be strengthened as needed. Current data management and hosting practices in Bhutan are highly vulnerable to floods and other extreme climate events. Improving connectivity between the GDC and the backup data center and enhancing with cloud computing environment will provide automated backup and DR capabilities to avoid data loss in the event of a natural disaster. Further, purchase of energy-efficient equipment will be in accordance with internationally recognized best practices on energy efficiency and meet or exceed Bhutan's minimally accepted standards.

Component 2: Green and Resilient Transport and Trade Infrastructure (US\$233 million) will enhance regional corridors and trade gateways that are the backbone of the physical and economic integration of the region.

26. Subcomponent 2.1: Developing Green, Resilient, and Safe Road Connectivity (US\$219 million). The subcomponent proposes a climate resilient 15-km greenfield road as a safer, shorter (20 min vs. current 90 min travel time), and all-season alternative. With increasing rainfall intensity due to climate change, the existing 45-km route from Gelephu to Tareythang faces high risk of landslides and flooding, making it unsuitable for upgrading. This route, a critical missing



link in the Southern East West Highway (SEWH), will feature five major bridge crossings, and will adopt a nature-positive approach to construction. At its western end, the greenfield road will connect with the planned Gelephu multimodal transport and logistics hub and the international airport. It will also serve as the main arterial road for the planned GMC. Universal accessibility and safety measures, such as sidewalks, safe crossings, lighting, and non-motorized transport (NMT) facilities, will be incorporated. Additionally, the project will support road safety enforcement, education materials, and campaigns. The Department of Surface Transport (DoST) will lead the design, construction, and supervision, including environmental and social oversight.

27. **The road construction will involve implementation of Environmental and Social (E&S) risk management plans**, including Environmental and Social Management Plan (ESMP), Resettlement Action Plan (RAP), Stakeholder Engagement Plan (SEP), and Biodiversity Management Plan (BMP). The BMP includes, among others, general mitigation measures and a Net Gain Strategy to achieve net gain of critical habitat features. The Critical Habitat Assessment (CHA) for the Gelephu-Tareythang Road identified that the project area is a critical habitat for two wildlife species namely, Asian Elephant and Gee's Golden Langur. Hence, the project will support implementation of the mitigation strategies in the BMP, including the direct project impacts and the biodiversity net gain¹⁰ strategy. The Department of Forest and Park Services (DoFPS) will implement the net gain strategy, working closely with the DoST, and in coordination with NGOs and local communities.¹¹
28. **To support a phased approach to complete the follow-on missing section of the SEWH**, this subcomponent also includes the preparation of feasibility study, detailed design and engineering studies, and the Environmental and Social Impact Assessment (ESIA) of the approximately 60-km missing link between Tareythang and Panbang for future construction. The proposed new link will reduce the current travel distance between Gelephu and Panbang (via Zhemgang) by over 100 km. Climate resilience will be a priority consideration in the feasibility and design of this infrastructure. The project will also support the development of a full-scale Cumulative Impact Assessment (CIA), building on the rapid CIA done during project preparation. This is to better inform decision-making and manage cumulative environmental and social impacts that are likely to arise from GMC growth and other external stressors that may intensify pressures on local ecosystems and infrastructure.
29. **Subcomponent 2.2: Strengthening Road Asset Management and Maintenance (US\$11 million)**. To ensure sustainability of current and future investments, this subcomponent will strengthen the existing road asset management system (RAMS) being used in Bhutan by improving data collection, analysis, and instrumentation, and establishing a web-based system integrated with GIS capabilities. This system will support the prioritization of climate-resilient maintenance interventions in a sustainable and transparent manner. By enabling timely maintenance and data-driven decision-making, the upgraded RAMS will improve the resilience of the road network to climate hazards. For example, the system will identify areas where increased precipitation or extreme heat have damaged infrastructure, enabling proactive upgrades to withstand future climate impacts. The project will also pilot a five-year Performance-Based Maintenance Contract (PBMCM) covering key sections of the SEWH and other priority regional links. These contracts will include performance measures to maintain climate adaptation features and retrofit critical areas with green technologies, such as nature-based solutions for flood attenuation and slope stabilization.
30. **Subcomponent 2.3: Improving Multimodal Connectivity (US\$3 million)**. The subcomponent will develop a multimodal masterplan, which will entail support for pre-feasibility and feasibility studies on selected IWT routes,

¹⁰ 'Net gains' are additional conservation outcomes that can be achieved for the biodiversity values for which the natural or critical habitat was designated. WB ESF ESS6 requires that the project's mitigation strategy is designed to achieve net gains.

¹¹ Biodiversity mitigation measures to be implemented by DoST are included and costed as part of road and bridges contract.



operationalization of regional rail cargo movement at selected rail corridors, and development of capacity of Ministry of Infrastructure and Transport (MoIT) in IWT and railway operations and maintenance. It will also harmonize and update the feasibility assessment of the dry ports, taking into consideration the agricultural and industrial growth centers and the latest development plans of the RGoB. It will aim to integrate trade logistics and recommend optimum locations for proposed Renewable Natural Resources (RNR) and export processing centers, cold chains, and laboratories. Given Bhutan's vulnerability to climate exacerbated hazards, the masterplan will also include climate resilience as a key consideration for future infrastructure development. IWT and Rail based freight also has great opportunity to reduce carbon emission from the transport sector in Bhutan. The subcomponent will actively explore private financing opportunities in the trade and transport logistics sector of Bhutan.

Component 3: Institutional and Policy Strengthening for Transport and Trade (US\$25 million) will provide technical assistance and capacity building for climate resilient transport and digital connectivity, trade and customs modernization.

31. **Subcomponent 3.1: Project Implementation Support and Capacity Building to Implementing Agencies (US\$6 million).** This subcomponent will support the provision of relevant technical experts, training, and capacity building for the IAs; (i) GovTech, (ii) DoST, and (iii) DoFPS. Areas of focus include project management, procurement, financial management, environmental and social management, improved business service delivery, climate resilience, and project monitoring and evaluation.
32. **Subcomponent 3.2: Policy/Regulatory Support (US\$0.6 million).** This subcomponent will support the formulation of targeted policies, laws, guidelines, standard operating procedures, governance frameworks, and regulations to support: (i) inclusive cross-border digital trade; and (ii) transport facilitation. Identified areas of support include the Civil Aviation Policy and Act, National Surface Transport Policy, NSW, and Railway and IWT operational guidelines, for which climate resilience development will be a key consideration. The project will also promote gender inclusive trade-related guidelines.
33. **Subcomponent 3.3: Resilient and Sustainable Regional Infrastructure Planning Support (US\$18.4 million).** This subcomponent will support regional infrastructure planning and pipeline development. The project will support disaster risk management (DRM) and climate modelling capacity enhancement, preparation of DRM action plans, multi-hazard mapping, climate change informed hydrological modelling in several river basins, flood impact damage assessments at strategic locations, e.g., through the preparation of comprehensive feasibility and E&S studies with a focus on sustainable regional trade projects following good international practices. Climate resilience will be the primary focus across all activities and will contribute to future development of climate-resilient regional trade infrastructure. This holistic strategy would support long-term sustainability, resilience, and economic growth.

E. Implementation

Institutional and Implementation Arrangements

34. **The project will have three implementation agencies: GovTech, DoST within the MoIT, and DOFPS within the Ministry of Energy and Natural Resources (MoENR).** GovTech will be the Implementing Agency (IA) for Component 1 as well as Component 3. DoST will be the IA for Component 2 (except for Implementation of Net Gain strategy of BMP, as part of Subcomponent 2.1, which will be implemented by DoFPS). Component 3 will be implemented by all IAs.
35. **The project will consist of a Project Management Unit (PMU) in GovTech and in DoST, respectively, with dedicated implementation teams for each activity.** Each PMU will be headed by a government-appointed Project



Director, to be supported by a Project Coordinator (PC), and technical experts including specialists in procurement, financial management, environment, social and gender, and monitoring and evaluation (M&E). Focal Officers on procurement, E&S, road safety, biodiversity, and gender shall be seconded to the PMUs (as relevant) to strengthen project ownership and enhance capacity of RGOB agencies. DoFPS will report to the DoST PMU to ensure strong coordination with the road construction.

36. **A Project Steering Committee (PSC) has been formed and will continue to provide strategic and policy direction, review and guide implementation progress, and approve annual work plans for the duration of the project.** The PSC will meet at least every six months and will be co-chaired by the secretaries of MoIT and GovTech, and will include members from the relevant stakeholders: Department of Trade (MoICE), DMDF (MoF), Department of Human Settlement (MoIT), and Department of Infrastructure Development (DoID). The NSW will be managed by a multi-sectoral committee that is co-chaired by the Secretaries of GovTech and MoICE and consists of technical officials from GovTech, Department of Trade (MoICE), Royal Monetary Authority (RMA), and Department of Revenue and Customs (DRC-MoF). The roles and responsibilities of the PSC and the multi-sectoral committee are elaborated in the Project Operations Manual (POM).

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