ASIAN INFRASTRUCTURE INVESTMENT BANK

Sovereign-Backed Financing

Approval Project Document
P000724 Republic of the Philippines
Bataan-Cavite Interlink Bridge Project and Tranche 1

Currency Equivalents
(As of April 29, 2024)

Currency Unit – Philippine Peso (PHP)
PHP100.00 = USD1.70
USD1.00 = PHP 57.70

Borrower's Fiscal year
January 1 – December 31

Abbreviations

ADB	Asian Development Bank
AIIB	Asian Infrastructure Investment Bank
BAP	Biodiversity Action Plan
BCIB	Bataan-Cavite Interlink Bridge
BMMC	Bridge Monitoring and Maintenance Compound
CALAX	Cavite-Laguna Expressway
CAPEX	Capital Expenditure
CAVITEX	Manila-Cavite Expressway
CEMMAP	Contractor Environmental Management and Monitoring Action Plan
COA	Commission on Audit
CRA	Climate Risks and Adaptation Assessment
CSC	Construction Supervision Consultant
DBM	Department of Budget and Management
DED	Detailed Engineering Design
DOF	Department of Finance
DPWH	Department of Public Works and Highways
ECC	Environment Compliance Certificate
EDSC	Engineering Design Support Consultant
EIA	Environmental Impact Assessment
EIRR	Economic Internal Rate of Return
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
ES	Environmental and Social
ESEL	Environmental and Social Exclusion List
ESP	Environmental and Social Policy
ESS	Environmental and Social Standards
FAM	Facility Administration Manual
FM	Financial Management
FS	Feasibility Study
GAAP	Gender Assessment and Action Plan
GBV	Gender-Based Violence
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GoP	Government of the Philippines
GRM	Grievance Redress Mechanism
IAM	Independent Accountability Mechanism

IAS	Internal Audit Services
ICE	Independent Checking Engineer
IFI	International Financial Institution
IOCT	International Open Competitive Tender
IPCC	Intergovernmental Panel on Climate Change
IPIF	Infrastructure Preparation and Innovation Facility
LARP	Land Acquisition and Resettlement Plan
LGU	Local Government Unit
MDB	Multilateral Development Bank
MFF	Multitranche Financing Facility
MOA	Memorandum of Agreement
MPSS	Minimum Project Specification and Standards
NCCAP	National Climate Change Action Plan
NCIP	National Commission on Indigenous Peoples
NCR	National Capital Region, Metro Manila
NDC	Nationally Determined Contribution
NEDA	National Economic and Development Authority
NGO	Non-Government Organization
NPV	Net Present Value
O&M	Operation and Maintenance
OHS	Occupational Health and Safety
PA	Paris Alignment
PAP	Project-Affected Peoples
PDS	Procurement Delivery Strategy
PHP	Philippine Peso
PIR	Procurement Instructions for Recipients
PIU	Project Implementation Unit
PMC	Project Management Consultant
PP	Procurement Plan
PPM	Project-affected People’s Mechanism
PPP	Public-Private Partnership
PPQ	Project Prioritization and Quality
PWD	People with Disabilities
QCBS	Quality and Cost Based Selection
RF	Resettlement Framework
SCTEX	Subic-Clark-Tarlac Expressway
SEAH	Sexual Exploitation and Abuse and Sexual Harassment
SEP	Stakeholder Engagement Plan
SPP	Strategic Procurement Planning
SPS	Safeguard Policy Statement
UPMO	Unified Project Management Office
USD	United States Dollar
VOC	Vehicle Operating Cost
VOT	Value of Time

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CONTENTS

1. Summary Sheet

Project No.	P000724
Project Name	Bataan-Cavite Interlink Bridge Project – Tranche 1
AIIB Member	Government of the Philippines (GoP)
Borrower	Republic of the Philippines
Sector Subsector	Transport Road
Alignment with AIIB's thematic priorities	Connectivity and Regional Cooperation; Green Infrastructure; Technology-enabled Infrastructure
Project Objective	To contribute to efficiency improvements of road travel in Bataan, Cavite, and the National Capital Region.
Project Description	The Bataan-Cavite Interlink Bridge Project ("BCIB Project") comprises about 32.15 kilometer (km) fixed crossing over Manila Bay, consisting of (i) 2 climate-resilient cable-stayed navigation bridges with main spans of 900 and 400 meters (m) connecting Mariveles, Bataan to Naic, Cavite; (ii) 24 km of marine viaducts; and (iii) 8 km of approach roads. It will include a U-turn facility near the Corregidor Island for future connection. It also includes a capacity building program to ensure adequate capacity of the government in operation and maintenance (O&M) and management of the BCIB and future large and complex bridges. A tourist center and supporting facilities will also be established at the north approach of BCIB to enhance tourism in Bataan Province and Corregidor Island. The BCIB Project is expected to be financed in three tranches. Tranche 1 (the "Project") will finance a segment of the civil works and consultancy service components involving the navigation bridges, marine viaducts, and approach roads.
Implementation Period	Start Date: May 15, 2024 End Date: December 31, 2026
Expected Loan Closing Date	June 30, 2027
Cost and Financing Plan	BCIB Project cost: USD4,354.78 million <u>BCIB Project Financing Plan</u>: AIIB loan: USD1,135.27 million ADB loan: USD2,108.37 million GoP: USD1,111.14 million Tranche 1 Project cost: USD1,310.78 million <u>Project Financing Plan</u>: AIIB loan: USD350.00 million ADB loan: USD650.00 million GoP: USD310.78 million
Size and Terms of AIIB Loan	USD350.00 million for this Project. Terms: Final maturity of 29 years, including a grace period of 10.5 years, at AIIB's standard interest rate for sovereign-backed loans.

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	AIIB is expected to finance USD1,135.27 million for the BCIB Project through two more loans of USD515.98 million and USD269.29 million, in joint financing with ADB.
Cofinancing (Size and Terms)	Asian Development Bank (ADB) is the lead co-financier. ADB will finance USD2,108.36 million for the BCIB Project through a multitranche financing facility (MFF) in 3 tranches of USD650.00, 958.25, and 500.11 million.
Environmental and Social Category	Category A
Risk (Low/Medium/High)	High
Key Covenants	(i) Implementation of the Project in accordance with: the agreed Facility Administration Manual (FAM), the ADB's Anticorruption Policy, the AIIB's Policy on Prohibited Practices, and the ADB's Safeguard Policies. (ii) Implementation of the Project in accordance with the core labor standards and the Borrower's applicable laws and regulations. Implementation of appropriate safety measures during the construction and commissioning of the Project. (iii) Procurement for the Project in accordance with the ADB's Procurement Policy and Regulations, the FAM, and the ADB's Loan Agreement. (iv) Implementation of the Gender Assessment and Action Plan (GAAP), including adding relevant provisions into the bidding documents and contracts and allocating adequate resources. (v) Provision of counterpart support (funds, facilities, services, and other resources necessary or appropriate) by the Borrower to the Department of Public Works and Highways (DPWH) and the Project Implementation Unit (PIU) throughout the implementation of the Project.
Conditions for Disbursement	Fulfillment of all conditions to the effectiveness of the ADB's Loan Agreement (except for the effectiveness of the AIIB's Loan Agreement)
Retroactive Financing (Loan % and dates)	Retroactive financing is not proposed.
Policy Assurance	The Vice President, Policy and Strategy, confirms an overall assurance that AIIB is in compliance with the policies applicable to the Project.
Economic Capital (Ecap) Consumption	25.53 million USD ECap Ratio: 9.07%
Project Approval	Board

President	Jin Liqun

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Acting Vice President	Rajat Misra
Director General	Rajat Misra, Infrastructure Investment Department, Region 1
Sector Head	Andres Pizarro, Head of Transport Sector
Team Leader	Anne Ong Lopez, Investment Operations Specialist
Team Members	Chang Tian, Project Assistant Jessica Halim, Investment Analyst David Rollinson, Senior Environmental Specialist Odil Akbarov, Social Development Specialist Rizal Rivai, Procurement Specialist - Consultant Shodi Nazarov, Financial Management Specialist Christopher Damandl, Senior Counsel Victoria Pimkina, Legal Associate Tian Lin, Investment Analyst

2. Project Description

A. Overview

1. **Country context.** The Philippines has experienced steady economic growth over the last decade (6.3 percent between 2010 and 2019) as well as reduced poverty (from 23.3 percent in 2015 to 16.7 percent in 2018).[1] Despite its growth and poverty reduction efforts being affected by the COVID-19 pandemic, the Philippines is now projected to be on track to move from a lower middle-income country to an upper middle-income country: the GoP's long-term vision (AmBisyon Natin 2040) aims for the country to become "a prosperous middle-class society where no one is poor" by 2040. This goal is further translated into the GoP's medium-term plan (Philippine Development Plan 2023-2028), which places emphasis on raising the country's potential growth trajectory and reducing poverty incidence and income inequalities between provinces.

2. **Sector context.** To sustain the Philippines' growth momentum, the GoP acknowledges that there is a need to improve domestic connectivity and promote growth centers outside the National Capital Region (NCR) so as to reduce regional inequalities and boost productivity. As an archipelagic nation, transport infrastructure is particularly crucial to facilitate the Philippines' movement of people, goods, and services across its many islands, improve connectivity and decongest urban areas. The current administration recognizes this – majority (62 percent) of the 197 Flagship Infrastructure Projects approved by National Economic and Development Authority (NEDA) are transport and mobility projects. The Department of Public Works and Highways (DPWH)'s top priorities include addressing traffic congestion in Metro Manila and interregional connections, creating an integrated and seamless transport system, and dispersing economic development outside Metro Manila.

3. **Background.** The NCR has long been the dominant growth pole of the Philippines as a whole and the Luzon Island. The region accounts for 12.4 percent of the national population and 36.4 percent of the national gross domestic product (GDP) in 2020. Services and economic opportunity are heavily concentrated in the NCR. While this perpetuates the attractiveness of the megacity as a destination for temporary and permanent migration, the current density of NCR (21,765 persons per square km) makes it difficult for migrants to afford housing within easy reach of NCR's economic opportunities. The NCR also faces significant challenges regarding ineffective public infrastructure and social services, and worsening impacts on public health and the natural environment.

4. Further, the continuous increase of population and urbanization in the NCR is associated with heavy traffic congestion, which imposes inconvenience, losses of work time, increased fuel costs, and overall lower productivity. In 2019, the average Metro Manila commuter lost 10 days and 17 hours due to traffic congestion, and the cost of congestion in the metro was estimated at 3.5 billion pesos daily.[2] Today, the NCR only has 1 km of road for every 424 motor vehicles, and majority of commuters travel at 10

[1] Asian Development Bank.
[2] Japan International Cooperation Agency, ALMEC Corporation, and National Economic Development Authority (NEDA). 2019. *Follow-Up Survey on Roadmap for Transport Infrastructure Development for Greater Capital Region (GCR): Final Report Summary.* Pasig City, Philippines.

km per hour on average. The loss was projected to be PHP5.4 billion per day in 2035 due to congestion if no action is taken.[3] Congestion also exacerbates greenhouse gas (GHG) emissions intensity, with total GHG emissions from the NCR road network estimated to grow from 280,000 tons of carbon dioxide equivalent (CO2e) in 2025 to 360,000 tons of CO2e in 2035.[4]

5. Because of its scale, proximity to the NCR, and dedicated customs processing capacity, the Port of Manila is the predominant maritime shipping hub for the country. However, its operations are already exceeding port capacity, resulting in shipping delays, operational safety concerns, and congestion of the port and surrounding road networks. Already dense land utilization surrounding the Port of Manila limits the viability of port expansion and infrastructure upgrades as a solution to these capacity challenges. The vehicular traffic generated by the Port of Manila contributes significantly to NCR's traffic congestion.

6. Road network congestion is worsened by the lack of integration of the transport system in large parts of Luzon (e.g., Central Luzon and Calabarzon regions). Bataan province (situated in the Central Luzon region), for example, is not economically integrated with the southern provinces of Luzon and the NCR due to its lack of land connectivity to the south despite having a large population base and high economic potential. Based on the current road network, commuters from Bataan would have to travel through various provinces (i.e., Pampanga and Bulacan) before reaching Metro Manila, and other southern provinces of Luzon such as Cavite. At present, all north-south traffic must travel through Metro Manila, adding hours to trips traversing the NCR, resulting in increased GHG emissions and aggravating air and noise pollution.[5] Although there are two north-south expressways in operation,[6] these are frequently overburdened by through and local traffic. On average, the travel time per one-way car trip between Bataan and central Manila would take about 4 hours.[7] Similarly, the average travel time per one-way car trip between Cavite and Bataan can reach 5 hours.

7. To improve access to services and economic opportunities for the broader range of the Luzon population, decentralizing economic activity outside NCR is necessary. This requires improving and expanding Luzon's transport network in the NCR's neighboring regions (e.g., Central Luzon and Calabarzon). An additional north-south road corridor, i.e., direct connection between Bataan (Central Luzon) and Cavite (Calabarzon),[8] would substantially reduce the travel time between Bataan and the southern provinces in Luzon and NCR, hence improving the movement and efficiency of commercial and routine commutes, enhancing economic integration for the provinces and regions of Luzon, and at the same time, reducing GHG emissions.

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[3] National Economic Development Authority. 2014. *Roadmap for Transport Infrastructure Development for Metro Manila and Its Surrounding Area (Region III and Region IV-A)*. Manila

[4] ARUP. 2020. *Bataan–Cavite Interlink Bridge Project: Feasibility Study*. Manila (Prepared for the Government of the Philippines, Department of Public Works and Highways).

[5] The geographic location and natural terrain add more difficulty to improving the NCR road network. As Metro Manila is hemmed in on the east by mountainous terrain and on the west by Manila Bay, there are few alternative routes for traffic between the northern half of Luzon and the industrializing Calabarzon region to the south.

[6] These are the North Luzon Expressway and South Luzon Expressway.

[7] Currently, the fastest way to reach the center of Manila from Bataan is by ferry. However, ferry services between Bataan and central Manila are limited to three services during weekdays.

[8] Bataan is Luzon's major power generation hub and hosts the Bataan Freeport Economic Zone (BFEZ) in Mariveles, the country's fastest growing economic zone. Cavite is the Philippines' second most populated province and one of its most industrialized with over 12,000 enterprises, despite a high dependency on agriculture.

Construction of the north-south road corridor will also support future tourism development in the Corregidor Island – an island located at the entrance of Manila Bay, a historic World War II monument, and a destination for international and national tourists. Currently, while the Island has become a national heritage site, the number of tourists visiting the island is limited due to limited ferry service.

8. The NCR and its surrounding areas are at high risk from disasters triggered by natural hazards such as earthquakes, floods, tropical cyclones, extreme temperatures and sea level rise. These risks are set to increase due to climate change. Rapid urbanization is also increasing exposure of people and assets in flood-prone riverine and low-lying areas to such risks. According to the Flood Management Master Plan for Metro Manila and Surrounding Areas, the impact of climate change may result in an increase of flooding area by 6 to 25 percent by 2050.[9] In the context of climate change-induced natural hazards and associated disasters, transport infrastructure represents a potential source of both risk (e.g., damage to infrastructure or disruption to traffic due to flooding) and resilience (providing critical routes for emergency support and evacuation). Climate-resilient transport infrastructure should be designed to minimize these risks while strengthening regional resilience to potential climate change-induced hazards.

B. Bataan-Cavite Interlink Bridge Project ("BCIB Project")[10]

9. **BCIB Project.** The BCIB Project will provide a new climate-resilient road linkage between the Bataan and Cavite provinces. This will connect the road networks of NCR, Central Luzon and Calabarzon regions. Specifically, the BCIB Project will complete the loop road around Manila Bay, a key international harbor and home to the country's largest port (Port of Manila). It will provide an alternative route between north and south Luzon, which will help divert the traffic passing through the NCR.

10. The BCIB Project comprises about 32.15 km fixed crossing over Manila Bay, consisting of (i) 2 climate-resilient cable-stayed navigation bridges[11] with main spans of 900 and 400 m connecting Mariveles, Bataan to Naic, Cavite; (ii) 24 km of marine viaducts; and (iii) 8 km of approach roads. It will include a U-turn facility near the Corregidor Island for future connection. It also includes a capacity building program to ensure adequate capacity of the government in operation and maintenance and management of the BCIB and future large and complex bridges. A tourist center and supporting facilities will also be established at the north approach of BCIB to enhance tourism in Bataan Province and Corregidor Island.

11. The BCIB Project is a priority project of the current Philippines' administration. It is one of the Infrastructure Flagship Projects (out of 197) announced on March 9, 2023 as part of the Philippine Development Plan 2023-2028. It has also obtained the NEDA approval in January 2020. A re-approval was obtained in October 2023 considering the updated BCIB Project cost and detailed engineering design (DED).

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[9] Department of Public Works and Highways. 2012. *Flood Management Master Plan for Metro Manila and Surrounding Areas*. Manila

[10] "BCIB Project" means the Bataan-Cavite Interlink Bridge project comprising three tranches.

[11] A navigation channel is a deeper channel cut into the sea or riverbed, to enable larger ships to pass through to a port. For the BCIB, two natural channels with sufficient depth were selected for the locations of the cable-stayed bridges to accommodate large cargo ships.

12. Once constructed, the BCIB will be the longest bridge in the Philippines. Moreover, as the concluding segment of a vital circular road network encircling Manila Bay, BCIB will connect the Bataan Provincial Highway in the north with the Antero Soriano Highway in Cavite in the south. BCIB will be a catalyst for economic transformation throughout the three largest subnational economies in the Philippines—the surrounding regions of the NCR, Calabarzon and Central Luzon—which generate 60 percent of the GDP and are home to 40 percent of the country's population.[12]

13. Noting the significance of the bridge, the BCIB will be built to high technical standards, particularly to boost resilience to climate change-induced natural hazards and associated disasters. Measures to address the effects of climate change, such as temperature rise, extreme winds, and seawater rise, are incorporated in the BCIB's design, along with nature-based solutions, to ensure that the structure will be climate resilient.

14. The BCIB Project will be implemented by the Department of Public Works and Highways (DPWH). It is currently responsible for the planning, design, construction, and operation and maintenance of major infrastructures, namely: national highways and flood control and water resources development systems. With over 15,000 regular staff, DPWH's capacity is deemed adequate to execute its current role and responsibility. However, its scope of responsibility is expanding to cover upcoming mega structures planned by the government including the BCIB Project and other Infrastructure Flagship Projects. Thus, it is imperative for DPWH's capacity to be further strengthened to support effective management of its growing mandate.

15. The BCIB Project is expected to be implemented in three tranches. Each tranche will finance a group of contracts per the indicative schedule, and the financing for each tranche will be provided per the disbursement progress and projection. The Asian Development Bank (ADB) is the lead co-financier and will support 65 percent of the ADB- and AIIB-financed BCIB Project cost, and AIIB is expected to co-finance the remaining 35 percent:

(i) ADB is financing the BCIB Project using its Multitranche Financing Facility (MFF) modality considering the magnitude of the investment and complexity of the civil works. ADB's MFF splits the BCIB Project into three tranches, adopting the time-slicing approach for large-scale projects, with each tranche financing a group of contracts per an indicative tranche schedule based on the contracts' disbursement projections. Individual tranche releases will be subject to the government's submission of related periodic financing requests, execution of the related loan agreements for each tranche, and fulfillment of terms and conditions and undertakings set forth in the GoP-ADB Framework Financing Agreement. While the first tranche has been approved in December 2023, the second and third tranches are expected to be approved in September 2026 and September 2028. The estimated completion are December 2026, December 2028 and December 2029, respectively.

(ii) AIIB's financing for the BCIB Project is expected to come in three tranches involving three loans. Under this approach, the BCIB Project's overall financing

[12] The Calabarzon region comprises the provinces of Cavite, Laguna, Batangas, Rizal, and Quezon. The Central Luzon region comprises the provinces of Aurora, Bataan, Bulacan, Nueva Ecija, Pampanga, Tarlac, and Zambales. From 2010 to 2022, Calabarzon's share of the country's GDP averaged 14.6%, Central Luzon 10.9%, and the NCR 32.3%.

envelope is submitted for Board consideration jointly with Tranche 1 (the "Project"). The expected AIIB loan approval for each tranche is as follows: Q2 2024 (Tranche 1; this Project), Q3 2026 (Tranche 2) and Q3 2028 (Tranche 3). The conditions for subsequent tranches of the BCIB Project will be: (i) a separate request by the GoP for each subsequent tranche; (ii) ADB's approval of such tranche; (iii) an assessment that the performance (implementation progress) of the earlier tranche(s) is satisfactory; (iv) the availability of funds; and (v) all relevant AIIB internal assessments and approvals.

16. AIIB and ADB will coordinate on the timing of (i) ADB's loan approval following GoP's Periodic Financing Request submissions for tranche 2 and 3 and (ii) AIIB's tranche 2 and 3 loan approvals.

17. **BCIB Project Outputs.** The three outputs are as follows:

(i) **Output 1 – New climate resilient road link connecting Bataan and Cavite over Manila Bay constructed.** The output involves the construction of about 32.15 km-long bridge comprising two cable-stayed bridges for the navigation channels, 24 km of marine viaducts, and 8 km of approach roads to provide a permanent and direct road link between Bataan Province and Cavite Province. The BCIB will include a U-turn facility at the Corregidor Island to allow the vehicles to change direction and facilitate the future connection to the mainland. Output 1 also includes consultancy services related to project management, engineering support, and construction supervision.

(ii) **Output 2 – Bridge operation and maintenance capacity enhanced.** The output will provide a capacity building program to the government to ensure adequate capacity in O&M and management of the BCIB and future large and complex bridges. To promote sustainability of the investment, the government plans to make BCIB a toll road, with the toll revenue assessed as being sufficient for financing the O&M cost. The project will build institutional capacity for O&M and explore options for O&M delivery through a public–private partnership (PPP). The project will also provide dedicated training programs to enhance the government's capacity to integrate climate adaptation and low-carbon measures in the operation of BCIB. An O&M manual for BCIB and a resilience decarbonization strategy for transport infrastructure will be prepared under Output 2.

(iii) **Output 3 – Tourist support system established in Bataan and Corregidor Island.** Under Output 3, a tourist center and supporting facilities that meet green building standards[13] will be established at the north approach of BCIB. In addition, an early warning system on natural hazards for the communities and travelers will be established at the bridge approaches.

18. **BCIB Project Financing Plan.** The financing plan is shown below. It is estimated to cost USD4,354.78 million, including land acquisition, taxes and duties, physical and price contingencies, and financing charges during implementation.

[13] The Philippine Green Building Code (PGCB) will be adopted as part of the design criteria for the building and the associated facilities. PGCB seeks to promote the right of the people to a balanced and healthful ecology as protection against the impacts of climate change. Accordingly, the PGCB prescribes 'green' building standards with respect to site selection, planning, design, quality of material, and construction.

Table 1. BCIB Project Financing Plan

Source	Total Financing (USD million and %)	Indicative Tranches (USD million and % of total)		
		I	II	III
ADB	2,108.37 (48%)	650.00	958.25	500.11
AIIB	1,135.27 (26%)	350.00	515.98	269.29
GoP	1,111.14 (26%)	310.78	408.70	391.66
Total	4,354.78 (100%)	1,310.78	1,882.93	1,161.07

19. **BCIB Project Objective and Results.** To improve the efficiency of road travel in Bataan, Cavite, and the NCR. It also aligns with the Philippine Development Plan 2023-2028 on "local, national, and international connectivity improved". At completion, the BCIB Project's results will be assessed and monitored using key indicators highlighted below (see Annex 1a):

- Travel time reduction between Bataan and Cavite;
- Increase in traffic volume in Bataan;[14]
- Increase in the number of tourists visiting Corregidor Island.

20. **Expected Benefits and Beneficiaries.** BCIB's primary beneficiaries will be road users between Bataan and Cavite, who will obtain a direct alternative road route. Benefits include shorter travel time and reduced vehicle operating costs (VOC). As the final link of the loop road around Manila Bay, the BCIB is expected to reduce the travel time between Bataan and Cavite to 1.5 hours from the current 5.0 hours,[15] and between Bataan and NCR to 2.5 hours from the current 4.0 hours.

21. Road users may also benefit from the climate-resilient features of the bridge. Moreover, in case of a natural disaster, the bridge will serve as the main evacuation route for the people of Bataan and Cavite. Since BCIB will serve as an alternative route from north Luzon to south Luzon without traveling through the heavy congested roadways of NCR, and thus reduce the pressure on the existing north-south corridors, this will help increase the efficiency of fuel combustion, hence significantly reducing GHG emissions in the NCR road network.[16]

22. In terms of wider economic benefits, this north-south corridor will also facilitate regional economic growth in Bataan, Cavite, and the rest of southern Luzon. It will facilitate the transit of people (thereby increasing access to talent pools), goods, and services both domestically between provinces in Luzon as well as internationally through ports on the Manila Bay, resulting in greater decentralization of economic activity beyond the NCR, higher productivity and improved overall competitiveness of local industries particularly shipping and tourism. Additionally, it will benefit the greater

[14] Specifically, this is along the Roman Superhighway.
[15] The travel time crossing the mouth of Manila Bay from Bataan to Cavite will be less than 45 minutes.
[16] Net reduction in road congestion will increase the efficiency of fuel combustion, thus reducing GHG emissions in the NCR road network. Over the longer-term, these reductions could be offset by emissions due to induced transport activity from increased commuter and other traffic. Mitigation finance estimates are based on the Common Principles for Climate Mitigation Finance Tracking and are limited to specific mitigation measures embedded in the BCIB Project.

road network of Luzon by easing pressure on the South Luzon and North Luzon gateways, as well as diverting traffic from passing through the already congested NCR.

23. In the long-term, by providing a direct land linkage from Bataan to the NCR and Calabarzon region, BCIB also has the potential to improve shipping and logistics efficiency in the Philippines by unlocking the full potential of the Freeport Area of Bataan and the Port of Mariveles. At present, the Port of Manila has been serving as the predominant maritime shipping hub for the country. However, the current operation already exceeds the port's capacity to cater freight movements. Development of other complementary port facilities around Manila Bay would ensure that the long-term demand for shipping services and the future growth in freight volumes in and around the NCR can be met sustainably. Such a shift would also divert and substantially reduce the traffic congestion and resultant pollution caused by container trucks in the surrounding areas of the Port of Manila.

24. Given its geographical proximity to the NCR, the Port of Mariveles in Bataan (currently a local seaport but has potential to become an international port) could help relieve pressure on Manila Port and enhance Manila Bay's overall port capacity. However, the potential of this port to absorb substantial traffic from the Port of Manila is constrained by the lack of land access to the major markets of NCR and Calabarzon region.[17] A direct road link across Manila Bay to connect Bataan to Cavite would significantly reduce land transport distances, times, and costs, enhancing the viability of the Port of Mariveles as an alternative international shipping gateway to the Port of Manila.

C. BCIB Tranche 1 (the "Project")[18]

25. **Project Description.** The BCIB Tranche 1 (the "Project") will finance a segment of the civil works and consultancy service components involving the navigation bridges, marine viaducts, and approach roads. The scope of the Project is expected to be 29.1 percent of progress towards completion of the BCIB Project.[19] It is expected that this Project will contribute solely to Output 1. Specifically, these are:

- Two cable-stayed bridges with navigation south and north channels of 900 and 400 m, respectively, constructed with climate change measures[20] integrated;
- 24 km of marine viaducts constructed with climate change measures integrated; and

[17] The fastest route from the Port of Mariveles to the industrial and export processing center of Biñan Laguna (south of Manila), for example, involves driving north and east for approximately 95 km and then south another 100 km, with travel time of four hours.
[18] Project corresponds to Tranche 1 and supports activities under Output 1 of the BCIB Project.
[19] Tranche 2 and 3 loans will contribute to the remaining progress of Output 1, as well as Output 2 and Output 3. It is expected that Tranche 2 loan will contribute to 47.4 percent of the progress towards the BCIB Project completion, while Tranche 3 loan will contribute to 23.5 percent. Figures are as per the GoP-ADB Framework Financing Agreement. AIIB will adopt the same for consistency.
[20] Climate changes measures may include tree plantings on the shoreline; installation of nonstructural barriers to reduce coastal flooding, erosion, and storm surge impacts; green corridors along roads; and other measures that use natural features and support marine ecosystem.

- 8 km of approach roads and access ramps constructed with climate change measures and gender responsive and socially inclusive features[21] integrated.

26. **Project Objective.** To contribute to efficiency improvements of road travel in Bataan, Cavite, and the NCR.[22]

27. **Expected Outputs of the Project.** The Project results will be monitored using the following output indicator (see Annex 1b): physical progress[23] towards completion of the BCIB Project. The target is 29.1 percent. Progress is measured based on material and labour costs incurred as a function of the total civil works component. A gender-related indicator is also included (i.e., percentage of skilled and unskilled female labor force hired by civil works contractors). Achievement of such progress will be based on monitoring progress reports submitted by the contractors to DPWH.

D. Rationale

28. **Strategic fit for AIIB.** The BCIB Project aims to support the Philippines' broader national agenda of inclusive economic growth. This is consistent with the Bank's vision of a prosperous Asia based on sustainable economic development.

29. The BCIB Project is aligned with AIIB's thematic priority on domestic connectivity. It will provide opportunities for economic expansion outside Metro Manila by facilitating integration between Bataan (Central Luzon region) and Cavite (Calabarzon region). It also has the potential to align with the international connectivity theme, given that the alignment is located in the Philippines' international shipping gateway. Moreover, the U-turn facility along the Corregidor Island can enable a more reliable access by international (and domestic) tourists into the island. Finally, the BCIB is expected to eventually connect to the main international airport in the Luzon Island (i.e., Ninoy Aquino International Airport).

30. The BCIB Project is further aligned with the Bank's Transport Strategy as it provides the needed transport capacity and contributes to the reduction of transport costs for commuters between the provinces, thereby providing households and firms with easier access to economic and social opportunities. The BCIB Project is also aligned with the Sustainable Cities Strategy. By supporting decongestion in Metro Manila, the Project promotes the 'efficient' outcome in the Strategy. Also, traffic decongestion will support a decrease in GHG emissions and other air pollutants, as well as capacity for additional public transport services (an alternative to personal vehicles).

31. Moreover, the BCIB Project is aligned with AIIB's thematic priorities on green and technology-enabled infrastructures. The Project's design will deliver local environmental improvements during construction and operation with the application of proven technologies that enhance climate resilience, such as green building criteria;

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[21] In this context, gender-responsive and socially inclusive features include, where applicable, physical installations to ensure safe crossings and loading/unloading areas especially for public transportation users, wheelchair access ramps, safety railings, sufficient lighting, wide sidewalks, adequate resting spots, separate and secure toilets for males/females/all-gender/PWDs, and other universal design elements.

[22] The Project renders support to the overall BCIB Project objective of "improving road travel efficiency in Bataan, Cavite and the NCR".

[23] Physical progress is a better interim measure (than disbursement progress) since it reflects actual outputs achieved at a point in time. Disbursement progress tends to lag physical progress.

lower carbon concrete and asphalt; and energy efficient lighting (including solar-powered lights).

32. Finally, the BCIB Project is fully aligned with the goal of the Paris Agreement based on the assessment following the Joint Multilateral Development Bank (MDB) Assessment Framework for Paris Alignment for Direct Investment Operations. Please refer to Annex 4 for a detailed assessment.

33. **Value addition by AIIB.** AIIB will mobilize sufficient financial resources to fulfil the investment gap in a project that is vital for the social-economic growth of the country and contribute to the long-term transport financing needs in the Philippines.

34. AIIB's value addition through financing lies in providing sizeable investments for infrastructure projects. Beyond the provision of financing, the value additions by AIIB include: (i) promoting high technical, social, and environmental standards through ADB's co-financing of the BCIB Project with AIIB; (ii) promoting quality of the BCIB Project by leveraging AIIB's experience in transport (roads and bridges) sector and drawing lessons learned from similar projects in other countries; (iii) providing timely support to strengthen the DPWH's technical, project management and monitoring capacities; and (iii) enhancing the project design following international good practice to ensure climate resilience.

35. **Value addition to AIIB.** This will be among AIIB's first transport projects in the Philippines. The BCIB Project will allow AIIB to gain further experience in the bridge and road sectors, including on the Bank's priority on connectivity, and provide future opportunities to finance similar projects in the country. It will also support diversification of AIIB's portfolio in the transport sector.

36. **Lessons learned.** The Bank is relying on experiences from prior AIIB and ADB projects in the Philippines (including transport projects) and experiences of the DPWH in implementing prior international financial institutions (IFI)-funded projects. Relevant lessons currently incorporated into project planning include:

(i) To conduct advance planning and due diligence especially for O&M requirements;

(ii) To ensure executing agency's adequate capacity for project preparation and management;

(iii) To include cross-cutting issues such as climate resilience and gender inclusion in project design and implementation; and

(iv) To ensure strong integration between the Project and the broader transport network of the Philippines.

E. Components, Cost and Financing Plan

37. The Project is the first tranche of the BCIB Project and will focus on the construction of approach roads, navigation bridges and viaducts on the Bataan and Cavite side. The Project is estimated to cost USD1,310.78 million, of which USD350 million will be financed by the Bank.

38. The indicative cost breakdown and financing plan for the first tranche is shown below. GoP's contribution in civil works and consultancy service is in the form of taxes and duties.

Table 2. Project Cost and Financing Plan

Item	Project Cost (USD million)	Financing (USD million and %)		
		AIIB	ADB	GoP
Civil Works	1,052.04	315.89	586.66	149.48
Consultancy Service	38.38	11.53	21.40	5.45
Engineering and Administrative Cost	5.64	-	-	5.64
Land Acquisition	83.48	-	-	83.48
Financing Charges during Implementation	48.61	-	-	48.61
Physical and Price Contingencies	82.63	22.58	41.93	18.11
Total	**1,310.78 (100%)**	**350.00 (26.7%)**	**650.00 (49.6%)**	**310.78 (23.7%)**

F. Implementation Arrangements

39. **Implementation period.** The Project's implementation period is expected to run from May 2024 to December 2026. The end date of the implementation period for the BCIB Project is expected to be in December 2029.

40. **Implementation readiness.** Implementation readiness is high, as the entire scope of the BCIB Project has been appraised. The Feasibility Study (FS) has been completed under ADB's Infrastructure Preparation and Innovation Facility (IPIF)[24] in 2019. The DED for the BCIB Project including the bid documents, also supported under the IPIF, were completed in December 2023.[25] Based on the FS and DED, there will be 7 civil works packages. Advance procurement activities for the first two civil works packages (north and south approach roads) have commenced in May 2023. The bidding process started in Q1 2024, and the rest by Q4 2024. An acceptable Environmental Impact Assessment (EIA) draft has been disclosed on ADB and AIIB websites on July 2023, while the Resettlement Framework (RF) and Land Acquisition and Resettlement Plan (LARP) have been disclosed on ADB and AIIB websites as of November 2023. Assessments of climate change impacts including the Paris Agreement alignment have been conducted. Other due diligence including economics, financial, social and gender have been completed.

41. **Implementation management.** NEDA, the Department of Budget and Management and the DOF will serve as oversight agencies of the Project. DPWH is the Executing Agency of the Project, and is currently responsible for the planning, design, construction, and operation and maintenance of infrastructure, namely national

[24] The IPIF is a project preparation loan provided by ADB to the GOP to conduct FS and/or DED of pre-identified projects. One of these projects is the BCIB.
[25] The DED consultant firm is a joint venture between T.Y. Lin International and Pyunghwa Engineering Consultants (PEC).

highways, flood control and water resources development system. With over 15,000 regular staff, the capacity of DPWH is deemed adequate for its current role and responsibility. Also, DPWH has rich experiences in MDB-financed projects under which it procured and managed civil works and goods and recruited consultants. For this Project, DPWH will provide overall coordination of project implementation, including timely submission of reports to ADB/AIIB; approve procurement plans, procurement actions such as bid evaluation and contract awards; approve working drawings, design documents, engineering designs and cost estimates; carry out consultant selections for detailed design and construction supervision consultants; procure civil works contracts; obtain necessary approval(s) from other relevant agencies/organizations prior to award of civil works contracts; prepare project financial statements and arrange annual independent audits; and submit audited project financial statements and audit reports to ADB/AIIB.

42. The Unified Project Management Office – Road Management Cluster II (UPMO-RMC II) within DPWH will serve as the Project Implementation Unit (PIU). It will conduct day-to-day project management, including: ensure that project implementation complies with the government's environmental policies and regulations and ADB's safeguard policy; ensure that environmental protection and mitigation measures in the environmental management plan are incorporated in the detailed design, included in bid documents, implemented and monitored; submit disbursement projections, request budgetary allocations for counterpart funds; ensure implementation of the plan on gender; ensure compliance with the government's policies and loan covenants; maintain project accounts, complete loan financial records and prepare withdrawal applications; and issue project progress reports.

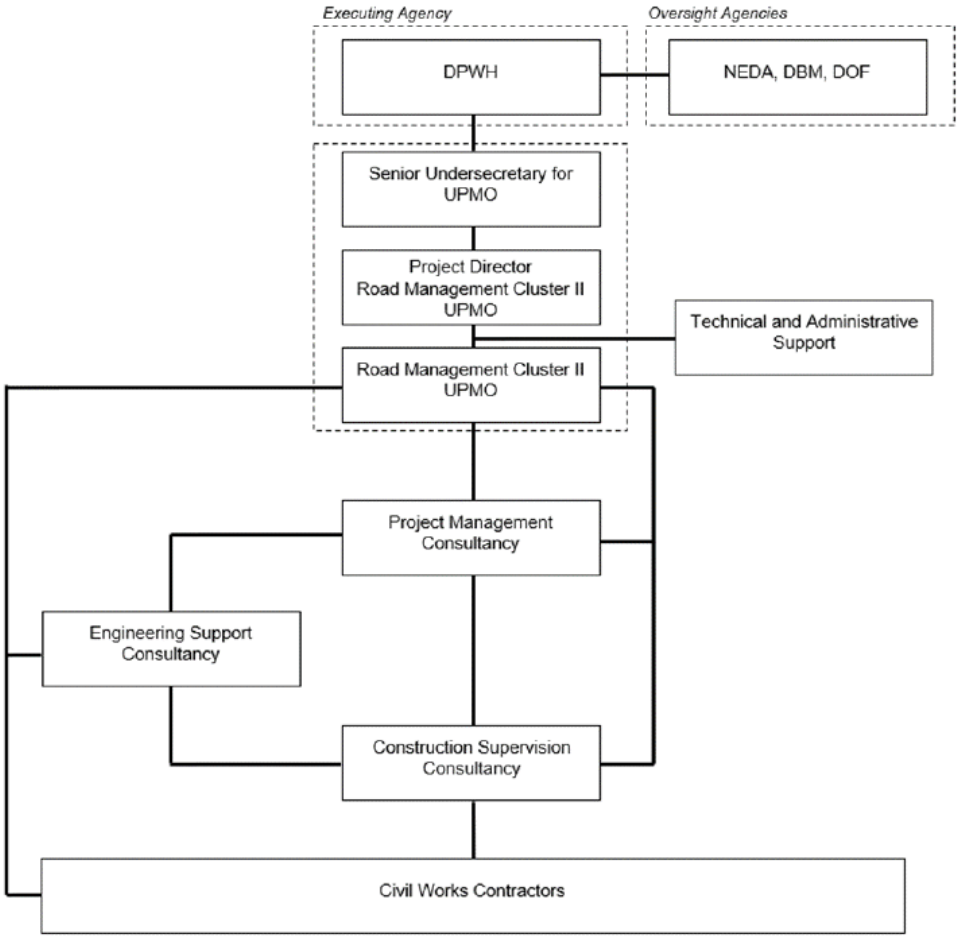
43. Three types of consultants will support DPWH and the UPMO in project implementation, construction supervision and engineering support. These are:

- Project management consultant (PMC): The consulting firm will be hired for contract management, project administration, and reporting. It will ensure that the project implementation and outcome are in accordance with the approved contract documents, ensure that the right-of-way requirements are properly acquired based on existing laws and ADB's policy; ensure compliance with the environmental protection prescribed for the project; monitor and record the progress of construction including the environmental and social compliance required for this project; provide support and guidance to DPWH for budget preparation requirement for each year of project implementation; and ensure that the construction of the BCIB Project is completed in accordance with the approved contract.
- Construction Supervision Consultant (CSC): The consulting firm will be engaged to guide the project construction process to a successful completion. It will provide construction supervision services, monitor the progress of civil works, issue notices to the contractor, review contractor's payment certifications, and identify construction risks and propose mitigation measures.
- Engineering design support consultant (EDSC): The consulting firm will provide technical engineering support across the different stages of the project, review methods statements for technical feasibility, review construction plans such as

environmental, quality, health and safety managements, and provide technical advice in assessing variations in contracts. The current DED consultant is expected to be directly engaged for this consultancy to assist the CSC and PMC.

44. The Project's organizational structure is shown in Figure 1.

Figure 1. Project Organization Structure



45. **Monitoring and Evaluation.** The performance of the Project will be monitored by indicators as shown in Annex 1b. AIIB and ADB will jointly conduct periodic field review missions to monitor the implementation progress and budget utilization and ensure compliance to loan covenants. The frequency of these missions is expected to be twice a year, depending on needs. DPWH will submit semi-annual progress reports to AIIB and ADB. These reports will be used as the basis to generate a project completion report within six months of loan closing. The project completion report will provide an assessment of the achievement of the output indicator associated with the Project.

46. **Procurement.** ADB's Procurement Policy (2017, as amended from time to time) and Procurement Regulations for ADB Borrowers (2017, as amended from time to time) are determined to be generally consistent with the AIIB Core Procurement Principles

and Procurement Standards of AIIB's Procurement Policy (November 2022), and they shall apply to the Project, subject to universal procurement.[26,27]

47. For implementation of the Project, ADB, as the lead co-financier, will provide Procurement Services to AIIB. AIIB and ADB will review and provide its agreement to the initial project procurement plan and any material changes thereto. ADB's Standard Bidding Documents will be used for the Project, provided that all references to procurement eligibility and to ADB's Procurement Policy shall be understood as requiring universal procurement eligibility. The bidding documents issued under the Project will reflect that ADB and AIIB will co-finance the contracts under joint co-financing and include the AIIB's Covenant of Integrity to be completed by bidders. All procurement notices, such as advance procurement notices, invitations to bid, and contract award notifications, will also reflect that ADB and AIIB will co-finance the contracts under joint co-financing. These notices will be provided to AIIB for publication on its website. ADB and AIIB will inform each other of any procurement-related complaints received by them in connection with the contracts financed under the Project. ADB will provide AIIB with the names of applicants or bidders for co-financed contracts, and AIIB shall notify ADB, within 5 days, whether AIIB can finance those entities. If no response is received within 5 days, ADB may deem that such entities are eligible. If any entity is not eligible, ADB and AIIB will agree on a remedial action.

48. The PIU under DPWH, assisted by the PMC, EDSC and CSC, is responsible for the design and procurement aspects of the Project. At the initial stage, for conducting Advance Procurement actions, the PIU is also assisted by the DED Consultant (not Bank-financed[28]) until the PMC is in place. A dedicated Procurement Officer is also assigned by the PIU. A regular Procurement Report will be produced by PIU as part of its regular Project Progress Report. Joint AIIB-ADB supervision/implementation support missions as well as procurement capacity building training events may be conducted from time to time.

49. Due to the co-financing arrangement, the ADB Strategic Procurement Planning (SPP) and the procurement description in ADB's Facility Administration Manual (FAM) will be used in lieu of the Project Delivery Strategy (PDS). The PIU has prepared an initial SPP for the BCIB Project, which defines a procurement strategy that will support the delivery of the BCIB Project outputs and the achievement of the planned BCIB Project outcomes. Procurement activities in the BCIB Project include the procurement of large, complex civil works contracts together with the recruitment of consulting firms to provide project management, construction supervision and engineer support services. An initial Procurement Plan (PP) for 18 months of implementation has also been prepared. Subject to prior agreement with the Bank, the SPP and PP may be updated from time to time during Project implementation.

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[26] The Procurement Eligibility provision in the ADB's Procurement Policy and Regulations require that ADB Loan can be used only for procurement of goods, works, and services produced in, and supplied from, member countries. This provision is not consistent with the Bank Procurement Policy and PIR. Accordingly, as agreed with ADB, the procurement eligibility under this Project shall be understood as requiring universal procurement eligibility, where procurement of goods, works, and services are produced in, and supplied from any country.
[27] ADB. 2013. Blanket Waiver of Member Country Procurement Eligibility Restrictions in Cases of Cofinancing for Operations Financed from Asian Development Fund Resources. Manila.
[28] The DED Consultant is financed by ADB.

50. Based on the current PP, civil works for the BCIB Project will be divided into 7 high value and complex construction packages[29] due to its large size, to increase the bidding pool and thus enhance competition. All civil works contracts will be procured following ADB Open Competitive Bidding with international advertisement, which is equivalent to the AIIB International Open Competitive Tender (IOCT). There will be procurement packages for Consultancy Services for the PMC, EDSC, and CSC. The selection of consultancy services will follow the ADB Quality and Cost Based Selection (QCBS) method with Open Competitive Selection international advertisement,[30] which is also equivalent to AIIB International Open Competitive Consultant Selection (IOCS)-QCBS method. These contracts will be jointly financed by ADB and AIIB on 65:35 shares respectively. AIIB will finance all contracts through its three loans under the BCIB Project. The procurement is appraised for all three Projects. An Advance Contracting Notice (ACN) has been published in both ADB and AIIB websites. All the civil works and consulting services packages under the Project will be subject to ADB's prior review, considering the values and risks involved.

51. The contract packages to be financed under the Project are flexible, depending on the implementation schedule of the BCIB Project and readiness of each package, and they are stated in the agreed PP. Based on the initial PP, the following packages are planned to be initiated prior to the availability of Tranche 1 Loan:

(i) Civil Works:

- Two contracts (for the Bataan land approach road and the Cavite land approach road) – the size of contract packages is estimated at USD 155 million and USD 82 million.
- The South Channel Cable-Stayed Bridge - the size of contract package is estimated at USD 914 million.

Advance Procurement actions will be conducted; however, the signing of contracts will be done after Loan effectiveness.

(ii) Consultancy Services: Both PMC and CSC contracts (total estimated amount of USD 139 million). Advance Procurement actions will also be conducted for these two large consultancy packages; however, the signing of contracts will be done after Loan effectiveness.

DPWH has been advised that advance procurement does not commit the Bank to finance the Project. Other civil works packages which will be procured later include the following: North and Central Marine Approach Viaduct, South Marine Approach Viaduct, North Channel Cable-Stayed Bridge, and Ancillary Works[31]. All contracts are large value with estimated amount at a range of USD 340 million – 1 billion, except for the Ancillary Works which is estimated at USD 28 million.

[29] High value and complex contracts for approach roads, marine viaducts, and cable-stayed bridges, and a specific package for ancillary facilities such as utility installations (electricity, plumbing), maintenance shuttle, and communications and surveillance systems.
[30] There is a request for rehiring the existing DED Consultant to be the EDSC. The justification will be provided and determination will be made in the revised Procurement Plan.
[31] This includes utility installations (electricity, plumbing), maintenance shuttle, and communications and surveillance systems.

52. For all civil works packages, single-stage two-envelope bidding procedure will be used, with the Design by the Employer (DPWH). Merit point criteria (MPC) will also be used for evaluation of bids, giving DPWH the opportunity to strike a balance between cost and quality.

53. The Project is designed to be resilient to climate change and disasters triggered by natural hazards. A sustainability plan was developed and included in the SPP report. Bidding documents will include relevant technical requirements, qualification and evaluation criteria, and conditions of contracts to help achieving sustainability.

54. The borrower's e-procurement system, PhilGEPS, will be used for publication of the procurement opportunities such as ADB's CSRN (Consulting Services Recruitment Notice) or invitations to bid, uploading bidding documents, and posting procurement notifications such as clarifications, amendments to the bidding documents, and contract awards. The system is not ready for e-bidding.

55. **Financial Management (FM).** The DPWH will be responsible for maintaining the financial management system of the Project. The Project FM arrangements will primarily rely on the GoP's systems for budgeting, funds flow, accounting, internal control, and external audit. ADB has conducted a comprehensive FM assessment focusing on a review of funds flow, staffing, accounting policies and procedures, financial reporting and monitoring and audits. AIIB is satisfied with the FM assessment capacity of ADB. AIIB's assessment and its results are mainly based on ADB's findings.

56. ADB will provide FM and disbursement-related services per the ADB-AIIB Co-Financing Agreement (CFA)'s standard terms. Such services will include sharing the results of reviews of periodic financial reports, annual audits of project financial statements, review of withdrawal applications, and any other FM-related activities.

57. **AIIB's implementation support.** The Bank is proactively working with the ADB and DPWH teams to provide support on project preparation and eventually on implementation. Bi-weekly or monthly regular meetings among DPWH, ADB and AIIB is expected throughout project implementation.

3. Project Assessment

A. Technical

58. The FS was completed under the IPIF in 2019, in which the preliminary architectural and engineering design has been prepared. The DED commenced in December 2020 and was completed in December 2023. The DED has taken into consideration various technical challenges such as: (i) severe seismic loads and wind speed in the region, (ii) need for navigation channels to accommodate large cargo vessels, (iii) seabed depth of approximately 50 m for placing the caisson foundation,[32] and (iv) extreme climate condition and seawater rise due to climate change. Relevant surveys and studies served as inputs into the DED: geotechnical (including onshore topographical and bathymetric surveys, onshore and offshore geotechnical investigations and geophysical surveys), environmental and social, and specialty studies (including onshore geology, hydrodynamics, climate and wind hazard, seismic hazard, marine navigation and vessel collision hazard).

59. The robustness of the DED was guaranteed by the independent proof check that was carried out by a team of engineers (also recruited under IPIF) to review and ensure the strength, serviceability, and durability of the key structural elements. Besides the CSC team, the consultancy services for the BCIB Project also include the PMC and the EDSC to ensure adequate management and technical capacity of the project implementation team.

60. **BCIB Project Design.** The BCIB Project will connect Bataan and Cavite provinces in Luzon, and will start in Barangay Alas Asin in Mariveles, Bataan Province and end in Barangay Timalan in Naic, Cavite Province. Classified as an expressway, all structures, involving seven civil works packages, will support two lanes for each direction of travel:

- Approach roads: Major structural components for the land approaches at Bataan (Package 1) include the Trumpet Interchange that connects the BCIB with Roman Highway, Roman Interchange Bridge, Alas-Asin Main Bridge, Alas-Asin Overpass Bridge, Mt View Overpass Bridge, Mt View Waterway Bridge, and the Bataan Land Viaduct. Major structural components for the land approaches at Cavite (Package 2) include the partial clover leaf that connects the BCIB with Antero Soriano Highway, the Antero Soriano Interchange Bridge, Tramo Underpasses 1 and 2, Timalan-Balsahan Underpass, and the Cavite Land Viaduct.

- Marine Viaducts: There will be two marine viaducts (Package 3 and 4) with length of 8.2 km and 12.6 km. These viaducts consist of typical 100 m span single concrete box girders to carry both carriageways. Each carriageway includes two traffic lanes, inner marginal strip (0.6 m), and shoulder (2.3 m). The width of a traffic lane is 3.35 m.

- Navigation Bridges: To connect the marine viaducts to the cable-stayed bridges, there will be transitional structures, i.e., high-level approach bridges on both sides of each of the two cable-stayed bridges. Each high-level approach structures have a total length of about 650 m and are supported on pile cap (located at about the mean sea level of 40-50 m deep)

[32] A caisson foundation is a prefabricated hollow box or cylinder sunk into the ground to some desired depth and then filled with concrete thus forming a foundation. It is often used in the construction of bridge piers and other structures that require foundation beneath bodies of water.

and pile foundations. The North Channel Bridge (Package 5), located between Bataan and Corregidor Island, is a cable-stayed bridge that will be 736 m long and includes a 400 m long main span and two 168 m long back spans. It has two towers that are spaced 400 m apart, and these towers are hollow concrete sections sitting on a caisson foundation. The total tower height is over 180 m from the top of the caisson. To accommodate two-way vessel movement in the Manila Bay, the North Channel Bridge's clearance will be 47 m. The South Channel Bridge (Package 6), located between Cavite and Corregidor Island, is a cable-stayed bridge that will be 1,800 m long and includes a 900 m long main span and two 450 m long back spans. The South Channel Bridge is planned to have a vertical clearance of 80 m. The bridge features two monopole style towers which stand about 346 m tall above the seabed and about 306m above the sea level. The ends of the bridge are supported on anchor piers and intermediate piers, which serve as tie-down piers to resist the uplift due to the unbalanced dead loads and other loads imparted on the bridge.

- Ancillary infrastructure: BCIB Project will also provide ancillary infrastructures (Package 7) that run across the entire bridge crossing, including utility installations (electricity, plumbing), maintenance shuttle, and communications and surveillance systems.

For further description of the approach roads, bridge, and land and marine viaducts, see Annex 2.

61. The horizontal alignment[33] has been selected from twelve initial alternatives by using a weighted multiple criteria matrices evaluating five main aspects: (i) Technical (road efficiency, disruption to marine traffic, pedestrian friendliness, implementation period, constraints & risks, O&M practicality); (ii) Financial (construction costs, compensation and resettlement, risk and uncertainty, O&M costs); (iii) Economic (improvement on existing transport networks, growth opportunities, accessibility, land use and development); (iv) Environmental (environmental critical areas, areas of cultural heritage, vegetation removal, loss of habitat and threat to biodiversity, impact on marine and freshwater, air and noise pollution, soil contamination, waste generation, visual experience); and (v) Social (informal settlers, indigenous people, right-of-way conflict, traffic during construction, resettlement impact, economic displacement, local context sensitivity). The technical aspect is assigned the heaviest weight (30 percent) followed by the financial and economic (25 percent each) aspects. The selected horizontal alignment scores the highest amongst other options and is also designed to minimize disturbance to existing marine facilities, planned developments, submarine telecommunication cables, and a nearshore navigation channel.

62. The technical design and construction plan ensure that vessels and ports will have normal access to Manila Bay during and after construction of the bridge. The Philippine Port Authority (in charge of port operations) and the Philippine Coast Guard (in charge of maritime security and protection of the marine resource environment) have been informed about the BCIB Project.

63. **BCIB Project's Integration with the road network in Luzon Island.** The government has an elaborate plan to ensure that the BCIB Project is well-integrated with existing and future networks. On the Cavite side, it is expected to connect with the following 3 road networks: (i) existing Antero Soriano Highway with connections to Manila-Cavite expressway (CAVITEX);

[33] BCIB Final Feasibility Study Report, September 2021.

(ii) High Standard Highway Class 1 which is also the Cavite-Laguna expressway (CALAX) extension to the BCIB; and the (iii) existing Governor's Drive with connections to CALAX. BCIB is expected to eventually connect with the main international airport in the Luzon Island (Ninoy Aquino International Airport) via CAVITEX and CALAX. On the Bataan side, it is expected to connect to the existing four-lane Roman Superhighway. BCIB may also connect with the future Subic-Clark-Tarlac expressway (SCTEX)[34].

64. **Paris Alignment.** AIIB has committed to fully align its operations with the goal of the Paris Agreement by July 2023. The Joint MDB Assessment Framework for Paris Alignment for Direct Investment Operations provides an approach to assess the mitigation and adaptation alignment of the BCIB Project. To be considered fully aligned with PA, BCIB Project must meet both PA's climate mitigation and adaptation goals. It is fully aligned with PA for the following reasons (Annex 4 provides detailed discussion of the Project's PA alignment):

(i) Climate mitigation: The specific assessment indicated consistency with the Philippines' Nationally Determined Contribution (NDC) and the National Climate Change Action Plan (NCCAP) 2011-2028. Once constructed, it will reduce the travel time between Bataan and Cavite to 1.5 hours from the current 5.0 hours, and between Bataan and NCR to 2.5 hours from 4.0 hours. This will help increase the efficiency of fuel consumption, hence reducing GHG emissions in the NCR road network significantly. The net reduction in emissions on account of the BCIB Project was estimated be about 79,000 tCO2e per year, using a with and without project comparison. BCIB Project's design will reduce GHG emissions from construction and operation using reasonably available control technologies like green building criteria, lower carbon concrete and asphalt; energy efficient lighting; and adopting nature-based solutions (e.g., tree plantings on the shoreline) as a carbon sink. It supports the long-term decarbonization of the transport sector and sustainable transportation in favor of public transport, high-occupancy vehicles or any other sustainable transportation (electric vehicles). Finally, it is anticipated that road transportation will continue to play a central role in mobility generally (while supporting the transition to lower carbon vehicles) and that roads are not susceptible to becoming stranded assets or at risk from transition (from a climate mitigation perspective).

(ii) Climate adaptation: There are proposed measures to address the identified physical climate risks in BCIB's design, based on the climate risk and vulnerability assessment. The assessment revealed major risks that can impact the BCIB Project, namely: increased risks of temperature, sea-level rise, storm surge, strong wind and extreme rainfall and flooding. Several climate change adaptation measures are incorporated into the project design. These include: (i) 1.6 m increase in bridge height in relation to sea level rise, (ii) advanced notice and potential to close the roadway during typhoon events, (iii) wind fairings and shields, (iv) use of polymer modified stone mastic asphalt, (v) slope protection, (vi) infiltration ditches, and (vii) adaptation of the Antero Serrano/ BCIB interchange above projected 100-year floodplain. Nature-based solutions will also be incorporated with modern construction techniques, for instance, vegetated riprap and plantings on the shoreline; installation of nonstructural barriers with an intention to mitigate coastal flooding, erosion, and storm surge impacts; installation of green corridors along roads; and other measures that use natural features and support marine ecosystem.

[34] The road alignment remains confidential at this stage.

65. **Operation and Maintenance (O&M).** Prior to the end of the construction phase, DPWH will establish a Bridge Management Unit to operate and maintain the infrastructure for its full design life. Moreover, noting that the DPWH's scope of responsibility will be expanded to cover the upcoming mega structures planned by the government, it is imperative that the capacity of DPWH will need to be further strengthened. To enhance DPWH's capacity, especially with regards to the O&M, BCIB management, and the integration of climate adaptation and low carbon measures throughout the operation phase, a capacity building program will be included as part of the BCIB Project. This capacity building activity will be included as Output 2 to be financed under the Tranche 2 and Tranche 3 loans.

66. **Operational Sustainability.** Based on the financial assessment (para. 71), the revenues generated by the BCIB Project during its first 30 years of operation will be sufficient to finance the project's recurrent costs, including for O&M. While a public-private partnership (PPP) modality for O&M can be explored for improved efficiency, cost recovery, and value for money, it is difficult to expect the private sector to take traffic or revenue risk for a greenfield project which will not have historical traffic data, and an availability payment-based model may have to be considered. The GoP has specific preference for "hybrid" PPPs, wherein the government develops the infrastructure project assets, and then involves the private sector in their O&M. The GoP will conduct an options study on O&M and confirm the arrangement and financial support from the DPWH and any other relevant agencies, if necessary.

B. Economic and Financial Analysis[35]

67. The Project's objective is to contribute to efficiency improvements of road travel in Bataan, Cavite, and the NCR. Tranche 1's full benefits can only be achieved when the BCIB Project is completed, as the Project comprises around one-third of the cost of the BCIB Project and Tranches 2 and 3 will comprise around two-thirds of the entire financing cost. The economic and financial analyses, as presented below, target the BCIB Project comprising three tranches.

68. **Economic Analysis.** The economic viability of the BCIB was assessed using a Cost-Benefit Analysis by comparing "with-project" and "without project" scenarios following ADB's Guidelines of Economic Analysis of Projects. The analysis assumes 5 years of construction and 30 years of operations. In terms of economic costs, which include the cost of civil works, land acquisition and resettlement and O&M, all values are expressed in 2023 prices. Financial costs are converted into economic costs using a shadow exchange rate factor of 1 for imported materials and equipment, and a shadow wage conversion factor of 0.6 for unskilled labour costs. Taxes and subsidies are removed to reflect resource costs alone.

69. The new connectivity provided by the BCIB will significantly reduce travel distance between Cavite and Bataan provinces and increase economic activity in the Freeport Area of Bataan. Economic benefits include VOC savings and travel time savings resulting from reduced travel distance and increased travel speeds. The reduction in vehicle kilometers and vehicle hours travelled will also contribute to environmental benefits from reduced GHG emissions. Hence, the benefits will accrue from (i) reduced travel time, (ii) VOC savings, and (iii) avoided GHG emissions. There may also be accident reduction benefits from reduced

[35] This is an independent assessment conducted by ADB and reviewed by AIIB as part of the co-financiers' due diligence process. The assessment is independent from the analysis conducted by the NEDA which served as the basis for internal government approvals.

vehicle kms traveled but not quantified. Benefits for traffic due to reduced congestion as a result of easing constraints in transport network were also not quantified. Developmental benefits from increased economic activity in Bataan province and benefits to the tourism industry in Corregidor Island were also not quantified.

70. The analysis indicates that the BCIB Project is economically viable with an EIRR of 12.7 percent, well above the social discount rate of 9.0 percent. The BCIB Project also yields a net present value (NPV) of USD1,346 million (PHP76,165 million) at this discount rate. Sensitivity analysis involving potential cost increase and decline in benefits indicates that the BCIB remains viable even under increased costs and reduced benefits. Further details of the economic analysis are presented in Annex 3.

71. **Financial Analysis.** A financial assessment was undertaken to examine the viability of the investment. Revenue will be generated through adoption of an open tolling system (as in use elsewhere on major highways in the Philippines). A single toll rate per vehicle class will be levied depending on the distance traveled. A traffic demand model was developed to provide the basis for the traffic forecast. The assumed toll rate is derived from a traffic-revenue sensitivity model that considered the willingness-to-pay survey results and an analysis of the relationship between traffic volume and toll fee increases. The revenues generated by the BCIB Project during its first 30 years of operations are expected to be sufficient to finance BCIB's recurrent costs, including for O&M. However, additional capital expenditures for the tolling facilities amounting to USD135 million are expected to be incurred. DPWH will include the financing of the additional capex in the operating arrangement, which DPWH will finalize by 2027. A detailed financial analysis is presented in Annex 3.

C. Fiduciary and Governance

72. **Procurement.** The national procurement rules and procedures described in the Revised Implementing Rules and Regulations (RIRR) of Republic Act (RA) 9184 allows the use of ADB's *Procurement Regulation for ADB Borrowers* and *ADB Procurement Policy* for ADB-financed contracts. Therefore, there is no significant risk identified on the legal and regulatory framework.

73. The Project is expected to involve several high value and complex contracts for approach roads, marine viaducts, and cable-stayed bridges. DPWH operates in an adequately competitive local construction industry, and it has access to information about contractors' qualification and experience to fully assess the market and design the most appropriate procurement strategy. DPWH, particularly UPMO, has prior experience in managing MDB-financed infrastructure projects, but much smaller and less complex than the BCIB Project. DPWH is also currently implementing several projects funded by international lending institutions. DPWH's Procurement Service that manages its procurement activities has adequate capacity (with 75 personnel) composed of qualified and experienced personnel. The office's head has 12 years of procurement experience.

74. Overall, DPWH has adequate capacity and capability to manage the procurement activities under the proposed Project. The project procurement risk is rated *Moderate* for the following key reasons: (i) the project implementation schedule is very tight; (ii) while DPWH has sufficient experience in implementing projects funded by ADB, the government, and other international financial institutions, it has not executed any project of this scale and level of complexity; (iii) many projects under the Flagship Infrastructure Projects are under the umbrella of DPWH, therefore its procurement capacity may reach its limit, causing delays in

implementation of this project; and (iv) several large-scale infrastructure projects under the Flagship Infrastructure Projects are expected to be brought to the market around the same time, which may saturate the market, and bidders may have to choose between projects, hence the level of competition may be affected.

75. To mitigate the above risks, the following actions were recommended or have been taken: (i) given the high level of project readiness, advance procurement will be used for consulting services and civil works packages so that most of the contracts can be awarded as soon as the project becomes effective; (ii) the Project includes consultancy services to supervise construction and provide engineering and project management support to DPWH; (iii) ADB project team and consultants hired under ADB technical assistances provide capacity building and extended implementation support to DPWH; (iv) universal procurement will apply, allowing eligible bidders from all countries to participate; and (v) a rigorous market engagement program will be conducted before bidding to disseminate the project information, gauge the level of interest in the Project, seek feedback from the market and set appropriate technical requirements and evaluation criteria to maximize competition.

76. **Financial Management.** The DPWH has established FM systems that can meet essential project fiduciary requirements, identify project expenditures, and adequately report on the end use of funds. The following key FM risks are identified: (i) the government counterpart funds for ongoing projects have been released with delays, (ii) lack of finance staff to handle the volume of transactions involved in the processing of externally financed projects resulting in bottlenecks in disbursements, (iii) misstatements of some items in audited entity financial statements and deficiencies in the preparation and submission of disbursement vouchers and supporting documents in the audited project financial statements, (iv) the use of the Commission on Audit (COA)-mandated chart of accounts which uses account titles that are different from the expenditure categories of ADB-financed and AIIB-financed projects thus necessitating the manual reconciliation of data using Microsoft Excel, and (v) limited capacity of the internal audit staff to include existing MDB-financed projects in its annual work program.

77. These risks are considered manageable. ADB has prepared a financial management risk mitigating action plan, which the government agreed. The mitigation plan includes the following measures: (i) DPWH will discuss annually with oversight agencies (DOF and DBM) on the allocation of the required budget for the Project and submit to ADB and AIIB evidence that sufficient budget was released for the Project; (ii) DPWH will hire 2-3 additional staff to oversee the completeness of the submission of supporting documents, including claims and invoices, to ensure efficiency in recording and processing the transactions involving ADB and AIIB financed projects; (iii) DPWH will develop a financial management manual for mapping the chart of accounts, which can be used as a reference for ADB and AIIB-funded projects of the DPWH; (iv) DPWH will procure and use an accounting system at the cluster or UPMO level for the recording of financial transactions related to the proposed Project and minimize manual recording and monitoring; and (v) The Internal Audit Services (IAS) of the DPWH will conduct an internal audit of the proposed Project annually and submit the internal report to ADB to share it with AIIB. The residual FM risk is considered Medium.

78. The DPWH uses an electronic budgeting system called eBudget to record the budget. The eBudget is integrated with the electronic New Government Accounting System (eNGAS). The UPMO prepares the budget per project for each succeeding year in conjunction with physical targets. Budgets are prepared for all significant activities in sufficient detail to allow meaningful monitoring of subsequent performance. Information collected from different units

forms part of the required total budget. Actual expenditures are compared to the budget on a monthly and quarterly basis. The reports are submitted to the COA and the DBM monthly and quarterly. There is evidence that government counterpart funding needed to be made more adequately. For 2022 and 2023, the General Appropriations Act is lower than the requested funds. When the budget is sent for approval, only around 9-10 percent of the budget is approved for the projects, which causes delays in the release of counterpart funds for the ADB-financed projects. As a mitigating measure, DPWH will discuss annually with oversight agencies (DOF and DBM) the allocation of the required budget for the Project and submit to ADB and AIIB evidence that sufficient budget was released for the Project.

79. All the accounting and financial management functions are performed by the Accounting Division under the Finance Service in DPWH at the central level and are structured to support effective financial management of projects. The Foreign-Assisted Projects Section of the Accounting Division handles the accounting and financial management functions of the ADB projects. The finance and accounting staff are qualified, experienced, and permanent employees. However, only two accounting staff are currently assigned to ADB and World Bank-funded projects. Due to the large volume of financial transactions involved in processing externally financed projects, additional accounting staff is needed to support the review, recording, and monitoring of financial transactions related to the Project.

80. The DPWH will maintain, or cause to be maintained, separate books and records for all expenditures incurred on the project from all funding sources and will prepare project financial statements following the accrual-based accounting under the International Public Sector Accounting Standards. The financial accounting and reporting system uses the COA's eNGAS, an eBudget system and a project life cycle system to track physical activity and associate it with financial transactions. Both eNGAS and eBudget are integrated. Nevertheless, the system does not support the generation of all financial reports. The preparation of the statement of cash flows requires manual intervention and the use of Microsoft Excel. The accounting information system follows the chart of accounts mandated by the COA. The expenditure categories used differ from those indicated in the ADB loan agreement. To prepare the statement of cash flow and project financial statements following ADB's expenditure categories, data must be extracted from eNGAS and transferred to Microsoft Excel.

81. The DPWH is guided by the government accounting manual, which provides specific and detailed instructions on processing, recording, and reporting financial transactions. The manual follows the COA prescribed requirements. The accounting policy and procedures manual is updated regularly. Procedures are in place to ensure that only authorized persons can alter or establish a new accounting policy or procedure. Policies and procedures clearly define conflict of interest and related party transactions and provide safeguards to protect the organization from them. The manuals are distributed to appropriate personnel.

82. The IAS of the DPWH reports to the Secretary of the DPWH and conducts management audits and operations audits of DPWH activities, wherein the conduct of compliance audit is a prerequisite. The internal audit unit of the DPWH does not include the existing ADB projects in its annual work program. For ADB-financed projects to be part of their annual work program, there needs to be a written agreement between ADB and UPMO stating that the internal audit of the Project would be conducted regularly.

83. The DPWH will cause the project financial statements to be audited in accordance with the International Standards of Supreme Audit Institutions by the COA. The audited project

financial statements and the auditor's opinion will be presented in English within six months from the end of the fiscal year. The audit report for the project financial statements will also include a management letter.

84. **Disbursement.** ADB will provide Disbursement Services to AIIB and will handle all project disbursements according to its disbursement procedures. The Project will use the direct payment procedure of ADB. The DPWH will prepare withdrawal applications and supporting documents and submit them to ADB. The payments for the ADB portion will be made directly by ADB. The payments for the AIIB portion will be made directly by AIIB after receiving the payment instructions from ADB, along with a copy of the application and the results of ADB's review of that application.

85. The Government will finance the land acquisition, project management, administrative costs and local taxes and duties under the Project. The counterpart funds will be accessed through the Approved General Appropriations Act for the fiscal year. Payments will be made from the counterpart funds through the Expanded Modified Disbursement Payment Scheme, where payments are transferred to the bank account of the payee/contractor/consultant.

86. **Governance and Anti-Corruption.** AIIB is committed to preventing fraud and corruption in the projects it finances. It places the highest priority on ensuring that projects AIIB finances are implemented in strict compliance with AIIB's Policy on Prohibited Practices (2016). Implementation will be monitored regularly by AIIB staff. The Bank reserves the right to investigate, directly or indirectly through its agents, any alleged corrupt, fraudulent, collusive, coercive or obstructive practices, and misuse of resources and theft or coercive practices relating to the project and to take necessary measures to prevent and address any issues in a timely manner, as appropriate. Detailed requirements will be specified in the Loan Agreement and the Project tender documents. AIIB will monitor the work related to tender document preparation and tender/proposal evaluation under Bank financing.

D. Environmental and Social

87. The environmental and social due diligence has been conducted for the BCIB Project. The environmental and social (ES) risks and impacts are being assessed in accordance with ADB's Safeguard Policy Statement (SPS). To ensure a harmonized approach to addressing the ES risks and impacts of the BCIB Project, and as permitted under AIIB's Environmental and Social Policy (ESP), ADB's SPS will apply to the BCIB Project in lieu of AIIB's ESP. AIIB has reviewed ADB's SPS and is satisfied that: (a) it is consistent with AIIB's Articles of Agreement and materially consistent with the provisions of AIIB's ESP, including the Environmental and Social Exclusion List (ESEL) and the relevant Environmental and Social Standards (ESSs); and (b) the monitoring procedures that are in place are appropriate for the BCIB Project. ADB has categorized the ES risks of the BCIB Project as Category A for Environment, A for Involuntary Resettlement and C for Indigenous Peoples (which are equivalent to Category A if AIIB's ESP were applicable). The category is based on risks due to large scale construction activities and significant impacts on marine ecosystems and displacement of the project-affected peoples (PAP).

88. **Environment.** The BCIB Project will have significant environmental impacts, largely constrained to the marine environment and during the construction phase. An Environmental Impact Assessment (EIA) study has been prepared based on local requirements of the Department of Environment and Natural Resources (DENR). The Environment Compliance

Certificate (ECC) for the BCIB Project has been issued in April 2021 upon completion of the Environmental Impact Statement (EIS) and Environmental Management Plan (EMP). A feasibility study EIA was prepared by the ADB in parallel to the submission of the domestic EIA in 2021, and this has since been upgraded to a DED EIA that has been disclosed in July 2023. The EIA prepared and disclosed by the ADB is robust and contains extensive baseline sampling and impact assessment. The EIA was further revised to take into account comments received on the July 2023 version and redisclosed in December 2023.

89. Issues of environmental concern are primarily related to the marine environment, in particular those associated with construction of the bridge foundations. Direct impacts on the benthic environment from piling and other marine works are anticipated, including on potential coral environments as well as impacts to the larger marine environment through changes to hydrology and sediment plume. These issues have been addressed in the EIA through baseline sampling and impact assessment with adequate mitigation measures recommended. The BCIB alignment will not pass through any designated biodiversity protected area, marine or terrestrial, but will pass through a national level designated fish sanctuary and the Corregidor marine park.

90. In terms of critical habitat, the EIA outlines that no conclusions can be made at this time with respect to specific direct impacts until a longitudinal study is concluded during the pre-construction and construction phases. As such, the EIA includes provision to address the biodiversity impacts through two key items:

- Preliminary Biodiversity Action Plan (BAP)
- Coral Relocation Plan

91. The Preliminary BAP contains within it 6 action plans that directly address the impacts associated with the following identified areas of concern within proximity of the BCIB Project:

- **Action Program A –** Management of Exploitation Risk in Mariveles Mountains KBA
- **Action Program B –** Biodiversity Offset for Natural Grassland Habitat of Alas-Asin
- **Action Program C –** Offset of Residual Effects on Coral Habitat Through Enhancement of Corregidor Islands Marine Park Management Programs
- **Action Program D –** Offset of Residual Effects on Marine Turtles Through Support of Municipal Hatchery and Outreach Programs
- **Action Plan E –** Adaptive Management of Bird and Bat Collision Risk
- **Action Plan F –** Offset for Expected Impacts on Marine Mammals from Project-Produced Underwater Noise

92. The Preliminary BAP will be continuously updated based on the longitudinal surveys undertaken and as outlined in the Critical Habitat Assessment. The EIA further outlines that a fund will be set up to ensure that the DPWH has the necessary support and capacity to implement the BAPs. In addition, a Coral Relocation Plan has been added to the EMP within the EIA, to directly guide the DPWH on dealing with and mitigating the impact on coral reefs, should they be encountered during project implementation.

93. In terms of terrestrial impacts, these are largely considered to be temporary in nature and addressed through mitigation measures. Noise and air impacts are anticipated as a result of construction works, however most sensitive receivers are considered to have sufficient set

back distance whilst in the operational phase, noise modelling demonstrates that there will be no exceedance. The EMP outlines robust mitigation measures to ensure impacts are adequately mitigated and monitored throughout the implementation stage.

94. **Climate Risk.** The BCIB Project alignment is sensitive to climate conditions such as temperature increase, precipitation increase, onshore storms, increasing sea-level rise, and wind speed increase. Given the alignment, the designers have considered the possibility of climate change affecting pavement longevity from intense heat, increased wind loads on major bridge components, increased storms and sea-level rise, scour and increased salinity, and safety of the traveling public due to increased intensity of storms. A number of measures were identified as climate mitigation and adaptation measures (see Annex 4 on Paris Agreement Alignment). The aggregated climate change adaptation and mitigation costs are estimated at USD38.8 million and USD21.4 million, respectively, totaling to USD60.2 million in climate finance.[36] ADB and AIIB will finance 100 percent of climate mitigation costs and adaptation costs at a 65-35 ratio.

95. **Social Aspects.** The involuntary resettlement impacts are likely to be significant. ADB has classified the BCIB Project as Category A for the involuntary resettlement. Involuntary resettlement is anticipated in the BCIB Project due to land acquisition. It will require land acquisition in Package 1 (Barangays Alas-asin and Mt. View) and Package 2 (Barangays Timalan-Concepcion and Timalan-Balsahan), with more land needed on the Bataan side. The affected lands are mostly agricultural, and there are some residential, commercial, industrial, and other types of lands (e.g., private roads, mixed-use development, beach land, railroad, residential-agricultural, and open space subdivisions). Furthermore, the land acquisition will have impact on residential and commercial structures, community and institutional structures, trees and plants, and existing roads and easements. It will result in the displacement of households, business owners, and workers, with more PAP expected in the Cavite land side. A Resettlement Framework (RF) was prepared to provide guidance in the preparation of a Land Acquisition and Resettlement Plan (LARP) for the proposed BCIB Project. The RF sets out requirements in terms of standards, entitlements, and practices to be applied by the GoP to ensure that involuntary resettlement impacts caused by the BCIB Project are appropriately assessed and mitigated. These standards and requirements in the RF follow relevant laws and regulations of the GoP, as well as ADB's SPS. A LARP has been prepared for the BCIB Project. The BCIB Project will need to acquire a total land area of 1,244,859.26 m^2 (124.5 ha) for both ends of the bridge (Mariveles and Naic). About 73 percent of these lands are agricultural while 12 percent are residential. The remaining 15 percent comprises industrial, commercial, agricultural-residential, private roads, public roads, mixed-use development, beach land, railroad land, etc. This land acquisition is estimated to affect 909 persons at both ends (326 in Mariveles, Bataan and 583 affected persons in Naic, Cavite) comprising household members, non-residing business owners, and workers/employees of affected business activities. This includes the physical displacement of 150 households (49 households from Mariveles and 101 households from Naic). Aside from physical displacement, there will be economic displacement of 97 business units affected by the BCIB Project. The LARP has adequately addressed most of the issues for mitigating the social impacts, including the loss of shelter and income, and has proposed relocation and income restoration. Information about

[36] The incremental approach has been applied by estimating the additional costs associated with the activities required to adapt the BCIB to climate change against a hypothetical baseline where the BCIB would aim to deliver expected results without addressing physical climate risks.

the BCIB Project has been disclosed and adequate consultations with the stakeholders have taken place and this exercise will be continued throughout the project cycle.

96. DPWH and its regional offices are well-capacitated to implementing the LARP given their extensive experience working on many MDB-funded projects. Since the BCIB Project is one of the priority initiatives in the Philippines, counterpart financing is also prioritized. The budget allocated for LARP has been approved by NEDA and is based on ADB Guidelines on Project Land Take. DPWH has started implementation of some activities under the LARP (e.g., municipal resettlement implementation committee has been organized, validation of affected properties is completed, sending of letter offer/negotiation to PAPs has started on both Bataan and Cavite) and aims to complete LARP implementation before starting construction. Construction will not happen until compensation/entitlements have been paid in full.

97. **Operational Health and Safety.** There will be occupational health and safety (OHS) and road safety risks during construction and operations phase. Typical with any large infrastructure project, construction risks such as working at height, hazards from falling debris, working over water as well as numerous other typical risks will be present, whilst in the operational phase key risks will be present for maintenance staff working at height and working in the vicinity of roads. As part of the EIA, the EMP contains templates to guide the contractor in forming an OHS Management Plan and Traffic Management Plan. These management plans should form a key part of the Contractor Environmental Management and Monitoring Action Plan (CEMMAP) which will detail the actions that the contractor has to follow to comply with international standard OHS requirements.

98. As a large infrastructure project with many different components, the BCIB Project will likely have a large array of sub-contractors, under the main contractor, working on many different elements of the BCIB Project (i.e., marine works, viaduct, steelwork etc) and thus it can be challenging to ensure OHS plans and awareness are cascaded down to all parties. Therefore, whilst it is important that the content of the CEMMAP and the respective OHS management plans are checked for quality, it is equally important to ensure that during the implementation phase, regular monitoring, reporting and site inspections, as detailed in the EMP, are undertaken to ensure that Labor and Working conditions and OHS practices are being properly followed and any non-compliances are swiftly dealt with.

99. Impacts and risks associated with labour influx have also been assessed. The EMP includes guidance to prepare a Workers' Accommodation Management Plan and to address Gender-Based Violence (GBV). The provisions will be incorporated into the tender documents.

100. **Indigenous Peoples.** ADB has classified the BCIB Project as Category C for indigenous peoples. The BCIB Project areas are not part of the ancestral domain. There are no identified indigenous peoples/indigenous cultural communities (IPs/ ICCs) in the BCIB Project areas. This is supported by a Certificate of Non-Overlap (CNO) issued by the National Commission on Indigenous Peoples (NCIP) on August 24, 2021, confirming that the BCIB Project does not affect any ancestral domain/land.

101. **Gender aspects.** ADB has categorized the BCIB Project as effective gender mainstreaming. It is assigned effective gender mainstreaming as the BCIB Project outputs are designed to directly improve women's access to social services, and/or economic and financial resources and opportunities, and/or basic rural and urban infrastructure, and/or enhancing voices and rights, which contribute to gender equality and women's empowerment. The gender analysis carried out as part of project preparation has identified the key gender issues

that are relevant to the BCIB Project, including: (i) lack of efficient means of transportation and a direct route between Bataan and Cavite exacerbates time poverty faced by women. Currently, travel time is between 4 and 5 hours for a single route including wait and transfer times, as well as time spent in traffic. Women are more reliant on, and more likely to use, public transport than men; (ii) high transport costs due to multi-modal transportation needs which roots from gendered travel patterns. On average, women spend 10-20 percent more on travel costs than men, due to more switches of transport modes and stopping at more places on a single trip due to their reproductive tasks, often bringing children, prams/strollers, and bulky load; (iii) disruptions to daily life and livelihood in the project area due to construction. More women than men tend to their livelihood near their domiciles, placing women as heavily affected by the temporary disturbance caused by civil works. However, women cannot readily find employment in construction as skilled or unskilled labour due to the perception that civil works and construction are male-only jobs. Construction is still among the sectors that are highly dominated by men; and (iv) occurrence of GBV-SEAH (sexual exploitation, abuse and harassment) in project site and surrounding areas. There is a positive correlation between the influx of male construction workers and the rise in GBV-SEAH cases in construction sites when there are no mitigation measures to protect women and children. As major civil works are involved, there is the possibility of occurrence of GBV-SEAH in project site and surrounding areas. The draft Gender Assessment and Action Plan (GAAP) has been prepared to enable effective gender mainstreaming under the proposed BCIB Project. An elaboration of the GAAP activities is highlighted in Annex 5.

102. **Project Grievance Redress Mechanism (GRM) and Bank's Project-Affected People's Mechanism.** The BCIB Project has established a project-level GRM to receive and resolve project-related grievances in accordance with the requirements of ADB's SPS. A GRM should be accessible and applicable to all members of the public and entities within the project's area of influence and can be expected to address such matters as property damage; worker behaviour in the community; excessive dust, noise, and disturbance; traffic congestion; safety concerns; prolonged blockage of access to businesses and homes; effects on livelihood; and disruptions to public services such as electricity, water and sewerage. All complaints received from PAP shall be properly documented. Locally appropriate public consultation and disclosure processes is used to disseminate information about the GRM. The information of the GRM and ADB's independent accountability mechanism (IAM) is also included in the EIA, LARP and other ES documents and disseminated to PAP. The EIA includes appropriate measures to manage the complaints raised by workers. Complaints raised by workers will be handled by project GRM. GRM will be extended to workers, who may have grievances related to working conditions, living conditions in construction camps, safety and health issues, labor rights violations, mistreatment, or other matters. All laborers, skilled workers, and site engineers employed on-site by the PCs or by any of their subcontractors should have access to the mechanism. Training sessions will be organized as an opportunity to make workers aware of the GRM, its availability to them, and how to access it. Such training will be designed and delivered by the CSC. Worker training should be provided prior to the start of construction, and whenever new sub-contractors and crews of workers are brought onstream; refresher training should be given any time site monitoring reveals recurrent patterns of non-compliance that can be attributed to lack of worker knowledge or awareness.

103. The proposed BCIB Project will be co-financed with ADB. The Bank has agreed that the ADB's ES policies and procedures will apply to the BCIB Project and that it will rely on the ADB's determination as to whether compliance with those policies and procedures has been

achieved under the Project. The Bank has further agreed with the ADB that it will rely on that institution's IAM to handle submissions relating to ES issues under the Project. Consequently, in accordance with the Bank's Policy on Project-affected People's Mechanism (PPM), submissions to the PPM under this Project will not be eligible for consideration by the PPM. Information on ADB's Accountability Mechanism is available at: https://www.adb.org/site/accountability-mechanism/main.

104. **Proposed follow-up**. AIIB will require semi-annual monitoring reports and retain the rights to conduct supervision during the Tranche 1 Project's implementation along with ADB. Disclosure of ES information will comply with AIIB disclosure requirements.

E. Risk and Mitigation Measures

105. The possible risks and the mitigation measures are presented in Table 3 below.

Table 3. Summary of Risks and Mitigating Measures

Risk Description	Assessment (H/M/L)	Mitigation Measures
Implementation capacity risk Tight processing and implementation schedules, with limited capacity of DPWH to implement a large and complex bridge project.	High	A firm will be recruited as PMC to support DPWH project team in contract management, project administration, and reporting. The current DED consultant will be directly engaged as engineering/design support consultant to support the CSC. The Bank will also closely engage with ADB and DPWH to address administrative processing issues as early as possible.
Technical design risk The engineering design is not technically sound, particularly in ensuring that the bridge can cross the deep channel between the two coasts.	Medium	DPWH has onboarded a globally renowned bridge design expert to serve as a DED consultant for BCIB under the design-bid-build delivery method.
Construction risk Poor quality of civil works	Medium	CSC will be hired to ensure project implementation quality and its output's faithfulness to the detailed design.
Procurement risk Limited capacity of DPWH and the perception of corruption may lead to procurement delays and poses a threat to wider competition and reasonable/competitive bid prices. Several large-scale infrastructure projects are expected to be brought to market around the same time, which may saturate the market and contractors may have to choose between projects/packages.	Medium	Market engagement conference has been conducted prior to the bidding. In addition, Advance Procurement actions have also been initiated. The BCIB Project promotes open and transparent procurement process, while the procurement packaging is designed in such a way that it targets more high quality with international reputation contractors and consultants, and it is also consistent with the market capacity. There is a procurement training for DPWH for managing procurement and contract management.

Financial Management risk The government counterpart funds may be released with delays. A lack of finance staff may result in delayed disbursements and shortcomings in preparing project financial statements. Using the COA-mandated chart of accounts may result in manually reconciling data using Microsoft Excel. The limited capacity of the internal audit unit may exclude the Project from its annual work program.	Medium	These risks are manageable, and detailed mitigation measures have been agreed upon and described in the FM section.
Financing Risk The succeeding tranches of the BCIB Project may not be completed as expected, rendering the Project useless.	Low	The BCIB Project is a top priority for the government and is expected to play a significant role in the government's national and regional economic development agenda. ADB (through its MFF) and AIIB have strong commitment to jointly finance the BCIB Project.

Annex 1a: Results Monitoring Framework for the BCIB Project

Objective:	To improve the efficiency of road travel in Bataan, Cavite, and the National Capital Region.				
Indicator Name	**Unit of measure**	**Baseline Data, 2023**	**End Target, 2031**	**Monitoring**	**Responsibility**
Outcome Indicators:					
Travel time reduction between Bataan and Cavite	%	0	70	After project completion	DPWH
Increase in traffic volume in Bataan (on Roman Superhighway)	%	0	250	After project completion	DPWH
Increase in the number of tourists visiting Corregidor Island	%	0	100	After project completion	DPWH
Output Indicators:					
Output 1: New climate resilient road link connecting Bataan and Cavite over Manila Bay constructed					
Cable-stayed bridges with south and north navigation channels of 900 and 400 m, respectively, constructed with climate change measures integrated	Number	0	2	By project completion	DPWH
Marine and land viaducts constructed with climate change measures integrated	km	0	24	By project completion	DPWH
Approach roads and access ramps constructed with climate change measures and gender responsive and socially inclusive features integrated	km	0	8	By project completion	DPWH
Output 2: Bridge operation and maintenance capacity enhanced					
O&M plan and manual for the BCIB integrate climate change measures and gender-responsive and inclusive features	Number	0	1	By project completion	DPWH

Objective:	To improve the efficiency of road travel in Bataan, Cavite, and the National Capital Region.				
Indicator Name	**Unit of measure**	**Baseline Data, 2023**	**End Target, 2031**	**Monitoring**	**Responsibility**
Female employed by O&M concessionaires/ operators in bridge operations	%	0	50	After project completion	DPWH
Resilience decarbonization strategy for transport infrastructure prepared	Number	0	1	By project completion	DPWH
Output 3: Tourism support system established in Bataan and Corregidor Island					
Tourist center (rest stop) that meets green building standards and with gender-responsive and inclusive design features is built	Number	0	1	By project completion	DPWH
Key female local government officials of Cavite and Bataan with improved awareness and capacity for environmentally sustainable and gender-responsive and socially inclusive tourist support operations	%	0	50	After project completion	DPWH
Female tourism center (rest stop) management and staff engaged and trained	%	0	50	After project completion	DPWH
Early warning system on natural hazards for communities and travelers established	Number	0	1	After project completion	DPWH

Annex 1b: Results Monitoring Framework for the Project

Objective:	To contribute to efficiency improvements of road travel in Bataan, Cavite, and the National Capital Region.							
Indicator Name	**Unit of measure**	**Baseline Data, 2023**	**Cumulative Target Values**			**End Target**	**Monitoring Frequency**	**Responsibility**
			2024	**2025**	**2026**			
Project's Output Indicators:								
Progress towards two cable-stayed bridges with navigation south and north channels of 900 and 400 m, respectively, constructed with climate change measures integrated.	%	0	10	15	29.1	29.1	Annual	DPWH
Progress towards 24 km of marine viaducts constructed with climate change measures integrated.	%	0	10	15	29.1	29.1	Annual	DPWH
Progress towards 8 km of approach roads and access ramps constructed with climate change measures and gender responsive and socially inclusive features integrated.	%	0	10	15	29.1	29.1	Annual	DPWH
Percentage of skilled and unskilled labor force hired by civil works contractors are women (as per DPWH Department Order 2016-130)	%	0	20	20	20	20	Annual	DPWH

Annex 2: Detailed BCIB Project Description

Geographic Background

1. The economic centrality of the NCR, Calabarzon, and Central Luzon is evident given the presence of three of the country's largest freeport zones for the industry and services sectors: Subic Bay Freeport Zone, Clark Freeport Zone, and the Freeport Area of Bataan (collectively, the Central Luzon Industrial Corridor).[37] Central Luzon, which occupies a major part of a floodplain between Manila Bay and Lingayen Gulf, is a leading center for agro-industrial development and is considered the rice granary of the Philippines.

2. **Manila Bay.** Manila Bay is a natural harbor located at the southwest portion of Luzon and bounded by the provinces of Bataan to the northwest, Pampanga and Bulacan to the north, NCR to the east, and Cavite to the southeast. It provides access to the Port of Manila, the biggest port in the Philippines. With the container volume of 5.5 million twenty-foot equivalent units (TEUs), Manila Port was ranked 30th among the world's international container ports in 2022.[38] The Port of Manila operates well above both its freight processing and landside capacities and contributes significantly to traffic congestion in and through Metro Manila. This can be relieved through alternate freight routes.

3. **Bataan Province.** Despite being the smallest province in Central Luzon, with only 1,373 square km of land area and a population of slightly more than 850,000, Bataan is a key driver of economic productivity.[39] Home to several economic zones, the province commands a significant share of national industrial output, serves as Luzon's major power generation hub (with more than 4.2 gigawatts of generation capacity), and encompasses a sizeable agriculture sector. Tourism represents a growing contributor to the regional economy, with an array of both coastal destinations and historical and cultural attractions.

4. The Freeport Area of Bataan is the only freeport in the Manila Bay area and is an ideal transshipment hub. It is among the fastest-growing economic zones in the country based on the number of locators, investments, and workers. As of October 2022, it had a total of 94 operating enterprises and about 40,000 workers (of which 49 percent were women) in economic activities spanning manufacturing, semiconductors and electronics, shipbuilding, logistics, business process outsourcing, and tourism.[40] The Authority of the Freeport Area of Bataan is encouraging more locators in manufacturing as well as new industries such as those in the fields of financial technology and blockchain, artificial intelligence, and green industries. The Port of Mariveles, at the southern end of the Bataan peninsula, mainly serves the Freeport Area of Bataan. There is potential for an upgraded and expanded port to accommodate larger vessels, service international freight movements, and provide an alternative to the Port of Manila. However, poor land connectivity to Manila, Cavite, and southern Luzon remains a critical constraint to the port's expansion.

[37] Government of the Philippines, National Economic and Development Authority. 2022. *Central Luzon Regional Development Plan, 2023–2028*. Manila.
[38] SEKO Bansard. 2023. *Global Top 30 Container Ports in 2022*. Paris.
[39] Government of the Philippines, Commission on Audit. 2023. *Bataan Annual Audit Report 2022*. Manila.
[40] C. A. Bartolome. 2022. *Bataan freeport among fastest growing ecozones.* Philippine Information Agency.

5. **Cavite Province.** Cavite is the second most populous province in the Philippines, with a population of 4.3 million people.[41] The province is home to over 12,000 enterprises, most of which are small and medium-size enterprises. Agriculture accounts for a major part of the local economy in Cavite, with 50 percent of the total land area engaged in agriculture. Cavite is also one of the most industrialized provinces in the country, with many businesses in the service industry, exports, logistics services, facilities, and information technology. The Cavite Export Processing Zone is located between the town of Rosario and the city of General Trias, and includes manufacturing, electronics, automotive, and other export-oriented industries. With its continuous industrial growth and development, Cavite has been a magnet for job seekers from across the Philippines.

6. Corregidor Island, which divides the north and south channels of the entrance to Manila Bay, is a national heritage site featuring World War II military installations. Although it is already an active tourist destination, visitor volumes to the island are constrained by the limited frequency of ferry services, which averaged 62,000 annually during 2013–2017. It is envisaged that further developments of tourism for Corregidor Island will require improved access for tourists, especially those from Metro Manila and abroad.

The BCIB Project

7. **BCIB Project Objective.** To improve the efficiency of road travel in Bataan, Cavite, and the NCR.

8. **Output 1: New climate resilient road link connecting Bataan and Cavite over Manila Bay constructed.** The output involves the construction of about 32.15 km-long bridge comprising two cable-stayed bridges for the navigation channels, 24 km of marine viaducts, and 8 km of approach roads to provide a permanent and direct road link between Bataan Province and Cavite Province. The BCIB will include U-turn facilities at the Corregidor Island to allow the vehicles to change direction and facilitate the future connection to the mainland. Output 1 also includes consultancy services related to project management and construction supervision.

9. **Output 2: Bridge operation and maintenance capacity enhanced.** The output will provide a capacity building program to the government to ensure adequate capacity in O&M and management of the BCIB and future large and complex bridges. To promote sustainability of the investment, the government plans to make BCIB a toll road, aiming to utilize the toll for financing the O&M cost. The output will build institutional capacity for O&M and provide dedicated training programs to enhance the government's capacity to integrate climate adaptation and low-carbon measures in the operation of BCIB.

10. **Output 3: Tourist support system established in Bataan and Corregidor Island.** The Bataan area is already recognized for tourism; as of July 2023, there are 367 registered primary tourism establishments, and towns such as Mariveles, Bagac, Morong, and Dinalupihan have been designated as tourism zones including eco-tourism. BCIB as a dedicated tourism infrastructure, alongside improved connectivity with the NCR and southern Luzon and the architectural attraction of the bridge itself, will significantly boost tourism throughout the region, including to Corregidor Island and the west coast of Bataan. The focus on tourism aligns with the 2023–2028 National Tourism Development Plan, which pursues sustainable, inclusive, and

[41] Philippine Statistics Authority. 2015. *Cavite Quickstat – January 2015*. Manila.

resilient tourism.[42] There is also interest from the province of Bataan to develop a more comprehensive tourism master plan in anticipation of development of BCIB. With BCIB in place, many of the beaches of Morong area will become far more accessible, with the potential to significantly increase the foot fall of tourists, including the international tourists, visiting Bataan Province and Corregidor Island, from its current average of 62,000 annually. Under output 3, a tourist center and supporting facilities that meet green building standards will be established at the north approach of BCIB, providing information about the rich ecosystem and diversity of destinations on the Bataan peninsula and Corregidor Island.[43] An early warning system on natural hazards for the communities and travelers will be established at the bridge approaches.

11. **BCIB Project Objective and Results.** To improve the efficiency of road travel in Bataan, Cavite, and the NCR. The BCIB Project also aligns with the Philippine Development Plan 2023-2028 on "local, national, and international connectivity improved". At completion, the BCIB Project's results will be assessed and monitored using the following key indicators: travel time reduction between Bataan and Cavite; increase in traffic volume in Bataan[44]; increase in the number of tourists visiting Corregidor Island.

12. By 2031, it is expected that travel time between Bataan and Cavite will be reduced by 70 percent (from a 2022 baseline of 5 hours). The traffic volume on Roman Superhighway in Bataan is expected to increase by 250 percent (from a 2022 baseline of 29,698 vehicles per day). The number of tourists visiting Corregidor Island is expected to increase by 100 percent (from a 2022 baseline of 5,000 visitors). These indicators will be measured by DPWH traffic reports and annual reports by the municipal offices of Cavite and Bataan.

13. **BCIB Project Outputs.** Each of the BCIB Project outputs' indicators will be monitored by the project monitoring reports and completion reports by the DPWH project team and consultants and DPWH's annual reports (Output 1); completion and evaluation reports by capacity building consultants, BCIB's O&M plan and manual, post-training program reports and surveys of DPWH staff, and concessionaire contract/MOU (Output 2); and annual reports of the municipal offices of Cavite and Bataan (Output 3).

14. Under Output 1 of the BCIB Project, the indicators are:

- Two cable-stayed bridges with navigation south and north channels of 900 and 400 m, respectively, constructed with climate change measures integrated (from a 2022 baseline of 0);
- 24 km of marine viaducts constructed with climate change measures integrated (from a 2022 baseline of 0);
- 8 km of approach roads and access ramps constructed with climate change measures and gender responsive and socially inclusive features integrated (from a 2022 baseline of 0).

[42] The road map of the 2023–2028 National Tourism Development Plan covers seven measures to achieve these goals, with improving tourism infrastructure as one of the key priorities.
[43] The Philippine Green Building Code will be adopted as part of the design criteria for the building and the associated facilities. The code seeks to promote the right of the people to a balanced and healthful ecology as protection against the impacts of climate change. Accordingly, the code prescribes "green" building standards with respect to site selection, planning, design, quality of material, and construction. The center will follow these standards.
[44] Specifically, along the Roman Superhighway.

15. Under Output 2, the indicators are:

- O&M plan and manual for the BCIB integrate climate change measures and gender-responsive and inclusive features[45] (from a 2022 baseline of 0);
- O&M concessionaires/ operators employ at least 50% females in bridge operations[46] (from a 2022 baseline of 0);
- Resilience decarbonization strategy for transport infrastructure prepared (from a 2022 baseline of 0).

16. Under Output 3, the indicators are:

- Tourist center (rest stop) that meet green building standards[47] and with gender-responsive and inclusive design features is built (from a 2022 baseline of 0);
- Key local government officials of Cavite and Bataan (at least are 50 percent females) with improved awareness and capacity for environmentally sustainable and gender-responsive and socially inclusive tourist support operations (from a 2022 baseline of 0);
- Tourism center (rest stop) management and staff (at least 50 percent are female) engaged and trained (from a 2022 baseline of 0);[48]
- Early warning system on natural hazards for communities and travelers established (from a 2022 baseline of 0).

17. To achieve the BCIB Project outputs, the indicative activities and milestones are shown in Table A2.1.

Table A2.1. Key Activities and Milestones

Activity	**Indicative Timeline**
Output 1 - New climate resilient road link connecting Bataan and Cavite constructed	
Advance procurement for civil works	Q2 2023 – already started
Completion of detailed engineering design	Q4 2023 – completed
Consultant recruitment for implementation of GAAP and STD, HIV-AIDS Mitigation Plan	Q1 2025
Road safety audits and planning with community for gender-sensitive and design features	Q2 2025
Support for training of women in related construction skills	Q4 2025
Completion of civil works	Q4 2029

[45] During O&M, gender responsive and socially inclusive measures will be enforced through contractors who will agree to the following: (a) hiring of women (at least 50% of staff), LGBTQI, PWDs, indigenous peoples, and elderly; (b) adherence to core labor standards and benefits; (c) promoting gender sensitivity; (d) installing mechanisms to prevent and address SEAH and gender-based violence; (d) use of gender-fair language and images in all kinds of communications, including in ads and signage in facilities and structures; and (e) collection and storage of sex-disaggregated data.

[46] Instruments for ensuring concessionaire/operator commitment are bidding documents, contracts and/or MOA. O&M concessionaire/s will take over bridge operations through a PPP agreement with DPWH.

[47] Green building standards refer to relevant considerations under the Philippine Green Building Code and/or other green building rating systems, such as measures of energy and water efficiency, indoor environmental quality, site sustainability, and material selection, among others.

[48] At least 50% of tourist center/rest stop management, and 50% of staff who will be hired shall be women. This will be specified in the turnover agreement (MOA) with the local governments, along with prioritizing access by poor women, senior citizens, PWDs, IPs and other vulnerable groups to economic opportunities generated by said facility.

Output 2 - Bridge operation and maintenance capacity enhanced	
Recruitment of capacity building consultants	Q4 2025
Database set up and updates uploaded	Every Q1 2025-2030
Conference on gender and infrastructure held	2026
Training of DPWH staff on managing climate change resilient, gender-responsive and socially inclusive bridge projects	2026-2027
Completion of training program	Q4 2028
Preparation of the BCIB O&M plan and manual	Q2 2029
Output 3 - Tourist support system established in Bataan and Corregidor Island	
Recruitment of capacity building consultants	Q4 2025
Completion of training program	Q4 2028
MOA between DPWH and LGUs on turn-over/operation of the Tourist Center is signed	Q4 2031

18. **Civil works packages.** The BCIB Project construction phase is expected to begin with the onshore Packages 1 and 2. BCIB Project completion is targeted for Q4 2029, and the expected start of commercial operations is January 2030. To maintain this schedule expectation, work may occur 24 hours a day for 7 days a week on many sites. With the South cable-stayed bridge and high-level approaches being the largest and most complex single structure on the BCIB Project, Package 6 is deemed the critical portion with a completion date of September 2029 (64 months from notice of award). Key scheduling considerations for this bridge include constructing the cable stay tower foundations and pylons concurrently, thus requiring procuring resources for each tower (foundation crews, tower cranes, tower formwork, etc.). Table A2.2 provides detailed descriptions.

Table A2.2. Civil Works Packages under the BCIB Project

Package	**Description**
Package 1: Bataan Land Approach	The Land Approach on the Bataan side connects the Roman Highway with the BCIB North Marine Viaduct. The Bataan Land Approach at Mariveles extends approximately 4.75 km (this does not include slip road lengths). The major structure components include the Trumpet Interchange that connects the BCIB with Roman Highway, Roman Interchange Bridge, Alas-Asin Main Bridge, Alas-Asin Overpass Bridge, Mt View Overpass Bridge, Mt View Waterway Bridge, and the Bataan Land Viaduct.
Package 2: Cavite Land Approach	The Land Approach on the Cavite side functions to connect the BCIB South Marine Viaduct with the Antero Highway at Naic, Cavite. The total length is approximately 1.39 km of mainline highway. The land viaduct shares a transition pier with the South Marine Viaduct. The Cavite Land Approach is composed of a Trumpet Interchange, roadways and embankment, and 6 roadway bridges.
Package 3: North and Central Marine Approach	Package 3 includes the Foundations, Substructure, and Superstructure of the North and Central Marine Approach Viaducts. The typical structural form for the viaduct is a single concrete box girder supporting two carriageways with 100m and 60m spans, with each carriageway including

Viaduct	two traffic lanes, inner marginal strip (0.6m), and shoulder (2.3m). The Northern Viaducts extend approximately 8.21 km. The limits of the extents are based on the Package 1 interface and the Package 5 High-Level Approach interfaces. Span modules are based on type selection and construction methods. Package 3 includes the turnaround facility at Corregidor Island.
Package 4: Southern Marine Viaduct	Civil Works Construction for the South Marine Approach Viaduct Foundations, Substructure, and Superstructure. The typical structural form is a single concrete box girder supporting two carriageways with 100m and 60m spans, and each carriageway includes two traffic lanes, inner marginal strip (0.6m), and shoulder (2.3m). The Southern Viaducts extend approximately 12.65 km. Limits of extents are based on P2 interface and P6 High-Level Approach interfaces. Span modules are based on type selection and construction methods. Package 4 includes the nearshore navigation bridge.
Package 5: North Channel Bridge and High-Level Approaches	Package 5 Civil Works Construction package includes the North Channel Bridge (NCB) and High-Level Approaches. The NCB, located between Corregidor Island and the Bataan Peninsula, is a cable-stayed bridge that spans over the North Navigation Channel. The 736m long NCB includes a 400m long main span and two 168m long back spans. The North and South High-Level Approach Bridges (NHLA & SHLA) are transitional structures that connect the marine viaducts to the cable-stayed bridge (NCB). There are a total of two HLA structures, located at either side of the cable-stayed bridge. Each HLA frame consists of seven spans (75m + 5x100m + 75m) for a total length of approximately 650m. The HLA's superstructure consists of twin single-cell concrete box girders. The NCB and HLAs extend approximately 2.04 km.
Package 6: South Channel Bridge and High-Level Approaches	Package 6 Civil Works Construction package includes the South Channel Bridge (SCB) and High-Level Approaches. The SCB is a cable-stayed bridge which spans over the South Navigation Channel, located between Corregidor Island and the Cavite shore. The SCB is a 900m-long main span cable stayed bridge, with two 450m long back spans, with a total length of the bridge is 1800m. The back spans are divided by intermediate piers into two spans of 354m and 96m. The North and South High-Level Approach Bridges (NHLA & SHLA) are transitional structures that connect the marine viaducts to the cable-stayed bridge (SCB). The two HLA structures are located either side of the cable-stayed bridges. Each HLA frame consists of seven spans (75m + 5x100m + 75m) for a total length of approximately 650m. The HLA superstructure consists of twin single-cell concrete box girders. The SCB and HLAs extend approximately 3.10 km.
Package 7: Ancillary Items	Package 7 Civil Works Construction includes ancillary items project-wide, including: through MV/LV electrical cables, highway lighting, signage and pavement marking. This package is defined to allow for consistent placement of ancillary items on throughout the project alignment. The application of these items is scheduled near the end of the marine bridge construction.

Annex 3: Economic and Financial Analysis[49]

A. Economic Analysis

Introduction

1. The economic viability of the BCIB Project was assessed using a Cost-Benefit Analysis by comparing "with-project" and "without project" scenarios. The economic internal rate of return (EIRR) was calculated by comparing the economic benefits with the cost of the BCIB Project over a construction period of 5 years and an operations period of 30 years (i.e., bridge is expected to open for traffic in 2030). The analysis indicates that the BCIB Project is economically viable with an EIRR of 12.7 percent, well above the social discount rate of 9.0 percent. The BCIB Project also yields an NPV of USD1,346 million (PHP76,165 million) at this discount rate. Sensitivity analysis involving rise in costs and decline in benefits indicate the BCIB Project remains viable even under large negative shocks.

Demand Analysis

2. Traffic demand on the proposed new connectivity was produced from a project design study involving traffic modeling of NCR and surrounding provinces by updating traffic assignment model developed during the feasibility study and by calibrating the model with additional traffic surveys.[50] The traffic modeling used Origin-Destination (O-D) generated from Metro Manila Urban Transportation Integration Study Update and Capacity Enhancement Project projections and projected population and economic data that reflect the growth expected in the project area.[51] The model projections were calibrated with traffic counts in 2019 from the feasibility study and traffic counts in 2022 from the project design study. In determining the traffic flow forecast, the traffic projection also considered other large transport projects in progress for completion in NCR and major development projects in the direct influence area of the proposed bridge (e.g., Freeport Area of Bataan).[52]

3. Traffic on the BCIB is expected to come from two sources: (i) traffic diversions from existing congested routes (since the new connectivity will provide large distance and/or time saving between some of the provinces in the greater Manila region); and (ii) generated traffic from Bataan area, especially the Freeport Area of Bataan (this type of traffic represent 13.6 percent of the additional trips). The projected traffic flow (annual average daily traffic) on the Bataan-Cavite link as per the design study is 18,035 vehicles per day in 2030, 26,736 (2040) and 37,785 (2055) (Table A3.1). Due to safety considerations, only higher capacity vehicles will be allowed on the bridge and therefore motorcycles are not included in the traffic flow estimate. The motorcycle trips will either continue using the current travel pattern or shift to other modes. For benefit estimation, it is assumed that fifty percent of trips will shift to jeepneys and buses.

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[49] This is an independent assessment conducted by ADB and reviewed by AIIB as part of the co-financiers' due diligence process. The assessment is independent from the analysis conducted by the NEDA which served as the basis for internal government approvals.

[50] T.Y. Lin International | Pyunghwa Engineering Consultants Joint Venture, Bataan-Cavite Interlink Bridge project, Final Report, June 2023.

[51] Japan International Cooperation Agency; and Government of the Philippines, Department of Transportation and Communications. 2015. *The Project for Capacity Development on Transportation Planning and Database Management in the Republic of the Philippines*. Manila (December).

[52] Ongoing and planned projects added in the network model for the Bataan–Cavite Interlink Bridge Project include: NLEX-SLEX Connector Road, NLEX Harbor Link (Segment 8.2), Cavite-Tagaytay-Batangas Expressway, Tarlac–Pangasinan–La Union Expressway, Molino Link, Calamba–Los Banos–Bay Bypass and LLR. The developments in Bataan area considered are international container terminal port and Freeport Area of Bataan commercial strip.

4. The traffic growth projection of 4.5 percent from the traffic model for 2030 to 2035[53] is reasonable based on both economic growth and observed traffic growth. The annual traffic growth observed between 2019 and 2022 from traffic counts at the same locations range from 2.82 percent to 10.86 percent. The observed economic growth for the Philippines prior to and post COVID-19 are in the same range (6.6 percent per annum from 2015 to 2019 and 6.4 percent from 2022 to 2028) as per IMF estimates.[54] For traffic projections beyond 2035, traffic growth rates are gradually reduced: 3.5 percent by 2040 and 2.0 percent by 2055 (Table A3.1). Note that jeepneys are expected to be phased out over the years under the government's modernization program and those trips will transfer to buses.

Table A3.1. Forecast Annual Average Daily Traffic on the BCIB

Vehicle type	2030	2035	2040	2045	2050	2055	Growth rate (%) from 2030 to 2055
Car	12,574	16,194	19,658	22,847	25,783	28,486	3.3
Jeepney	894	644	405	185	109	64	-10.0
Bus	1,435	1,750	2,052	2,330	2,586	2,821	2.7
Truck	3,132	3,893	4,621	5,292	5,909	6,477	2.9
Total	**18,035**	**22,481**	**26,736**	**30,654**	**34,278**	**37,785**	**3.0**
5-year growth (%)		*4.5*	*3.5*	*2.8*	*2.3*	*2.0*	

Costs

5. The financial cost estimate of the BCIB Project (USD4.355 billion) includes the cost of civil works, land acquisition, social and environmental impact mitigation, utility shifting, physical and price contingencies and finance charges during construction. For economic analysis, all costs and benefits are valued in 2023 prices. Economic costs were derived from financial costs with the following adjustments: (i) excluding price contingencies, taxes and duties, finance charges during construction, and transfer payments associated with resettlement, (ii) applying a shadow exchange rate factor of 1.047 for imported inputs and a shadow wage rate factor of 0.60 for unskilled labor.[55] Land acquired for the BCIB is primarily agricultural and residential land and is valued at the estimated lost value addition of equivalent agricultural land over 40 years discounted to 2023 prices. The analysis uses the domestic price numeraire and uses an exchange rate of PHP56.6 = USD1.00 for imported inputs. With these adjustments, economic cost of BCIB is estimated at USD3,215.5 million. The economic operation and maintenance costs was adopted from BCIB Project cost estimates.

[53] T.Y. Lin International - Pyunghwa Engineering Consultants Joint Venture, Bataan-Cavite Interlink Bridge project, Updated Traffic Study Report, April 2023.
[54] International Monetary Fund, World Economic Outlook Database, April 2023.
[55] The shadow exchange rate factor was estimated based on trade data for the Philippines for 2017-2021 period and the shadow wage rate factor was adopted from the project feasibility study.

Benefits

6. The new road connectivity will reduce travel distance and travel time between Cavite and Bataan provinces as well as provide a faster route for the western areas of regions north and south of Manila without going through Manila city area. The average travel distance between Cavite and the Freeport Area of Bataan will reduce from about 210 kms at present to 85 kms and reduce travel time from 4 to 5 hours (during off peak and peak hours) to 1.5 hours. The diversion and redistribution of traffic will also alleviate traffic congestion on north-south routes in NCR and benefit traffic on those routes.

7. The traffic model was used for estimating passenger and goods vehicle trips, travel distance, and travel time between traffic zones in the "without-project" and "with-project scenarios. The quantified project benefits include VOC savings, time savings for passengers, and avoided GHG emissions as a result of reduced travel distance and reduced congestion. Benefits were calculated only for trips going through the new route. There may also be crash reduction benefits from reduced vehicle kms traveled but not quantified. Benefits for traffic due to reduced congestion as a result of easing constraints in transport network were also not quantified.

8. **Vehicle operating cost savings**. There are two types of VOC savings: (i) savings from reduced travel distance, and (ii) savings from more efficient operating speeds accruing to vehicles using the new route. The VOC unit rates by vehicle type and travel speed were estimated using Highway Development and Management Model 4 using VOC data from the planning division of the Department of Public Works and Highways and updated to 2023 prices (Table A3.2). VOC savings were calculated for each vehicle type by multiplying distance saved and traffic for each zonal pair in the "with" project scenario to arrive at the total vehicle-km saved and multiplying vehicle-km saved by unit VOC rates. VOC savings from more efficient operating speeds were calculated by multiplying traffic on the new road link, new link length and unit VOC rates for "without" and "with" project scenario respectively, and then calculating the difference in total VOC between the two scenarios.

Table A3.2. Unit VOC Values (2023)

	VOC (PHP/km)			
Speed	**Car**	**Jeepney**	**Bus**	**Truck**
20 km/hr	13.1	13.9	43.9	71.1
30 km/hr	11.6	11.6	36.4	59.6
40 km/hr	10.6	10.0	30.9	51.3
50 km/hr	10.0	9.2	27.9	47.0
60 km/hr	9.8	8.9	26.2	44.9
70 km/hr	9.8	8.8	25.4	44.1
80 km/hr	9.9	8.9	25.1	44.1
90 km/hr	10.1	9.2	25.0	44.3
100 km/hr	10.4	9.4	24.9	44.5

9. **Travel time savings**. Shorter and less congested routes will result in time savings, which were computed with respect to passengers from the traffic model. Calculating the cost per

passenger-hour requires quantifying the value of time in monetary terms. Time savings are valued using a base value of time in 2023 of PHP498 per hour for car users and PHP120 per hour for public transport users (Table A3.3).[56] Time saved for truck traffic reduce cargo inventory cost and was valued at PHP102 per hour based on DPWH road user cost data for 2022.

Table A3.3. VOT

	VOT (PHP) based on monthly wage rate, 2022	VOT (PHP)/min,2022	VOT (PHP)/hr, 2022	VOT (PHP)/hr, 2023
Bus passengers	17,272	1.81	109	120
Car passengers	71,619	7.52	451	498

10. **Avoided GHG emissions.** The proposed BCIB will lead to avoided GHG emissions due to shorter trip distance, improved network speeds and corresponding lower fuel consumption. Emissions reductions were calculated by comparing emissions "without-project" and "with-project", with the emissions under the two scenarios estimated using emission factors of the various GHG emission contributors at the construction and operation stages.[57] The GHG emissions during the construction stage were considered as a negative benefit. The reduction in GHG emissions was valued at USD54.1 per ton in 2023 prices and escalated at 2 percent per annum for benefit estimation.

Economic Analysis Results

11. An economic analysis was carried out comparing incremental economic costs and benefits. The economic life of the bridge assets was assumed to be 50 years and the salvage value was assessed at 37.3 percent at the end of the analysis period of 30 years, assuming straight-line depreciation. The analysis results indicate an EIRR of 12.7 percent and will generate net present value of PHP76,165 million. The EIRR exceeds the social discount rate of 9 percent. Cost and benefit streams for the BCIB during the analysis period is given in Table A3.4.

Table A3.4. Economic Cashflow Stream for the BCIB Project (PHP million)

Year	Costs		Benefits			Net benefits
	Capital	Maintenance	VOC	Travel time	GHG emissions	
2024	0.0					0.0
2025	32,941.9				(249.5)	(33,191.4)
2026	41,859.9				(323.4)	(42,183.2)
2027	40,403.9				(318.4)	(40,722.2)
2028	36,763.9				(295.5)	(37,059.4)
2029	18,381.9				(150.7)	(18,532.6)
2030	11,648.0	26.1	3,630.8	7,955.8	126.8	39.3
2031		83.1	7,449.5	16,975.5	224.2	24,566.0

[56] Value of time estimated from average monthly wage rate in Philippines (PHP18,143 in 2022) obtained from *Philippines Statistical Yearbook* (2022) published by Philippine Statistics Authority and updated to 2023 values using projected per capita income growth rate of 10.2 percent. Considering the higher wages in the BCIB area, wage rate was increased by 25 percent. Work and/or business travel share is taken as 75 percent of trips considering the long distance travel. Leisure travel is valued at 50 percent of work and/or business travel. 29 percent overhead was added for business/work trips.

[57] T.Y. Lin International – Pyunghwa Engineering Consultants Joint Venture. 2023. *Bataan-Cavite Interlink Bridge Project, Final Climate Change Study Report*. Manila (June).

2032		97.7	7,637.3	18,088.9	234.3	25,862.9
2033		663.8	7,825.1	19,253.9	244.9	26,660.1
2034		637.5	8,012.9	20,472.5	255.9	28,103.9
2035		650.5	8,200.8	21,746.9	267.5	29,564.7
2040		592.1	9,395.9	25,994.6	334.1	35,132.5
2045		1,149.1	10,609.8	31,768.6	417.8	41,647.1
2050		1,154.5	11,741.3	38,288.8	523.2	49,398.7
2055		888.1	12,912.3	46,514.1	655.6	59,193.8
2059	(67,872.9)	745.4	13,791.6	53,794.9	785.2	135,499.2
						EIRR = 12.7%
						NPV@ 9% = 76,165

12. Sensitivity analysis was carried out with respect to adverse changes in costs and benefits. The cost and benefit variable considered for sensitivity analysis and the results are given in Table A3.5. Sensitivity analysis results indicate that the proposed BCIB is economically viable even with adverse changes in cost and benefit parameters and the EIRR remaining at or above the benchmark of 9 percent. There are proposals to introduce tolls to meet the O&M costs over the life of the BCIB Project. Traffic analysis indicates a 22 percent reduction in traffic with the introduction of a toll for O&M cost recovery and sensitivity analysis indicates that the BCIB remained economically viable with the introduction of tolls.

Table A3.5. Sensitivity Analysis Results

Scenarios	EIRR (%)
(i) Base case	12.7
(ii) Construction costs increased by 15%	11.5
(iii) Benefits reduced by 15%	11.3
(iv) Tolls introduced for O&M cost recovery	10.6
(iv) Time value reduced by 33%	10.4
(v) Construction delayed by 2 years	12.0
(vi) Combination of (ii) and (iii)	10.2

Source: ADB estimates.

B. Financial Analysis

Introduction

13. The financial analysis of the BCIB will provide a sound analytical basis to conclude whether the DPWH is financially capable to implement the proposed investment and operate and maintain it in a financially sustainable manner over the BCIB Project's operational period.

Costs

14. The proposed BCIB comprises two types of cost components during the BCIB Project's operational period: (i) O&M capital cost structures and (ii) O&M expenses. The O&M capital cost component sums to PHP7,685 million (USD135.4 million) involving construction, traffic management, design and supervision, pre-operating cost, right-of-way cost, taxes and interest during construction. The target date for the start of construction period for the O&M structures component is January 2026, with expected completion over 48 months. The expected start of commercial operations is January 2030.

15. O&M expenses will amount to an average of Php986.65 million per annum over the operating period, as per cost estimations from the Operations and Maintenance Report and Manual for the BCIB. The largest component of O&M expenses will be heavy maintenance cost, which will account for 47.1 percent of the total. The heavy maintenance costs are programmed major activities such as repair of joints, replacement of bearings, road re-blocking and re-surfacing. Other major components of O&M cost will be annual maintenance cost (i.e., routine maintenance) with a share of 34.8 percent, and operating cost (15.8 percent).

Revenues

16. Traffic volume is estimated to be 453,143 vehicle-km per day in the first year of operations. Daily traffic volume is projected to increase by an average of 2.8 percent per annum throughout the operating period. In the first five years of operations, traffic volume will grow by an average of 4.5 percent per annum but will decelerate to 2.0 percent in the last five years. Class 1 vehicles will account for more than 75 percent of total traffic volume. The shares of Class 2 and 3 vehicles will be 18.8 percent and 6.0 percent, respectively.

17. Tolling policy in the Philippines' highways is implemented as an open system (i.e., single toll rate per vehicle class is levied depending on distance traveled). The assumed toll rate is PHP7.10 per vehicle-km in 2023 values for Class 1 vehicles. The toll fee multiplier for Class 2 is 2, while the multiplier for Class 3 vehicles is 3. Toll escalation is every two years using an inflation rate of 4 percent per year. Based on the Toll Regulatory Board's guidelines: (i) Class 1 include cars, jeepneys, pick-ups and vans with height that should not exceed 7 feet; (ii) Class 2 includes busses and 2-axle trucks; and (iii) Class 3 involves trailers and large trucks (3 or more axles). The toll rate was derived based on the revenue-maximizing toll of the traffic-revenue sensitivity model for the Greater Metropolitan Manila. This traffic-revenue maximizing tool was developed based on secondary sources consisting of: (a) survey results from willingness-to-pay toll and (b) time history analysis of traffic volume changes with toll fee increases.

18. Therefore, when the project commences operations in 2030, the toll fee will be Php7.10 per vehicle-km for class 1 vehicles, Php14.20 per vehicle-km for class 2 vehicles, and Php21.30 for class 3 vehicles. Toll fees are assumed to increase by 4 percent every 2 years.

Financial Analysis Results

19. Based on the net cash flow from operations, it can be concluded that the toll revenues are expected to sufficiently cover the O&M expenses throughout BCIB's operational period.

Table A3.6. Revenues, O&M capital costs and O&M expenses (current prices, PHP million)

Year	Cash inflow	Cash outflow		Net inflow
	Revenues	O&M capital costs	O&M expenses	
2026		171.53		(171.53)
2027		2,229.87		(2,229.87)
2028		2,229.87		(2,229.87)
2029		2,229.87		(2,229.87)
2030	1,087.95		94.05	993.90
2035	1,468.22		747.39	720.83
2040	1,967.24		719.57	1,247.67
2045	2,430.94		1,310.14	1,120.80
2050	3,055.70		1,354.47	1,701.23
2059	4,255.43		1,016.57	3,238.86

Annex 4: Paris Agreement Alignment

1. The Bank has committed that it will fully align its operations with the goal of the Paris Agreement (PA) by mid-2023. To achieve that target, in July 2023, the Bank launched its Methodology for Assessing the Alignment of AIIB Investment Operations with the PA[58]. The document elaborates the application of the joint multilateral development bank (MDB) methodological framework to aligning AIIB investment operations with the PA. The AIIB Methodology has been followed to assess the alignment of the BCIB Project with the PA.

A. PA Alignment in Climate Mitigation (BB1)

2. The BCIB Project does not fall under the Framework's 'universally aligned' list of activities. This means that the BCIB Project needs to be further assessed against a set of 5 specific criteria (SC1-SC5) to determine its contribution towards climate action that is consistent with the mitigation goals of the PA. The criteria consist of the following:

(i) *SC1 and SC2: Nationally Determined Contribution (NDC) Alignment and Long-Term Strategy (LTS) Alignment*. The BCIB Project should not be inconsistent with the country NDCs, LTSs, and other national, regional, or sectoral low-carbon policies and strategies compatible with the PA mitigation goals.

(ii) *SC3: Low Carbon Pathway (LCP) Consistency*. The BCIB Project should not be inconsistent with the road transport fleet decarbonization pathway of the country.

(iii) *SC4a: Alternatives Test.* A more efficient transport infrastructure cannot serve the current and forecasted passenger and freight demand with a similar level of service.

(iv) *SC4b: Lock-in Test.* The BCIB Project should not prevent the future deployment of more efficient vehicle fleet, as well as other Paris-aligned activities.

(v) *SC5: Economic Viability.* The BCIB Project should be economically viable, when considering the GHG emissions during construction and operation (valued at a shadow carbon price).

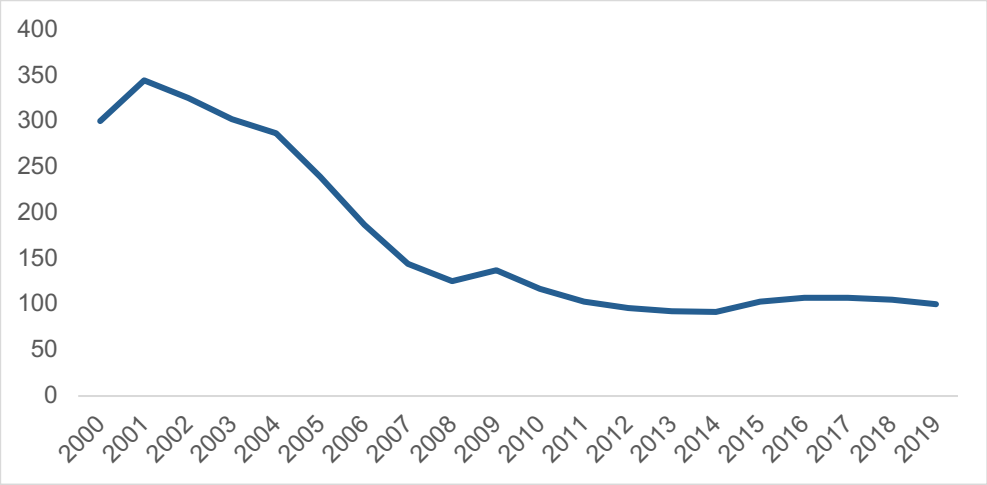
3. **SC1 and SC2: NDC and LTS Alignment**. While the government's updated NDC does not specifically mention pathways for its transport sector, it includes a commitment to reduce GHG emissions in various sectors including transport[59]. The document also outlines the government's ambitious aim to achieve a GHG emissions reduction and avoidance of 75 percent against a projected business-as-usual cumulative economy-wide emission of 3,340.3 MtCO2e within 2020-2030[60]. The latest National Transport Policy[61] notes that transport networks shall continuously adopt technologically responsive and applicable standards for vehicle emissions, as well as promote the use of clean and energy-efficient transport technology/fuels or higher compliant vehicles. The NCCAP 2011-2028[62] also supports a transition to environmentally sustainable transportation through a shift to cleaner alternative fuels, vehicle emission control policies, as well

[58] AIIB; "*Methodology for Assessing the Alignment of AIIB Investment Operations with the Paris Agreement*"; July 2023.
[59] Nationally Determined Contribution. Republic of the Philippines. 15 April 2021.
[60] Nationally Determined Contribution. Republic of the Philippines. 15 April 2021.
[61] National Transport Policy. National Economic and Development Authority of the Republic of the Philippines. 2017.
[62] National Climate Change Action Plan 2011-2028. Climate Change Commission of the Republic of the Philippines. 2010.

as integrated land use and transport planning processes. More recently, the government has approved a temporary zero-tariff policy for electric vehicles in the next 5 years[63] as a manifestation of its prevailing Electric Vehicle Industry Development Act[64]. Against this backdrop, the BCIB Project will not prevent the use of more efficient vehicles. Further, the BCIB Project will support the adoption of electric vehicles through the provision of electric charging stations and solar-powered lights. Thus, the BCIB Project can be considered as not inconsistent with SC1 and SC2.

4. **SC3: LCP Consistency.** Given that an official Philippine-specific LCP for the road sector is not available, a qualitative assessment of the policies and strategies for the decarbonization of the road sector in the Philippines has been carried out, which has been supplemented by a quantitative analysis of the historical trends of CO2 emissions in the transport sector in the country. It has been found that overall, the Philippine government has a plan to decarbonize the road transport fleet as exemplified in the Electric Vehicle Industry Development Act of 2022. The implementation of mitigation actions under the Philippine Urban Mobility Plan will also achieve reductions in accumulated GHG emission. Moreover, the Philippine Development Plan 2023–2028 aims to expand and upgrade transport infrastructure to create a safe, sustainable, resilient, integrated, and modern transport system. A focus is on expanding and improving public high-capacity transportation in urban areas, which will mitigate the inefficiencies and hazards caused by slow-moving jeepneys. The analysis of the historical trends of GHG emissions in the transport sector in Philippines indicates that the carbon intensiveness of the sector has steadily decreased over the last two decades, as captured in the figure below. Based on the arguments provided, it can be determined that the BCIB Project is not inconsistent with the road transport fleet decarbonization pathway of the Philippines. Therefore, the BCIB Project can be considered as not inconsistent with SC3.

Figure A4.1. GHG Emissions (tCO2e) per USD million GDP generated by the Transport Sector in the Philippines



Source: Climate Watch's Climate Analysis Indicator Tool (CAIT).

5. **SC4a: Alternatives Test.** The BCIB Project plays a critical part in the country's overall economic development plan by decongesting the road network around NCR and consequently the Port of Manila, as well as providing an alternative north-south access in Luzon especially for

[63] Executive Order 12, Jan. 13. Marcos OKs temporary zero-tariff policy for e-vehicles, spare parts. Manila Bulletin. 19 January 2023.
[64] Republic Act No. 11697: Electric Vehicle Industry Development Act. 15 April 2022.

Bataan and Cavite provinces to promote competitiveness of industries and the quality of life of residents around the BCIB Project area. The BCIB Project is the lowest-carbon viable option for mobility in the context of Bataan-Cavite, and NCR, compared to other alternatives:

(i) The existing road travel route that could provide access to the same origins and destinations (ODs) is densely urbanized with a congested road network due to lack of land for further development;

(ii) Construction of a railway bridge will be much more costly considering the difficult condition of the natural terrain, and hence will not be economically viable;

(iii) The existing ferry option has the following disadvantages: First, traveling between Bataan and Cavite by ferry will take more than two hours per one-way trip, while it will take just 20 to 30 minutes with BCIB. Second, ferry does not provide seamless connection as a bridge does. Besides its inefficiency, safety is one of the major concerns as the ferry will travel in north-south direction (Bataan-Cavite) while there is already heavy marine traffic in east-west direction (from and to the Port of Manila). Hence, nighttime operation will be impossible. Third, there is no guarantee that travelling by ferry will generate less CO2 than traveling on bridge, as the ferry itself needs to burn fuel. Finally, the BCIB will also serve as an emergency evacuation route for the Bataan and Cavite peoples in case of a natural hazard, and the ferry option cannot provide this service.

Based on the above reasons, this makes the bridge the most efficient choice of transport infrastructure to be constructed to serve current and forecasted traffic demand. In this regard, the BCIB Project can be considered as not inconsistent with SC4a.

6. **SC4b: Lock-in Test.** As a common carrier agnostic to types of motorized vehicles, the BCIB Project is not subject to technological lock-in of a particular type of fleet. The BCIB Project can be considered as future-proofed, as it will be able to accommodate the infrastructure required to enable the deployment of future lower-carbon fleets, once available. The BCIB Project will be designed to allow the future deployment of more energy-efficient public transport fleet, vehicle types, or road operations, as well as other Paris-aligned activities. These measures include (i) following international standards and best practices in its construction to use low-carbon materials (lower carbon concrete and asphalt) and consume less energy (energy-efficient lighting); (ii) integration of renewable energy sources to various aspects of the bridge and approach roads operations such as street lighting, CCTV and digitalized O&M technologies; (iii) providing space for electric-charging infrastructure to accommodate electric vehicles users; and (iv) integrating energy efficiency measures in the Bridge Monitoring and Maintenance Compound (BMMC) and the Tourist Center to comply with green building standards in the Philippines. It is anticipated that road transportation will continue to play a central role in mobility generally (while supporting the transition to lower carbon vehicles) and that roads are not susceptible to becoming stranded assets or at risk from transition from a climate mitigation perspective. The BCIB Project can be considered as not inconsistent with SC4.

7. Climate change mitigation features envisioned in the BCIB Project's design is seen in Table A4.1 below. Total climate mitigation financing under the BCIB Project is USD21.4 million distributed proportionally between ADB (65 percent) and AIIB (35 percent).

Table A4.1: Estimated Mitigation Cost

Mitigation Activity	Estimated GHG Emissions Reduction (tCO2e/year)	Estimated Mitigation Costs ($ million)	Mitigation Finance Justification
Energy efficient lighting	1,152 tCO2e[5]	13.0	To reduce energy consumption where possible, all lighting throughout bridge and accessory buildings will include the use of energy efficient lighting fixtures.
Solar energy and energy efficiency measures in the BMMC and the tourist facilities	283 tCO2e[6]	3.5	As required by the DPWH design criteria, the BMMC and the tourist facilities will adhere to the Philippine Green Building Standards. The cost for BBMC amounts to USD2.3 million, while for the tourist facilities, cost is USD1.2 million. Green building design will include solar panels, extra insulation, rain infiltration process, energy efficient lighting and windows.
Electronic Notification System: Traffic monitoring and alert system	n/a	4.0	The cost associated with digital infrastructure is evenly distributed to both mitigation and adaptation finance, and the half of the cost, amounting to USD4.00 million, is allocated to climate mitigation efforts. It includes the cost for smart transport management infrastructure (bridge health monitoring, sensors and other security items, cameras, optic cables, control room) to ensure the security and safety for bridge users and monitor traffic use for an intelligent transport system related to the bridge O&M requirements.
Installation of electric vehicle charging stations	n/a	0.3[65]	The project will install 6 e-vehicle charging stations for travelers and BCIB staff.
Climate mitigation approaches integrated in O&M manual and capacity training	n/a	0.6	The capacity building and training sessions for relevant BCIB/DPWH staff and the development of O&M plan and manual incorporate climate mitigation and low carbon approach and measures.
Total		**21.4**	

8. **SC5: Economic Viability.** For a mega greenfield project, during the construction phase, GHG emissions will increase primarily due to various equipment, machinery and vehicle, and transporting the main materials. The total GHG emission throughout the 5-year construction period is about 445,200 tCO2 for the BCIB Project. Once the BCIB Project become operational, it will reduce the travel time between Bataan and Cavite to 1.5 hours from the current 5.0 hours, and between Bataan and NCR to 2.5 hours from 4.0 hours. This will help increase the efficiency of fuel combustion, hence reducing GHG emissions in the NCR road network significantly. The net reduction in emissions on account of the Project was estimated be 79,182 tCO2e per year, using a with and without project comparison. By applying the social cost of carbon (USD54.10/tCO2e as of 2023), the economic benefit will be over USD4.28 million per year. The BCIB Project is still economically viable when considering the carbon emissions due to the

[65] This estimate does not include the land value. Each station is estimated at approximately USD30,000 for the station and USD20,000 for utility relocation to bring power to the station. (USD50,000/ station = USD300,000 total for 6 stations).

construction and operation. Therefore, the BCIB Project can be considered as not inconsistent with SC5.

B. PA Alignment in Climate Adaptation (BB2)

9. The Joint MDB methodology for assessing the investment's climate adaptation alignment with the PA consists of the following steps:

(i) *Climate risk and vulnerability assessment.* Identify and assess physical climate risk to determine whether the bridge infrastructure and its users are vulnerable to climate hazards;

(ii) *Climate adaptation and resilience measure definitions.* Propose measures to address the identified physical climate risks and support the delivery of climate-resilient road infrastructure; and

(iii) *Consistency with broader and national context for climate resilience.* Ensure that the road operation is consistent with the policies/strategies/plans for climate adaptation and resilience at the national, regional, local, city, level as considered relevant and/or with private sector or community-driven priorities.

10. **Climate risk and vulnerability assessment.** A comprehensive and detailed climate risk assessment was conducted for the BCIB Project to (i) assess the climate change risks to the BCIB; (ii) assess the adaption measures; (iii) determine to what extent the performance and design of the BCIB is vulnerable to climate change; and (iv) select measures that will improve the climate resilience and low carbon features of BCIB. A review of literature of the sensitivity of major subproject types to specific climate parameters, as well as the DPWH design criteria and adequacy to future climate change to identify gaps, if any, was also carried out. The downscaled historical and projected daily extremes data were used to calculate the projected changes in 24 climate extremes indices for RCP4.5 and RCP8.5, as used by the Department of Science and Technology-Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) and KNMI Climate Change Atlas. The annual extremes were averaged over the 20-year-time periods to come up with the climatological extreme. The projections from RCP4.5 and RCP8.5 scenarios were provided for three time periods: early future (2020–2039), mid-future (2046–2065), and late future (2080–2099).

11. The assessment reveals five key climate risks in the project area, namely: (i) sea level rise; (ii) increase in temperature; (iii) extreme precipitation, flooding; (iv) increase in storm intensity and wind speed; and (v) coastal flooding, erosion, and storm surge. The assessment has considered the possibility of climate change affecting (i) major bridge / viaduct components over the Manila Bay crossing bridge due to increased sea-level rise and storms, scour and increased salinity; (ii) pavement longevity from intense heat; and (iii) safety of the traveling public due to increased intensity of storms and winds overturning or resulting in collisions. The following BCIB structural components have been deemed vulnerable to climate change:

(i) Navigational bridges, which are the main structure that provides the necessary navigation clearance for safe operation of shipping at the project site: sea level rise, storm surge and waves, wind speed increase, tropical typhoons typhoon, increase in temperature.

(ii) Marine viaducts, which are the typical viaduct structures to be constructed above sea water with varying column heights and water depths: sea level rise, storm surge and waves, wind speed increase, tropical typhoons, increase in temperature, coastal scouring.

(iii) Interchanges and viaducts on land, which are viaduct structures to be built on land and will provide the connection to the existing road networks: increase precipitation, river scouring, landslide, tropical typhoons, wind speed increase.

12. **Climate adaptation and resilient measures.** Design measures have been considered to address such climate change risks. These are the following:

a. Sea level rise: Increasing the height of marine bridges.

b. Temperature rise: Using low-carbon concrete and polymer-modified stone mastic asphalt on the approach roads, viaducts and navigation bridges; using steel bridge deck which has many benefits, including the ability to resist high temperatures; tree (re)planting.

c. Extreme precipitation, flooding: early warning system on natural hazards; installing infiltration ditches along roads; constructing slope protection measures on natural slopes and man-made structures; preserving and restoring natural drainages; adapting the Antero Serrano Highway Interchange to the BCIB flood protection design[66]; tree (re)planting.

d. Increase in storm intensity and wind speed: coastal wall protection; wind fairings and shields.

e. Coastal flooding, erosion, and storm surge: nature-based solutions such as vegetated riprap and plantings on the shoreline and installation of non-structural barriers that can provide coastal protection.

13. Climate change adaptation features envisioned in the project design is seen in Table A4.1 below. Total climate adaptation financing under the BCIB Project is USD38.8 million distributed proportionally between ADB (65 percent) and AIIB (35 percent).

Table A4.2: Estimated Adaptation Cost

Adaptation Activity	**Target Climate Risk**	**Estimated Adaptation Costs** (USD million)	**Adaptation Finance Justification**
Counter measures for sea level rise	Sea level rise	24.0	Raising height of bridge by 2 m will counter the long-term threat of sea level rise (1.6 m projection by 2130 including the margin of freeboard).
Using polymer Modified Stone Mastic Asphalt (PMSA)	Extreme high temperatures and heat waves affecting road pavement	2.3	PMSA asphalt lasts longer thus reducing waste of resources and has higher hot-weather tolerance and resistance.

[66]The BCIB and Antero Serrano Highway interchange in Cavite has been redesigned as an adaptation measure to the meet the BCIB requirement of 100-year lifespan. The area is at risk of local flooding due to sea level surges during high storm events.

Electronic notification system: Climate resilient bridge alert system (including ICT devices, early warning system on natural hazards)	Increasing frequency and intensity of storm events, sea level rise, increase in wind speed, increase in temperature, increased precipitation, coastal erosion could affect drivers on exposed bridge areas	4.0	The costs cover installing digital infrastructure (cameras, sensors, electronic notification panels and other security alert items, optic cables, control room) which will link to routine weather event notifications that may trigger bridge closures or advanced warning to ensure safety for users. These facilities will also generate climate mitigation benefits, and this is reflected in the mitigation plans.
Installation of wind fairing and shields	Increasing frequency and intensity of storms events and typhoons	2.4	Fairings are concentrated around the two cable stay bridges to reduce the effect of sudden increase in wind speed around the pylons.
Climate adaptation measures for approach zones including coastal areas	Storm surge and increased intensity of stormwater runoff, increased precipitation, flooding, landslides, and road and coastal erosion	5.5	Nature-based erosion prevention and flood prevention measures include: •Tree (re)planting (USD0.74 m)[67] • Shoreline and benthic habitat restoration (USD1 m) • Establish a long-term support in planning, protecting and enhancing Corregidor Island Park marine and terrestrial habitat preservation (USD2 m) •Nonstructural barriers, such as vegetated earthen berms and boulder rip rap (USD0.83 m) •Protection of stormwater and shoreline including seeded and plantings (e.g., Timalan River) (USD0.2 m) • Elevating and redesigning the Antero Serrano Highway above flood plain for continuous traffic flow (USD0.68 m)
O&M manual and capacity training	All relevant climate risks	0.6	The capacity building and training sessions for relevant BCIB/DPWH staff and the development of O&M plan and manual incorporate climate adaptation approach and measures. The adaptation costs for policy dialogues by BCIB's climate change working group and the decarbonization strategy, expected to be supported by a separate ADB TA, are not considered in this accounting.
Total		**38.8**	

14. **Consistency with Broader and National Context for Climate Resilience.** The BCIB Project is consistent with the national policies and strategies for climate mitigation and adaptation. It is aligned with the government's climate change commitments including the Philippines NDC, which targets substantial reduction of carbon emissions and climate adaptation. It is also aligned with the NCCAP 2011–2028 and the National Transport Policy which prioritize climate proofing, rehabilitation, and improvement in the country's transport infrastructure. Specifically, the BCIB Project contributes to the Philippines' NCCAP 2011-2028 goal to "render infrastructure sector resilient to the escalating impacts of climate change".

[67] Tree replacement mitigation is specified as 100 tree saplings planted for every 1 tree loss to land clearing. Anticipated loss of approximately 1,450 trees, resulting in the replanting of 14,500 trees. This measure also has mitigation co-benefits, but under this CCA, the entire cost is attributed to climate adaptation finance.

Annex 5: Gender Equality

1. The Bank intends to improve the quality and impact of its investments by incorporating gender considerations into projects. It is thus important to capture the potential ways the BCIB Project may address gender inequalities within its scope. This analysis is done by following the methodology outlined in the Bank's Guideline on Gender Equality Annex (GEA) for Transport Projects, which consists of 3 parts:

(i) *Gender Assessment (GA)*: an empirical assessment to obtain a practical understanding of the BCIB Project's gender equality context in respect to the country and/or (sub)sector it operates in; as well as to identify addressable gender inequalities within the Project's scope.

(ii) *Gender Action Plan (GAP)*: a set of specific activities that will be executed to improve the BCIB Project's gender equality outcome, in respect to the identified addressable gender inequalities. It is organized around the 4 common project phases: engagement, engineering design, construction, and operations.

(iii) *Gender Indicators (GI)*: a set of simple, measurable, time-specific, and gender-disaggregated indicators that relate to activities in the GAP either directly or indirectly, but not necessarily in an exhaustive manner.

2. The purpose of this GEA is to improve the BCIB Project's design and impact for its stakeholder gender groups. It is not meant to diagnose preexisting gender inequalities in the country or sector, nor should it aim to solve problems of a national or societal nature.

3. Since the BCIB Project is categorized as effective gender mainstreaming, ADB has prepared a GAAP. The GAAP outlines measures to safeguard project-affected communities from unintended Project associated risks while paying attention to vulnerable populations such as women, children, the elderly, those who identify as lesbian, gay, bisexual, and transgender (LGBT); and persons living with disabilities as well as extreme poverty. Alongside protective measures, actions that contribute towards achieving strategic goals on gender equality, women empowerment, and social inclusion will be initiated. Additionally, the BCIB Project will invest in strengthening institutional capacity of the DPWH to mainstream gender in its operations. Accordingly, this analysis will refer to the GAAP.

A. Gender Assessment (GA)

4. **Country-level indicators.** The Philippines, home to around 54.55 million women,[68] performs above the global average and most of Southeast Asia in the three widely used gender indicators: the United Nations' (UN) Gender Inequality Index (GIII)[69], UN's Gender Development Indicator (GDI)[70], and the World Economic Forum Global Gender Gap Index (GGI):[71]

[68] World Economic Forum. 2022.
[69] United Nations Development Programme. 2022.
[70] GDI is based on the dimensions of (i) life expectancy at birth; (ii) expected years of schooling; and (iii) estimated earned income. A high GDI value indicates low inequality between men and women, and vice-versa. United Nations Development Programme. 2022
[71] GGI is based on the dimensions of (i) economic participation and opportunity; (ii) educational attainment; (iii) political empowerment; and (iv) health and survival. A high GGI value indicates low inequality between men and women, and vice-versa. World Economic Forum. 2022.

(i) The GII reflects losses in potential human development due to gender inequalities across the dimensions of (i) female reproductive health; (ii) empowerment in education and politics; and (iii) labor market participation. A high GII value indicates high inequality between men and women, and vice-versa. In 2021, The Philippines received a GII score of 0.419, ranking above the world average of 0.465 but below many of its Southeast Asian peers including Thailand, Viet Nam, Brunei, Malaysia, and Singapore. [72]

(ii) The GDI is a reference on the (dis)advantage of women against men[73] in terms of achievement across the basic human development dimensions: (i) life expectancy; (ii) years of schooling; and (iii) earned income. A high GDI value indicates low inequality between men and women, and vice-versa. In 2021, the Philippines received a GDI score of 0.990, ranking above the world average of 0.958 and most of its Southeast Asian peers except Thailand, Viet Nam, and Singapore.[74]

(iii) The GGI assesses countries' distribution of resources and opportunities between genders based on outcomes of the key dimensions: (i) economic participation and opportunity; (ii) educational attainment; (iii) political empowerment; and (iv) health and survival. A high GGI value indicates low inequality between men and women, and vice-versa. In 2022, the Philippines received a GGI score of 0.783, ranking 19th in the world, higher than all its Southeast Asian peers, and second highest after New Zealand within East Asia and the Pacific.[75]

5. **Legislation and policies.** The Constitution of the Philippines specifies that the State "recognizes the role of women in nation building and shall ensure the fundamental equality before the law of women and men".[76] The Philippines was the first Southeast Asian country to ratify the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) in 1981.[77] It also ratified CEDAW's Optional Protocol in 2003, participated in the Beijing Platform for Action (BPFA) in 1995,[78] and committed to the Sustainable Development Goals (SDGs) in 2015.[79]

6. Although Filipino women are still significantly underrepresented in politics with at least twice the number of men compared to women holding positions in the public sector[80] and men disproportionally holding higher-level decision-making positions,[81] the Philippines have made substantial progress in promoting gender equality in recent years through a multitude of legislative schemes. The most notable is the Magna Carta of Women (Republic Act No. 9710),[82] a comprehensive women's human rights law enacted in 2009 with the aim of eliminating discrimination against Filipino women by promoting and protecting their rights in all aspects of life including the workplace, education, and political participation, through appropriate plans, policies, and mechanisms. The law also established the Philippines Commission on Women (PCW) as the primary policymaking and coordinating body on women and gender equality concerns, as well as the supervisor of the Magna Carta of Women's implementation.[83] The PCW's Gender Equality

[72] United Nations Development Programme. 2022.
[73] Gender Development Index & Gender Inequality Index. Liberato, T. 2021.
[74] United Nations Development Programme. 2022
[75] World Economic Forum. 2022.
[76] The Constitution of the Republic of the Philippines, article II section 14. The Republic of the Philippines. 1987.
[77] Convention on the Elimination of all Forms of Discrimination. The Philippine Commission on Women. 2023.
[78] Beijing Platform for Action. The Philippine Commission on Women. 2023.
[79] Achieving Sustainable Development. Serrano I. for Social Watch. 2016.
[80] World Economic Forum. 2022.
[81] Country Gender Action Plan FY 20-24. The World Bank Group in the Philippines. 2021.
[82] Republic Act No. 9710. The Republic of the Philippines. 2009.
[83] Herstory. The Philippine Commission on Women. 2023.

and Women's Empowerment (GEWE) Plan 2019-2025 serves as a key strategic reference for government agencies' Gender and Development plans and budgets.[84]

7. The World Bank Women, Business and Law Index indicates that the Philippines has little to no legal barriers for women to obtain employment, equal pay, and entrepreneurship opportunities.[85] Several laws addressing gender equality and women protection in the workplace are outlined in the following table:

The Philippines' Regulations on Gender Equality at the Workplace

Republic Act No. 7877 (1995) / "Anti-Sexual Harassment Act"	prohibits sexual harassment in the workplace, education or training environment and provides for the administrative and criminal sanctions for the commission of sexual harassment
Republic Act No. 9262 / "Anti-Violence Against Women and Their Children Act"	provides protection and remedies for victims of violence against women and their children, including physical, sexual, psychological, and economic abuse
Republic Act No. 10354 (2012) / "Reproductive Health Act"	establishes that pregnancy or the number of children shall not be grounds for non-hiring or termination from employment
Republic Act NO. 10151 / "Night Workers Act"	repeals provisions of the Labour Code which prohibited women from working from 10pm-6am, and ensures that alternatives to night work is available to women before and after childbirth, also that they will not lose their status, seniority, or access to promotion
Republic Act No. 11210 / "Expanded Maternity Leave Law"	increases the number of days of maternity leave for working mothers from 60 days to 105 days and allows them to extend their leave up to 30 days without pay
Republic Act No. 8282 / "Social Security Law"	ensures that eligible female employees receive 100% of her average salary for 60-78 days as a daily maternity benefit, regardless of marriage status
Republic Act No. 8972 / "Solo Parents' Welfare Act"	provides benefits and privileges to solo parents and their children, including flexible work arrangements, educational assistance, and housing benefits
Department Order No. 174 (2019) issued by the Department of Labor and Employment	requires employers to provide flexible working arrangements to their employees, including part-time work, telecommuting, and flexible hours, in order to help them balance their work and family responsibilities

8. **Existing gender-specific behaviors and/or challenges.** Despite its progressive legislative landscape, the Philippines is still a patriarchal society emphasizing male dominance in social institutions,[86] and the sociocultural landscape still lags.[87]

9. In terms of education, statistics indicate that Filipino women are more educated than men, but less likely to participate in the labor force. Although there is now a larger share of boys than girls in the Philippines' growing numbers of primary education enrollment, the reverse is still true for secondary and tertiary education.[88] Yet while the labor force has almost 50 percent more men

[84] Gender Equality and Women Empowerment Plan. The Philippine Commission on Women. 2023.
[85] Women, Business and the Law 2022 Report. World Bank. March 2022.
[86] Special issue on gender and populism in the Philippines. Review of Women's Studies. University of the Philippines Center for Women's and Gender Studies. 2020.
[87] Violence against women in the Philippines: barriers to seeking support. 2 May 2022.
[88] World Economic Forum. 2022.

than women, only around 40 percent of women are employed compared to 60 percent of men.[89] This is because of cultural beliefs that women are responsible for managing and budgeting for the household while also maintaining their jobs.[90] Most Filipinos also believe that childcare should be provided by family members, preferably their mothers.[91]

10. In terms of economic participation, women operate around one-third of businesses in the Philippines.[92] However, they are overrepresented in tourism and retail services, with at least 3.5 million women working in the informal economy, being among the hardest sectors hit by the pandemic.[93] On the other hand, men are 3 times more likely to be employed in engineering, manufacturing, and construction than women.[94] 10 percent of Filipino women are employed without pay in family-owned business as domestic workers, compared to only 4 percent of men.[95] Women are also more likely to take part-time work and earn on average USD26,900 lower annually compared to men,[96] exposing them to economic abuse and domestic violence.[97] Prostitution is a common resort for women living in poverty and job insecurity.[98] Nationwide, 3 out of 5 unpaid family workers were women and women's jobs were concentrated in the service and sales industry where income was low, and mainly characterized as informal employment where they were without social security benefits.

11. In terms of marital and sexual affairs, Filipino women are notably more disadvantaged than men. One in four Filipino women have experienced gender-based violence, with 40 percent not seeking help[99] due to prevalent victim-blaming culture.[100]

12. In terms of transportation, Filipino women spend on average 10-20 percent more than men due to their daily tasks which requires frequent switching between different transport modes and making many stops in a single trip.[101]

13. **Stakeholder engagement with the PAPs.** DPWH, with the assistance of DED consultants, carried out a total of 19 consultation activities in Bataan and Cavite from September 2021 to June 2022. These consultations were attended by 315 individuals comprising 181 females (57 percent) and 134 males (43 percent). Consultations were in the form of information, education, and communication campaigns on EIA (7 consultations), consultation meetings with representatives of women and LGBT-focused organizations (2), stakeholder consultation meetings with the PAPs including the non-residing landowners (6), and FGDs with business and vulnerable sectors (4). Further, the consultant surveyed 240 PAPs (households, institutions, and business owners) in Mariveles, Bataan, and Naic, Cavite. Face-to-face and online are the modes

[89] World Economic Forum. 2022.
[90] Doctor to the Barrios, Experiences with the Philippine Reconstruction Movement, Chapter 10: Family Planning in the Barrios. Flavier, Juan Martin. New Day Publishers (1970/2007), p. 157, ISBN 971-10-0663-4.
[91] Overcoming barriers to women's work in the Philippines. World Bank Blogs. 11 April 2022.
[92] Philippines Women in Culture, Business & Travel: A Profile of Filipino Women in the Fabric of Society. World Trade Press, Inc. 2010.
[93] Women Empowerment in the Philippines. Manila Bulletin. 20 March 2022.
[94] World Economic Forum. 2022.
[95] Overcoming barriers to women's work in the Philippines. World Bank Blogs. 11 April 2022.
[96] World Economic Forum. 2022.
[97] Restoring and empowering traumatized girls in a Philippines-based independent living program: an exploratory study. Voith and Blakey. J Child Adolesc Trauma. 2016.
[98] Commission on Human Rights. Gender ombud situationer for 2nd and 3rd Quarter: Gendered impact of the pandemic and the need for gendered and intersectional responses. 2021.
[99] Philippines National Demographic and Health Survey. Philippine Statistics Authority. 2017.
[100] Special issue on gender and populism in the Philippines. Review of Women's Studies. University of the Philippines Center for Women's and Gender Studies. 2020.
[101] Beyond Access: Gender and Transport Justice in Davao City, Philippines. Rivera. 2021.

used in carrying out consultations due to COVID-19 restrictions. Civil society organizations also participated in the consultation meetings. For example, organizations of women and LGBTQIs were engaged through the gender focal points of the Mariveles and Naic local governments, including grassroot women's groups being supported by local social welfare and development programs.

14. **Gender Issues faced by the Affected Population.** Key issues identified during these consultations include:

(i) **Low female labor force participation rate.** In the project-affected barangays of Naic, Cavite, female labor force participation rate (32 percent in Timalan Concepcion, and 34 percent in Timalan Balsahan) was significantly lower than the national average of 55.1 percent.

(ii) **High poverty incidence.** An assessment by the Department of Social Welfare and Development in 2016 revealed that Barangay Alas Asin in Mariveles, Bataan, was among the top five barangays in Bataan province that had the highest number of poor households without electricity (74 households) and safe water source (148 households). This barangay also houses the biggest number of vulnerable persons: women (709), PWD (34) and those without occupation (457).

(iii) **Low asset ownership.** A socio-economic survey of households directly affected by the BCIB Project revealed that more than half (54 percent, n=83) earned a monthly income of less than P20,000. The same study showed Timalan Balsahan in Naic, Cavite hosting the biggest share of families (29 percent) belonging to the lowest monthly income bracket of P10,000 or less, followed with a far second by Timalan Concepcion, Naic (14 percent) and Alas Asin, Mariveles (6 percent). Only half (56 percent) of the affected persons owned the land they were occupying, the rest were either renters, caretakers, or unauthorized occupants. Only 1 for every 4 landowners is a woman, and only 1 out of 4 (26 percent) of the household structure was solely owned by a woman. The next high-value asset of households, a motorcycle or tricycle was owned by a male in most instances (75 percent).

(iv) **High perceived barriers to entry for job opportunities.** Consultations with affected communities exposed women's desire to enter occupations and how these were impeded by their lack of knowledge and skills, confidence, network and financing; and gender role expectations (i.e., care work for children, elderly, and PWDs). Women's interest in non-traditional occupations being better paying jobs was dampened by concerns on sexual harassment and gender stereotyping in training, and gender-based discrimination in hiring and wage pay. The same barriers explain undersubscription by females of TESDA courses on electrical, welding, pipefitting, heavy equipment operation training in Bataan province, where male enrollees and completers consistently dominated in the period 2012-2021. The LGBTQI and the elderly representatives added their apprehension about contractors' discrimination in hiring, promotion, and wage determination.

(v) **Weak meaningful participation in decision-making and voice.** Decision making at home are male-dominated. Out of the 240 directly affected households surveyed in project affected communities, 63 percent was male headed and only one in every three (34 percent, n=81) was female headed. Also, women face threats to security while protection services against gender-based violence are inadequate. In Naic (Cavite), rape was among the top three occurring crimes, next only to theft and robbery. Between 2016 and 2021, the highest number of complaints

recorded by the Mariveles (Bataan) police were physical abuse and rape of women and children. While the Philippine National Police of Mariveles operates a Women and Children's Desk, it is understaffed and needs (re)training to comply with the standards of the law and universally accepted protocols for case handling. Women and children, especially students using the road will be at greater exposure to the risk of GBV and project-personnel perpetrated-SEAH.

(vi) **Higher likelihood of road safety risks and lack of consideration for needs of vulnerable people in infrastructure design.** Once the BCIB is completed, pedestrians who are mostly community women and children, will contend with road risks from fast moving and heavy-duty vehicles traversing the bridge's connecting roads. The Accessibility Law for PWDs is poorly implemented, thus transportation infrastructure design is often lacking safety and convenience features for the differently abled, elderly, women, and children.

(vii) **Higher risks of HIV-AIDS in project sites.** Officials in Mariveles and Naic expressed concerns about the increasing incidence of teenage pregnancies and HIV-AIDS cases. The Provincial Health office of Bataan reported 522 active cases of HIV AIDS in July 2021, with 79 or 15 percent of them in Mariveles. These health concerns which disproportionately affect women and children may intensify with the influx of project migrant labor.

(viii) **Weak gender disaggregated data.** Systematic collection and analysis of sex-disaggregated data needs improvement if it is to report implementation results of DPWH Department Order 2016-130 which requires 20 percent of skilled and unskilled jobs in civil works to be allocated to women. DPWH personnel, which is composed of 73 percent males and 27 percent females need knowledge and skills upgrading if they are expected to mainstream climate change innovations and gender equality and social inclusion strategies in projects. The discourse and organized actions that could propel policy support, financing and stakeholder partnerships towards gender responsive approaches to infrastructure development, construction and maintenance have yet to be strengthened.

(ix) **Adverse impacts during construction.** Construction may add to exposure of women, especially pregnant women; children, the elderly, those chronically ill, and other vulnerable members of the community to noise, air, and water pollution, increasing risks to their health. Female oyster growers in Timalan Balsahan expressed great concern over the effects of offshore construction to the water quality of the river estuary where their nurseries are located.

B. Gender Assessment and Action Plan (GAAP)

15. The proposed GAAP recommends 17 activities, and these can be group into the following project cycle categories: stakeholder engagement, engineering design, construction, and O&M.

16. **Stakeholder Engagement.** To ensure that the stakeholder engagement process considers all relevant gender groups' opinions, the following activities are proposed:

(i) Implementation of four Participatory Road Safety Audit Workshops in which at least 50 percent of participants (n=60) are community women. The workshop will identify road risks at construction and post-construction (1 for each affected barangay).

(ii) At least 50 women of directly-affected households (25 Bataan, 25 Cavite) provided with livelihood training (Baseline=0).

17. In addition, the BCIB Project will ensure equitable gender representation in public consultations and conduct focus group discussion and interviews with women who are direct beneficiaries of activities supported by the project as well as women in households directly affected by construction activities and resettlement (if any) to obtain both quantitative and qualitative data.

18. **Engineering Design.** The design of the BCIB Project will include gender responsive and socially inclusive infrastructure design features that are incorporated into (i) the approach roads and associated service areas; as well as at (ii) the tourist center/rest stop areas. These features include, where applicable, physical installations to ensure safe crossings and loading/unloading areas especially for public transportation users, wheelchair access ramps, safety railings, sufficient lighting, wide sidewalks, adequate resting spots , separate and secure toilets for males/females/all-gender/PWDs, and other universal design elements; as well as systems or operational policies that guarantee gender-fair rights and entitlements to employees, affected communities, and the infrastructure users.

19. **Construction Phase.** The proposed gender-specific actions applicable to the construction phase of the Project include:

(i) At least 100 (50 Cavite, 50 Bataan) women trained in skills applicable to bridge construction, operations and maintenance (Baseline=0).

(ii) At least 20 percent of skilled and unskilled labor force are hired by Contractors during Project construction are women and shall receive equal pay for equal work. The 20 percent requirement is based on DPWH Department Order 2016-130.

(iii) At least 100 local leaders and contractors receive awareness raising training (4 batches) on sexual exploitation, abuse and harassment (SEAH).

(iv) Implementation of a management plan on Sexually Transmitted Diseases (STD), HIV-AIDS, and Trafficking in Persons (TIP), intensifying community education and requiring contractor enforcement of an employee Code of Conduct, and a protocol for STD and HIV-AIDS testing and referral services.

(v) Implementation of a Conference Workshop on Strengthening Women's Participation in the Construction Industry.

20. In addition, to mitigate the impacts of pollution from construction (which affects women and the vulnerable), contractors will be monitored for their compliance to environmental, health and safety standards. Disruption and hazards to road users during construction will be modulated by a traffic plan and a participatory road safety audit.

21. **O&M.** The proposed gender-specific actions during O&M include the following:

(i) Gender responsive and socially inclusive O&M plan and manual developed.

(ii) At least 20 percent of members in the project multipartite monitoring committee are female.

(iii) O&M concessionaires/bridge operators commits to hire at least 30 percent females in management and staff positions (separately) and employ senior citizens, PWDs, and other vulnerable groups.

(iv) 100 key local government officers of Cavite and Bataan (at least 50 percent female) with improved capacity for monitoring sustainable business practices and gender responsive and socially inclusive tourist center (rest stop) operations.

(v) An MOA between the DPWH and the local government unit (LGU) will be prepared to allow turnover of the tourist center (rest stop). The LGU will require the operator to allocate: (i) at least 50 percent of employment opportunities to females; (ii) at least 50 percent economic/business opportunities to females, especially women from households with incomes falling below the poverty line; and (iii) employment to senior citizens, PWDs, IPs and other vulnerable groups.

(vi) Capacity building of LGU-recruited staff on tourist center operations (at least 50 percent of the trainees will be women).

(vii) Training of 180 DPWH staff (90 males, 90 females) from the DPWH Bridge Management Cluster (UPMO), RO and DEO of Regions III and IV-A on the operations and maintenance of the BCIB and on incorporating climate change adaptation features in bridge design.

(viii) Sex-disaggregated data collected from progress reports are consolidated, digitized, and published in the DPWH website.

22. **Gender Indicators.** The BCIB Project has adopted six gender-related indicators during the design and O&M phases. These include:

- Integration of gender responsive and socially inclusive features in 8 km approach roads and access ramps;
- Integration of gender responsive and socially inclusive features as part of the O&M plan and manual for BCIB;
- At least 50 percent females employed in bridge operations by O&M concessionaires/operators;
- Integration of gender responsive and socially inclusive features in the tourist center (rest stop);
- Key local government officials (at least 50 percent females) have improved awareness and capacity for environmentally sustainable and gender-responsive and socially inclusive tourist support operations; and
- Tourist center management and staff (at least 50 percent are female) are engaged and trained.

23. **Implementation Period.** The GAAP will be implemented simultaneously during the BCIB Project's duration of six years. The direct cost of implementing the GAAP is PHP19.4572 million (USD353,767). A greater proportion (67 percent) of this amount is allotted to hiring a GAAP

implementation consultant team for six years, while the rest of the cost is spread across capacity building and knowledge management commitments. The Consultant firm will also be in charge of monitoring the parallel implementation of the Management Plan on Mitigating Sexually Transmitted Diseases (STD), HIV-AIDS, and Trafficking in Persons (TIP) which is funded by a separate budget of PHP2.27 million (USD41,273).[102]

24. **Monitoring and Reporting.** Quarterly and annual status reports on the GAAP implementation will be prepared by the GAAP implementation team and submitted to the supervising contractor, who shall review and turn over reports to the DPWH for review and approval. Timing of GAAP milestone reports to DPWH and ADB/AIIB shall coincide with the project monitoring schedule.

[102] Note that the said amounts do not yet include the cost of setting up the gender-responsive design features (mostly physical infrastructure), which will be counted as part of the cost of civil works and kept track of for attribution when accounting for the total amount disbursed for gender mainstreaming. The supervising contractor should ensure that gender mainstreaming-related spending under the civil works budget are identified and summed up in the annual and end-of-project financial reports.

Annex 6: Member and Sector Context

A. Country context

1. The Philippines presented a solid economic performance with an average annual economic growth rate of 6.4 percent from 2010 to 2019. This high economic growth contributed to nationwide improvements in livelihood, education, and health. Due to the impact of the pandemic, the GDP contracted by 9.5 percent in 2020. As domestic demand and private investment recover, economic growth accelerated to 5.7 percent in 2021 and 7.6 percent in 2022, In 2023, the economy is estimated to expand by 5.3 percent, outperforming its ASEAN peers.

2. For the past three decades, structural transformation and sustained economic growth have rapidly helped reduce poverty. The national poverty rate plunged from 49.2 percent in 1985 to 16.7 percent in 2018. The poverty rate was projected to increase to 21.9 percent in 2020, as the pandemic reversed the progress. In response, the government implemented the Bayanihan to Heal as One Act and the Bayanihan to Recover as One Act. As the economy regains momentum and more jobs are expected to spur growth in household incomes, poverty incidence is projected to reduce to 13.5 percent in 2023 and further to 10.5 percent in 2025.[103] However, these projections could be tempered by high inflation especially as higher food and energy prices can offset the increase in household incomes especially among poor households. To address the inflation threat, The Interagency Committee on Inflation and Market Outlook was created in 2023.[104]

3. The unemployment rate has remained low compared to its ASEAN peers. It increased from 2.2 percent in 2019 to a peak of 17.7 percent in Q2 of 2020 before declining to 5 percent in September 2022 and 4.7 percent in March 2023. Youth unemployment also dropped from 11.5 percent to 10.2 percent during the same period. While new jobs have been created, they have primarily been in the agriculture and services sectors. Jobs in the electricity, gas, steam, and air conditioning industries grew by almost 64 percent between September 2022 and March 2023, in line with the 2022 investments in those sub-sectors.[105] Yet, job losses came from a slowdown in industrial activity, with manufacturing losing about 1 million jobs due to supply chain issues related to higher costs and weather disturbances.[106] In addition, low-quality jobs are on the rise, even surpassing the pre-pandemic levels, indicating growth in the informal labor market and shift to low-productivity jobs. Job losses in the formal labor market during the pandemic and interest in flexible work arrangements may have contributed to the increase in low-quality jobs.

4. Inequality was on the rise as the economy grew but is better than ASEAN peers. Based on pre-tax income data,[107] the Gini coefficient rose from 60.5 percent in 1980 to 65.3 percent in 1997, then headed down steadily to 57.5 percent in 2018. In contrast, during the same period, the Gini coefficient increased from 54 to 60.3 percent in Indonesia and from 58.2 to 60.6 percent

[103] World Bank (2023) Philippines Economic Update: Securing a clean energy future.
[104] This advisory body convened in March 2023 is cochaired by NEDA and DOF with DBM as vice chair and the line agencies DA, DTI, DOE, DOST and DILG as members. The committee functions as an advisory body on strategies to alleviate inflation and ensure food and energy security, while balancing the interests of domestic food producers, consumers, and the broader economy.
[105] Philippine Statistics Authority, 2023, Approved Investment, Fourth Quarter 2022, February 15.
[106] A. Yraola, 2023, Manufacturing growth cools in Dec., Business World, February 10.
[107] World Inequality Database. WID pre-tax income statistics are the sum of all pre-tax personal income flows accruing to the owners of the production factors, labor, and capital before considering the operation of the tax/transfer system but after considering the pension system operation.

in Lao PDR. AmBisyon Natin 2040 outlines the policy priorities for delivering equitable transformation, increasing growth, and building sound foundations for sustainable development. It addresses geographic and socioeconomic inequality and expands equitable access to economic opportunities.

5. Weak infrastructure has been a major constraint to economic growth and poverty reduction in the Philippines. The Philippines needs an infrastructure investment of around USD498 billion between 2016 and 2040, with an investment gap of USD69 billion.[108] Infrastructure development will remain on the government's agenda, although public spending is expected to decline considerably to support the government's medium-term fiscal consolidation agenda. Infrastructure remains a key government priority under the "Build, Better, More" program. The Department of Public Works and Highways is set to receive the largest share of the budget (13.6 percent), despite a 9 percent decrease in its proposed budget. To support the implementation of major railway, airport, and road programs, the Department of Transportation's proposed budget is expected to more than double in 2023, accounting for 3.2 percent of the proposed budget.

B. Sector and Institutional context

6. The area surrounding Philippines' capital Manila has seen large population growth and expansion in recent decades. The definition of the area known as Metro Manila has been expanded to what is now known as the Mega Manila Urban Region, which includes nearby surrounding cities and towns. The 2020 census estimates the population of the region to be approximately 41 million people, or 38.6 percent of the country's total population.

7. As a result of under-regulated planning, cities in the Metro Manila area have seen unplanned urban development, resulting in poor transport network coverage. The GoP has recently been elaborating and updating a number of relevant planning documents. The Philippine Transportation System Master Plan (PTSMP) for 2017-2022 requires an update and the Philippine Development Plan for 2023-2028 calls for developing a National Transport Master Plan. The latter is to be prepared by the NEDA. The Roadmap for Transport Infrastructure Development for Metro Manila and Its Surrounding Areas of 2014[109] provides for a development plan for the Metro Manila area and includes project prioritization. As of August 2023, the GoP is working to develop a rail master plan for the Metro Manila region. The need to provide interconnection between the Bataan and Cavite provinces has been identified repeatedly in various planning documents.

8. DPWH maintains a list of priority projects and annual expenditure, which is updated annually.[110] The Department has identified several priority projects, including a set of bridges, known as the inter-island linkage / mega bridge program.[111]

C. Institutional Context.

9. NEDA is the country's main planning body, responsible for long-term planning and economic development in various sectors. It is responsible for developing high-level planning

[108] Global Infrastructure Outlook (2017) Oxford Economics and Global Infrastructure Hub.
[109] Roadmap for Transport Infrastructure Development for Metro Manila, 2014
[110] https://www.dpwh.gov.ph/dpwh/GAA/annual-infrastructure-program/year/2023
[111] Post-State of the Nation Address (SONA) Economic Briefing on Infrastructure, DPWH, 2022

documents and approving funding for high-profile projects that cross provincial lines.

10. The Department of Transport (DOTr), formerly the Department of Transport and Communications (DOTC) is responsible for promoting, managing, expanding and regulating various forms of transport in the country.

11. The Department of Environment and Natural Resources (DENR) is the government department responsible for leading work on climate change.

12. DPWH is the main department responsible for engineering and construction of bridges and highways, including developing standards and codes for planning and construction.

13. The Department of Human Settlements and Urban Development (DHSUD) is responsible for managing land use, housing and related development in the Philippines, including urban expansion. This department sets policies on various urban issues.

14. The Bataan Provincial Planning and Development Office is responsible for implementing national policies at the regional level, monitor programs and projects as well as act as the secretariat for the provincial development council.

15. The Cavite Office of the Provincial Planning and Development Coordinator is responsible for implementing national policies at the regional level, monitor programs and projects as well as act as the secretariat for the provincial development council.

Annex 7: Sovereign Credit Fact Sheet

A. Recent Economic Development

1. The Philippines is a lower-middle-income country with a GDP per capita of USD 3,498.5 and a population of 115.6 million.[112] It was one of the fastest-growing economies in the region before the pandemic. The economy grew at 6.1 percent in 2019, then it contracted sharply by 9.5 percent in 2020. The GDP growth rebounded to 5.7 percent in 2021 and accelerated further to 7.6 percent in 2022, underpinned by strong domestic demand and private investment, sustained reforms, and disciplined macroeconomic policies. In 2023, the growth is estimated to slow to 5.3 percent as weaker global conditions weigh on manufacturing and merchandise exports but anchored on high employment levels, acceleration of tourism, and increasing investment registration activities.

2. Inflation was stable at 2.4 percent between 2019 and 2020, accompanied by high unemployment, low consumer confidence, and declining remittances. Inflation increased to 3.9 percent in 2021 because of increased food prices and the global pandemic-induced supply shocks. In 2022, the situation worsened, and inflation increased sharply to 5.8 percent, surpassing the upper band of the official target band of 2-4 percent. To anchor inflation within the target, the BSP decided to increase the key policy rate to 3.75 percent by the end of 2022 and another 75 bps since January 2023.[113] As a result of the effort, 2023 inflation is estimated to remain the same as 2022.

3. Because of weak domestic demand and import compression, the current account balance improved from a deficit of 0.8 percent of GDP in 2019 to a surplus of 3.2 in 2020. In 2021, the balance turned back to a deficit of 1.5 percent of GDP. Then, the deficit widened to 4.5 percent of GDP in 2022, as imports rebounded and domestic demand recovered under the high inflation environment. In 2023, the current account deficit shrinks to 3 percent of GDP resulting from higher remittances, the issuance of global bond and other inflows of foreign investment.

4. Before 2020, the fiscal deficit, although increasing over time, had remained low at less than 1.5 percent of GDP. During the pandemic, the fiscal deficit jumped to 5.5 percent in 2020 and further to 6.2 percent in 2021, amid declining tax revenues and increasing health expenditures. As the situation improved in the second half of 2022, the fiscal deficit reduced slightly to 5.5 percent of GDP in 2022 and is estimated to decrease to 4.8 percent in 2023. Accompanied by the change in fiscal balance, public debt surged from 37 percent of GDP in 2019 to 57.5 in 2022 and is estimated to be 57.6 in 2023, which is within the government cap of 60 percent of GDP. External debt increased from 22.2 percent of GDP in 2019 to 27.2 in 2020 and remained stable, albeit on a slight declining trend, since 2021. In 2023, the external debt is estimated at 26.4 percent of GDP. As a result, international reserves dropped from USD110.1 billion by end-2020 to USD99 billion by July 2023, and the Philippines peso depreciated by 6 percent since October 2020.

B. Economic Indicators

Economic Indicators	2019	2020	2021	2022*	2023*	2024*	2025*
Real GDP growth (% change)	6.1	-9.5	5.7	7.6	5.3	5.9	6.1

[112] World Bank's World Development Indicators for the Philippines in 2022.
[113] Philippines Economic Updates Vol.3-2023, August 2023

CPI Inflation (average, % change)	2.4	2.4	3.9	5.8	5.8	3.2	3.0
Current account balance (% of GDP)	-0.8	3.2	-1.5	-4.5	-3.0	-2.6	-2.1
General government overall balance (% of GDP)	-1.5	-5.5	-6.2	-5.5	-4.8	-4.3	-3.9
General government gross debt (% of GDP)	37.0	51.6	57.0	57.5	57.6	57.7	57.4
Public gross financing needs (% of GDP) 1/	5.4	9.8	10.4	10.5	10.3	9.5	9.0
External debt (% of GDP) 1/	22.2	27.2	27.0	26.6	26.4	25.8	25.3
Gross external financing need (% of GDP) 1/	6.6	2.9	6.9	10.2	9.1	8.4	7.7
Gross international reserves (USD bill.) 2/	87.8	110.1	108.8	96.1	99.9	..	..
Exchange rate (LCU/USD, EOP) 3/	50.65	48.01	50.99	55.67	56.81	..	..

Data source: IMF World Economic Outlook (October 2023 Edition), unless otherwise stated.

Notes: * denotes projected values. 1/ IMF Country Report No. 22/369. 2/ IMF International Financial Statistics Sept. 18th, 2023. 3/ FX data retrieved from Refinitiv as of Sept. 25th, 2023.

C. Economic Outlook and Risks

6. The Philippines' GDP growth is estimated to moderate to 5.9 percent in 2024, 6.1 percent in 2025, and remain at this level in the medium term.[114] From the supply side, the post-pandemic recovery will drive services and industry growth. On the expenditure side, private consumption growth is expected to remain robust in the medium term, supported by recovering employment, improving consumer sentiment, a reduction of personal income tax rates, and a steady inflow of remittances.

7. Inflation is expected to fall back to the target range in the medium term as the BSP adjusts its policy rate and the authorities resolve domestic food supply challenges. The current account balance will continue to narrow over the medium term, amid the recovery in services exports, steady remittance inflows, and lower global commodity prices.

8. Fiscal deficit is expected to narrow to 3.9 percent of GDP in 2025, contingent on the successful implementation of the government's medium term fiscal consolidation agenda. The combination of fiscal consolidation and the growth recovery will keep debt levels sustainable over the medium-term. The public debt is projected to remain stable at around 57 percent of GDP, which is below the 60 percent official cap. Still, it is considered sustainable and manageable because of the stable debt composition and low shares of foreign currency-denominated debt.

9. External debt appears sustainable and resilient to interest rates and growth shocks. It is projected to remain stable at around 26 percent of GDP in the medium term. The external risks come from peso depreciation, which would raise external debt as a percentage of GDP or consumption of the international reserve. Accordingly, external financing needs will return to pre-pandemic levels in the medium term.

10. The downside risks, which include a globally larger-than-expected tightening of financial conditions, a worse-than-anticipated slowdown in China, persistently high domestic inflation, and various natural disasters, will likely materialize. Policy trade-offs between protecting output and curbing inflation will become increasingly acute.

11. Fitch revised the Philippines' outlook from negative to stable and affirmed at BBB in May 2023. S&P maintained its rating of BBB+ with a stable outlook for the Philippines in November 2022. Moody's maintained a Baa2 rating and stable outlook in September 2022.

[114] With continued recovery and reform efforts, the country is getting back on track on its way from a lower middle-income country with a gross national income per capita of US$3,640 in 2021 to an upper middle-income country (per capita income range of US$4,256-US$13,205) in the short term.