

Ex-Ante Evaluation (for Japanese ODA Loan)

1. Name of the Project

Country: The People's Republic of Bangladesh

Project: Hazrat Shahjalal International Airport Expansion Project (I)

Loan Agreement: June 29, 2017

Loan Amount: 76,825 million Yen

Borrower: The Government of the People's Republic of Bangladesh

2. Background and Necessity of the Project

(1) Current State and Issues of the Aviation Sector in Bangladesh

The People's Republic of Bangladesh has achieved economic growth at an average pace of over 6% per annum for more than 10 years. Against this backdrop, demand for air services has rapidly expanded as evidenced by the fact that the number of air passengers at the international airport in Dhaka, increased at an average pace of around 8% per annum between 2006 and 2015. Hazrat Shahjalal International Airport (hereinafter "Dhaka International Airport") is used by about 75% of domestic and international passengers departing from and arriving in Bangladesh, and plays an important role as the core infrastructure that supports the rapid growth of the socioeconomic activities in the country.

According to the Master Plan for Hazrat Shahjalal International Airport Expansion Project (2015) prepared by the Government of Bangladesh, the number of international passengers using Dhaka International Airport in 2018 is projected to exceed eight million per annum, which is the maximum capacity of the existing international terminals T1 and T2, and to reach 22 million by 2035. Apart from the expansion of Dhaka International Airport, the Government of Bangladesh has also launched a plan to construct Bangabandhu Sheikh Mujib International Airport (hereinafter "the new airport"), which will be the second international airport serving Dhaka. While the new airport is expected to enter into service in 2030, the expansion of Dhaka International Airport is becoming an urgent issue based on the current demand forecast for air passengers.

As for air cargo, the volume of air cargo imports and exports at Dhaka International Airport increased by 9% and 14%, respectively, between 2011 and 2015. However, Dhaka International Airport was unable to handle the rapidly increasing cargo volumes due to insufficient staff capacity, inefficient operations, and the absence of cargo management systems and so on. Some import cargos are not stored inside the existing cargo building and are left in the unroofed airside area, which results in damages to cargo by rainfall and dust.

Furthermore, the airport has suspended cargo flights to the United Kingdom and Germany since March 2016 due to a flaw in the safety and security systems including inspection of air cargo. This has affected the entire country's economic activities because cargo transport must be done via a third country. It has, thus, become an urgent need to improve the safety and security systems of Dhaka International Airport. In addition, the Government of Bangladesh

has indicated the implementation of a policy to strengthen security at all airports in Bangladesh, including Dhaka International Airport, since the terrorist attack on July 1, 2016.

(2) Development Policies for the Aviation Sector in Bangladesh and the Priority of the Project In Vision 2021 (2009), which reflects the current administration's manifesto, the income generated by airports is expected to grow with increasing in-service flights, indirect flights and transit passengers, while utilizing the country's geographical advantage to make Dhaka International Airport a hub airport.

The National Integrated Multimodal Transportation System Policy (2013) identifies areas that require improvement, which include access to/from Dhaka International Airport, air cargo services, staff competence, and immigration procedures by introducing the latest equipment.

In the Master Plan for Hazrat Shahjalal International Airport Expansion Project (2015), there are plans to construct an international terminal T3 at Dhaka International Airport, expand the cargo terminal, build a new multilevel car park, improve the surrounding infrastructures including access roads to national highways, upgrade the safety and security facilities and equipment at Dhaka International Airport, etc.

The Project is to expand the airport capacity to cope with a rapid increase in demand for air services (i.e. to increase "capacity for passengers per annum" and "capacity for air cargo per annum") by building another international terminal T3 at Dhaka International Airport and expanding the cargo terminal and the airport functions including maintaining other related facilities. It also aims to improve the access to/from the airport, the convenience of passenger terminals and the safety including enhancing airport security functions. Furthermore, the 7th Five-Year Plan (FY2016/17–FY2020/21) identifies important projects, including expanding the apron close to the existing cargo terminal, which will be implemented with the government's budget, and improving the control tower radar system, in addition to building an international terminal T3 at Dhaka International Airport and expanding the cargo terminal. These projects are also regarded as urgent, as part of the goal of creating an investment environment.

(3) Japan and JICA's Policy and Operations in the Aviation Sector

The Country Assistance Policy for Bangladesh (June 2012) sets the acceleration of economic growth as a priority area and aims to contribute to the development of transport and traffic infrastructure for promoting the efficient transport of passengers and goods and for mitigating regional disparities. In addition, the JICA Country Analysis Paper for Bangladesh (April 2013) identifies the necessity of resolving bottlenecks in domestic traffic and facilitating the movement of people and goods in order to strengthen the country's foundation for economic growth. This paper identifies the improvement of the safety of air network in the aviation sector as one of the priority issues under the "development of the domestic transport and traffic network," along with the road and bridge sector and the railway sector. The Project is, therefore, in line with these policies and the analysis.

JICA strived to accommodate the increased demand for passengers and cargo and improve safety by maintaining and expanding Chittagong Airport through the Chittagong Airport Development Project, which was completed in 2003. JICA has also strived to ensure safety when guiding aircrafts to land at the airport and to formulate measures for dealing with aircraft accidents and terrorism at Dhaka International Airport by maintaining its safety and security systems through the Project for Improvement of Airport Safety and Security Systems (2014).

(4) Other Donors' Activity

In the late 1990s, the Government of France provided the Aeronautical Institute of Bangladesh with training equipment. In 2013, the Danish International Development Agency (DANIDA) supported the improvement of basic facilities, as well as the safety and security systems, of Dhaka International Airport. From 2016, the Government of the United Kingdom has supported the Civil Aviation Authority of Bangladesh (CAAB) in enhancing the airport safety and security through advisory services by a private security firm. The Government of the United Kingdom, in cooperation with the Government of the United States, also provides the Airport Armed Police with technical support in enhancing security.

(5) Necessity of the Project

The Project is in line with Bangladesh's development challenges and policies, as well as with the assistance policies and analysis of the Government of Japan and JICA. It contributes, not only to the economic growth of Bangladesh through the expansion of the capacity and the improvement of convenience and safety of Dhaka International Airport, but also to the ninth goal of the Sustainable Development Goals (SDGs). Furthermore, the Project helps to deepen the relationship between Japan and Bangladesh as seen when the two countries' leaders confirm the cooperative policies. Therefore, the necessity for JICA to support the Project is substantial.

3. Project Description

(1) Project Objective

The objective of the Project is to meet future demand of air transportation and to improve airport capacity, convenience and safety, by constructing international passenger terminal 3, cargo terminal and other infrastructure and facilities at the Hazrat Shahjalal International Airport in Dhaka, thereby contributing to further economic growth in Bangladesh.

(2) Project Site / Target Area

Dhaka

(3) Project Components

- 1) Construction of New Passenger Terminal Building (Terminal 3), New Cargo Complex,

Multi-Level Car Parking with Tunnel, VVIP Complex, Parking Apron (Terminal 3 Area), Taxiways, Landside Service Road including Connecting Road between Terminal 3 and DEE, Water Supply System, Sewage Treatment Plant, Intake Power Plant with Distribution System, Hydrant Fuel Supply System, Procurement of Communication System, Rescue and Fire Fighting Facilities, Security and Terminal Equipment, and Improvement of Drainage System

2) Consulting Service (Review and Preparation of Tender Documents, Tender Assistance, Construction Supervision, Facilitation of Implementation of Environmental Management and Monitoring Plan (EMMP), Safety Management for the Job Site, Technology Transfer, Dispute Board (DB) Assistance, etc.)

(4) Estimated Project Cost (Loan Amount)

191,971 million Yen (Loan Amount: 76,825 million Yen)

(5) Schedule

June 2017 – July 2022 (62 months in total). The Project will be completed when the facilities are put in place (July 2021).

(6) Project Implementation Structure

- 1) Borrower: The Government of the People's Republic of Bangladesh
- 2) Executing Agency: Civil Aviation Authority, Bangladesh, Ministry of Civil Aviation and Tourism (CAAB)
- 3) Operation and Maintenance System: The operation and maintenance of the Project is provided by CAAB.

(7) Environmental and Social Consideration / Poverty Reduction / Social Development

1) Environmental and Social Consideration

- ① Category: B
- ② Reason for Categorization: The Project is not located in a sensitive area, nor has it sensitive characteristics, nor falls it into sensitive sectors under the Guidelines, and its potential adverse impacts on the environment are not likely to be significant.
- ③ Environmental Permit:
The Environmental Impact Assessment (EIA) Report for the Project was approved by the Department of Environment in June 2017.
- ④ Anti-Pollution Measures:
Although the construction is assumed to affect air quality and noise only within the airport, the impacts will be mitigated by taking measures such as water sprinkling, equipment maintenance, and the use of low noise type equipment. Waste and wastewater produced by the construction will be disposed in accordance with the national legal system in order to avoid the impact on health and environment. After

the commencement of services, exhaust emissions and noise caused by aircrafts and ground-operating vehicles are projected to increase as air traffic grows. CAAB will periodically monitor and take corrective actions as needed such as recommending the use of low noise type aircrafts, which is launched by the International Civil Aviation Organization (ICAO), vehicle maintenance, and passing restriction. In addition, it is assumed that the volume of wastewater will increase as the number of aircrafts and passengers rises; however, wastewater will be purified by a new wastewater treatment facility, which is expected to satisfy the national standard for wastewater disposal.

⑤ Natural Environment:

The target area does not apply to a vulnerable area, such as national park, or its surrounding, and the expected influence on the local natural environment is minimum.

⑥ Social Environment:

Since this project is implemented in a restricted area within the existing premises, no land acquisition or resettlement will occur. Regarding the structure owned by a company in the scheduled construction site of international terminal T3, the lease agreement for the land between the company and CAAB has expired, and the land is expected to be vacated under the country's laws and regulations.

⑦ Other / Monitoring:

In this project, the monitoring of air quality, noise, etc., during construction will be done by the contractor, and the monitoring of air quality, water quality, noise, etc., after the commencement of service will be done by the executing agency.

2) Promotion of Poverty Reduction: None

3) Promotion of Social Development: The concept of "Universal Design" which enhances the accessibility for handicapped users will be introduced into the Terminal 3. Also, the design of the Terminal 3 will be considered the convenience of female users.

(8) Collaboration with Other Donors: None

(9) Other Important Issues: None

4. Targeted Outcomes

(1) Quantitative Effects

1) Performance Indicators (Operation and Effect Indicators)

Indicator	Baseline (Actual Value in 2015)	Target (2023) 【Expected value 2 years after project completion】
Number of international air passengers of HSIA (million passengers per annum)	5.6	10.6
Amount of international air cargo of HSIA (thousand ton per annum)	259.9	527.9

2) Internal Rate of Return

According to the following preconditions, this project's Economic Internal Rate of Return (EIRR) will be 22.5%. The Financial Internal Rate of Return (FIRR) will be 6.2%.

【EIRR】

Cost: Investment cost for the Project, Operation and Maintenance Cost, Equipment Replacement Cost

Benefit: Consumer surplus of all passengers, Saved time for Bangladesh passenger, Foreign exchange earnings by foreign tourists

Project life: 25 years

【FIRR】

Cost: Investment cost for the Project, Operation and Maintenance Cost, Equipment Replacement Cost

Benefit: Aeronautical Charges (Landing charges and Aerobridge Charges), Non-Aeronautical Charges (Landing charges and Aerobridge Charges)

Project life: 25 years

(2) Qualitative Effects

Enhance convenience of HSIA for air passengers through improvement of congestion in terminal building and airport access

Ensure international standard of safety, security and facilitation of HSIA

Increase foreign direct investment to Bangladesh

5. External Factors and Risk Control

The construction period shall not be affected by major natural disasters and other factors.

6. Lessons Learned from Past Projects

(1) Lessons Learned from Past Projects

The ex-post evaluation of the Second Bangkok International Airport Development Project in Thailand shows that doing an expansion project while continuing operations at the existing airport requires complex process planning and design. Therefore, it is necessary to carefully determine the period for designing details and to ensure the safe operation of aircrafts and the convenience of passengers.

(2) Application of Lessons Learned to the Project

In the Project, construction will be done while the existing passenger terminals are in operation. For this reason, coordination with relevant organizations like CAAB, Bangladesh Petroleum Corporation and Padma Oil Company Limited to build additional pipes in the existing hydrant refueling system, etc., will be done at an early stage of the plan, along with determining the period for designing details. There are also plans to include the provision of support by coordinating with CAAB and its related organizations as part of the supervision of the implementation.

7. Plan for Future Evaluation

(1) Indicators to be Used

- a) Number of international air passengers of HSIA (passengers per annum)
- b) Amount of international air cargo of HSIA (ton per annum)

(2) Timing: Two years after the project completion