

## Ex-Ante Evaluation

### 1. Project:

Country: Kingdom of Cambodia

Name of the Project: Sihanoukville Port New Container Terminal Development Project

Loan Agreement: August 7, 2017

Loan amount: 23.502 billion yen

Borrower: The Royal Government of Cambodia

### 2. Background and Necessity of the Project

#### (1) Present State of Development and Problems of the Ports and Harbors Sector in Cambodia

The Kingdom of Cambodia has two major international ports, the Sihanoukville port that faces the Gulf of Thailand (“this port”) and the Phnom Penh port located on the banks of the Mekong River. Due to restrictions in water depth and the width of the sailing channel, the cargo handling capacity of Phnom Penh port is limited (the maximum size of vessels that can enter is 100-200 TEU). Although the port is the only deepwater port in Cambodia (2,100-2,500 TEU), it handles virtually all cargo carried by container and other large vessels. The purpose of the Sihanoukville Port New Container Terminal Development Project (“this project”) is to construct new container terminal buildings and introduce equipment to enhance container cargo handling capacity.

Based on the country’s solid economic growth, fueled by a growing garment industry and others, the volume of container cargo handled at this port has increased by 13% every year for the five years since 2011. The speed of growth is increasing, too—in 2015, the rate was 17% higher than the previous year. The port’s container cargo handling volume is getting closer and closer to maximum capacity these days (handling capacity: 500,000 TEU, actual volume handled in 2015: 390,000 TEU). The Port Authority of Sihanoukville (PAS) takes charge of port operation plans to implement short-term measures (e.g. increasing the number of cranes, improving off-dock yards, and using multi-purpose terminal buildings to handle container cargo). Japan helped to rehabilitate and increase the port’s capacity for handling container cargo through ODA loan projects implemented in the past. However, the volume of container cargo handled by the port is expected to further grow in the future due to solid economic growth. The capacity of the existing container terminal is predicted to reach its limit by 2023. For this reason, the container cargo terminal needs to expand and improve its capacity to ensure smooth logistics in Cambodia. Today, the size of international cargo vessels tends to be larger. For Asian marine routes, the number of 4,000-TEU container vessels is increasing. As a river port, the Phnom Penh port has difficulty handling large vessels. Thanks to its great depth, however, the port is ideally

suitable to receive them. Additionally, if the port becomes able to handle large vessels, maritime transportation and logistics costs are likely to go down.

## (2) Development Policies for the Ports and Harbors Sector in Cambodia and the Priority of the Project

This port plays an important role as a critical distribution hub for boosting the Cambodian economy and contributing to the economic development of the ASEAN member states as a whole, by improving the connectivity of the East-West axis (Southern Economic Corridor) that Japan intensively supports. Expansion of this port is defined as one of the initiatives in the top priority action plan to achieve transportation infrastructure development under the 2014–2018 National Strategic Development Plan (NSDP).

## (3) Japan and JICA's Aid Policy/Actual Performance for Ports and Harbors Sector

An analysis under the JICA Country Analytical Work for the Kingdom of Cambodia (2014) revealed that the priority issue was economic infrastructure development for this priority area to improve logistic functions through improvement of the port. Japan also defines as a priority area the “development of the Sihanoukville port and surrounding area as a base of economic activities due to its high economic effectiveness” under “economic infrastructure development”, a key factor in Japan’s Country Assistance Policy for the Kingdom of Cambodia (2012). Therefore, the Project is highly relevant to these analyses and policies. This project is also defined as a priority project under the Japan-Mekong Connectivity Initiative (2016).

So far, Japan has continuously provided assistance to the port in order to improve its infrastructure and operation capacity through Technical Cooperation, Loan assistance, and Grant Aid projects, given the port’s role in supporting the development of Cambodia as a whole. Specifically, Japan implemented a development study titled the Sihanoukville Port Development Plan Investigation (1997) and the Study on Strengthening Competitiveness and the Development of Sihanoukville Port Project (2012) to formulate a port improvement plan. Japan also implemented the following projects to further improve port facilities: the ODA loan Sihanoukville Port Urgent Rehabilitation Project (approved in 1999), the Sihanoukville Port Urgent Expansion Project (approved in 2004), and the Project for Sihanoukville Port Special Economic Zone Development (approved in 2007). Japan supported streamlining operation under the Technical Cooperation Project for the Study on Strengthening Competitiveness and Development of Sihanoukville Port (2007-2009) and the Project for Capacity Development in Container Terminal Management and Operation at Sihanoukville Port (2013-2016). Further, Japan implemented a grant aid project titled the Project for the Improvement of Security Facilities and Equipment in Main International Ports (2006) to improve security-related facilities and equipment. Through these assistance projects, JICA has become the most critical partner in boosting the enterprise value of the PAS. Meanwhile, the port has become a symbol

of the amicable relationship between Japan and Cambodia.

#### (4) Other Donor Activities

Railways between Phnom Penh and Sihanoukville were constructed under a railway rehabilitation project supported by the Asian Development Bank. Note that the PAS has established an MOU for strengthening the partnership between the Port of Kobe General Agency, while establishing another amicable agreement for ports with the Qingdao Port Company, Limited.

#### (5) Necessity of the Project

Sihanoukville port plays an important role in providing assistance to Cambodia and the country's National Development Plan, since it is a key distribution hub for boosting Cambodia's economic development. In addition to furthering Cambodia's development, the port contributes to economic development of the ASEAN member states as a whole by improving the connectivity of the Southern Economic Corridor, where Japan has provided intensive support. As stated above, the volume of container cargo loaded and unloaded at the Sihanoukville port is expected to exceed its handling capacity in the near future, due to increasing cargo handling volume in recent years. To ensure smooth logistics in Cambodia and its economic development, there is a pressing need to improve logistics and enhance international competitiveness through the expansion of the port. This project contributes to improved logistic functions. Therefore, the project is in line with the development issues and development policies of Cambodia, Japan, and JICA's assistance policies and analysis results. This project is considered to be contributory to SDG 9, thus the significance of supporting this project is high.

### **3. Project Description**

#### (1) Project Objectives

This project aims to strengthen logistic functions through improving cargo handling capacity of the Sihanoukville port, Cambodia's only deep-water port, by constructing a new container terminal, thereby helping to promote trade and the country's socioeconomic development.

#### (2) Project Site/Target Area: Sihanoukville Province

#### (3) Project Components

##### 1) Civil engineering work (international competitive bidding)

Improvement of the container terminal (container cargo handling capacity: 450,000 TEU, total area: 17.5 ha, quay water depth: 14.5 m), improvement of access roads: 2.2 km, dredging of sailing routes and berths (water depth:13.5 m), construction of control towers, etc., and development of land for customs inspections

##### 2) Procurement of cargo handling equipment (international competitive bidding)

Quay gantry cranes: 3, RTG cranes: 9, reach stackers: 2, tractor chassis: 16, and terminal operation system: 1, etc.

3) Consulting service: shortlist

Basic design (cargo handling equipment part), detailed design (civil engineering work part), bidding support, supervision of construction work, and management of design and transferring technology and the like of design and contract management as well as supervision of construction work

(4) Estimated Project Cost

28,146 million yen (Loan Amount: 23,502 million yen)

(5) Project Implementation Schedule

Planned between August 2017 and September 2024 (total of 86 months). Project completion is defined as the commencement of the service of the facilities (October 2023).

(6) Project Implementation Structure

1) Borrower: The Government of the Kingdom of Cambodia

2) Guarantor: N/A

3) Executing Agency: Port Authority of Sihanoukville (PAS)

4) Operation and Maintenance System: PAS shall take charge of operation management and maintenance. PAS has an experience in operation and maintenance of existing container terminals, thus no major technical problems are expected. Although maintenance expenses are covered by PAS's business income, no particular problems are expected at this moment in its financial structure The Public Works and Transport Agency of Sihanoukville Province will take charge of the maintenance of access roads.

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

1) Environmental and Social Consideration

i. Category: B

ii. Reason for Categorization: This project will not have substantial undesirable impact on the environment given the characteristics of the sector, project, and area under the JICA Environmental and Social Guidelines (established in April 2010).

iii. Environmental Permit: An Environmental Impact Assessment (EIA) report for this project was submitted to the Ministry of Environment in December 2016 to be approved in August 2017.

iv. Anti-Pollution Measures: Measures will be taken such as maintenance of construction vehicles and the like, water sprinkling, use of silt protectors, and putting limitations on construction hours to help ensure air quality and water quality while reducing noise, vibration, and the like during construction.

After the handover, measures will be taken such as maintenance of machines and equipment to ensure air quality and the like. Therefore, no material negative impacts are expected.

v. Natural Environment: The project site is not located in or around sensitive

areas such as national parks, and adverse impact on the natural environment is assumed to be minimal.

- vi. Social Environment: The Project requires no land acquisition or resettlement, since it will take place within the existing port facilities. Fishery families are living at the existing port, and they may be influenced by the navigation of construction vessels. Measures, including notifying fishery families of construction hours and vessel navigation hours and supporting the safe navigation of vessels arriving/departing the port using a tugboat, will be taken.
- vii. Other / Monitoring During the construction period, the contractor and executing agency will monitor air quality, water quality, noise, vibration and the like. After the handover, the executing agency will monitor air quality.
  - 2) Promotion of Poverty Reduction: N/A
  - 3) Promotion of Social Development: The project will include HIV/AIDS preventative measures in the bidding documents. The contractor plans to provide HIV/AIDS preventative programs.
- (8) Collaboration with Other Donors: N/A
- (9) Other Important Issues: The supporting layer of the project site is located in deep water, thus a Japanese technology panel point strut construction method is very likely to be adopted. Because of this, Japanese corporations are expected to participate in this project.

#### 4. Targeted Outcomes

##### (1) Quantitative Effects

##### 1) Outcomes (Operation and Effect Indicator)

Performance Indicators	Baseline (Existing facilities and machines) (Actual Value in 2015)	Target (2025) [Two years after project completion]
Container cargo handling volume (Twenty-foot Equivalent Units, TEU)	392,000	870,000
Berth occupancy rate (%)	45	65
Maximum tonnage to be loaded on vessels entering port (Deadweight Tonnage, DWT)	30,000	50,000

Note: The target value for container cargo handling volume is the mean of the sum total of existing and new terminals, while the target value for berth occupancy rate is the mean of these two.

##### 2) Impact

Increase in trade volume

##### (2) Qualitative Effects

Facilitation of logistics through improving cargo handling capacity, promotion of trade and socioeconomic development in Cambodia

### (3) Internal Rate of Return (IRR)

Based on the conditions below, the Economic Internal Rate of Return (EIRR) of this project was calculated as 15.8%, while Financial Internal Rate of Return (FIRR) was 7.4%.

#### EIRR

Cost: Project cost (excluding tax), operation and maintenance expenses

Benefit: Reduction in alternative transportation costs, reduction in maritime transportation costs by using larger vessels, and reduction in incidental costs through reducing terminal congestion

Project Life: 35 years

#### FIRR

Cost: Project cost, operation and maintenance expenses

Benefit: Cargo handling charge, fee to use port

Project Life: 35 years

## **5. External Factors and Risk Control**

The Royal Government of Cambodia shall hold the management rights of the PAS.

## **6. Lessons Learned from Past Projects**

### (1) Lessons learned from similar projects:

One lesson learned from the results of Thailand's ex-post monitoring of an ODA loan project titled Laem Chabang Port Commercial Port Construction Project was that active support for investigations, planning, and formulations contributing to improve operation efficiency (e.g. studying models of port terminal operation) are critical. Another lesson from the results of the Philippines' ex-post monitoring of an ODA loan project titled the Batangas Port Development Project (II) was that target setting should consider not only a macro perspective such as expected GDP, but also reviewing industrial structure from a medium- to long-term perspective and requests from customer corporations, as actual cargo movement is determined by a variety of factors.

### (2) Lessons for the Project:

Based on the lessons learned from the ODA loan project provided to Thailand titled the Laem Chabang Port Commercial Port Construction Project, the project will also provide assistance to improve operation efficiency through future technical assistance and the like. Based on the lessons learned from the ODA loan project provided to the Philippines titled the Batangas Port Development Project (II), the project estimated the total volume of cargo, after implementing (1) a future prediction of cargo volume for major items based on interviews with industry groups and involved institutions as a micro-perspective method, and (2) a macro-perspective method for demand prediction carried out as a part of preparatory survey of this project. The project then

verified consistency with these two estimated values and development programs for a competitor port (Phnom Penh port) to set target values. When implementing future prediction of cargo volumes by item, the project took account of a change in industrial structure by considering analyses carried out by other international institutions as a reference.

## **7. Plans for Future Evaluation**

(1) Indicators for Future Evaluation:

- 1) Container cargo handling volume (Twenty-foot Equivalent Units, TEU)
- 2) Berth occupancy rate (%)
- 3) Maximum tonnage to be loaded on vessels entering port (Deadweight Tonnage, DWT)

(2) Timing of Next Evaluation: Two years after completion