

Socialist Republic of Vietnam

FY2018 Ex-Post Evaluation of Japanese ODA Loan

“Cai Mep-Thi Vai International Port Construction Project (I)(II)”

External Evaluator: Keishi Miyazaki, OPMAC Corporation

## **0. Summary**

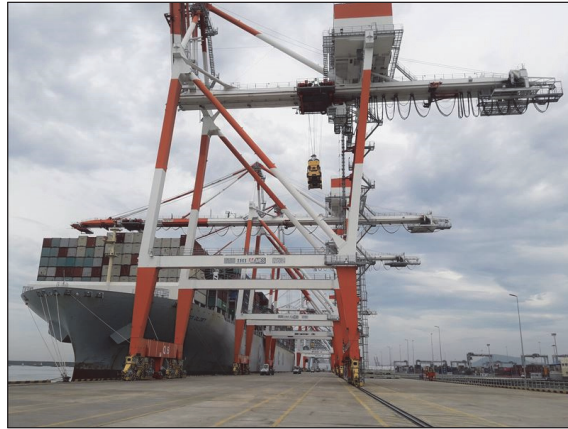
The objective of the project was to construct container and general cargo terminals in the Cai Mep-Thi Vai area of southern Vietnam’s Ba Ria-Vung Tau Province and develop infrastructure related to the terminals, in response to the increasing demand of cargo in the country, thereby supporting economic growth, not only in southern Vietnam, but in the country as a whole. The relevance of these objectives is high, as they are consistent with Vietnam’s development plan and development needs, as well as with Japan’s ODA policy. Although the project cost was within the plan, the project period exceeded the plan and therefore the efficiency of the project is fair. The operation and effect indicators of the project facilities, such as the cargo handling volume, the number of calling vessels, and the total gross tonnage of calling vessels have achieved the targeted values, and the project has had a certain effect in terms of meeting the cargo demand at Cai Mep-Thi Vai Port. In addition, export-related companies in Ba Ria-Vung Tau Province have found improvements in transportation efficiency and lower transportation costs. A positive impact has been observed with the development of Cai Mep-Thi Vai Port, including the project facilities. For example, export-related industries in the province have benefited from better convenience by shifting their activities from Ho Chi Minh Port to Cai Mep-Thi Vai Port. However, considering that the cargo handling volume at the project facilities is less than 1% of the overall port cargo handling volume in the southern region of Vietnam, its contribution to the region’s economic development is limited. No negative impact on the natural environment was observed, and land acquisition and resettlement due to the implementation of the project were properly conducted in accordance with the relevant laws and regulations in Vietnam. For that reason, effectiveness and impact are high. No major problems were observed in the institutional aspects, technical aspects, financial aspects and current status of the operation and maintenance system. Therefore, the sustainability of the project effects is high.

In light of the above, this project is evaluated to be highly satisfactory.

## 1. Project Description



Project Locations



Cai Mep Port Container Terminal

### 1.1 Background

The Southern Focal Economic Zone (SFEZ) consisting of Ho Chi Minh City, Binh Duong Province, Dong Nai Province and Ba Ria-Vung Tau Province is a region that led the nation's economy with 11% of Vietnam's population, 31% of GDP, 57% of foreign trade, and 85% of foreign direct investment (2000). The cargo handling volume (general cargo and specified cargo) in the southern region ports<sup>1</sup> centered around Ho Chi Minh City grew from 24 million tons in 1996 to 52 million tons in 2000, a 17% average annual growth within five years. The four major ports (Saigon Port, Ben Nghe Port, Tan Cang Port and Vietnam International Container Port (VICT)) near the center of Ho Chi Minh City accounted for 60% of the cargo handling volume of the southern region ports, but they were reaching their capacity. As ports in the Ho Chi Minh area, including the four ports, were shallow, only 30,000-ton-level vessels could enter. As a result, cargo imported to the area had to be transshipped at Hong Kong, Singapore or other hub ports. Furthermore, as the four major ports were located upstream of the Saigon River, an increase in vessels also caused great concerns such as traffic congestion in the waterway and water pollution, as well as serious inland traffic congestion due to cargo transportation.

For these reasons, the Vietnamese government created a policy to utilize Ho Chi Minh City suburban ports for the southern region's increasing cargo handling, and settled on the development of Cai Mep-Thi Vai port in Ba Ria-Vung Tau Province where the water depth was deep enough for large vessels to enter.

---

<sup>1</sup> The southern region ports include Ho Chi Minh City, Dong Nai Province, Ba Ria-Vung Tau Province, Binh Duong Province, and some river ports in Long An Province and Tien Giang Province.

## 1.2 Project Outline

The objective of the project was to construct container and general cargo terminals in the Cai Mep-Thi Vai area of southern Vietnam's Ba Ria-Vung Tau Province and develop infrastructure related to the terminals, in response to the increasing demand of cargo in the country, thereby supporting economic growth, not only in southern Vietnam, but in the country as a whole.

Phase	Phase I	Phase II
Loan Approved Amount/ Disbursed Amount	36,364 million yen / 35,248 million yen	8,942 million yen / 7,523 million yen
Exchange of Notes Date/ Loan Agreement Signing Date	March 2005 / March 2005	March 2013 / March 2013
Terms and Conditions	Interest Rate: 0.4%	Interest Rate: 0.2% (Interest Rate for Consultant: 0.01%)
	Repayment Period: 40 years (Grace Period: 10 years)	Repayment Period: 40 years (Grace Period: 10 years)
	Conditions for Procurement: Tied	Conditions for Procurement: Tied
Borrower / Executing Agency	The Government of the Socialist Republic of Vietnam / Ministry of Transport	
Project Completion	April 2015	
Target Area	Cai Mep-Thi Vai Area in Ba Ria-Vung Tau Province	
Main Contractors (Over 1 billion yen)	<ul style="list-style-type: none"> <li>• Penta-Ocean Construction Co., Ltd. (Japan)/Rinkai Construction Co., Ltd. (Japan) (JV)</li> <li>• Toyo Construction (Japan)/Toa Corporation (Japan) (JV)</li> <li>• Penta-Ocean Construction Co., Ltd. (Japan)/Toyo Corporation (Japan) (JV)</li> <li>• IHI Transport Machinery Co., Ltd. (Japan)/Mitsui E&amp;S Shipbuilding Co., Ltd. (Japan) (JV)</li> </ul>	
Main Consultants (Over 100 million yen)	<ul style="list-style-type: none"> <li>• Nippon Koei Co., Ltd. (Japan)/Japan Port Consultants, Ltd. (Japan)/Port Coast Consultant Corporation (Vietnam) (JV)</li> <li>• The Overseas Coastal Area Development Institute of Japan (Japan)</li> </ul>	
Related Studies (Feasibility Studies, etc.)	<ul style="list-style-type: none"> <li>• The study on the port development plan in the key area of the southern region in the Socialist Republic of Vietnam (2002)</li> <li>• The detailed design study on Cai Mep - Thi Vai International Port Construction Project (August 2004 - January 2006)</li> </ul>	
Related Project	[Technical Cooperation] The Project on the Improvement of Port Management System (2005- 2008)	

## 2. Outline of the Evaluation Study

### 2.1 External Evaluator

Keishi Miyazaki (OPMAC Corporation)

## 2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: September 2018-November 2019

Duration of the Field Study: November 27, 2018-December 16, 2018, and March 24, 2019-March 30, 2019

## 3. Results of the Evaluation (Overall Rating: A<sup>2</sup>)

### 3.1 Relevance (Rating: ③<sup>3</sup>)

#### 3.1.1 Consistency with the Development Plan

At the time of Phase I and Phase II appraisal, the 7th Five-Year Socio-Economic Development Plan (2001-2005), the 10-year Socio-Economic Development Strategy (2001-2010), and the 9th Five-Year Socio-Economic Development Plan (2011-2015) shared the common vision of converting Vietnam into an industrialized country by 2020, and had the goals of investing in the transport sector as well as expanding social and economic infrastructure, including ports. According to the Master Plan for the Development of Vietnam's Seaport System through 2020<sup>4</sup> formulated by the Ministry of Transport in 2009 and approved by the Vietnamese government, the cargo handling volume at ports around the country was projected to reach 500 to 600 million tons per year by 2015, and 900-1,100 million tons per year by 2020, indicating the need for efficient and competitive port development to meet this cargo demand associated with Vietnam's industrialization and modernization. The southern port group, including the project, was positioned as Port Group 5, and it was anticipated that Cai Mep-Thi Vai would be a major international terminal servicing general cargo and long-distance container cargo for 100,000 DWT<sup>5</sup> class vessels.

Furthermore, the *Detailed Master Plan for South East Ports (Port Group 5) through 2020*<sup>6</sup> formulated and approved by the Ministry of Transport in 2011, aimed to reduce traffic volume and congestion in Ho Chi Minh City by transferring a part of the activities of Saigon port and Ba Son shipyard, to promote industrialization and modernization in the region through the development of industrial parks and export processing zones, as well as promotion of urban development, and to further develop maritime transport in Vietnam, and the world by forming an international gateway port in the region. Under the same master plan, the cargo handling volume at the Port Group 5 was expected to continue to increase in the future, and in addition to responding to the rapidly increasing cargo demand of the southern economic zone, the port

---

<sup>2</sup> A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

<sup>3</sup> ③: High, ②: Fair, ①: Low

<sup>4</sup> Prime Minister Decision No. 2190/QĐ-TTg of December 24, 2009

<sup>5</sup> DWT: Dead Weight Tonnage—a measure of how much weight a ship can carry.

<sup>6</sup> Ministry of Transport Decision 145/QĐ-BGTVT of August 3, 2011.

would be improved to function as an international distribution center capable of handling large vessels, giving this project high priority.

*The 10th Five-Year Socio-Economic Development Plan (2016-2020)* at the time of the ex-post evaluation, targets Vietnam's becoming a modern industrial country by 2020 with a 6.5% to 7% GDP growth during the same period and an unemployment rate of less than 4% in urban areas. The plan includes ports as a priority in infrastructure development.

The *Detailed Long-term Development Plan for the Port Group 5*<sup>7</sup> approved by the Ministry of Transport in 2017, aims to position Vung Tau as an international gateway port in the southern region of Vietnam and to develop it as an international transshipment port for general cargo. In addition, Cai Mep Port and Thi Vai Port are expected to accommodate vessels of 8,000 to 160,000 DWT class and 75,000 DWT class respectively, and will continue to operate as major ports in southern Vietnam where large cargo vessels can call.

### 3.1.2 Consistency with Development Needs

As stated in "1.1 Background," at the time of the appraisal, the southern port group, including Cai Mep-Thi Vai port, played an important role in the economic development of Vietnam. To continue developing economically as a gateway for international logistics, improvement and efficiency of the logistics infrastructure in the southern port group were essential. On the other hand, the cargo handling capacity of the four major ports located near the center of Ho Chi Minh City, along the Saigon River, has been approaching its limit, and the shallow water depth makes it difficult for large vessels to enter the port.



Source: Documents provided by JICA

Figure 1: Vietnam's southern port area

Traffic congestion in the waterway and water pollution due to increase in number of vessels, and inland traffic congestion caused by cargo vehicles have become a serious issue. Therefore, in addition to complementing a part of the demand of the southern port group, it was necessary to construct a port in the Cai Mep-Thi Vai area where deep water allows the entry of large vessels of 50,000 tons or more (Figure 1).

In addition, this project included the improvement of soft soil for the construction of a terminal yard, by utilizing Japanese high level of technology such as that for soft soil measures and

<sup>7</sup> Ministry of Transport Decision 3655/QD-BGTVT of December 27, 2017.

therefore was considered under Special Terms for Economic Partnership (STEP).

At the time of the ex-post evaluation, the 2017 actual value (predicted value) of cargo transport volume in Vietnam was 1,379 million tons, an increase of 1.7 times compared to 2010. The breakdown of transportation mode was 77.6% for roads, 16.8% for inland water transportation, 5.1% for coastal shipping, and 0.5% for railways and air.

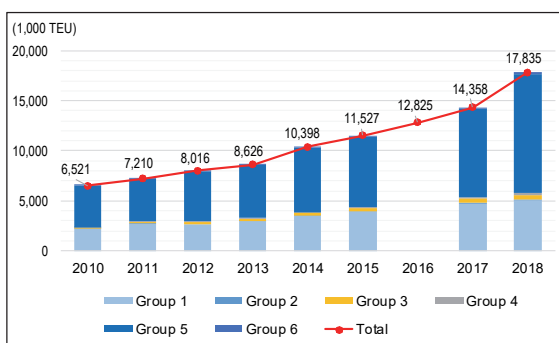
In addition, the ranking of Vietnam in the World Bank's International Logistics Performance Index<sup>8</sup> has risen annually, except for 2016, and in 2018, Vietnam ranked 34th among 160 countries and regions (Table 1).

The container handling volume in the Vietnam port sector increased 2.7-fold in eight years from 6.5 million TEU<sup>9</sup> in 2010 to 17.8 million TEU in 2018. General cargo handling volume also increased by 1.8 times in 7 years from 286 million tons in 2011 to 524 million tons in 2018 (Figure 2, Figure 3).

Table 1: International Logistics Performance Index

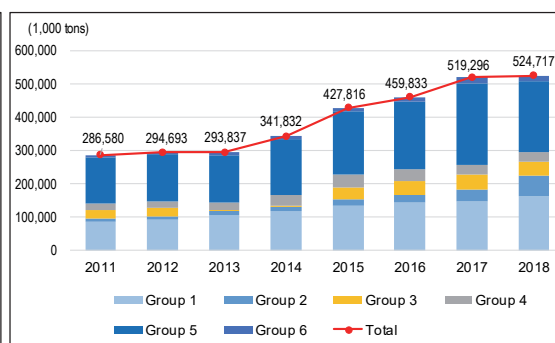
Year	Ranking	Score
2007	53	2.89
2010	53	2.96
2012	46	3.00
2014	48	3.15
2016	64	2.98
2018	34	3.27

Source: International Logistics Performance Index, World Bank



Source: Provided by VINAMARINE  
Note: The 2016 breakdown of container handling volume by port group is unknown

Figure 2: Container handling volume (Vietnam)



Source: Provided by VINAMARINE

Figure 3: General cargo handling volume (Vietnam)

<sup>8</sup> International Logistics Performance Index shows the evaluation of international logistics services from around the world in the form of a ranking and is a comprehensive assessment of the following: 1) the efficiency of customs clearance procedures, 2) infrastructure quality, 3) the competitiveness of transportation cost, 4) logistics service quality, 5) schedule achievement levels, and 6) package tracking capabilities.

<sup>9</sup> TEU: Twenty Foot Equivalent Unit=20-foot container conversion: Container quantity in units of one 20-foot container.

The Port Group 5<sup>10</sup> including Cai Mep-Thi Vai Port, handles the largest amount of cargo in the country, accounting for 67% of container handling volume and 40% of general cargo handling volume of the whole port sector in Vietnam.

In addition to the Ho Chi Minh-Dau Giay Expressway<sup>11</sup> which was completed in 2017 with a Japanese ODA loan, the Ben Luc-Long Thanh Expressway<sup>12</sup> is being built, also with a Japanese ODA loan, and there are plans for BOT to develop the Bien Hoa-Vung Tau Expressway<sup>13</sup> parallel to Route 51. There are also plans to develop Long Thanh International Airport in Dong Nai Province as an international hub airport to replace the overcrowded Tan Son Nhat Airport in Ho Chi Minh City. In Phu My District, Ba Ria-Vung Tau Province, where Cai Mep-Thi Vai Port is located, the development of a new industrial park (Phu My No. 3 Industrial Park) is underway, in addition to the existing ones, and an access road connecting the industrial park and Cai Mep-Thi Vai port is also under development. In this manner, the peripheral infrastructure necessary for logistics at Cai Mep-Thi Vai Port is gradually being developed, and the convenience of Cai Mep-Thi Vai Port has been improving over the years.

### 3.1.3 Consistency with Japan's ODA Policy

At the time of appraisal, *Japan's Country Assistance Program for Vietnam 2004* of the Ministry of Foreign Affairs, had the "promotion of economic growth" as one of its key areas. This included the development of economic infrastructure such as transportation. In addition, JICA's *Country Assistance Strategy for Vietnam* stated that "while competitiveness within the port sector is increasing in neighboring countries, the development of a large-scale international port with private participation in the southern region will be considered."

In light of the above, this project has been highly relevant to Vietnam's development plan and development needs, as well as to Japan's ODA policy. Therefore, its relevance is high.

---

<sup>10</sup> The Vietnamese ports are divided into the following eight port groups by region: Port Group 1 (Northern), Port Group 2 (Central North), Port Group 3 (Central), Port Group 4 (Central South), Port Group 5 (Ho Chi Minh and Cai Mep-Thi Vai Area), Port Group 6 (Mekong Delta), Port Group 7 (Phu Quoc Island), and Port Group 8 (Con Dau Island).

<sup>11</sup> Japanese ODA loan "North-South Expressway Construction Project (Ho Chi Minh-Dau Giay) 1, 2, 3" (2008-). Ho Chi Minh-Dau Giay Expressway is a 55km long expressway that connects Ho Chi Minh City and Dong Nai Province's Dau Giay City north to south, and forms part of the North-South Expressway.

<sup>12</sup> Japanese ODA loan "North-South Expressway Construction Project (Ben Luc-Long Thanh) 1, 2" (2011-). The Ben Luc-Long Thanh Expressway is a 58km long expressway linking Ben Luc City in Long An province and Long Thanh city in Dong Nai province east to west, going through the south of Ho Chi Minh City. The expressway forms part of the North-South Expressway.

<sup>13</sup> Bien Hoa-Vung Tau Expressway is a 77.8-km highway that goes south from Dong Nai province's capital city Bien Hoa, through Long Thanh International Airport (planned) to Vung Tau city in Ba Ria-Vung Tau province.

### 3.2 Efficiency (Rating: ②)

#### 3.2.1 Project Outputs

This project involved the construction of a dedicated container terminal in the Cai Mep area and a terminal for general cargo in the Thi Vai area, the procurement of cargo handling equipment such as container cranes, and the dredging of navigation channels. The planned and actual outputs are shown in Table 2.

Table 2: Planned and Actual Project Outputs

Item	Plan		Actual
	At Phase I Appraisal	At Phase II Appraisal	
<b>1. Civil Works and Procurement</b>			
<b>Package 1 (Cai Mep Container Terminal)</b>			
➤ Terminal yards	Reclamation area: 39 ha	Reclamation area: 37.8 ha	Same as planned scope at Phase II appraisal
➤ Berths	-14m depth×300m×2 Basin dredging vol.: 31,200m <sup>3</sup>	-15m depth×300m×2 Basin dredging vol.: 116,565m <sup>3</sup>	
➤ Access roads	New road: 3,000m New bridge: 300m Improvement of existing road: 7,000m	Scope outside the Japanese ODA loan ➔ Implemented by the Vietnamese government's own funds (Package 5)	
➤ Utilities	(Inside terminal) Water supply, Electric supply, Drainage and sewage, Yard lighting, Fencing (Outside terminal) Water supply, Electric supply	(Inside terminal) Water supply, Electric supply, Drainage and sewage, Yard lighting, Fencing, Firefighting (Outside terminal) Scope outside the Japanese ODA loan ➔ Implemented by the Vietnamese government's own funds (Package 5)	
➤ Buildings and pavements	PMB <sup>(Note)</sup> main office PMB branch office Yard pavement area 338,000m <sup>2</sup>	PMB branch office, Amenity block, Maintenance shop, Gate, etc. Yard pavement area 317,000m <sup>2</sup>	
<b>Package 2 (Thi Vai General Cargo Terminal)</b>			
➤ Terminal yards	Reclamation area: 24.6 ha	Reclamation area: 24.6 ha	Same as planned scope at Phase II appraisal
➤ Berths	-14m depth×300m×2 Basin dredging vol.: 23,200m <sup>3</sup>	-14m depth×300m×2 Basin dredging vol.: 165,756m <sup>3</sup>	
➤ Access roads	New road: 1,000m	New road: 800m	
➤ Utilities	(Inside terminal) Water supply, Electric supply, Drainage and sewage, Yard lighting, Fencing	(Inside terminal) Water supply, Electric supply, Drainage and sewage, Yard lighting, Fencing, Firefighting	
➤ Buildings and pavements	PMB branch office Yard pavement area: 223,000m <sup>2</sup>	PMB branch office, Amenity block, Warehouse, Transit sheds, Maintenance shop, Gate, etc. Yard pavement area: 230,700m <sup>2</sup>	
<b>Package 3 (Navigation Channel Dredging)</b>	River section dredging vol.: 663,000m <sup>3</sup> Sea section dredging vol.: 9,918,000m <sup>3</sup>	River section dredging vol.: 1,890,857m <sup>3</sup> Sea section dredging vol.: 8,807,767m <sup>3</sup>	Same as planned scope at Phase II appraisal



Item	Plan		Actual
	At Phase I Appraisal	At Phase II Appraisal	
Package 4 (Equipment)	(Cap Mep Container Terminal) Quayside container crane: 6 RTG crane: 15 Container chassis: 30 Tractor head: 20 (Thi Vai General Cargo Terminal) Multi-purpose quayside crane: 2 Quayside jib cranes: 2 Forklift: 26 Tractor head: 5	(Cap Mep Container Terminal) Quayside container crane: 4 RTG crane: 15 (Thi Vai General Cargo Terminal) Multi-purpose quayside crane: 2  Other equipment was outside the scope of the Japanese ODA loan (it was planned that the private port operators would procure this equipment using their own funds, step by step, according to demand)	Same as planned scope at Phase II appraisal
	Navigation aid	Outside the scope of the Japanese ODA loan → Implemented by the Vietnamese government's own funds (Package 6)	
Package 5 (Cai Mep Container Terminal) (Own fund of the Vietnamese Government)			Same as planned scope at Phase II appraisal
➤ Access roads	—	New road: 8,200m New bridge: 345m Improvement of soft soil: 12,255m	
➤ Utilities	—	(Outside terminal) Water supply, Electric supply	
➤ Improvement of soft soil	—	Total 12,255m	
Package 6 (Navigation Equipment) (Own fund of the Vietnamese Government)	—	Navigation Buoy: 1 unit	Same as planned scope at Phase II appraisal
2. Consulting Services			Same as planned scope at Phase II appraisal
a) Tender Assistance and Construction Supervision	International expert: 182 MM Local expert: 488 MM Supporting staff: 114 MM	International expert: 303 MM Local expert: 546 MM Supporting staff: 996 MM	
b) Assistance for Selecting Port Operators	International expert: 76 MM Local expert: 124 MM	International expert: 87 MM Local expert: 127 MM Supporting staff: 165 MM	

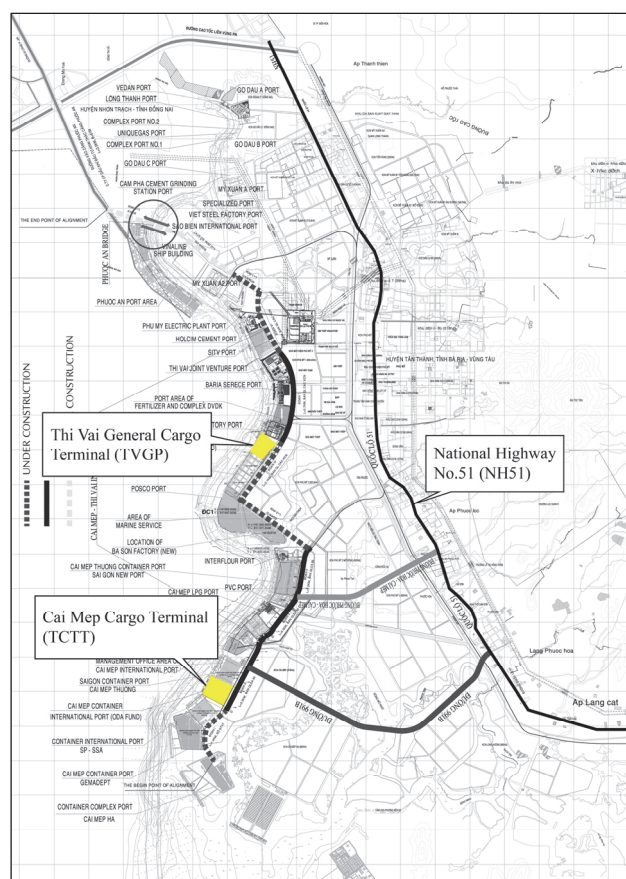
Source: Documents provided by JICA and Project Management Unit 85 (PMU85)

Note: PMB: Port Management Body

Regarding outputs, in addition to global price rises for equipment, fuel and local labor costs that have occurred since the Phase I appraisal in 2004, additional work to handle soft soil exceeded initial plans and there were specification changes due to the revision of the regulations and standards of the Vietnamese government. These, together with changes in the ground control technical method for the adjacent terminal, resulted in a significant increase in the main contract amount from the initial cost estimation. Therefore, at the time of the Phase II appraisal, the project scope was reviewed to exclude access roads and bridges from NH 51 to Cai Mep Port, utilities such as water and power supply facilities, sewage and drainage facilities, and navigation buoys from the scope covered by the Japanese ODA loan. These were implemented using the Vietnamese government's own funds (corresponding to Package 5 and Package 6). As for the cargo handling equipment at both the Cai Mep and Thi Vai terminals, although large cranes on the quay (quayside container cranes) were installed under the project, all other small cargo handling equipment such as forklifts were excluded from the project scope to be funded

by the private port operators in charge of the operation and maintenance of each terminal, as needed, using their own funds. With regard to consulting services, the volume of work increased in response to delays in project implementation at the time of the Phase II appraisal. Ultimately, the outputs were implemented as planned at the time of the Phase II appraisal, including the areas which the Vietnamese government self-funded. The container and general cargo terminals covered by the project are designed to be compatible with large vessels of 8,000 to 160,000 DWT and 75,000 DWT, respectively.

In addition, although a landslide occurred on the embankment area of the construction site at Thi Vai Port in July 2010, there were no casualties, and after that, measures such as restoration work were taken during the project period.



Source: Internal documents of JICA

Figure 4: Locations of Project Terminals

### 3.2.2 Project Inputs

#### 3.2.2.1 Project Cost

The actual project cost was 57,698 million yen, compared with the planned project cost of 58,489 million yen (at the time of Phase II appraisal) and this was within the plan (98% of the plan) (Table 3). Although the project cost was estimated to be 42,864 million yen at the time of the Phase I appraisal in October 2004, due to various external factors thereafter, it was expected to significantly exceed the budgeted amount, as described in “3.2.1 Output” above. The project cost had increased to 58,489 million yen at the time of the Phase II appraisal adjusting the project scope to share certain costs with the Vietnamese government.

Table 3: Planned and Actual Project Cost

Item	Plan (At Phase II Appraisal)			Actual		
	Foreign Currency (Mill. Yen)	Local Currency (Mill. Yen)	Total (Mill. Yen)	Foreign Currency (Mill. Yen)	Local Currency (Mill. Yen)	Total (Mill. Yen)
Civil Works and Procurement	20,978	20,096	41,072	20,433	29,916	50,349
Price Escalation	380	5,792	6,172	0	0	0
Contingency	497	534	1,031	0	0	0
Consulting Services	1,330	386	1,716	1,143	401	1,544
Interest during Construction (IDC)	470	0	470	582	0	582
Commitment Charges	36	0	36	28	0	28
Land Acquisition	0	207	207	0	222	222
Administration	0	218	218	0	523	523
Tax (VAT and Duties)	0	7,566	7,566	0	4,450	4,450
Total	23,691	34,798	58,489	22,186	35,512	57,698

Source: Documents provided by JICA and Project Management Unit 85 (PMU85)

Note 1: Exchange rate used: 1 dong=0.004 yen (May 2012) for Phase II appraisal, 1 dong=0.00555 yen (Average between 2014 and 2015) for ex-post evaluation.

Note 2: Due to rounding off the numbers less than one million, the total amounts of each cost item and foreign and local currencies in the planned project cost are not necessarily matched.

### 3.2.2.2 Project Period

The actual project period was 122 months (March 2005-April 2015), exceeding the planned project period of 94 months (March 2005-November 2013) by 130% compared to the Phase I appraisal. Some cargo handling equipment that had become ineligible for the Japanese ODA loan midway was procured by the private port operator after project completion. April 2015-when the last main facility in Package 5, including access roads to Cai Mep Port, was completed and began service - is considered as the project completion date and has been used to compare the planned and actual project period (Table 4).

Table 4: Planned and Actual Project Period

Item	Plan (At Phase I Appraisal)	Actual
1. Signing of Loan Agreement <sup>(Note 1)</sup>	Mar. 2005	Mar. 2005
2. Selection of Consultant		
➤ Tender Assistance and Construction Supervision	Apr. 2005 – Sep. 2005	Aug. 2005 – Mar. 2007
➤ Assistance in Selecting Port Operator		Aug. 2009 – Dec. 2010
3. Consulting Service		
➤ Tender Assistance and Construction Supervision	Oct. 2005 – Nov. 2011	Mar. 2007 – Mar. 2015
➤ Assistance in Selecting Port Operator		May 2011 – Aug. 2013
4. Selection of Contractor		
➤ Package 1	Sep. 2005 – Nov. 2006	Mar. 2007 – Sep. 2008
➤ Package 2		Mar. 2007 – Sep. 2008
➤ Package 3		Apr. 2008 – Apr. 2009
➤ Package 4		Nov. 2010 – Mar. 2012

Item	Plan (At Phase I Appraisal)	Actual
5. Civil Work and Equipment		
➤ Package 1	Nov. 2006 – Nov. 2010	Oct. 2008 – Oct. 2012
➤ Package 2		Oct. 2008 – Feb. 2013
➤ Package 3		Sep. 2009 – Feb. 2011
➤ Package 4		Apr. 2012 – Oct. 2013
➤ Package 5		Oct. 2008 – Apr. 2015
➤ Package 6		Oct. 2010 – Feb. 2011
6. Guarantee Period		
➤ Package 1	Dec. 2010 – Nov. 2013	Nov. 2012 – Oct. 2014
➤ Package 2		Mar. 2013 – Feb. 2015
➤ Package 3		–
➤ Package 4		Nov. 2013 – Oct. 2014
➤ Package 5		May 2015 – June 2016 <sup>(Note 3)</sup>
➤ Package 6		Mar. 2011 – Mar. 2013
7. Land Acquisition and Resettlement of People	N.A.	N.A.
8. Project Completion <sup>(Note 2)</sup>	Sep. 2013	Apr. 2015

Source: Documents provided by JICA and Project Management Unit 85 (PMU85)

Note 1: Although the beginning of the project was mentioned as August 2004 in the Phase I project appraisal document as well as in the ex-post evaluation sheet, this ex-post evaluation used March 2005, which was the signing date of the loan agreement, as the beginning of the project.

Note 2: The project completion was defined as “the end of guarantee period” in the Phase I appraisal document, however, this was changed to “the start of operation” in the Phase II appraisal document. This ex-post evaluation used the same definition as the Phase II appraisal document.

Note 3: Package 5 contained several components including access roads and utilities. June 2016 was the end of the guarantee period for the component of the drainage of access roads in Package 5.

The main reasons for the delay were as follows: (i) the launch of consulting services was delayed by 18 months from the plan (October 2005) due to the time taken for the consultant selection procedure, leading to a delay in the start of work after bidding for the main construction; (ii) specification changes due to the revision of regulations and standards by the Vietnamese government, leading to design reviews which caused delays; (iii) as the lowest bid prices for Package 1 (Cai Mep Port construction) and Package 2 (Thi Vai Port construction) greatly exceeded the planned cost, extra time was needed to review bidding documents and reduce scope before the contracts were concluded; (iv) due to the landslide at the Thi Vai Port construction site, there was a 4 to 5 month construction delay, and (v) in order to respond to the price rises that occurred after the project cost was estimated during the feasibility study, time was taken to review the project cost estimate of Package 3 (channel dredging).

After project completion, both Cai Mep and Thi Vai terminal facilities have been operated and maintained by the private port operators Tan Cang Cai Mep Thi Vai One Member LLC (TCTT) and Thi Vai General Port JSC (TVGP) under their respective concession agreements with the Vietnam Maritime Administration (VINAMARINE). These have been in-service since April 2014 and March 2014, respectively.

### 3.2.3 Results of Calculations for Internal Rates of Return (Reference only)

#### (1) Financial Internal Rate of Return (FIRR)

The Financial Internal Rate of Return (FIRR) of this Project was 5.1% at the time of the Phase I appraisal and 5.9% at the time of the Phase II appraisal. Table 5 shows the preconditions for the FIRR. In recalculating the FIRR for the ex-post evaluation, the starting point of the project life was redefined as the signing year of the loan agreement. The recalculated FIRR under this condition was still 5.1% at the time of the Phase I appraisal, however it had dropped to 3.6% at the ex-post evaluation. This is due to the increase in the project cost and maintenance cost compared to the time of the appraisal.

Table 5: Financial Internal Rate of Return (FIRR) at the Times of Appraisal of this Project

Item	Phase I Appraisal	Phase II Appraisal
Financial Internal Rate of Return (FIRR)	5.1%	5.9%
Cost	Project cost, Operation and maintenance cost	Same as left
Benefit	Revenue from port facilities	Same as left
Project Life	30 years	30 years

Source: Documents provided by JICA

#### (2) Economic Internal Rate of Return (EIRR)

The Economic Internal Rate of Return (EIRR) of the Project was 17.4% at the time of the Phase I appraisal and 11.8% at the time of the Phase II appraisal. Table 6 shows the preconditions for the EIRR. A recalculation of EIRR was not performed for this ex-post evaluation because detailed information on the calculation model for the EIRR at the time of appraisal was not available.

Table 6: Economic Internal Rate of Return (EIRR) at the Times of Appraisal of this Project

Item	Phase I Appraisal	Phase II Appraisal
Economic Internal Rate of Return (EIRR)	17.4%	11.8%
Cost	Project cost excluding tax, Operation and maintenance cost	Same as left
Benefit	Reduction of transportation cost, Reduction of waiting time, Reduction of cost for land transportation	Same as left
Project Life	30 years	30 years

Source: Documents provided by JICA

In light of the above, although the project cost was within the scope of the plan, the project period exceeded the plan and therefore the efficiency of the project is fair.

## Facilities at Cai Mep-Thi Vai Port developed by the Project

### [Cai Mep Container Cargo Terminal]



Berth and Container Cranes



Container Yard



Port Operator Office Building

### [Thi Vai General Cargo Terminal]



Berth



Cargo Crane



Yard

## 3.3 Effectiveness and Impacts<sup>14</sup> (Rating: ③)

### 3.3.1 Effectiveness

#### 3.3.1.1 Quantitative Effects (Operation and Effect Indicators)

##### (1) Cai Mep Container Terminal

Table 7 shows the operation and effect indicators for the Cai Mep Container Terminal. In this ex-post evaluation, project completion has been deemed to be April 2015, but the terminal began operation from April 2014.

<sup>14</sup> Sub-rating for Effectiveness is to be put with consideration of Impacts.

Table 7: Operation and Effect Indicators for the Cai Mep Container Cargo Terminal

	Baseline	Target	Actual				
	2004	2017	2014	2015	2016	2017	2018
		2 years after completion		Project completion year	1 year after completion	2 years after completion	3 years after completion
Cargo Handling Volume (TEU/year)	—	360,000	15,681	102,867	232,214	402,998 (112%)	470,000
Berth Occupancy Ratio (%)	—	46	2.15	9.25	17.32	32.72 (71%)	36.97
Number of Calling Vessels (ships/year)	—	280	N.A.	N.A.	191	274 (98%)	294
Total Gross Tonnage of Calling Vessels (1000 GT/year)	—	10,000	1,305	6,188	10,768	12,945 (129%)	15,134
Average Waiting Time (hours)	—	0	N.A.	N.A.	N.A.	N.A.	N.A.

Note: Documents provided by JICA, Responses to questionnaires by VINAMARINE and private port operators.

Note 1: GT=Gross Tonnage.

Note 2: The actual figures for 2017 in the brackets are the achievement rate against the target values.

The cargo handling volume, number of calling vessels and total gross tonnage of calling vessels achieved the target values for 2017 (2 years after completion), while the berth occupancy rate achieved 70%. The implementing agency and port operator did not record the actual average waiting time and therefore it is unknown.

Although the low container handling volume and low operation rate were concerns for two to three years from the start of operation in 2014, the container handling volume has exceeded 400,000 TEU annually since 2017. The background to this increase are (i) the industrialization of Ba Ria-Vung Tau province and adjacent Binh Duong province, (ii) the congestion of existing container terminals near Ho Chi Minh City, such as Cat Lai Port, (iii) alliances recently becoming a mainstream trend in the global shipping industry, causing a tendency for ships scale up in terms of efficiency (it has become possible to accept large vessels of up to 100,000 DWT at the deep water port of Cai Mep Port, which in this respect is a great advantage), and (iv) the service level of the entire Cai Mep-Thi Vai Port, including the terminal, has improved.

Of the container cargo handled at the terminal, 80% is exported and 20% is imported, while 15% is land transported by truck and 85% is water transported by barge vessels from the terminal to nearby Ho Chi Minh City, Binh Duong, Dong Nai province, Mekong Delta region and further to Cambodia.

## (2) Thi Vai General Cargo Terminal

Table 8 shows the operation and effect indicators for the Thi Vai General Cargo Terminal. This same terminal has also been in operation since March 2014.

Table 8: Operation and Effect Indicators for Thi Vai General Cargo Terminal

	Baseline	Target	Actual				
	2004	2017	2014	2015	2016	2017	2018
		2 years after completion		Project completion year	1 year after completion	2 years after completion	3 years after completion
Cargo Handling Volume (ton/year)	—	780,000	1,311,810	2,022,789	2,969,094	3,245,537 (416%)	3,500,000
Berth Occupancy Ratio (%)	—	22	N.A.	N.A.	N.A.	N.A.	N.A.
Number of Calling Vessels (ships/year)	—	60	82	302	410	532 (887%)	520
Total Gross Tonnage of Calling Vessels (1000 GT/year)	—	1,100	N.A.	3,200	4,680	5,200 (423%)	5,600
Average Waiting Time (hours)	—	0.33	N.A.	N.A.	N.A.	N.A.	N.A.

Note: Documents provided by JICA, Responses to questionnaires by VINAMARINE and private port operators.

Note 1: GT=Gross Tonnage.

Note 2: The actual figures for 2017 in the brackets are the achievement rate against the target values.

The cargo handling volume, number of calling vessels and total gross tonnage of calling vessels have sufficiently achieved the target values for 2017 (2 years after completion). The implementing agency and the port operator did not record the actual values of the berth occupancy rate and the average waiting time, and therefore both are unknown. However, as the cargo handling volume, number of calling vessels and total gross tonnage of calling vessels all significantly exceeded target values, it is very likely that the berth occupancy rate has also been achieved.

In 2014, when the terminal first began its services, the cargo handling volume reached 1,311,810 tons a year, equivalent to 1.6 times the target value for 2017 (2 years after completion). The reasons behind this are (i) the industrialization of Ba Ria-Vung Tau province and adjacent Binh Duong province, (ii) Thi Vai general cargo terminal being large compared to other general cargo ports, with a berth of 600 meters and a wide yard area, and therefore being suitable for bulk cargo, (iii) the deep water port being able to accept large vessels, and (iv) the quality of service of the private port operators in charge of operation and maintenance of the terminal is high. At the same time, the actual number of calling vessels was 532 ships a year in 2017, which is eight times higher than the target value, although this may have been due to the many small vessels included, in addition to the 50,000 ton class ships that were initially anticipated.

In order of decreasing quantity, the terminal handles cargo which includes: (i) agricultural products such as wheat, corn and soymilk powder (imported from Brazil, Russia, Romania, Australia, Argentina, etc.), (ii) iron products such as coils (exported to Canada, U.S), and (iii) wood chips (for papermaking, exported to Japan). The proportion of land transportation is high



compared to the Cai Mep container terminal, with 15% of the cargo water transported by barge vessels and 85% on land by truck.

It is planned that three new warehouses will be constructed at the Thi Vai General Cargo Terminal in order to cope with the increase in cargo handling volume. A 4,000 square meter warehouse has already been built using the private port operator's own funds. In addition, 16 bollards and fenders have been installed in the 600m berth, which is enough for one large boat, but would be insufficient for three small boats to be anchored at the same time. In addition, it is difficult to supply power to small ships as the facilities were designed for larger ships. The private port operator is examining the possibility of adding necessary facilities according to the actual conditions of operation.

### 3.3.1.2 Qualitative Effects (Other Effects)

#### (1) Responding to Increasing Cargo Demand

As stated in “3.1.1 Consistency with the Development Plan,” the Port Group 5 to which Cai Mep-Thi Vai port, including the project facilities, belongs boasts the largest cargo handling volume in the country, with 67% of the total container handling volume, and 40% of general cargo handling volume of all Vietnamese ports. In the Port Group 5, about 80% of container cargo is handled in Cat Lai port and most general cargo is handled in the ports of Ho Chi Minh Port. The project facilities account for 8.2% of container cargo and 21.5% of general cargo in comparison with the total handling volume of the major cargo terminals at Cai Mep-Thi Vai port (Table 9, Table 10)<sup>15</sup>. From this, it can be concluded that the project has had a certain effect in terms of responding to the cargo demand at Cai Mep-Thi Vai Port. On the other hand, the cargo handling volume of the project facilities is less than 1% of the total port cargo handling volume in the southern region of Vietnam, and is therefore limited in terms of responding to the increasing cargo demand in the entire southern region.

Table 9: Cargo Handling Volume of the Major Container Terminal at Cai Mep-Thi Vai Port

Unit: TEU					
Name of Terminal	2014	2015	2016	2017	2018
TCIT	917	883	1,111	2,388	2,973
CMIT	203	365	685	1,688	1,603
SSIT	—	—	—	—	91
TCOT	38	108	232	533	623
TCTT (This project)	15	102	232	402	470
Total	1,173	1,458	2,260	5,011	5,760

Source: Documents provided by VINAMARINE

<sup>15</sup> The figures in Table 9 and Table 10 show the actual values of major containers and general cargo terminals at Cai Mep-Thi Vai Port, which have been identified by VINAMARINE. Data for specialized cargo terminals owned by private companies are not included.

Table 10: Cargo Handling Volume of the Major General Cargo Terminal  
at Cai Mep-Thi Vai Port

Unit: Tons

Name of Terminal	2014	2015	2016	2017	2018
INTERFLOUR	2,215	3,588	3,365	4,394	3,711
TCIT	N.A.	N.A.	N.A.	N.A.	N.A.
PVGAS	1,400	1,500	1,448	1,657	1,682
XD PETEC	106	234	210	390	414
XD PETRO VT	—	—	258	1,125	1,362
SSIT	202	2,170	4,148	4,421	5,583
BA SON PHU MY	—	—	34	62	61
TVGP (This project)	1,311	2,022	2,969	3,245	3,500
Total	5,234	9,514	12,432	15,294	16,313

Source: Documents provided by VINAMARINE

In order to reduce traffic congestion on the Saigon river channel, water pollution, and traffic on city roads due to freight transport, Vietnam's Ministry of Transport firmly stands by its policy of transferring the functions, except for functions such as passenger ship terminals, of the port terminals in the central city area of Ho Chi Minh City to areas in the suburbs of Ho Chi Minh City such as the Cai Mep-Thi Vai area and the Hiep Phuoc area. Meanwhile, as a feature of the port sector in Vietnam, various entities such as VINAMARINE under the Ministry of Transport, Vietnam National Shipping Company (VINALINES<sup>16</sup>), the Ministry of Defense, the Ministry of Construction, the Ministry of Trade, the Ministry of Industry, the Ministry of Agriculture and Rural Development, Provincial People's Committees, and joint ventures with foreign capital all independently formulate and maintain port plans, and either directly manage the operation and maintenance of each port (including the operation and maintenance by subsidiaries and affiliates) or outsource to private port operators. For this reason, it is very difficult to manage the interests of port owners and operators even in the southern Vietnam port group, and, therefore, the process of this function transfer is being delayed<sup>17</sup>. However, Cai Mep-Thi Vai Port is expected to play a role as a cargo transshipment port complementing the group of ports near Ho Chi Minh City by taking advantage of its capability as a deep-water port where large ships can call.

On the other hand, in order to make use of the advantages of Cai Mep-Thi Vai Port and develop it into a major port that supports Vung Tau port - which aims to become the international gateway port in the southern part of Vietnam - the following issues need to be addressed.

<sup>16</sup> A state-owned enterprise established by separating the port and maritime operations department from VINAMARINE.

<sup>17</sup> Although progress is gradual, the Ministry of Transport has already decided not to renew the contract of the Ho Chi Minh City port terminal after 2020 nor allow further expansion of Cat Lai Port, and the Ba Son shipyard has already moved from Ho Chi Minh City to the Phu My district of Ba Ria-Vung Tau province.

### 1) Improving the Convenience of Cargo Import-Export Procedures

About 80% of the container cargo handled in the Cai Mep-Thi Vai area is subject to customs clearance procedures at Ho Chi Minh Customs. The reason for this is that there are various related ministries and agencies in charge of import-export license application procedures such as customs, quarantine, environmental protection, food safety, etc. in Cat Lai Port, and it operates as a one-stop location for the necessary administrative services. There are currently two customs branch offices in the Cai Mep-Thi Vai area, but the services available in the area are mainly limited to customs-related procedures and there are no X-ray container inspection facilities. In order to cope with the future increase in cargo handling volume in the Cai Mep-Thi Vai area and also improve convenience for customers, enhancements to offer one-stop services for import-export procedures in the Cai Mep-Thi Vai area are essential<sup>18</sup>.

### 2) Development of Logistics including Road Infrastructure

Compared to port terminals in the suburbs of Ho Chi Minh City, the Cai Mep-Thi Vai area has few forwarding companies (logistic companies) and an ICD (an in-land depot located at the connection/collection point of the transportation route of containers) has not yet been established. In addition, highways connecting neighboring industrial parks such as those in Binh Duong province and Dong Nai province have not yet been completed. As mentioned above, logistics include the development of international expressways and airports such as the Ben Luc-Long Thanh Expressway (underway), the Bien Hoa-Vung Tau Expressway (in planning), and the Long Thanh International Airport (in planning), as well as the Ho Chi Minh-Dau Giay Expressway which was completed in 2017. Furthermore, the construction of access roads (inter-port roads) connecting each terminal in the Cai Mep-Thi Vai area, and the planning of new construction for the Phuc An Bridge directly connecting Dong Nai province, which is located on the north side, are also in progress. In Ba Ria-Vung Tau province, the development of a logistics park (total area of 800 hectares) including a container depot, a warehouse, a free trade zone, and a commercial area at the southern end of the Cai Mep area is currently underway. The continued development of logistics, including road infrastructure, is highly important.

### 3) Ensuring Navigational Safety of Ships Passing the Cai Mep-Thi Vai River

As the number of vessels passing through Ganh Rai Bay where Vung Tau Port is located, has almost doubled from 41,360 in 2015 to 81,057 in 2018, it is likely that the number of ships passing along the Cai Mep-Thi Vai river is also increasing. According to interviews with

---

<sup>18</sup> According to the Ministry of Transport, a one-stop service system has been successfully introduced at Lach Huyen port in northern Vietnam, but to apply this directly to Cai Mep-Thi Vai port, revisions and adjustments of rules would be necessary at the central government level.

shipping companies, there are no issues navigating the Cai Mep-Thi Vai river at night, but in the daytime, large vessels and local fishing boats are mixed in a narrow area which causes safety issues. VINAMARINE has a common understanding regarding this issue, and is making efforts to strengthen the technical and institutional capacities related to navigation safety at the Vung Tau Port Administration Bureau. Measures include thorough clearance of fishing boats when large vessels pass through the river, stricter night navigation regulations, and the strengthening of surveillance systems.

Table 11: Number of Vessels passing through Ganh Rai Bay

Unit: ships/year

Type of ship	2015	2016	2017	2018
Foreign ships	6,308	7,578	7,082	7,901
Vietnamese ships	35,052	36,183	57,775	73,156
- Open sea ships	5,012	5,053	8,974	13,273
- Inland sea ships	30,040	31,130	48,801	59,883
Total	41,360	43,761	64,857	81,057

Source: Vung Tau Maritime Administration

#### 4) Cooperation between Terminals in the Cai Mep-Thi Vai Area

There are more than 25 container and general cargo terminals operated by Vietnamese government agencies and private investment in the Cai Mep-Thi Vai area, but Cai Mep-Thi Vai port has been developed utilizing a private investment scheme which means that each terminal has been developed based on the specific business purposes of the port owners and operators. Therefore, the terminals at Cai Mep-Thi Vai port are mosaic-like and the size of each terminal is relatively small. Some terminals have high utilization rates while others are not used as frequently. Each terminal operates with its own IT systems. In order to prepare for the future increase in cargo demand, it is necessary to optimize overall port operation in the Cai Mep-Thi Vai area and make the port attractive to users. Cooperation through the sharing of facilities owned by each terminal for example, and the consideration of ways to improve efficiency and competitiveness of the entire port area are essential.

#### 5) Necessity of a Port Authority

As mentioned above, Vietnamese port owners are varied, and include central ministries, local governments, and state-owned enterprises, and each port is developed individually. Meanwhile the Vietnamese government struggles to create a structure which manages and controls the entire port sector. This is due to the absence of a port authority in Vietnam that has the responsibility and authority for port development and management. In Vietnam, the need for the establishment of a port authority has been clearly recognized, and the Ministry of Transport has made efforts, including the preparation of necessary bills, to establish a Port Management Body (PMB) with port authority functions. However, the coordination of the stakes of related organizations has been difficult, and no noticeable progress has been made.

## (2) Efficiency in Transportation Time and Costs

According to the government of Ba Ria-Vung Tau province and the industrial park officials who participated in the key informant interviews<sup>19</sup> in this ex-post evaluation, the export-related companies in the province that had previously used Ho Chi Minh Port noted benefits in reduced transportation time and transportation costs that had come with the development of Cai Mep-Thi Vai port.

### 3.3.2 Impacts

#### 3.3.2.1 Intended Impacts

##### (1) Contributing to Vietnam's Economic Development particularly in Southern Vietnam

In Ba Ria-Vung Tau province, the development of Cai Mep-Thi Vai port is regarded as one of the important policies in provincial development policy. The province is blessed with abundant natural resources enabling offshore oil and gas mining, and the province's electricity generation accounts for about 16.5% of electricity generation nationally, which means that the province plays a central role in domestic electricity production. Utilizing this, the province is active in manufacturing and exporting industries such as steel making, metal processing, resin materials, chemical fertilizers, electricity and electronics, and is actively working on investment and the attraction of foreign capital, including from Japan<sup>20</sup>. The province currently has 15 industrial parks, of which 9 have operating rates of 100% while the remaining 6 operate at a 40% rate. Partly for that reason, comparing 2010 with the past four years, the number of companies and the amount of investments has increased or has tended to increase. The province's GDP also increased 1.8 times (nominal) in seven years from 2010 to 2017. On the other hand, revenue from crude oil, a key industry, is easily affected by market prices and varies from year to year (Table 12).

Table 12: Key Economic Data of Ba Ria-Vung Tau Province

Unit: 100 Million Dong

	2010	2014	2015	2016	2017
Provincial GDP	156,063	N.A.	N.A.	230,221	274,845
Revenue	76,245	106,057	84,957	63,308	67,573
Investment	37,788	39,525	40,296	40,089	39,627
Number of Enterprises	3,280	5,323	6,831	7,623	N.A.

Source: Ba Ria-Vung Tau Statistic Yearbook 2017

Note: The data in 2017 is an estimation.

<sup>19</sup> Key Informant Interviews targeted: 1) VINAMARINE (Head Office, Vung Tau Port Administration Bureau), 2) Ba Ria-Vung Tau Province (People's Committee Secretariat, Industrial Park Department, Japan Desk Office), 3) Cai Mep customs branch office, 4) two large vessel companies, 5) four forwarding companies, 6) three industrial park operating companies, 7) five industrial park tenant companies, and 8) JETRO Ho Chi Minh branch office.

<sup>20</sup> The Vietnamese government designated Ba Ria-Vung Tau province as one of the two areas to attract Japanese supporting industries (Hai Phong city in the north, Ba Ria-Vung Tau province in the south). Ba Ria-Vung Tau province also launched the Ba Ria-Vung Tau province Japan Desk office in 2014, to focus on attracting Japanese companies.

According to Ba Ria-Vung Tau Province officials, export-related industries in the province that previously used Ho Chi Minh Port, have benefited from the convenience that has come with the development of Cai Mep-Thi Vai port and its facilities. There are three industrial parks<sup>21</sup> in the Phu My District of Baria-Vung Tau Province where Cai Mep-Thi Vai Port is located, and many Japanese companies are tenants. These companies also use Cai Mep-Thi Vai Port and have recognized the beneficial effects. However, as the cargo handling volume of Cai Mep-Thi Vai Port in the port group of southern Vietnam is currently less than 1%, the contribution of this project to Vietnam's economic development centered on the south remains limited at the time of the ex-post evaluation.

Meanwhile, in Ba Ria-Vung Tau province, the important role of Cai Mep-Thi Vai port is considered essential in promoting the industrial development and economic development of the province. Assuming that the development of transportation infrastructure such as the expressways, new airports and logistic parks currently under construction or soon planned to be so, and assuming that the logistic base progresses, leading to the expansion of the function and cargo handling volume of Cai Mep-Thi Vai Port, the project's contribution to promoting economic development in Ba Ria-Vung Tau Province and the wider southern Vietnam area is expected to increase.

### 3.3.2.2 Other Positive and Negative Impacts

#### (1) Impact on the Natural Environment

This project was classified as Category A based on the JBIC Guidelines for the Confirmation of Environmental and Social Consideration (April 2002) for sensitive sectors, characteristics and areas. The Environmental Impact Assessment (EIA) report on this project was approved by the Ministry of Natural Resources and Environment (MONRE) in November 2003. In addition, a separate EIA was created and approved by MONRE in February 2005, for the widening of the existing road from Route 51 in the Cai Mep area to the access road of the project, as well as for the electrical power lines and water pipes pertaining to the port area.

For environmental monitoring during project implementation, the contractor monitors air, water quality, noise level, soil, ecosystem and social environment parameters, the consultant checks the monitoring results, and submits an environmental monitoring report to PMU 85 every quarter, in accordance with the environmental monitoring plan. In addition, environmental monitoring results have regularly been reported to Ba Ria-Vung Tau Province's Department of Natural Resources and Environment (DONRE). The environmental monitoring results have generally been within the environmental standards of Vietnam, and necessary

---

<sup>21</sup> Phu My First Industrial Park, Phu My Second Industrial Park, Phu My Third Industrial Park.

measures were taken when the value was slightly exceeded<sup>22</sup>. Also, although 76 hectares of mangrove forests were harvested in the project, Ba Ria-Vung Tau province planted 1,098 hectares of mangrove forests around protected forests in the southeastern part of the project site<sup>23</sup>.

Environmental monitoring after project completion is carried out under the responsibility of the private port operator of each terminal. According to VINAMARINE, no negative impact on the natural environment has been reported since the facility started operation, and there have been no complaints from nearby residents.

Meanwhile, the private port operators of the project facilities regularly dredge around the terminal in order to maintain a certain water depth, with the dredged soil being disposed of at an offshore dump site designated by Ba Ria-Vung Tau province. However, since the revision of the Environmental Law in 2017, the disposal of dredged soil offshore requires the implementation and approval of EIA, and role of authorization for waste disposal has been transferred from the provincial government to the MONRE. Therefore, since 2017, it has become difficult to dispose of dredged soil offshore, and as a temporary measure, the treatment of dredged soil is being carried out at an on-site temporary disposal site designated by Ba Ria-Vung Tau province. This has become a common issue for ports throughout the country, and solutions are currently being discussed with the provincial government and MONRE.

## (2) Resettlement and Land Acquisition

A total of 129.3 hectares (1,293,323 m<sup>2</sup>) of land acquisition occurred with the implementation of this project (Table 13). The acquired sites included a mangrove forest, and 13 households that depended for their livelihood on the mangrove forest and on fish farming - and who had no ownership of the land - were targeted for relocation. These 13 households own their own homes in the city. Their huts in the mangrove forest were mainly used as temporary housing for work, and had not been registered as residential homes. As a result, all 13 households targeted for relocation settled with cash compensation<sup>24</sup>,

Table 13: Area of Land Acquisition (Actual)

Location	Area (m <sup>2</sup> )
Cai Mep Container Terminal	
• Terminal yard	480,179
• Access road	479,506
• Building and related facilities	22,500
Thi Vai General Cargo Terminal	
• Terminal yard	281,933
• Access road	10,049
• Building and related facilities	19,156
Total	1,293,323

Source: Documents provided by PMU85

<sup>22</sup> For example, there was a case where the noise level at the construction sites of access roads was not consistent with the standards. In order to mitigate this issue, counter measures were taken by the project such as the regular maintenance of vehicles and heavy equipment; the stoppage of unnecessary idling of vehicles and heavy equipment; and education of drivers for good driving manners.

<sup>23</sup> This mangrove plantation was implemented under the Forest Protection Investment and Development Program (2011-2015) of Ba Ria-Vung Tau Province.

<sup>24</sup> Objects of compensation are land, housing and structures, agricultural products, etc. Expenses such as moving costs are not included, and the compensation price was decided by the Ba Ria-Vung Tau Provincial People's Committee.

and no resettlement areas were developed. According to the People's Committee of Phu My District in Baria-Vung Tau Province, who was in charge of land acquisition and resettlement, the resettled households received compensation based on the compensation price presented by the District People's Committee, and there have been no reported complaints. The land acquisition and resettlement procedures stated above were properly implemented in accordance with the relevant laws and regulations of Vietnam.

At the time of appraisal, Ba Ria-Vung Tau province planned to provide alternative areas for fish farming and livelihood restoration programs to relocated households who desired them. However, although the project implementation agency PMU 85 and the Ba Ria-Vung Tau provincial government were contacted regarding this matter, no concrete response has been recorded, and the state of implementation could not be confirmed.

### (3) Measures Against Infectious Diseases such as AIDS

In this project, a large number of workers were called to do civil engineering work in areas with high AIDS infection rates. Therefore, HIV provisions were described in the bidding documents, and the contractor cooperated with the local government and NGOs during the construction period to educate workers on appropriate HIV/AIDS prevention measures which was expected to reduce the social risk of the spread of AIDS around the project area. During the implementation of the project, HIV/AIDS prevention measures such as health checkups for workers, awareness campaigns such as health education, and the free distribution of condoms were implemented annually with the cooperation of the provincial government and NGOs.

In light of the above, the implementation of the project has largely achieved the planned effects, and therefore its effectiveness and impact are high.

## 3.4 Sustainability (Rating:③)

### 3.4.1 Institutional / Organizational Aspects of Operation and Maintenance

<VINAMARINE>

Under the 30-year concession agreement with VINAMARINE, private port operators are in charge of the operation and maintenance of the Cai Mep Container Terminal and the Thi Vai General Cargo Terminal. Although the concession agreement includes a contract term and a rent payment schedule, as well as contract conditions, including the obligations of both VINAMARINE and private port operators, the fundamental role of VINAMARINE is to supervise the operation and maintenance of the facility managed by the port operator and to regularly monitor the condition of port facilities, compliance with relevant laws and regulations (ports, labor laws, etc.) and safety management. Every six months staff members are dispatched from the VINAMARINE headquarters in Hanoi to check the port management status of the port



operators, while routine monitoring is handled by the Vung Tau Port Administration Bureau, which is a regional agency of VINAMARINE. The bureau also monitors the navigation of ships using the Cai Mep-Thi Vai river and protects the surrounding sea and river environment. No major problems were observed in the institutional aspects of the operation and maintenance system.

#### <Cai Mep Container Terminal>

Tan Cang Cai Mep Thi Vai One Member LLC. (TCTT) is in charge of the operation and maintenance of Cai Mep Container Terminal. TCTT is a group company of Saigon Newport Co., Ltd., established in January 2014 for terminal operation and has 148 staff members. Saigon Newport Co., Ltd. was established in 1989 as a state-owned enterprise under the Ministry of Defense, and operates port management and inland container depots (ICD) at eight locations, mainly in southern Vietnam. The group has a total of about 8,000 staff members. TCTT technical staff (managers, operators, etc.) are graduates or postgraduates and have technical expertise in their respective fields of specialization. While the maintenance of port facilities and equipment is outsourced to an affiliated company of Saigon Newport, electrical facilities are outsourced to a power service company under the umbrella of Vung Tau Province. No major problems were observed in the institutional aspects of the operation and maintenance system.

#### <Thi Vai General Cargo Terminal>

Thi Vai General Port JSC (TVGP) is in charge of operation and maintenance of the Thi Vai General Cargo Terminal. The company was established in July 2014 as a joint venture of five domestic companies, Saigon Port (a subsidiary of VINALINE), Phu My General Oil Service, OTRAN Vietnam (formerly Vina Commodity), Southern Salt Corporation, and Hung Thai Oil Marine Service, and employs 71 staff members. The technical and investment department of TVGP has eight technical staff members, four of whom are university graduates and four of whom are vocational training graduates. The maintenance of equipment and port facilities is carried out by company employees. No major problems were observed in the institutional aspects of the operation and maintenance system.

#### <Issues in the Institutional Aspect of Vietnam's Port Sector>

As stated in “(1) Responding to Increasing Cargo Demand” under “3.3.1.2 Qualitative Effects.” Vietnam does not have a port authority which has the responsibility and authority to centrally manage port development and management in the sector as a whole. At the time of the ex-post evaluation, this did not have a direct negative impact on the operation and maintenance of the project facilities, but in order to ensure the sustainable operation and maintenance of the entire Cai Mep-Thi Vai port area in the future, the establishment of a port authority is required.

### 3.4.2 Technical Aspects of Operation and Maintenance

#### <VINAMARINE>

Regarding operation and maintenance, the role of VINAMARINE is mainly supervision of the operation and maintenance of the facilities run by the port operators of the project facilities, and it is not directly involved in the operation and maintenance of the facilities. VINAMARINE holds an annual meeting with the private port operators to evaluate the status of contract fulfillment, including the maintenance of facilities. According to VINAMARINE, there has been no problem in the technical capacity for operation and maintenance on the part of private port operators from the start of operation of the facilities to the time of ex-post evaluation. In relation to this project, JICA implemented the technical cooperation “The Project on the Improvement of the Port Management System” (2005-2008). With the aim of improving the port administration and port management capabilities of VINAMARINE and of establishing a terminal operation system for gateway ports, the project drafted a legal system for port operation, formulated a port administration and port management plan, drafted a form of bidding for private port operators responsible for the port management, drafted the contract, drafted the concession plan, and conducted training for the counterpart VINAMARINE staff. According to VINAMARINE, knowledge gained through this technical cooperation has been used as reference in the introduction of the PPP scheme for the ongoing “Lach Huyen International Port Infrastructure Construction Project<sup>25</sup>” under the Japanese ODA loan, in the preparation of the 2015 Vietnam Maritime Code, and in the ministerial ordinance on the establishment of the PMB (Port Management Body). No major problems were observed in the technical aspects of the operation and maintenance system.

#### <Cai Mep Container Terminal>

Many TCTT staff members were transferred from Saigon Newport and its group companies, and have experience working in other ports in Vietnam. TCTT staff members attend various training courses provided by Saigon Newport, as needed. Key personnel in each department are required to regularly take various training courses according to their specialties. The training programs in which TCTT staff members have participated are as shown in Table 14. For port facilities and equipment, manuals (in English and Vietnamese) prepared by each supplier are used. No major problems were observed in the technical aspects of the operation and maintenance system.

---

<sup>25</sup> With the Japan ODA loan, this project adopts the “two tier system” for the development of land, the construction of seawalls and sandbanks, the construction of channels and anchorage weirs as well as access roads and bridges, in addition to the construction of container berths, cargo handling cranes, yard pavements, buildings, etc. using private funds. After completion, private port operators will conduct port management.

Table 14: Training Programs of TCTT

Training Program	Number of trainees (person)	Frequency
1. Communication Skills	122	As per requirement
2. Chemical Safety Techniques	1	Same as above
3. Knowledge of Maritime Law	2	Same as above
4. Oil Spill Response	3	Same as above
5. Network Administration	1	Same as above
6. Fundamentals in Bidding	1	Same as above
7. Consolidated Financial Reporting	1	Same as above
8. Barges Mapping	9	Same as above
9. Port Security and Safety - Emergency Response Plan (Overseas)	1	Same as above
10. Sales - Marketing (Overseas)	1	Same as above

Source: TCTT

<Thi Vai General Cargo Terminal>

Among the five TVGP-funded companies, Saigon Port and Phu My General Oil Service operate their own port, and work alongside personnel from the TVGP management team who have experience in operations at other ports. TVGP training is outsourced. The training programs implemented by TVGP are shown in Table 15. For berths, yards, container cranes, etc., manuals provided by contractors and suppliers are used. The manuals are translated from English to Vietnamese in-house. There are no technical issues.

Table 15: Training Programs of TVGP

Training Program	Number of trainees (person)	Frequency
1. Cargo Handling Skills	9	Once for each staff member
2. Cable Carriage Hooking Skills		
3. Anchoring Skills		
4. Lifting Equipment Safety	28	Every 2 years
5. Electrical Safety	20	Every 2 years
6. Pressure Equipment Safety	9	Every 2 years
7. Forklift Operation	3	Once for each staff member
8. Operating of Air Compressor	4	

Source: TVGP

3.4.3 Financial Aspects of Operation and Maintenance

<VINAMARINE>

As the private port operator will bear the operation and maintenance costs of the port facility using port income, VINAMARINE will be burdened with costs.

<Cai Mep Container Cargo Terminal>

The balance of TCTT is as shown in Table 16. Although the maintenance cost has been rising every year as the container handling volume has increased, according to TCTT, the necessary

maintenance costs are secured. Against the increase in container handling volume, TCTT revenue has decreased. This is due to the yearly increase in tenant fees paid to VINAMARINE in accordance with the payment schedule defined by the concession agreement. At the time of ex-post evaluation, there were no financial issues.

Table 16: Income and Expenditure of TCTT

Unit: Million Dong

Item	2014	2015	2016	2017	2018
<b>Income</b>					
Terminal Handling Charge (THC)	N.A.	N.A.	138,400	309,700	358,900
Barging Fee	N.A.	N.A.	108,500	199,400	222,000
Lift-on/lift-off Fee	N.A.	N.A.	4,900	4,500	11,200
Berthing Fee	N.A.	N.A.	12,400	14,300	15,000
Others	N.A.	N.A.	73,800	29,800	20,100
Finance income	N.A.	N.A.	2,430	970	5,200
Other income	N.A.	N.A.	250	700	1,200
Sub-total (Income)	N.A.	N.A.	340,680	559,370	633,600
<b>Expenditure</b>					
Terminal Leasing	N.A.	N.A.	35,100	70,100	104,800
Repair and Maintenance Cost	N.A.	N.A.	32,880	36,100	45,680
Labor Cost (staff salary, etc.)	N.A.	N.A.	25,200	25,500	28,400
Operation cost	N.A.	N.A.	197,810	356,120	389,120
Administration Cost	N.A.	N.A.	13,600	20,000	23,400
Sale Cost	N.A.	N.A.	21,600	32,200	34,100
Finance cost	N.A.	N.A.	270	950	200
Other cost	N.A.	N.A.	120	13,500	1,200
Sub-total (Expenditure)	N.A.	N.A.	326,580	554,470	626,900
<b>Balance (Profit/Loss) before tax</b>			14,100	4,900	6,700

Source: TCTT

Note: The data for 2018 is an estimation.

#### <Thi Vai General Cargo Terminal>

The balance of TVGP is shown in Table 17. According to TVGP, the necessary maintenance costs have been secured to date. However, based on the payment schedule fixed in the concession agreement, the VINAMARINE tenant fee will gradually increase<sup>26</sup>, and considering the strong operation status of the current facility, the on-site cargo receiving capabilities will be almost saturated within a few years, causing sales growth to slow down, and meaning that methods to secure necessary maintenance expenses will be an issue moving forward. At the time of the ex-post evaluation, there were no financial problems, but in the future, specific measures will be required to secure necessary maintenance costs.

<sup>26</sup> Private port operators have entered into individual concession agreements with VINAMARINE after the bidding procedure, but the fee payment conditions and schedule for TVGP tenants are relatively stringent compared to those of TCTT.

Table 17: Income and Expenditure of TVGP

Unit: Million Dong

Item	2014	2015	2016	2017	2018
<b>Income</b>					
Berth and Wharf service fees	25,619	22,856	30,570	27,714	25,391
Cargo lift-on/lift-off, transport & inspection fees	15,314	66,927	112,449	127,900	110,563
Storage, Yard, Office, Equipment rental	1,091	11,636	39,917	31,862	19,587
Other service fees	126	466	1,178	1,254	1,011
Financial income	25	1,377	2,073	3,221	1,692
Other income	3	19	3		89
Sub-total (Income)	42,40	103,281	186,190	191,950	158,332
<b>Expenditure</b>					
Operation and Maintenance Cost (Excluding salaries)	23,945	70,349	123,274	138,662	119,715
Labor Cost (staff salaries, etc.)	3,985	12,641	14,302	14,686	11,195
Administration Cost (Excluding salaries)	2,132	5,942	6,578	5,748	3,638
Sales expenditure	314	651	916	972	12
Financial expenditure	0	6	2	12	0
Other	2	26	0	0	0
Sub-total (Expenditure)	30,379	89,615	145,073	160,080	134,560
<b>Balance (Profit/Loss) before tax</b>	12,030	13,666	41,117	31,870	23,772

Source: TVGP

Note 1: The operation and maintenance cost includes the outsourcing cost for port labors.

Note 2: The actual figures in 2018 covers 9 months from January to September.

#### 3.4.4 Status of Operation and Maintenance

##### <VINAMARINE>

VINAMARINE and the Vung Tau Port Administration Bureau regularly monitor the operation and maintenance status of the project facilities, and since the port began service, no major problems - including safety management issues - have been reported.

##### <Cai Mep Container Terminal>

TCTT carries out operation and maintenance based on the scheduled maintenance and inspection plan. The berth, terminal yard, access roads and sewage facilities are regularly checked every six months, office buildings and water supply facilities every three months, and quayside container cranes and power supply facilities on a monthly basis. The conditions of the main facilities are well maintained. Although ground subsidence has occurred in near the truck entrance gate and other areas of the container yard, causing the ground to sink 40 to 50 cm in the past three years, operational obstacles caused by this are limited. According to VINAMARINE, this ground subsidence was foreseen from a design point of view, and no problems are expected to occur in 40 to 50 years of use<sup>27</sup>. As a measure against subsidence, locations such as weight bridges were reinforced with concrete pavement, and the situation is

<sup>27</sup> According to VINAMARINE, the same ground subsidence has also been observed in other ports such as Tan Cang and Haiphong, and it is recognized as an inevitable problem.

continuously being monitored. No major problems were observed in the status of operation and maintenance.

#### <Thi Vai General Cargo Terminal>

TVGP carries out daily, monthly, and half year maintenance based on a regular maintenance plan. In addition to routine maintenance, regular inspections are conducted for office buildings and sewage facilities every six months, and for terminal yards, quayside container cranes, access roads, water supply facilities and power supply facilities every month. The condition of the main facilities is well maintained. No major problems have been observed in the status of operation and maintenance.

As described in “3.3.2.2 Other Positive and Negative Impacts” “(1) Impact on the Natural Environment.” with the revision of the new environmental law in 2017, it has become difficult to dispose of dredged soil offshore of Vung Tau province as was previously done. At the time of the ex-post evaluation, discussions were underway with MONRE and the Ba Ria-Vung Tau Provincial Government to solve the issue of the treatment of dredged soil.

No major problems have been observed in the institutional aspects, technical aspects, financial aspects and current status of the operation and maintenance system. Therefore, the sustainability of the project effects is high.

## **4. Conclusion, Lessons Learned and Recommendations**

### 4.1 Conclusion

The objective of the project was to construct container and general cargo terminals in the Cai Mep-Thi Vai area of southern Vietnam’s Ba Ria-Vung Tau Province and develop infrastructure related to the terminals, in response to the increasing demand of cargo in the country, thereby supporting economic growth, not only in southern Vietnam, but in the country as a whole. The relevance of these objectives is high, as they are consistent with Vietnam’s development plan and development needs, as well as with Japan’s ODA policy. Although the project cost was within the plan, the project period exceeded the plan and therefore the efficiency of the project is fair. The operation and effect indicators of the project facilities, such as the cargo handling volume, the number of calling vessels, and the total gross tonnage of calling vessels have achieved the targeted values, and the project has had a certain effect in terms of meeting the cargo demand at Cai Mep-Thi Vai Port. In addition, export-related companies in Ba Ria-Vung Tau Province have found improvements in transportation efficiency and lower transportation costs. A positive impact has been observed with the development of Cai Mep-Thi Vai Port, including the project facilities. For example, export-related industries in the province have benefited from better convenience by

shifting their activities from Ho Chi Minh Port to Cai Mep-Thi Vai Port. However, considering that the cargo handling volume at the project facilities is less than 1% of the overall port cargo handling volume in the southern region of Vietnam, its contribution to the region's economic development is limited. No negative impact on the natural environment was observed, and land acquisition and resettlement due to the implementation of the project were properly conducted in accordance with the relevant laws and regulations in Vietnam. For that reason, effectiveness and impact are high. No major problems were observed in the institutional aspects, technical aspects, financial aspects and current status of the operation and maintenance system. Therefore, the sustainability of the project effects is high.

In light of the above, this project is evaluated to be highly satisfactory.

## 4.2 Recommendations

### 4.2.1 Recommendations to the Executing Agency

#### (1) Recommendations to VINAMARINE

##### 1) Promote Cooperation between each Cai Mep-Thi Vai Terminal and Establish a PMB (Port Management Body)

It is necessary to seek overall optimization of port operations in the Cai Mep-Thi Vai area. Therefore, it is recommended that VINAMARINE takes on the role of coordinating with relevant agencies and terminal operators to promote cooperation between each terminal in the Cai Mep-Thi Vai area - which would include, for example, the joint use of the facilities owned by each terminal - and to enhance operation efficiency within the area.

Furthermore, in order to implement the above coordination systematically and smoothly, the establishment of a port authority to manage all ports in Vietnam is essential. Currently, VINAMARINE is working with the Ministry of Transport to design a system, including a law for establishing a PMB (Port Management Body) with a port authority function. It is recommended that they continue to work together with related ministries and agencies to discuss and coordinate on this matter.

##### 2) Ensuring Navigational Safety of Ships Passing on the Cai Mep-Thi Vai River

It is recommended that VINAMARINE, especially the Vung Tau Port Administration Bureau, continues to strengthen safety management of the route, such as the thorough clearance of fishing boats etc. when large vessels pass through the Cai Mep-Thi Vai river, tightening night navigation regulations, and enhancing surveillance systems.

(2) Recommendations to the Ministry of Transport and Ba Ria-Vung Tau Province

1) Development of Logistics including Road Infrastructure

To expand the use of the Cai Mep-Thi Vai port, it is recommended that the Ministry of Transport and Ba Ria-Vung Tau Province promote the development of the road infrastructure and logistics essential for port operation, such as the development of ICD in the Cai Mep-Thi Vai area, the connection of highways with neighboring industrial parks such as in Binh Duong province and Dong Nai province, and the reconstruction of the Phuoc An bridge which is a bottleneck between Ba Ria-Vung Tau Province and Dong Nai Province.

(3) Recommendations to the General Directorate of Vietnam Customs

In order to respond to the future increase of cargo handling volume in the Cai Mep-Thi Vai area as well as improve customer convenience, the following is recommended: enhancements to offer a one-stop location for the various administrative services required for import-export operations, including customs clearance procedures, in the Cai Mep-Thi Vai area, cooperation with related ministries and agencies, and the modernization of customs facilities including the introduction of X-ray container inspections.

4.2.2 Recommendations to JICA

None

4.3 Lessons Learned

Support Approach which aligns Port Maintenance and Port Management System

From the standpoint of port operation efficiency, it was a global trend at the time of appraisal, that port ownership rights and port operating rights were separated, and that the government sector was taking on facility ownership and operation monitoring. Under these circumstances, this project, which aimed to develop an international terminal dedicated to container and general cargo in the Cai Mep-Thi Vai area, and the technical cooperation planned after the completion of the project, called “Improvement of Port Management Systems in the Socialist Republic of Vietnam” which aimed to prepare a concession system that entrusts port management to the private sector, to enhance port management systems and to develop capacity of counterpart employees, led to a contribution in terms of developing and securing sustainability of effects after project completion.

End



## Comparison of the Original and Actual Scope of the Project

Item	Plan	Actual
1. Project Outputs	(Phase II Appraisal)	Same as planned
1) Civil Works and Procurement		
Package 1 (Cai Mep Container Terminal)		
➤ Terminal yard	Reclamation area: 37.8 ha	
➤ Berth	-15m depth×300m×2 Basin dredging vol.: 116,565m <sup>3</sup>	
➤ Utilities	(Inside terminal) Water supply, Electric power supply, Drainage and sewage, Yard lighting, Fencing, Firefighting	
➤ Building and pavement	PMB branch office, Amenity block, Maintenance shop, Gate, etc. Yard pavement area 317,000m <sup>2</sup>	
Package 2 (Thi Vai General Cargo Terminal)		
➤ Terminal yard	Reclamation area: 24.6 ha	
➤ Berth	-14m depth×300m×2 Basin dredging vol.: 165,756m <sup>3</sup>	
➤ Access road	New road: 800m	
➤ Utilities	(Inside terminal) Water supply, Electric supply, Drainage and sewage, Yard lighting, Fencing, Firefighting	
➤ Building and pavement	PMB branch office, Amenity block, Warehouse, Transit sheds, Maintenance shop, Gate, etc. Yard pavement area: 230,700m <sup>2</sup>	
Package 3 (Navigation Channel Dredging)	River section dredging vol.: 1,890,857m <sup>3</sup> Sea section dredging vol.: 8,807,767m <sup>3</sup>	
Package 4 (Equipment)	(Cai Mep Container Terminal) Quayside container crane: 4 RTG crane: 15 (Thi Vai General Cargo Terminal) Multi-purpose quayside crane: 2	
Package 5 (Cai Mep Container Terminal) (Own fund of the Vietnamese Government)		
➤ Access road	New road: 8,200m, New bridge: 345m Improvement of soft soil: 12,255m	
➤ Utilities (Outside facilities)	(Outside terminal) Water supply, Electric power supply	
➤ Improvement of soft soil	Total 12,255m	

Item	Plan	Actual
Package 6 (Navigation Equipment) (Own fund of the Vietnamese Government) 2) Consulting Services a. Tender Assistance and Construction Supervision b. Assistance for Selecting Port Operator	Navigation Buoy: 1 unit  International expert: 303 MM Local expert: 546 MM Supporting staff: 996 MM  International expert: 87 MM Local expert: 127 MM Supporting staff: 165 MM	Same as planned
2. Project Period	March 2005 - November 2013 (94 months) (Phase I Appraisal)	March 2005 - April 2015 (122 months)
3. Project Cost		
Amount Paid in Foreign Currency	23,691 million yen	22,186 million yen
Amount Paid in Local Currency	34,798 million yen (8,699,500 million VND)	35,512 million yen (6,398,558 million VND)
Total	58,489 million yen	57,698 million yen
ODA Loan Portion	45,306 million yen	42,771 million yen
Exchange Rate	1 VND = 0.004 yen (As of May 2012) (Phase II Appraisal)	1 VND = 0.00555 yen (Average between 2004-2015)
4. Final Disbursement	November 2013 (Phase I Appraisal)	April 2015