

**1. Project Description**



Project Site



Tien Sa Terminal

**1.1 Background**

Vietnam has a long coastline, totaling 3,260 km, as well as approximately 14,000 km of navigable rivers and canals, along which numerous ports exist. With the rapid economic development under the doi moi policy, cargo transportation by water has increased since the 1990s.

The Tien Sa Terminal (hereafter “Tien Sa Port”) of Da Nang Port<sup>1</sup>, located in Da Nang in Central Vietnam, is the third largest international sea port in the country (in terms of cargo handling volume) after Sai Gon Port in the South and Hai Phong Port in the North. Tien Sa Port is the center of maritime transportation in the Central region, and is also positioned as the eastern gateway of the 1,450 km East-West Economic Corridor passing through Vietnam, Laos, Thailand and Myanmar<sup>2</sup>.

However, Tien Sa Port shared similar problems with other ports in Vietnam. These included aging facilities which had not been adjusted to meet the trends in the growing size of vessels and containerization. Also, as there was no breakwater, there was a high number of days when ship anchorage was impossible (30-60 days a year in 1995-1997) which hindered efficient cargo handling. Inconvenient road access to National Highway No. 1, a main arterial highway connecting the North and South regions, was another problem.

**1.2 Project Outline**

To enhance transportation in Central Vietnam through the improvement of Da Nang (Tien Sa) Port, located in Da Nang City in Central Vietnam, together with related port access, thereby contributing to the socio-economic development of the region.

<sup>1</sup> Da Nang Port includes Tien Sa Terminal (sea port), Song Han Terminal (river port) and several other terminals used solely by particular companies.

<sup>2</sup> A component of the Expansion Maekong Regional Development Plan. Based on a Feasibility Study conducted by ADB, several Japanese ODA loan projects are involved: the Da Nang Port Improvement Project, the Hai Van Tunnel Construction Project and the 2nd Maekong International Bridge Project (Laos and Thailand).

Logical Framework Applied for Ex-Post Evaluation

Goal	Socio-economic development in Central Vietnam
Purpose	To enhance transportation in Central Vietnam through Tien Sa Port
Outcome	1) Increase in cargo throughout Tien Sa Port 2) Improvement of utilization of port capacity 3) Improvement of receiving capacity of Tien Sa Port 4) Improvement of access to Tien Sa Port
Outputs (planned at appraisal)	1) Improvement of Tien Sa Port: Construction of breakwater, repair of Piers 1 & 2, construction of container terminal, dredging, purchase of cargo-handling equipment 2) Improvement of access roads Construction of access roads, construction of Tuyen Song Bridge, improvement of Hoa Cam Junction 3) Construction of resettlement sites 4) Consulting services
Input (Planned at appraisal)	Total project cost: 13,637 million yen out of which, Japanese ODA loan: 10,690 million yen GOV contribution: 2,947 million yen

Approved Amount / Disbursed Amount	10,690 million yen / 9,210 million yen
Exchange of Notes Date/ Loan Agreement Signing Date	March, 1999 / March, 1999
Terms and Conditions	Interest Rate: 0.75% p.a.* or 1.8% p.a. Repayment Period: 40 years* or 30 years (Grace Period: 10 years) Conditions for Procurement: General Untied
Borrower / Executing Agencies	The Government of the Socialist Republic of Vietnam / Project Management Unit No. 85 (PMU85), Ministry of Transport
Final Disbursement Date	January 23, 2007
Main Contractor (Over 1 billion yen)	Civil Engineering Construction Corporation No.1 (CIENCO 1) (Vietnam) - Civil Engineering Construction Corp. No.5 (CIENCO 5) (Vietnam) (JV) / Civil Engineering Construction Corporation No.6 (CIENCO 6)(Vietnam) / Rinkai Construction (Japan) - Vietnam Waterway Construction Corporation (Vietnam) (JV)
Main Consultant (Over 100 million yen)	Maunsell Group (Australia) - Japan Port Consultants, Ltd. (Japan) - Transport Engineering Design Corporation (Vietnam) (JV)
Feasibility Studies, etc.	"East-West Transportation Corridor Project, Tien Sa Port Design, Danang" Manusell Pty Ltd., ADB, 1997 "The Feasibility Study on Tien Sa and Access Road Improvement- Expansion Project" Transport Engineering Design Inc., 1998
Related Projects	Hai Van Pass Tunnel Construction Project (Japanese ODA Loan; Loan Agreement signed on March 1997)

Note: \*1) For Consulting Services

## **2. Outline of the Evaluation Study**

### **2.1 Evaluators**

The Vietnam-Japan Joint Evaluation Team 2009 consisted of three Working Groups, each of which evaluated different projects. This project was evaluated by the Da Nang Port Group joined by the following members:

- Ms. Phan Thị Liên, PMU 85
- Mr. Nguyễn Đại Dũng, Vietnam National Shipping Lines
- Mr. Nguyễn Xuân Dũng, Da Nang Port Company
- Mr. Hồ Ninh, Da Nang Port Company
- Mr. Phạm Đăng Hòa Bình, Da Nang Port Company
- Mr. Trịnh Đức Trọng, Ministry of Planning and Investment
- Mr. Nguyễn Ngọc Hải, Ministry of Transport (Evaluation Advisor)
- Mr. Trần Lê Trà, PeaPROs Consulting JSC (Vietnamese Evaluation Consultant)
- Mr. Mai Thế Cường, National Economic University (Vietnamese Evaluation Coordinator)
- Ms. Takako Haraguchi, International Development Associates (Japanese External Evaluator)

### **2.2 Duration of Evaluation Study**

For the ex-post evaluation, the study was conducted as per the following schedule.

Study Period: September 2009 – June 2010

On-Site Survey: November 30 – December 4, 2009 and January 16 – 27, 2010

### **2.3 Constraints during the Evaluation Study**

As this was a joint evaluation with the dual purposes of (i) fulfilling the evaluation task of JICA and (ii) developing the evaluation capacity of personnel concerned in Vietnam through actual involvement in evaluation activities, a large part of the study period was spent in training for evaluation team members and in discussions within the team. At the same time, data/information for evaluation in some aspect, including comprehensive and detailed data on operation of Da Nang Port (related to the evaluation of Effectiveness and Sustainability), were not provided on time. Therefore, the evaluation team could not complete some analyses such as recalculation of internal rates of return.

## **3. Results of Evaluation (Overall Rating: A)**

### **3.1 Relevance (Rating: a)**

#### **3.1.1 Relevance with the Development Plan of Vietnam**

The evaluation team examined major policy/ planning documents from the project appraisal stage and the ex-post evaluation stage, such as the Socio-Economic Development Plan (SEDP) of Vietnam, the SEDP of Da Nang City, the National Transportation Master Plans<sup>3</sup>, and Master Plans on Port Development. All of these documents mention the development of the Central region as a key priority, and the development of Tien Sa Port as one of the important measures for this.

This project is to implement Phase 1 of the three-phased Master Plan for Da Nang Port improvement and development prepared with JICA technical assistance in 1998 (see Box 1). This Master Plan is fully based on the National Port Development Master Plan (1996) and the ADB feasibility study on East West Economic Corridor development (1997).

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<sup>3</sup> The Transportation Master Plan after 2001 refers to *The Study on the National Transport Development Strategy in the Socialist Republic of Vietnam (VITRANSS) 1* (2001) and *VITRANSS 2* (2010) prepared with JICA technical assistance.

### Box 1: Da Nang Port Development Master Plan

- Phase I: rehabilitation of existing ports to handle 2.2 million ton/year of cargo (target year: 2004). This project is to implement the Phase I plan.
- Phase II: expansion of existing ports to handle 3.6 million ton/year of cargo (target year: 2009)
- Phase III: construction of Lien Chieu Port on the opposite shore of Da Nang Bay to handle 4.5 million ton/year or more (target year: 2012)

Source: JICA, 1998, OECF Special Assistance for Project Formulation for Da Nang Port Expansion Project

#### 3.1.2 Relevance with the Development Needs of Vietnam

A need for an increase in cargo handling capacity at Tien Sa Port was observed. At the appraisal stage of this project, it was projected that cargo passing through the country would increase from 14.4 million tons in 1996 to 131 million tons in 2010. In fact, this number reached 181 million tons in 2007, with an average annual increase rate of 12% in 2003-2007.

In Tien Sa Port also, cargo volume was projected to increase from 0.9 million tons in 1996 to 10 million tons in 2010. However, the capacity of the Port in 1998 was 1.1 million tons with the existing piers (Pier 1 and Pier 2 with total 4 berths), or 1.7 million tons after completion of the fifth berth constructed by the Vietnamese Government<sup>4</sup>. As mentioned in *1.1 Background*, the aged and poor infrastructure and facilities of the Port hindered efficient cargo handling in terms of both bulk and containers.

Furthermore, there was a need for comprehensive development of the transportation infrastructure, including both city traffic and medium and long distance transportation (via the north-south axis of National Highway No.1 as well as through the East West Economic Corridor) as industrial and tourism development was promoted in Da Nang and neighboring areas.

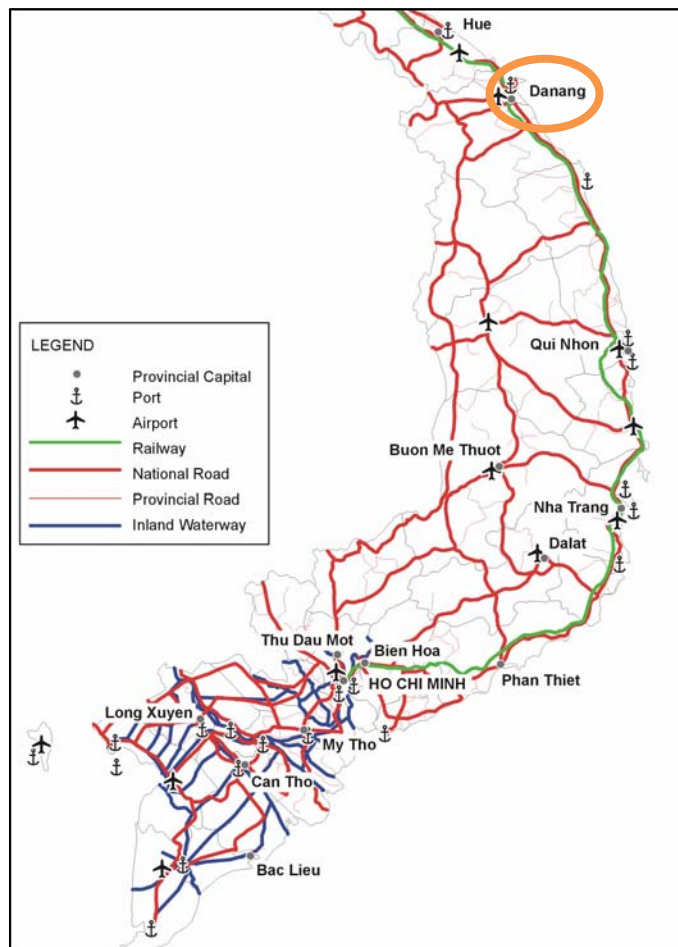


Figure 1: Major ports in the transportation system of central to southern Vietnam

<sup>4</sup> Berth 5 was constructed by the Ministry of Transport in 1997, and extended by Da Nang Port (operation and maintenance agency) in 2001.

### 3.1.3 Relevance with Japan's ODA Policy

In the Japanese country assistance policy for Vietnam (1994), the development of infrastructure was one of the five priority areas. As of FY1998, 30% of the total Japanese ODA loans since 1993 had been designated to the transportation sector.

This project has been highly relevant with the country's development plan, development needs, as well as Japan's ODA policy, therefore, its relevance is high.

## 3.2 Efficiency (Rating: b)

### 3.2.1 Project Outputs

The outputs originally planned, namely, the improvement of Tien Sa Port, the improvement of port access roads, the construction of resettlement areas and consulting services, were completed mostly as planned. These were implemented in six packages (Table 1 and Figure 2).



Figure 2: Project location

Table 1: Key outputs of the project

KEY OUTPUTS	PLANNED	ACTUAL	REMARKS
<b>Package 1</b> Construction at Tien Sa Port	Breakwater: Length = 250m	<b>Breakwater: Length = 471.9m</b>	Breakwater length extended to better accommodate vessels
	Repair of Pier 1 & 2	Pier 1 & 2 repaired	Same as planned
	Container terminal: 45,414m <sup>2</sup>	Container terminal: 92,000m <sup>2</sup>	Adjusted
	Office Building: <ul style="list-style-type: none"> <li>Administration office,</li> <li>Amenity house,</li> <li>Container freight station (CFS),</li> <li>Maintenance shop,</li> <li>Equipment yard,</li> <li>Gate</li> </ul>	Office Building <ul style="list-style-type: none"> <li>Administration office: 4 floors, total floor area: 2100m<sup>2</sup></li> <li>Amenity house: 2 floors, constructed area 900m<sup>2</sup></li> <li>Maintenance shop: Constructed area 1230m<sup>2</sup></li> <li>Container freight station: Constructed area 767m<sup>2</sup> and 2 weighbridges with loading capacity of 65 ton</li> <li>Gate and fence system 1.043m</li> </ul>	Same as planned
<b>Package 2</b> Dredging	For Pier 1 and Pier 2 Depth: CDL -10m;	For Pier 1 and Pier 2 Depth: -10m	Same as planned
	Dredging volume: 55,400m <sup>3</sup>	<b>Dredging volume: 222,565m<sup>3</sup></b>	Additional volume for better access for large ships
<b>Package 3</b> Procurement of equipment	Cranes, tractors, Chassis, forklift, maintenance equipment, tugboat, computer system	Smaller quantity of equipment was procured	Adjusted to make use of existing equipment
<b>Package 4</b> Port access	Improvement of access road (Ngo Quyen Street): 4 lanes, 12km	Access road improved (Ngo Quyen street): 4 lanes, 12.3km	Slightly adjusted
	<b>Improvement of Hoa Cam T-junction</b>	<b>Hoa Cam flyover constructed (L=248.19m)</b>	Design modified to alleviate traffic congestion
		Ngo Quyen bypass constructed (L=2,865m)	Added for better future traffic flow
		Da Nang bypass constructed (L=18,283.12m)	Added for better future traffic flow
<b>Package 5</b> Tuyen Son Bridge	4 lanes, 520m; Approach road	L bridge = 519.1m Approach road L = 1,478.2m	Slightly adjusted
<b>Package 6</b> Resettlement	Affected households: 83	Affected households: 5,445 (of which 1,632 affected by the construction of Da Nang bypass)	Increased due to additional road construction
	Construction area: 238,846m <sup>2</sup>	Construction area: 239,638m <sup>2</sup>	Slightly adjusted

Source: PMU 85

All of the packages were adjusted to meet the practical conditions and requirements of local development policies at the time of implementation. As a result, the actual workload and sizes of the packages, with exception of package 3, were larger than planned. It has been noted that a balanced budget was used to cover the expenses of additional work caused by the adjustments. The total investment, therefore, remains within the originally approved budget. However, the duration of the implementation increased remarkably.

(1) Improvement of Tien Sa Port

Key outputs of Package 1 include the construction of a breakwater, a container terminal, an office building and the repair of two piers (Figure 3). A number of other outputs, namely the container gate, maintenance workshop, container freight station and brick fence around the port area, were also constructed and equipped in order to enhance the smooth operation of the port.



Figure 3: Key construction at Tien Sa Port

**Breakwater.** One of the most important adjustments in Package 1 was that of the breakwater, which was originally designed with a length of 250m. By September 2003, a 271.9m breakwater had been constructed. From June 2005 to April 2007, an almost additional 200m was constructed, increasing the total length of the breakwater to 471.9m. The adjustment is assessed to be positive in that it ensures a higher rate of use of the piers in unfavorable weather conditions.

**Container terminal.** The container terminal was also constructed in two stages. The first took place from January 2002 to December 2003, when a container yard of 47,023m<sup>2</sup> was constructed. The extension of the container yard, which started in mid January 2004 and was completed in September of the same year, increased the total area of the container yard to nearly 92,000 m<sup>2</sup>.<sup>5</sup>

<sup>5</sup> The total area available for container yards in Tien Sa Port was approximately 92,000m<sup>2</sup>, out of which the project originally planned to develop 45,414m<sup>2</sup> and actually developed 47,023m<sup>2</sup> in the first stage. However, as the ground level of this area became more than 1 m higher than the other area, elevation of the remaining 44,977m<sup>2</sup> and other related works were added in the second stage to reduce such a big difference in level. There is still a 5cm gap between the ground level of the first stage and second stage areas (i.e., the second stage area is 5cm lower) for the elevation of the remaining 5cm in the second stage area will be done after the planned construction of crane foundations in future..

**Dredging.** The dredging work took place for Pier 1 and Pier 2 (Berths 1-4)<sup>6</sup> at a depth of 10m as designed. However, the dredging volume increased remarkably from 55,400 m<sup>3</sup> to 222,565m<sup>3</sup> to dredge a wider navigation area to provide better access for large ships.

**Procurement of equipment.** Based on the actual conditions of Tien Sa Port and the existing equipment available at the Port, the Vietnam National Shipping Lines (VINALINES) requested PMU 85 that the quantity of some equipment intended for Da Nang Port be reduced (Table 2). However, since the electric system at the port area was not stable at the time of project implementation, at risk was the safe and effective operation of other equipment such as the quayside container crane and the lighting system at container terminal. Thus, additional investment in an emergency generator by using residual budget was proposed by the port and approved by MOT.

Table 2: Types and quantity of equipment procured

ITEMS	PLANNED	ACTUAL
Quayside container crane	1 unit	1 unit
Transfer crane	2 units	2 units
Yard Tractor	8 units	4 units
Yard chassis	12 units	6 units
Forklift	3 units	3 units
Maintenance equipment		0 unit
Tugboat	1 unit	0 unit
Computer system		1 unit
Emergency Generator	Not planned	1 unit

Source: PMU 85

(2) Improvement of port access

The package for port access originally included the improvement of an access road (Ngo Quyen street on National Highway No. 14B) and Hoa Cam junction.



Ngo Quyen street before and after the project

The design of Hoa Cam junction was, however, modified from a T-junction to a flyover to ensure traffic safety and to accommodate a larger traffic volume, which was expected to increase sharply when the East West Economic Corridor is completed and more vehicles, including heavy trucks, travel in and out Tien Sa Port during rush hours.



Hoa Cam flyover

<sup>6</sup> Berth 5 (-12m) was dredged by Da Nang Port.



(3) Additional outputs using the balanced budget

Ngo Quyen bypass and Da Nang bypass (South Hai Van - Tuy Loan bypass) are two important additional outputs using the residual budget of the project.

**Ngo Quyen bypass.** This bypass was built to ensure a smooth flow of traffic during the construction of Ngo Quyen access road. It was also expected that this would help in speeding up the progress of Ngo Quyen bypass construction by reducing traffic volume through the construction site. The bypass is still in use and provides an exit for small vehicles in the case of traffic jams.

**Da Nang bypass.** This bypass has a total length of 18,283.12m, beginning at Hai Van pass tunnel (constructed by another Japanese ODA loan project) and ending at the junction with National Highway No. 14B at Tuy Loan. This section connects Hai Van tunnel with 1) Hoa Cam junction – Tuyen Son bridge – Ngo Quyen street and Tien Sa Port; and 2) the national highway and the East West Economic Corridor. The construction of the Da Nang bypass was highly appreciated by the local authorities of Da Nang City (the City People’s Committee and the Department of Transport) because of its contribution to the comprehensive traffic system of Da Nang City, to the central region of Vietnam in general and to the development of Tien Sa Port in particular.

(4) Construction of resettlement areas

The number of households that needed to be resettled due to the implementation of the project increased remarkably from 83 (estimated at the appraisal) to 5,445 mainly due to the construction of the additional outputs of the Ngo Quyen access road, the Ngo Quyen bypass and the Da Nang bypass.

Table 3: Key construction and facilities in resettlement areas<sup>7</sup>

Resettlement area		Facilities
<b>Total</b>	<b>239,638m<sup>2</sup></b>	
Public area	23,336m <sup>2</sup>	Drainage system
Building area	120,622m <sup>2</sup>	Water supply system
Planting area	5,618m <sup>2</sup>	Electricity supply system
Traffic area	88,705m <sup>2</sup>	Outside Lighting system

Source: PMU 85

The project developed resettlement areas in the peri-urban communes of Man Thai and An Hai Bac for 3,813 households which were affected by the Ngo Quyen access road, the Ngo Quyen bypass and Tuyen Son bridge<sup>8</sup>. The total area of the resettlement site and associated civil construction and utilities handled by this project was therefore adjusted accordingly (Table 4).

(5) Consulting services

Consulting services were provided in the following areas as planned: surveys and studies, detailed design, preparation of tender documents, assistance in tendering, construction supervision, training and works related to environmental considerations (advice and training). The volume of work volume increased due to additional scope and to delays

3.2.2 Project Inputs

3.2.2.1 Project Period (sub-rating: b)

It was planned that the project would be implemented within a period of 56 months, from the Loan Agreement signing date on March 30<sup>th</sup>, 1999 to the end of October 2003. Completion was defined as the completion of construction works and equipment procurement.

<sup>7</sup> The resettlement area constructed with funds from the local authority (Da Nang City) is not included.

<sup>8</sup> The local government used their own funds to relocate the remaining 1,682 households. Consequently, all of the 5,445 affected households were relocated.

The actual completion date of the project in terms of the original scope was December 2005, with a total period of 81 months. The project was therefore 25 months or 144% longer than the plan (Table 4).

Table 4: Summary of project period by contract package

Package	Planned*		Actual		Remarks
	Start	Completed	Start	Completed	
Overall	Mar 1999	Oct 2003	Mar 1999	Dec 2005	Delayed
	56 months		81 months		144%
Package 1	11/2001	9/2003	11/2001	12/2003	3 months delayed
2	3/2003	9/2003	3/2003	3/2005	18 months delayed
3	2/2004	2/2005	2/2004	12/2005	10 months delayed
4	3/2002	3/2004	3/2002	11/2004**	8 months delayed
5	2/2002	3/2004	2/2002	2/2004***	1 month earlier
6	3/2002	9/2002	9/2002	6/2004	20 months delayed

Source: PMU 85

Note: \* "Planned" for each package is the plan in the original contract.

\*\* Except the car park; \*\*\* The opening date of the bridge

The implementation of additional outputs was completed in April 2008.

Several reasons have been listed to explain the delays in the implementation of the project. The most notable ones include:

- **Adjustments and modifications of the technical specifications and/or design:** A number of adjustments and modifications were made during the implementation of the project to meet practical conditions and the development objectives of the local government. The most important examples include the change of the Hoa Cam junction design from a T-junction to a flyover and the construction of the Ngo Quyen bypass. The modifications were made to accommodate the trend of increasing traffic volume in the area.
- **Administrative complications:** The administrative procedure is reported to have been complicated and time consuming. It took a long time for modifications and adjustment to the original plan to receive approval from officers in different levels within the authorized bodies, of which the highest was MOT.
- **Slow progress of land acquisition and resettlement:** Land acquisition and resettlement have always been a challenge in all construction projects in Vietnam, especially when they take place in urban areas, where a large number of households exist and where the market price of land is always remarkably higher than the level of compensation approved by the government. For this project, too, the land acquisition and resettlement process was delayed even though it was considered as one of the most successful cases (see also 3.4.2 (3) *Impact of Land Acquisition and Resettlement*). Due to the modification of and additional construction on the Ngo Quyen access road and the Ngo Quyen bypass, which are located in an urban area of Da Nang City, the number of resettled households was remarkably higher than expected. Prompt enough action was not taken to assign appropriate areas for resettlement. In addition, some households resisted the resettlement plan due to disagreement on the level of compensation. As a result, the progress of land acquisition was slow and the local government delayed handing over the resettlement sites to the project management unit for construction.

- **Capacity of the contractors:** Like in many other large-scale development projects, this project required a high level of technical and financial capacity and experience of contractors. Therefore, it was large construction contractors who won the tender for most packages. These contractors, however, were involved in many assignments at the same time and therefore failed to allocate sufficient resources (human resources, financial resources and equipment) to the Da Nang Port project. In addition, according to PMU 85, in many bidding cases, contractors seek for winning a bid rather than proposing a feasible price and thus they ended up overloading their staff with work or assigning personnel whose capabilities were insufficient<sup>9</sup>.
- **Management capacity of the PMU:** Similar to that of the construction contractors, the management capacity of PMU 85 was considered sufficient at the time of appraisal. However, the involvement of the PMU in other existing or newly added assignments somehow put pressure upon its capacity of managing the Da Nang Port project. Limitations in the management capacity of the PMU were also found in its experience in organizing international bidding, which is complicated and time-consuming, and also in selecting contractors with sufficient capacity.
- **Other:** Bad weather and traffic on the road during road construction were also reported as important reasons for delays. The construction of the breakwater, for example, took place under regular heavy rains, strong winds and storms. In the case of Tuyen Son bridge, the Ngo Quyen bypass and the Hoa Cam flyover, the contractors were not able to fully mobilize human resources and machinery for the construction due to heavy traffic during the day time.

### 3.2.2.2 Project Cost (rating: a - lower than planned)

According to the Loan Agreement, the total project cost was JPY 13,637 million, in which the Japanese ODA loan portion was JPY 10,690 million and the Government of Vietnam portion was JPY 2,947 million.

Table 5: Comparison of Planned and Actual Project Cost

Unit: 1,000,000 JPY

No	Item cost	Plan	Actual	Balance
<b>1</b>	<b>Japanese ODA loan</b>	<b>10,690</b>	<b>9,210</b>	<b>1,480</b>
	<i>Construction works</i>	8,293	7,173	1,120
	<i>Procurement of Equipment</i>	981	894	87
	<i>Consulting services</i>	970	870	100
	<i>Interest</i>	435	273	162
	<i>Contingency</i>	11		11
<b>2</b>	<b>GoV contribution</b>	<b>2,947</b>	<b>1,068</b>	<b>1,879</b>
	<b>Total</b>	<b>13,637</b>	<b>10,278</b>	<b>3,359</b>

Source: PMU 85

The actual total project cost was JPY 10,278 million (75.37% of the original planned budget), of which the Japanese ODA loan was JPY 9,210 million (Table 5). The cost savings of the project, of which the largest part comes from construction work, were reported to be mainly as a result of competitive bidding. On the one hand, such savings provided favorable conditions for the construction of additional outputs, which enhanced the effectiveness and impacts of the project. However, on the other hand, the unreasonably low bidding price was reported to be one of the

<sup>9</sup> At present, such cases have decreased and bidders propose higher prices.

causes for delays in project implementation, because the contractors did not have the adequate capacity to deliver their committed outputs (see also 3.2.2.1 *Project Period*).

Although the project period was longer than planned, the project cost was lower and, therefore efficiency of the project is fair.

### 3.3 Effectiveness (Rating: a)

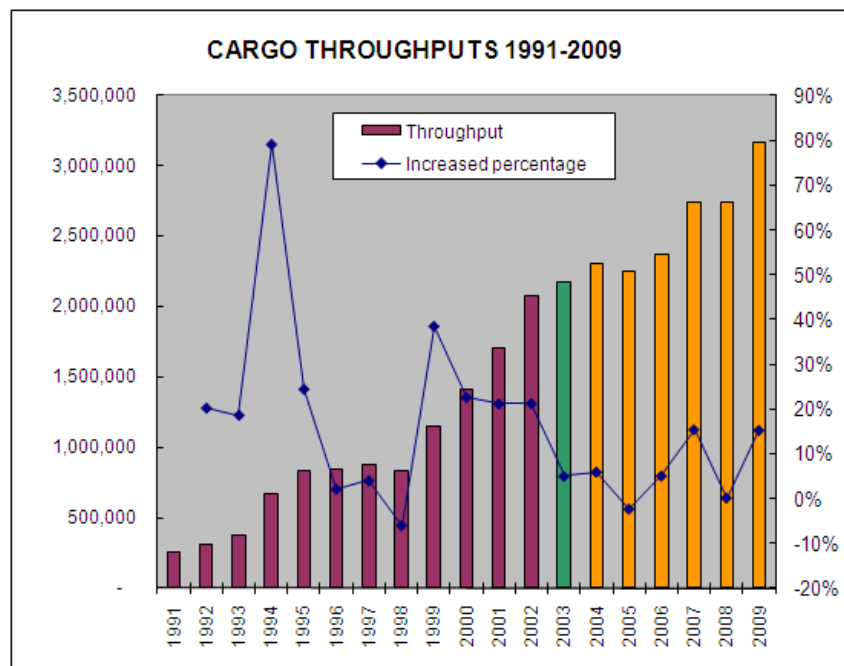
#### 3.3.1 Quantitative Effects

##### 3.3.1.1 Results from Operation and Effect Indicators

##### (1) Increase of annual cargo volume of Da Nang Port<sup>10</sup>

**Total increase of volume: higher than expected.** Before the project, cargo traveling through Da Nang Port was recorded at 882,218 tons in 1997 and 829,521 tons in 1999.

At the stage of appraisal, a JICA study (1998) predicted that this level would reach 2.8 million tons (low scenario) to 3.1 million tons (medium scenario) in 2009. In reality, the level at Da Nang Port was recorded at 3,162,315 tons in 2009, slightly higher than expected and 4 times higher than the total for 1998 – the year before the implementation of this project. The annual average increase rate between 1997 and 2009 was 11.2%.



Source: Da Nang Port (2010)

Figure 4: Cargo traffic for Da Nang Port from 1991 to 2009

**Increase of container traffic through the port by TEU** According to the records of Da Nang Port, container traffic through the port increased from 13,484 TEUs (twenty-foot equivalent units to count the number of containers) in 1998 to 69,720 TEUs in 2009. Although this trend is positive, the level is still lower than the projection at the stage of project appraisal (164,000

<sup>10</sup> In this section, numbers shown for Da Nang Port possibly include those for Song Han Port. According to the website of Da Nang Port, the annual volume at Tien Sa Port is reported to be more than 4.5 million tons, while for Song Han Port the number is more than 1 million tons. From this, it can be estimated that at the number for Tien Sa Port accounts for 82% of the total for Da Nang Port (excluding figures for smaller terminals specialized in specific enterprises).

TEUs in 2010<sup>11</sup>). According to the results of interviews with port users and port managers (Table 8), possible reasons may include: (i) Too high an expectation of the possible impact of the East-West Economic Corridor; and (ii) Clients still preferring to use the “traditional” destinations of Sai Gon Port or Hai Phong Port.

(2) Increase in ship calls

**Number of ships going through Da Nang Port.** The years after project completion witnessed increases in the number of ships, including container, cruise and general cargo ships, going through Da Nang Port (Table 6). The number of passengers increased accordingly and was recorded at 30,677 in 2009, the highest in the last 10 years.

**Size of ships visiting.** According to a JICA study (1998), the maximum dead weight tonnage of ships actually visiting Da Nang Port in 1997 was 4,695 DWT for container ships, 19,094 DWT for general cargo ships, 12,913 DWT for bulk carriers and 31,016 DWT for tankers (gas, oil). In 2009, Da Nang Port announced a receiving capacity of 45,000 DWT for general cargo ships, 2,000 TEUs (roughly speaking, equivalent to 20,000 DWT) for container ships and 75,000 GRT for passenger ships.

Table 6: Ships and passengers traveling through Da Nang Port

	Type of ship	2007	2008	2009
<b>I</b>	<b>Container ships</b>			
	Number of ships	290	303	366
	TEUs	53,372	61,881	68,000
<b>II</b>	<b>Cruise ships</b>			
	Number of ships	57	50	51
	Number of passengers	24,067	29,642	30,677
<b>III</b>	<b>General cargo ships</b>			
	Number of ships	1,505	1,542	1,780

Source: Da Nang Port (2010)

With regard to passenger cruisers, according to a report from Da Nang Port, the largest ship ever anchored at the port’s pier after completion of the project was recorded at 55,728 GRT. Although concrete corresponding data for before the project was not available, it is recognized that such a ship is remarkably larger than the average size of 10,923GRT/ship (JICA study, 1998) which visited the port before its improvement. The average number of passengers per ship also increased from 422 in 2007 to 601 in 2009 indicating that larger ships can now be accommodated by Da Nang Port, thanks to the construction of the breakwater, dredging work and other installed facilities.

(3) Improvement of cargo handling capacity

Improvements have been observed in the areas of berth occupation ratio; crane capacity and average waiting time (Table 7).

The construction of the breakwater is appreciated by all port users. Before the project, bad weather made berthing impossible for a high number of days: 35 days (9.6%) in 1997 to 63 days (17.3%) in 1995 (JICA study, 1998). After the project completion, the situation improved: the rate was reduced to less than 25 days (6.8%) in 2009 and is expected to reach the optimal level of 5% in 2010.

<sup>11</sup> The projection at the appraisal implies an annual average rate of increase of more than 23% between 1998 and 2010.

The berth occupation ratio increased from 19.24% in 1997 to 55% in 2008, which is approaching the optimal planned level of 60% with the current five berths.

Crane capacity was stable at a level of 15 containers per hour for several years from 1997 to 2004. This increased to 20 containers/hour in 2005, after the new gantry crane was provided by the project. In 2007, the port invested in an additional crane with its own budget, increasing the handling capacity of the cranes to 40 containers per hour. Accordingly, the average waiting time per ship was reduced from 40 minutes per ship in 1997 to 30 minutes per ship from 2003.

Table 7: Improvement of port utilities

Type of data	Year										
	'97	'99	'00	'01	'02	'03	'04	'05	'06	'07	'08
Average annual berth occupation ratio (%)	19.24	45	48	48	50	50	53	53	53	55	55
Crane capacity: containers being handled per hour	15	15	15	15	15	15	15	20	20	35	40
Average waiting time (min/ship)	40	40	40	40	40	30	30	30	30	30	30

Source: Da Nang Port

#### (4) Improvement of access to Da Nang Port

Access to Da Nang Port is an important component of this project. It is also seen as part of the comprehensive urban and traffic development plan of Da Nang City and of the central region of Vietnam.

Before the project, vehicles of 13 tons and above had to access Tien Sa Port from the National Highway No. 1A (the main north-south artery of the country) to Tu Cau Bridge. The route is 39km longer than the current access route through Hoa Cam junction and Tuyen Son bridge. Traveling time by the new access route is recorded at a low of 35 minutes to a high of 60 minutes depending on the traffic volume<sup>12</sup>. It was also reported that the permitted loading capacity of container trucks is now higher due to better road conditions and that the number of traffic deaths and injuries has been reduced. Thus, costs borne by cargo and transportation companies as well as social costs are believed to have reduced.

#### 3.3.1.2 Results of Calculations of Internal Rates of Return (IRR)

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

At the feasibility study and appraisal stages, the FIRR was not calculated. At the ex-post evaluation stage, the evaluation team attempted a calculation based on (i) the actual investment cost and O&M cost related to Tien Sa Port (excluding those related to roads and bridges) as the cost items, and (ii) port revenue from cargo handling collected by Da Nang Port (operation and maintenance agency) as the benefit item. The value turned out to be 7.01%. This calculation excludes port revenues collected by the Da Nang Port Authority (administrative body; see 3.5 *Sustainability*), such as navigation fees, due to unavailability of figures. Considering this, the real FIRR value of the improvement of Tien Sa Port might be higher than 7%, and is thus satisfactory.

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

At the appraisal, the EIRR was estimated to be 17.3% with time and cost savings on vessels and

<sup>12</sup> Travel speed was measured by the ex-post evaluation team on 21 April 2010.

vehicles (through access roads) as benefits. However, due to the fact that data needed for quantitative analysis was not available, analysis for the economic internal rate of return was not possible.

### 3.3.2 Qualitative Effects

The ex-post evaluation team conducted a number of in-depth interviews, meetings and group discussions with representatives of the parties concerned, including the project management unit, port management personnel, local authorities, and direct and indirect beneficiaries of the project (Table 8).

Table 8: Respondents of qualitative surveys

Type of respondents	Number of interviews	Type of interviews
PUM 85 (leaders and staff)	4	SSI
Import/ export companies	3	SI
Cargo companies	7	SI
Shipping companies	2	SI
Industrial parks/ developers/ investors	4	SSI
Da Nang Port leaders and staff	3	SSI
Crane operators	3	SSI
Drivers	3	SSI
Local authorities		SSI
People's Committee of Da Nang City	1	SSI
Department of Transportation	1	Meeting, SSI
Department of Enlivenment	1	SSI
People's Committee of the An Hai Bac commune	2	SSI
Resettled people	4	FGD
	2	SSI

Note: SSI=Semi Structured Interview, SI=Structured Interview, FGD=Focus Group Discussion

#### (1) Utilisation of Da Nang Port

All of the companies interviewed acknowledged improvements in port capacity and accessibility, which are a combined effect of access road construction and improvement. For the shipping companies, such improvements help reduce their cost per unit of goods. For transportation companies, there are more customers, and more contracts for transporting goods to and from Da Nang Port have been signed since completion of the project.

However, some of the respondents, especially direct port users such as import/export, shipping and cargo companies are not satisfied with port services. The port's fees, administrative procedures, and attitude of staff are problems cited. According to the port managers, efforts are being made to improve port services by applying the management standard ISO:9001:2000.

#### (2) Capacity of port personnel

A series of training on port management and technical capacity development was organized for port managers, engineers and technicians from 2000 to 2009. The capacity of the personnel of Da Nang Port is consequently reported to be considerably improved. The port engineers, technicians and drivers who were interviewed said that they are now confident in operating such equipment as the gantry cranes and transfer cranes and maintaining them in an effective way.

(3) Satisfaction of resettled people

Households affected by the project were resettled in the two urban communes of An Hai Bac and Man Thai. The local residents at the resettlement sites, including original and resettled residents, evaluated the situation as positive. People reported better infrastructure (roads, street lighting, drainage systems), better safety and more favorable access to social service institutions such as schools, health stations and clinics.

This project has largely achieved its objectives, therefore its effectiveness is high.

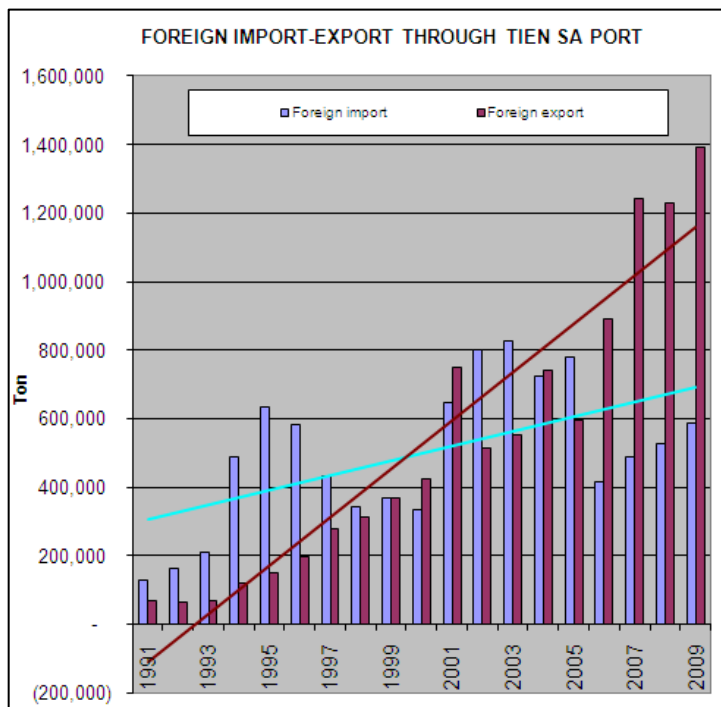
### 3.4 Impact (Rating: a – as part of the effectiveness rating)

#### 3.4.1 Intended Impacts

(1) Increase of trading value through Da Nang Port

As described in 3.3 *Effectiveness*, the volume of cargo, the number of ships and the number of passengers travelling through Da Nang Port all increased after project completion, particularly during the last 5 years. The improvement in container handling facilities at Tien Sa Port has played an important role in facilitating this improvement.

According to the records of Da Nang Port, the volume of foreign imports and exports occupied up to 63% of the total for the port in 2009. The trend of the absolute value of the import-export volume has also been positive during the last 10 years, from 2001 to 2009. Notably, a shift from a higher import volume to a higher export volume has been observed (Figure 5). At the same time, it was reported that the total import and export value at the Lao Bao cross border gate (border to Laos on the East West Economic Corridor) has increased from USD 201 million in 2000 - 2004 to USD 737.5 million in 2005 – 2009. This trend reflects the impact of the East West Economic Corridor (or inter-Asia highway) and of Da Nang Port as an exit from the highway to the world.



Source: Da Nang Port

Figure 5: Foreign import-export through Tien Sa Port

(2) Achievements in promoting the economic development of central Vietnam

#### Annual income and revenue from Da Nang Port.

In terms of annual income, Da Nang Port reached the predicted level in 2007 and the port's income has been increased gradually ever since: VND 160,046 million in 2007 and VND 176,831 million in 2008, compared to the predicted VND 152,142 million and 160,545 million in 2007 and 2008, respectively. It is also noted that the port's annual income has increased by 3.82 times from VND 52,679 million in 1998 to VND 201,170 million in 2009 (Table 9).



Table 9: Annual income and revenue of Da Nang Port

Unit: Million VND

	1998	1999	2003	2004	2005	2006	2007	2008	2009
Income prediction	76,510	84,914	118,527	126,931	135,335	143,738	152,142	160,545	168,949
Actual income	52,679	56,401	85,000	94,704	98,417	119,018	160,046	176,831	201,170
Revenue	5,542	4,882	3,380	3,756	4,101	3,378	4,737	7,231	8,700

Source: Annual reports of Da Nang Port

The contribution of the port to the local revenue has increased from VND 3,380 million in 2003 to VND 7,231 million in 2008 and VND 8,700 in 2009, when the advantage of a 5-year tax exemption (granted by the People’s Committee of Da Nang City) was due (Table 9). According to the local government and the port management board, the port’s income, as well as its contribution, would increase in 2010 and the years beyond, when the receiving capacity of the port is further improved and the annual throughput of the port reaches the target of 4.5 million tons.

**Foreign direct investment (FDI).** The number of FDI companies in Da Nang increased from 28 in 2000 to 46 in 2008. The number of FDI companies in other coastal provinces of the central region also rocketed from 47 to 171 during the same period. This shows the impact of the comprehensive development of infrastructure in Da Nang City as well as socio-economic development policies, among which this project played an important role.

**GDP growth.** A strong trend of GDP growth has been observed in the central region, particularly in Da Nang City. In 1999, before the implementation of the project, the GDP of Da Nang City was recorded at USD 322 million. The figures for 2005 and 2008, i.e. the years after project completion, were remarkably higher: USD 871 million and USD 1,544 million respectively (Figure 6).

#### 3.4.2 Other Impacts

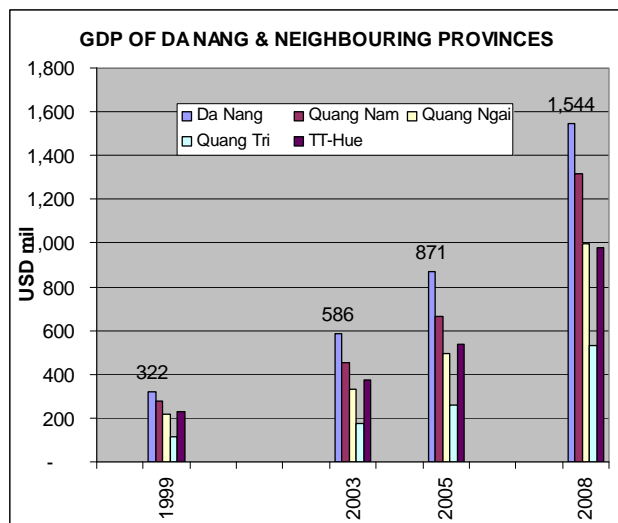
##### (1) Reduction of traffic pressure and traffic accidents

As mentioned earlier, the construction of the port access roads (the Da Nang bypass, the Ngo Quyen access road and bypass, Tuyen Son bridge, and the Hoa Cam junction) has helped reduce traffic pressure in the urban areas of Da Nang.

Although traffic surveys were not conducted in the locations of the project outputs, the impact of the project of the traffic systems of Da Nang City and the central region of Vietnam can be considered to be positive.

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

The environmental impact assessment (EIA) for this project was conducted by the Ministry of Transportation (with consultation with the People’s Committee of Da Nang City, which in turn was advised by the city’s Department for Environment and Natural Resource Management) in May 1998. The EIA was approved by the Ministry of Science, Technology and Environment in



Source: Ministry of Planning and Investment (MPI)

Figure 6: GDP growth of Da Nang and its neighboring provinces

October 1998. According to the EIA report, the environmental impact of the project is assessed to be “small”.

Two environmental monitoring reports were conducted in 2002 and 2008, both by Da Nang Port. The reports stated that most of the compulsorily monitored environmental indicators had values within the acceptable levels of the Vietnamese standard (TCVN 5943 – 1995). Exceptions to this include the quality of surface water at Tuyen Son Bridge (2002 monitoring report) due to the construction of the bridge and the value of oil at Tien Sa Port (1.2 time higher than the permissible level - 2008 Environmental Monitoring Report of Da Nang Port).

According to the Department for Environment and Natural Resources of Da Nang City, the quality of surface water at Tuyen Son Bridge has returned to normal quality, mainly due to the natural rehabilitation capacity of the river after the completion of construction. However, no action to reduce the oil level at Tien Sa Port was reported.

### (3) Impact of Land Acquisition and Resettlement

The land acquisition and resettlement for this project was carried out based on the Resettlement Action Plan (RAP) prepared by People’s Committee of Da Nang City as part of its City Development Plan. As described in 3.2.1 *Outputs*, due to the construction of additional outputs and the technical modifications of some of the construction, the RAP was revised accordingly. The RAP was explained to people affected each time, and in total, 5,445 households were relocated because of this project. There was a mixture of positive and negative impacts for the land acquisition and resettlement of this project. The policies and methods applied by People’s Committee of Da Nang City are regarded as an example of good practice. Nevertheless, land acquisition remains one of the main reasons for delay and for the loss of livelihood for some of the resettled people.

#### **Land acquisition and compensation policy**

Da Nang City has been regarded as one of the most successful local governments in the field of land acquisition and resettlement for large construction projects. For this project, the city applied a flexible compensation policy with different options and with compensation levels that were close to the market price of land. In addition, the city introduced policies that provided the resettled communities with reasonable access to social services such as education and health care. Vocational training and job creation programs have also been implemented to provide assistance to resettled people who seek alternative types of livelihood, even though this was not as effective as expected due to limited investment<sup>13</sup>.

Clear and transparent information on the project purpose and its resettlement plan was another successful factor. People tended to accept the resettlement plan and the compensation levels because they support the city’s development policy. Such efforts have reduced the number of cases of disputes and resistance from local people, thus accelerating the progress of land acquisition and the handing over of resettlement sites to the project management units for construction. Delays in resettlement, however, did happen (see 3.2.3 *Project Period*).

#### **Landscape**

Landscape, both at the resettlement sites and the project sites, was improved. Population pressure on the urban areas of the city was also reduced.

#### **Livelihoods of resettled people**

Sustainable livelihoods for resettled people remains an issue, though the level of impact on

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<sup>13</sup> The land acquisition and resettlement process is also analyzed in JICA Vietnam Office, Land Acquisition and Resettlement: Good Practices of Da Nang Port Project.

different groups of affected people are not the same.

Those with regular income from salaries and wages were not greatly affected by resettlement. For some households, compensation even provided them with better accommodation. Similarly, those whose income comes from petty trading and retail activities also found it not too difficult to adapt to the new living conditions.

However, those who were dependent on an agricultural income were greatly affected. Losing their most important means of production, cultivation land, a number of resettled households faced a certain degree of difficulty in the transition period. This problem was observed particularly among people who were relocated from the construction site of the Da Nang bypass, where, unlike the other construction sites of this project, many people were still engaged in agriculture at the time of the land acquisition. In this context, assistance from the local government (such as vocational training, job creation) was not effective enough for them to get alternative sources of income.

### **3.5 Sustainability (rating: a)**

#### 3.5.1 Structural Aspects of Operation and Maintenance

##### (1) Tien Sa Port

Da Nang Port, a state-owned company under VINALINES<sup>14</sup>, is responsible for the operation and maintenance of Tien Sa Port.

Operation of the Port and maintenance of infrastructure and facilities are mainly performed by Da Nang Port. Only a few major repairs of important equipments are outsourced. For example, crane operators are responsible for daily and weekly maintenance of cranes; the port's technicians and engineers are responsible for monthly and quarterly, bi-annual and annual maintenance and repairs. Recently, annual maintenance of the quayside container crane No 1 (the one procured by this project) was conducted by the engineers of Da Nang Port.

##### (2) Roads and bridges

The roads and bridges developed by this project, except the Da Nang Bypass, are operated and maintained by the Department of Transport (DOT) of Da Nang City as assigned by the Vietnam Road Administration (VRA) of the Ministry of Transport. The Da Nang Bypass is operated and maintained by the Regional Road Management Unit No. 5 (RRMU 5) of VRA.

#### 3.5.2 Technical Aspects of Operation and Maintenance

##### (1) Tien Sa Port

Among 732 employees<sup>15</sup> of Da Nang Port, 381 staff are in charge of the operation and maintenance of Tien Sa Port. During the project implementation, 12 training courses ranging from 1 month to 6 months were organized, and 114 staff were trained. Besides the project, training was also provided by Da Nang Port. All O&M workers are required to have a training certificate (which requires 15 training days).

In 2005, within the framework of the project, the container management software CATOS was

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<sup>14</sup> VINALINES is a state-owned ship line and port operation company directly under the Prime Minister's Office. VINALINES is a very business-oriented organization that is responsible for mobilization of capital, investment, running business and paying back the loans according to the Law on Enterprises. VINALINES is different from VINAMARINE (the Vietnam National Maritime Administration), which is a state sectoral management body under the Ministry of Transport, responsible for regulating crossing-border procedures, cruising safety, environment quality etc. for ships entering Vietnam. In Da Nang, such services are delivered by Da Nang Port Authority, which is a branch of VINAMARINE..

<sup>15</sup> Excluding 441 contract-based staff.

installed and applied. For the operation of this newly-introduced computer system, Da Nang Port employed new staff and also trained existing staff. Currently, the computer system is operated by 15 operators. So far, the port operation system is reported to have been operated without a problem.

Based on the observations of and hearings by the evaluation team, the technical capacity of O&M staff is assessed to be sufficient. However, there is a small amount of concern about whether or not the technical capacity for O&M is constantly monitored: for example, a crane operator interviewed did not know where the O&M manual was, nor felt it necessary to look at it.

## (2) Roads and bridges

There seems to be no particular technical problem in the O&M of the roads and bridges under this project, as they are classed with other roads and bridges and do not require any special care.

### 3.5.3 Financial Aspects of Operation and Maintenance

#### (1) Tien Sa Port

Da Nang Port is financially independent and bears its own expenses for O&M. The O&M budget is taken from the port's income, which includes: (i) assistance tug boat fees, (ii) cargo handling fees, and (iii) other service charges<sup>16</sup>. According to the port's leaders, Da Nang Port is responsible for repaying the loan for this project. Therefore, keeping all the infrastructure, facilities and equipment in good condition has been given great attention.

The positive financial status of Da Nang Port (Table 9) allows a sufficient budget for O&M. The O&M budget from 2003 to 2009 fluctuated from a low 8% to a high 36% of the port's annual income and is summarized in Table 10 below:

Table 10: O&M budget of Da Nang Port from 2006 to 2010

<b>Planned O&amp;M Budget</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Mechanical repairs	3,200	1,500	3,134	3,185	3,785	3,940	3,200
Infrastructure	27,210	14,815	14,750	16,110	8,530	18,626	68,497
<b>Total</b>	<b>30,410</b>	<b>16,315</b>	<b>17,884</b>	<b>19,295</b>	<b>12,315</b>	<b>22,566</b>	<b>71,697</b>
<b>% of O&amp;M Budget to annual income</b>	36	17	18	16	8	13	36

Source: Da Nang Port

## (2) Roads and bridges

Although no information on the O&M budget for the roads and bridges under the project was available, the DOT of Da Nang City mentioned that the budget was sufficient.

### 3.5.4 Current Status of Operation and Maintenance

#### (1) Tien Sa Port

According to the O&M staff interviewed, the periodic maintenance system consisting of (i) a daily quick check and oiling of equipment, (ii) maintenance after every 150 hours or every week, and (iii) maintenance every three months, is performed as planned. Also, the depths of the navigation channels are regularly measured and the channels dredged when necessary.

Recent development works Da Nang Port implemented at Tien Sa Port include the following:

<sup>16</sup> Port income is classified in the following five categories: (i) navigation fees, (ii) piloting fees, (iii) marine safety fees, (iv) assistance tug boat fees, and (v) cargo handling fees. Da Nang Port collects (iv) and (v), while Da Nang Port Authority collects (i), (ii) and (iii).

- (i) Dredging: from April 2009 to May 2009, dredging for Berth 2 and Berth 3 was conducted as part of O&M work.
- (ii) Cranes: in addition to the crane provided by this project at Berth 5, the port invested in one additional gantry crane (also at Berth 5) and two other cranes at Berth 4 (Pier 2) to increase handling capacity, aiming at the target of 4.5 million tons in 2010.
- (iii) ISO 9001:2000 and further administrative improvement: Da Nang Port introduced and applied a management system with the ISO 9001:2000 standard in July 2006. In 2010, the port will once again review and revise its administrative management to reduce complications in administrative procedures and to better answer customer demands.

Current conditions at Tien Sa Port are good except for the following:

- (i) Breakwater: heavily damaged by a storm in 2009. This was inevitable as the storm was exceptionally strong with a one in a one hundred year probability. Repairs will have taken place with Japanese grant aid project by the next monsoon season this year.
- (ii) Poor coordination between the power generator and the gantry crane: this problem halves the efficiency (container-handling capacity) of the crane in the case of electrical power outages. However, this is not a major problem as outages occur only for half a day per month. The port has not taken any measures to solve this problem.
- (iii) Fenders: many are cracked or broken due to their short life cycle (i.e. 4-5 months). Da Nang Port replaces several pieces every year.



Damaged Breakwater



Operation of the gantry crane

## (2) Road and bridges

No problems are observed/ reported on the O&M status of the project roads and bridges.

No major problems have been observed in the operation and maintenance system, therefore sustainability of the project is high.

## 4. Conclusion, Lessons Learned and Recommendations

### 4.1 Conclusion

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

### 4.2 Recommendations

#### 4.2.1 Recommendations for the related agencies

##### (1) Recommendations for Da Nang City

The loss of livelihood for some of the resettled people remains a problem. It is recommended that the People's Committee of Da Nang City takes measures such as providing practical

vocational training to more resettled people and introducing alternative livelihoods for resettled farmers.

(2) Recommendations for Da Nang Port

The working attitude of port staff needs to be improved in order to heighten the level of customer satisfaction. In addition, proper action should be taken in order to maintain the environmental quality in the port area, especially when environmental indicators are reported to be higher or lower than the permissible levels. This could be done through the process of administrative standardization for ISO 9001:2000.

4.2.2 Recommendations for JICA

It is recommended that the JICA Vietnam Office keeps monitoring the progress of repair work on the damaged breakwater.

**4.3 Lessons Learned**

- (1) The land acquisition and resettlement approach should be flexible and responsive to the needs of affected people.

The progress of project implementation strongly depends on the progress of land acquisition and resettlement. The approach applied by Da Nang People's Committee shows that factors for successful land acquisition and resettlement in urban areas may include:

- Good commitment on the part of the local leadership to ensure flexibility in responding to people's needs
- Appropriate local development policies: people accept moving if they think the project will bring better development opportunities for a larger population, including themselves.
- Compensation taking the market price into account
- Equal treatment and fair compensation to resettled people

In addition, local authorities should pay better attention to assisting affected people, especially those whose livelihood was dependent on agriculture, in seeking alternative sources of income.

- (2) Urban planning should be comprehensive to maximize the benefits of infrastructure.

In this case, the Hai Van Tunnel – Bypass road – Flyover Junction – Bridge – Access road to the port were developed in a coordinated way by two Japanese ODA loan projects, bringing combined effects including the improvement of accessibility from/to the port and the reduction of congestion in the city.

- (3) Capacity of project management should be assessed.

Some delays are reported to be due to the shortage of manpower of PMU. Therefore, in addition to the capability of staff, an appropriate allocation of manpower should be taken into account at the project appraisal stage.

### Comparison of Original and Actual Scope

Item	Plan	Actual
1) Outputs		
a) Improvement of Tien Sa Port	Breakwater (250m), repair of Piers 1 & 2, container terminal (45,414m <sup>2</sup> ), dredging (55,400m <sup>3</sup> ), cargo handling equipment, etc.	Breakwater (471.9m), repair of Piers 1& 2, container terminal (92,000m <sup>2</sup> ), dredging (222,565m <sup>3</sup> ), cargo handling equipment, etc.
b) Improvement of access roads	Improvement of Ngo Quyen road (12km) and Hoa Cam junction, construction of Tuyen Son bridge (520m)	Improvement of Ngo Quyen road (12.3km), construction of Hoa Cam flyover, Ngo Quyen bypass (2,865m), Da Nang bypass (18.3km), Tuyen Son bridge (519.1m)
c) Construction of resettlement areas	For 83 households	For 3,813 households
d) Consulting services	Foreign 146 MM, Local 250 MM TOR: Tender assistance, implementation supervision	Foreign 211 MM, Local 658 MM TOR: same as planned
2) Project Period	March 1999 – October 2003 (56 months)	March 1999 – December 2005 (81 months)
3) Project Cost		
Foreign Currency	6,660 Million Yen	2,739 Million Yen
Local Currency	6,977 Million Yen (698Billion VND)	7,539 Million Yen (942 Billion VND)
Total	13,637 Million Yen	10,278 Million Yen
ODA Loan Portion	10,690 Million Yen	9,210 Million Yen
Exchange Rate	1 VND= 0.01 Yen (As of October 1998)	1 VND = 0.008 Yen (Average during period from 1999 to 2007)