

Republic of Angola

Ex-Post Evaluation of Japanese Grant Aid Project
“The Project for Emergency Rehabilitation of Port Facilities
at the Port of Lobito and the Port of Namibe”

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0. Summary

In this project, port facilities were rehabilitated and cargo handling equipment was provided in a major regional port of Angola in order to ensure safe cargo handling and improve handling efficiency. The implementation of this project was consistent with the development policy and needs both during the planning phase and ex-post evaluation, also conforming to Japanese aid policy at the time. It can be judged that there was no problem with the implementation approach, though there were problems seen in terms of the measures taken by the Angolan side regarding the exclusion of Lobito Port. Therefore, the relevance of this project was high. The project largely achieved the planned results. In the Port of Namibe, the safety, the container handling cycle, and the dust produced during port work are all confirmed to have improved. Also, port rehabilitation work in the project has reduced distribution costs by streamlining mooring and reducing warehousing costs and business expenses. Thus, the effectiveness and impact of the project was high. In terms of project implementation, the efficiency of the project was fair; project cost was kept within the plan, but the project period was longer than the plan. The sustainability of the project was also fair due to operation and maintenance issues with pier fenders and financial issues with the Namibe Port Authority (EPN¹) administration.

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

1. Project Description



Project Location Map



Project Area of Namibe Port

¹ Empresa Portuária do Namibe

1.1 Background

Since gaining its independence from Portugal in 1975, Angola was in a state of civil war between the government and rebel forces for 27 years. Angola transport networks were ravaged in the war, greatly hindering the recovery and development of the Angolan domestic economy. To improve these circumstances, the Angolan government formulated the Priority Phase Multi-sector Rehabilitation and Reconstruction Program for 2003-07 (PPMRRP)², with servicing of the major ports and other transport infrastructure positioned as key issues.

To advance this program, the Angolan government requested a development study from Japan to determine an emergency rehabilitation plan for its four main ports. As a result, the Japan International Cooperation Agency (JICA) conducted a development study for the Project for Emergency Rehabilitation of Port Facilities at the Port of Lobito and the Port of Namibe from January 2005 to August 2006.

The development study predicted that freight handled in each port would more than double from 2004 to 2010, resulting in the formulation of a shortened rehabilitation plan to restore port functions by improving existing facilities by the target year of 2010. This plan included a proposal to focus on two of the four main ports: Lobito and Namibe. The project was to restore the piers which saw frequent use and had the greatest damage, the backing yard, as well as repair of refueling and water supply facilities, and to provide cargo handling equipment.

Under these circumstances, emergency rehabilitation of port facilities for the ports of Lobito and Namibe came to be implemented with Japanese grant aid.

1.2 Project Outline

The objective of this project was to ensure safe cargo handling and improve handling efficiency by rehabilitating facilities at major regional Angolan ports and providing port equipment.

| | | |
|-----------------------------------|-----------------|--|
| Grant Limit / Actual Grant Amount | | 3,932million yen / 1,932million yen |
| Exchange of Notes Date | | May, 2008 |
| Implementing Agency | | Institute of Maritime and Ports in Angola (IMPA), Ministry of Transport |
| Project Completion Date | | March, 2011 |
| Project Contractors | Main Contractor | TOA Corporation |
| | Main Consultant | ECOH Corporation |

² Priority Phase Multi-sector Rehabilitation and Reconstruction Program: A program formed by the Angolan government in 2002 with aid from the World Bank as a plan to rebuild following the civil war.

| | |
|------------------|---|
| Basic Design | December, 2007 |
| Detailed Design | April, 2008 |
| Related Projects | <p><u>Technical Cooperation:</u></p> <p><u>Development Study</u></p> <p>Project for Emergency Reconstruction of Ports in Angola (2005-2006)</p> <p><u>Accepted Trainees</u></p> <p>Port Planning and Management (C/P training, 2006)</p> <p><u>Individual Experts Dispatch</u></p> <p>Port Administration Advisor, Port Facilities and Equipment Management Advisor (2007, 2010)</p> <p><u>Grant Aid:</u></p> <p>Project for Improvement of the Road Network in Luanda (1998-1999)</p> <p><u>Other Donors:</u></p> <p>Transport sector financing by the Export-Import Bank of China (Mossamedes Railway restoration, etc.)</p> |

2. Outline of the Evaluation Study

2.1 External Evaluator

Masayuki Kawabata (Japan Economic Research Institute Inc.)³

2.2 Duration of Evaluation Study

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

Duration of the Study: September, 2013 – October, 2014

Duration of the Field Study: January 27 – February 13, 2014 / May 12 – May 21, 2014

3. Results of the Evaluation (Overall Rating: B⁴)

3.1 Relevance (Rating: ③⁵)

3.1.1 Relevance to the Development Plan of Angola

In January 2004, the Angolan government formulated a poverty reduction strategy

³ Joined the evaluation team from RECS International Inc.

⁴ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

⁵ ③: High, ②: Fair, ①: Low

(ECP⁶) to stimulate both economic recovery and medium-term economic growth, planning to invest \$3.17 billion over five years. In addition, they created the PPMRRP 2003-2007 alongside the ECP as a national reconstruction program, with the servicing of the major ports and other transport infrastructure positioned as key issues. The government also formulated a National Strategy for Transportation in Angola (ENTA⁷) as a longer term guideline for the transportation sector. The first action plan (2000-2005) of this strategy covered emergency transport sector needs, including the rehabilitation of ports and navigational aids.

It was confirmed that the ECP was revised in February 2010 to continue economic recovery and medium-term economic growth, during the ex-post evaluation.

The Priority Reconstruction Program 2008-2012 (PRP⁸) was picked up where the PPMRRP left off, continuing the reconstruction program, which in turn was succeeded by the PRP 2013-2017. During ex-post evaluation, it was confirmed through interviews with the Ministry of Transport (MOT) that servicing of the major ports and other transport infrastructure remains a key issue.

ENTA 2000-2015, the long-term guidelines for the transportation sector, also covers medium-term, short-term, and emergency needs in the transportation sector. A second (2005-2010) and third action plan (2010-2015) have been determined and implemented to succeed the first ENTA action plan. Formulated in December 2012 by MOT, the Transport Sector Development Strategy and Policy 2013-2017 gives 5-year development strategies and programs for each transport sector: railways, air routes, maritime/ports, and roads. In terms of maritime/ports, this strategy sets forth rehabilitation and expansion of the ports of Lobito and Namibe in its development program. It also looks to 1) reduce regional disparities, improve mobility and regional incomes, and reduce poverty, and to this end, to 2) restore, expand, and completely modernize the existing ports.

It has been confirmed that, continuing with the long-term guidelines for the transportation sector in ENTA, the Transport Sector Development Strategy and Policy also positions servicing of the main ports and other transportation infrastructure as key issues to economic growth and poverty reduction in Angola.

As illustrated above, while this project was consistent with the Angolan policy during the planning phase and ex-post evaluation, plans to develop both ports of Lobito and Namibe were substantially altered. Specifically, given that rehabilitation work for Lobito Port was transferred under the framework of rushed Chinese financing after the exchange of notes (E/N) was concluded, this project targeted only Namibe Port. Thus, while the relevance for

⁶ Estratégia de Combate a Pobreza

⁷ Estratégia Nacional de Transportes em Angola

⁸ Priority Reconstruction Program: Formulated by the Angolan government as a continuation of the rehabilitation programs in the PPMRRP.

this evaluation study was judged for both ports, the effectiveness, impact, and sustainability were analyzed only for Namibe Port, as Lobito Port was removed from the project scope.

3.1.2 Appropriateness of the Implementation Approach

Specific reasons for excluding Lobito Port from the project scope are given below. In 2008, financing for public works, including the financing from China (excluding grant aid projects), was centrally managed by the National Reconstruction Office (GRN⁹). Chinese financing was handled with a dual-structured system; financing consisted of bilateral financing from the Export-Import Bank of China via the Angolan Ministry of Finance (MOF) as well as private financing from the China International Fund (CIF¹⁰), with CIF financing for the GRN outside of MOF jurisdiction. CIF financing extended to the area inside Lobito Port, which was the origin point of the Benguela Railway Rehabilitation Project¹¹, and private Chinese companies had already started rehabilitating port facilities in the area neighboring the design area for this project. GRN suddenly shifted plans to have all port facilities in Lobito adjoining the Benguela Railway serviced together and decided in September 2008 to include the project area in with the CIF-funded area. With the GRN being an upper ministry¹² under direct control of the President, it was pushed through from the top down, leaving MOT, the Maritime and Port Institute of Angola (IMPA¹³), and the Port Authority with no voice in the decision.

The lack of transparency with capital flowing from CIF to GRN being outside of MOF jurisdiction and GRN centrally managing project funding has since been a source of internal issues¹⁴ within the Angolan government. With the large CIF-funded public works projects completed, CIF-funded projects have since dropped off precipitously, and the overall project budget for GRN-managed public works projects has been drastically cut. GRN has effectively been dismantled with no project budget to manage, thus restoring the Ministry of External Affairs (MEA) to its original status as coordinator within the foreign aid system¹⁵.

⁹ Gabinete de Reconstrução Nacional: Established in 2005. An organization under direct control of the President, GRN decision-making mechanisms and activity are not transparent. GRN is actually controlled by the President's military advisor, General Kopelipa.

¹⁰ China International Fund: A private Chinese fund based out of Hong Kong, CIF had given a total of \$2.9 billion to fund Angola reconstruction as of 2008.

¹¹ Project funded by CIF. The Benguela Railway starts in Lobito Port, crosses into DR Congo at Luau and connects to Tanzania. It plays a pivotal role in transport for central Angola and the southern African region.

¹² The Ministry of National Defense (MND) and MOF are upper ministries, while the MEA and MOT are lower ministries.

¹³ Instituto Marítimo e Portuário de Angola

¹⁴ Source: "Chinese Foreign Aid," Japan Institute of International Affairs (March 2012)

¹⁵ For foreign aid, MEA coordinates requests and approvals, and then financing for projects set for implementation is passed through MOF.

The exclusion of rehabilitation work for Lobito Port from the project was due to a drastic mid-project change. Against the Japanese government foreign policy to promptly support Angola's recovery, issues with governance of the Angolan government at that time and a lack of understanding regarding the project process by the Angolan side were likely factors¹⁶. However, it was judged that there were no issues in terms of planning and implementation approach of the project, as there was no problem with the selection of aid modality by the Japanese government.

3.1.3 Relevance to the Development Needs of Angola

During the project planning phase, the ports were desperately in need of servicing. The transport and port sectors were extremely worn down from longstanding civil war, and the state of the main ports were a great detriment to economic growth and development given how much the import of grains, building materials and other materials depended upon them.

Following the transport sector development strategy, a number of projects have been completed to strengthen transport capacity to Benguela, Namibe, and inland provinces to increase income and reduce poverty in inland and rural areas. These include: the development of trunk roads from Benguela and Namibe provinces to inland areas; a rehabilitation project for the Benguela Railway, running a total of 1,547 km from Lobito Port; and a rehabilitation project for the Mossamedes Railway¹⁷ (completed on February 13, 2014), running a total of 1,003 km from Namibe Port. Severed during the civil war with absolutely no freight being transported, the Benguela and Mossamedes Railways are estimated to transport 2.16 million tons and 603,450 tons respectively in freight annually in 2015 after rehabilitation work is complete¹⁸. At Namibe Port, a container cargo pier has been connected directly to the railway. The improved efficiency from this is expected to increase the amounts handled for granite and marble, two mineral resources which remain key exports today.

Annual cargo handling volumes in Lobito and Namibe Ports as provided in the ex-post evaluation are given below.

¹⁶ The changes to the Lobito Port rehabilitation project were detected after the E/N was concluded. In all likelihood, regardless of any attempts by the Japanese side at diplomatic consultations, given the top-down action of GRN, the fragile governance of an Angolan government a mere six years removed from civil war, as well as the ODA project implementation process and importance of bilateral agreement, were not fully understood by Angolan side.

¹⁷ Extending from Namibe Port through Lubango in Huila Province to Menongue in the inland Cuando Cubango Province, this railway is expected to help economic growth in southern Angola by increasing transport of granite, marble and other mineral resources; increase inland transport of daily goods and building materials; and increase transport capacity of the Namibe coast and inland areas.

¹⁸ In the basic design reports from 2007, both the Benguela and Mossamedes Railways were scheduled for completion in 2009, with cargo handling volumes expected to increase in 2010. Projects for both railways were greatly delayed, however, with the projects being completed in 2014. Thus, estimated volume increases now use 2015 as their reference year.

Table 1 Cargo Handling Volume in Angola

(ton/year)

| Cargo Handling Volume | 2010 | 2011 | 2012 | 2013 |
|-----------------------|------------------|------------------|------------------|------------------|
| Port of Luanda | 9,157,534 | 9,825,670 | 10,244,540 | 11,259,574 |
| Port of Lobito | 2,368,384 | 2,792,054 | 2,900,646 | 2,984,220 |
| Port of Namibe | 929,744 | 971,925 | 1,381,730 | 1,615,341 |
| Other Ports | 325,482 | 449,498 | 731,906 | 1,256,939 |
| Whole Angola | 12,781,144 | 14,039,147 | 15,258,822 | 17,116,074 |

Source : Data provided by IMPA and EPN

Annual cargo handling volumes for both Lobito and Namibe Ports—the ports carrying cargo demand for southern coastal Angola and inland areas—are strong, increasing in tonnage every year. As shown in Table 3, container handling volumes for Namibe Port are also trending upward. The port is currently pressed to meet demands. The MOT plans to rehabilitate and expand both Lobito and Namibe Ports in the Transport Sector Development Strategy and Policy 2013-2017.

Thus, the relevance of this project was high both during the planning phase and at ex-post evaluation with regards to the development needs for major southern rural ports.



Photo 1 Highway to Inland in Namibe



Photo 2 Mossamedes Railway

3.1.4 Relevance to Japan's ODA Policy

In the consultations on economic cooperation policy with the Angolan government held in August 2006, Japan had recognition that Angola was in a transitional period from its phase of recovery and decided to provide support for economic and social development in

three priority areas: 1) economic development, 2) peace consolidation, and 3) human security. Among these, development of basic infrastructure, including ports, is vital to economic development. Thus, this project was highly consistent with Japan's ODA policy at that time.

The implementation of this project was consistent with the development policy and needs both during the planning phase and ex-post evaluation, also conforming to Japanese aid policy at the time. It can be judged that there was no problem with the implementation approach, though the problem was seen in terms of the measures taken by the Angolan side regarding the exclusion of Lobito Port. Therefore, its relevance is high.

3.2 Effectiveness¹⁹ (Rating: ③)

3.2.1 Quantitative Effects (Operation and Effect Indicators)

Table 2 shows the direct effect indicators for Namibe Port.

Table 2 Direct Effect Indicators at the Port of Namibe

| Indicators at the Port of Namibe | 2007 (Actual) | 2011 (Target) | 2011 (Actual) | 2012 (Actual) | 2013 (Actual) |
|--|--------------------|------------------|--------------------|--------------------|--------------------|
| Safety enhancement of the cargo ship berthing time (Number of contact of ship side and quay corner) | About 450 ships | 0 | 0 | 0 | 0 |
| Control of dust incidence when working at apron and yard (days/year) | 360 | Decreased | Decreased | Decreased | Decreased |
| Improvement of container loading/unloading cycle (Ship→apron→yard) (time/cycle) | 14 min. 40 sec. | Decreased | 10 min. 15 sec. | 10 min. 15 sec. | 10 min. 15 sec. |

Source: Basic Design Report (2007), Data provided by EPN for 2011-2013

¹⁹ Sub-rating for Effectiveness is to be put with consideration of Impact.



Figure 1 Panorama of Namibe Port



Photo 3 Ship Berthing at 3A Wharf (Project Area) Photo 4 Ship Berthing at 3B Wharf

Freight ship safety is confirmed to have improved with no ship holds striking the pier corners when berthing since project completion. Still, within two and a half years after the project completion, plates have collapsed for pier fenders²⁰ No. 4, No. 15 and No. 16²¹, and damage has also been observed on fender No. 3. These fenders require some sort of measures.

The direct effect of this project is now clear in terms of dust during cargo handling work. While the project did reduce dust during work, there was still dust during work in the apron and the yard, which are two areas outside the scope of rehabilitation in the project (areas targeted for Phase II). The apron and yard area was being paved by a foreign contractor

²⁰ Fenders are treated as consumables to be replaced when damaged. EPN was given 3 spare fenders and trained in fender replacement during the project.

²¹ There are 16 fenders arranged on the 240-meter 3A pier, numbered starting from the north side.

with temporary asphalt during the ex-post evaluation, making it so that hardly any dust is produced across all port areas.

The container handling cycle, moving a container from ship to apron to the temporary storage yard, was streamlined with the project; the cycle went from taking 14 minutes 40 seconds before the project to 10 minutes 15 seconds after the project.

As explained above, there were marked improvements in port safety, dust during work and the container handling cycle at Namibe Port.

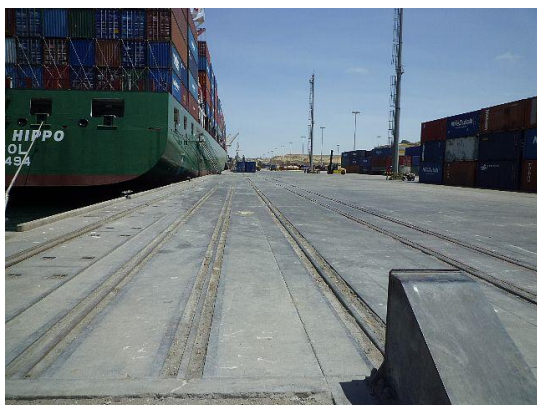


Photo 5 Apron of 3A Wharf



Photo 6 Yard of 3A Wharf



Photo 7 Cargo Handling (1)



Photo 8 Cargo Handling (2)



Photo 9 Cargo Handling (3)

While not the indicators envisioned during the project planning phase, the number of entering ships, gross tonnage of entering ships, cargo handling volume, and container handling volume (in TEUs) are given in Table 3 as the basic operation and effect indicators for Namibe Port. Since project completion in 2011, all operation and effect indicators have soared, showing the huge impact that the emergency rehabilitation in the project has had.

Table 3 Quantitative Operation and Effect Data at the Port of Namibe

| Effect Data | 2008 | 2009 | 2010 (Work completion*) | 2011 (Project completion*) | 2012 | 2013 |
|--|-----------|-----------|-------------------------|----------------------------|-----------|-----------|
| Number of ships entering port per year (ships/year) | 241 | 192 | 206 | 248 | 248 | 264 |
| Gross tonnage of ships entering port per year (ton/year) | 2,717,516 | 3,502,656 | 3,187,850 | 3,792,416 | 5,405,408 | 5,600,496 |
| Average tonnage of ships entering port (ton/ship) | 11,276 | 18,243 | 15,475 | 15,292 | 21,796 | 21,214 |
| Cargo handling volume per year (ton/year) | 901,792 | 1,103,053 | 929,744 | 971,925 | 1,381,730 | 1,615,341 |
| Container handling volume (TEU/year) | 22,269 | 24,295 | 22,061 | 24,475 | 27,811 | 35,589 |

Source: Data provided by EPN

*: Work completed in March, 2010. Project completed in July, 2011.

While individual ship data was not available, average ship tonnage figures suggest that the number of ships entering port which exceed design standards for maximum ship tonnage (22,219 DWT²²) in the port facilities (pier facilities, including fenders) have increased from 2012. This trend has been confirmed through interviews with EPN, who records the maximum ship tonnage entering the port as being 37,113 DWT.

3.2.2 Qualitative Effects

EPN and vendors at Namibe Port have confirmed in interviews that the container handling cycle has improved and drinking water and other supplies are supplied to ships more efficiently now as a result of repairs to 3A pier, the apron, the yard and other Namibe Port facilities, as well as cargo handling equipment procured in the project. The project has also increased profits for EPN and port vendors.

Also, the data in Tables 2 and 3 as well as interviews with port vendors have confirmed that even with the increases in gross tonnage of entering ships, cargo handling volume and container handling volume since project completion, the container handling cycle is stable and the project has allowed port vendors to handle these volumes efficiently.

²² Dead Weight Ton

3.3 Impact

3.3.1 Intended Impacts

According to EPN, there were 65 port vendors and companies in Namibe Port at time of ex-post evaluation. EPN introduced 11 of the more active companies with offices near the port. Findings from interviews with these companies are given below.

Port rehabilitation work in the project was confirmed as having improved the container handling cycle for port vendors, streamlined the supplying of drinking water and other supplies to ships, allowed more efficient mooring, and reduced warehousing fees, business expenses and other distribution costs.

As shown in Table 3, cargo and container handling volumes have increased since project completion. Also, it is apparent from interviews that business is expanding, leaving visible impacts on the local economy. Port vendors expecting cargo volumes to increase even further are establishing offices near the port, and leading marine carriers which operate container vessels are planning distribution expansions, including land transport.



Photo 10 Mossamedes Railway in Namibe Port Photo 11 Railway Connection to 3B Wharf

3.3.2 Other Impacts

3.3.2.1 Impacts on the natural environment

Interviews with EPN and port vendors confirmed that there were no negative environmental impacts from the project either during or after the work.

3.3.2.2 Land Acquisition and Resettlement

The project was implemented on EPN land, and thus there was no issue with resettlement or land acquisition.

This project has largely achieved its objectives. Therefore its effectiveness and impact is high.

3.4 Efficiency (Rating: ②)

3.4.1 Project Outputs

Namibe Port facilities were rehabilitated and equipment outfitted in the project ultimately to both improve cargo handling work efficiency and to ensure handling safety. The following items and specifications were implemented as planned, except for a few slight alterations. The slight alterations consisted of changed design specifications for ancillary work for rehabilitated pier sections as agreed upon by both countries.

(1) Namibe Port

[Facilities]

- Rehabilitation of the berth (Length: 240 m): Concrete replacement, installation of fenders, installation of key crane rail
- Rehabilitation of apron (Area: 4,800 m²) and yard (Area: 16,148 m²)
- Rehabilitation of inner port road (Length: 658 m, Width: 10 m)
- Rehabilitation of water supply facility for apron
- Installation of 2 light towers in the yard

[Equipment]

- Cargo handling equipment (Reach stacker, forklift, mobile crane)

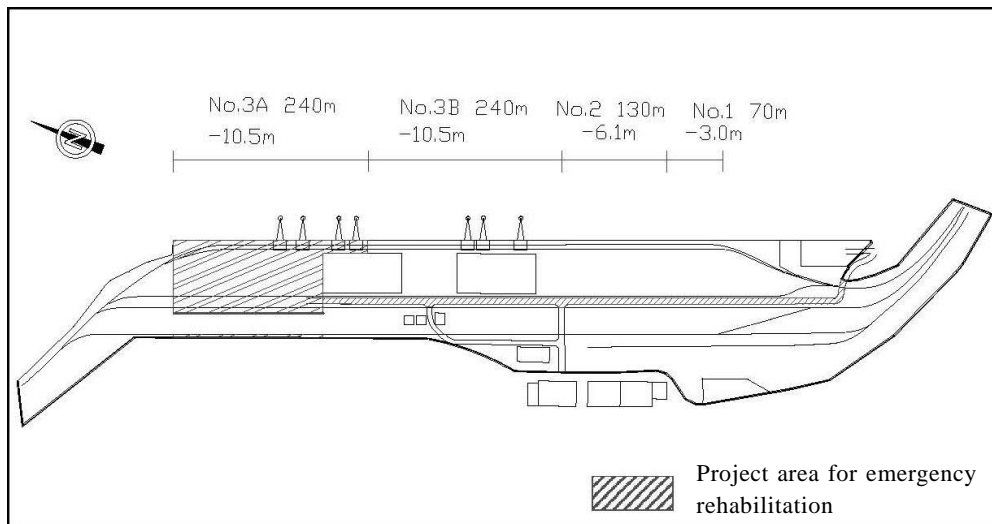


Figure 2 Plan of Namibe Port

The scope of Angolan side work items included developing a temporary yard and soil pit; removing obstacles and other site maintenance; and connecting electricity, water and other utilities. They were confirmed to have completed their scope as planned.

The construction contractor pointed out the following issues in a defect inspection conducted in July 2011, one year after work completion. These points were confirmed during ex-post evaluation.

Table 4 Confirmation of items indicated in defect inspection

| | Items from Defect Inspection | Measures Confirmed in Ex-Post Evaluation |
|----|--|--|
| 1. | Damage confirmed on 3 fenders from cracking and loose bolts. Replaced by construction contractor within 3-4 months as damage points within the warranty period. After replacement, EPN confirmed that they would handle repairs and replacements after the sections had exceeded the defect warranty period. | After two and a half years, now outside the defect warranty period, plates have collapsed on 3 fenders, and another fender is significantly damaged. As of ex-post evaluation, EPN had not repaired or replaced any fenders. |
| 2. | Included with the 3A pier and apron, a Namibe Port component, one apron side key crane rail was connected to the existing in-port rail. There is a problem on the existing in-port rail side. | EPN has solved the problem. |
| 3. | Minor cracks were found on the concrete structures for gutters on access driveways and around stormwater inlets which pose no issue to the structures. These were repaired by the construction contractor. | EPN is handling subsequent O&M for the structures. |
| 4. | EPN has laid road surface marking and installed speed bumps and preventive fencing for the container yard and access driveways within the project scope in order to handle containers properly. | EPN is handling containers properly. |
| 5. | There were no subsidence, collapsing, irregularities in the normal, cracking in the concrete or other structural defects. | EPN is handling structural O&M. |
| 6. | There was no damage to the bollards, bumping posts, ladders or other ancillary works for pier rehabilitation. | EPN is handling O&M for ancillary work. |
| 7. | There was no subsidence, collapsing, concrete | EPN is handling O&M for the |

| | | |
|--|---|--|
| | cracking, or other structural defects in the repaired apron, paved container yard, or paved access driveways. | apron, container yard, and access driveways without issue. |
|--|---|--|

3.4.2 Project Inputs

3.4.2.1 Project Cost

Table 5 shows total project costs at the planning phase and gives a comparison of the planned and actual project costs for Namibe Port rehabilitation work.

Table 5 Project Cost Comparison

(Unit : Million Yen)

| Item | E/N Grant Limit | Plan for Namibe Port | Actual for Namibe Port |
|---|-----------------|----------------------|------------------------|
| 1. Construction and Equipment Procurement | 3,313 | 1,865 | 1,800 |
| 2. Consulting Services | 128 | 67 | 132 |
| 3. Contingency | 491 | 276 | - |
| Total | 3,932 | 2,207* | 1,932 |

Source: Prepared from data provided by JICA

*: As a result of rounding off one million yen or less, there is a marginal error in total.

While project plans included rehabilitation of both Namibe Port and Lobito Port, Lobito Port rehabilitation work was not performed. The planned project costs for rehabilitation of Namibe Port only were 1,865 million yen for construction and equipment procurement costs, 67 million yen for consulting services, and 276 million for contingency, coming to a total of 2,207 million yen.

Actual project costs for rehabilitation of Namibe Port only were 1,800 million yen for construction and equipment procurement costs, and 132 million yen for consulting services, coming to a total of 1,932 million yen. The reasons for the increase in consulting service costs, despite only being for the rehabilitation of Namibe Port, were the revisions in construction and supervisory structure, additional tender preparation work and survey fees by utilizing contingency, all of which were associated with the cancellation of Lobito Port.

The actual total project costs for Namibe Port rehabilitation work were lower than the plan, coming to 88% of the planned cost.

3.4.2.2 Project Period

The project period was planned as 23 months (May 2008 to March 2010): 11 months for tender and 12 months for construction and equipment procurement.

Due to the revisions in construction and supervision for Lobito Port work being cancelled, additional tendering work and additional study related to contingency operations, the project period increased by 4 months in total. Tendering work increased from 11 months to 13 months, and construction and equipment procurement (revised project period from basic design during tender document preparations) increased from 12 to 14 months.

Moreover, another factor for the extension of the project period was the visa problems for Japanese and third country staff of the main contractor. Ultimately, it took 27 months before project completion, starting in May 2008 and completing in July 2010. Thus, the project period for Namibe Port rehabilitation work was longer than planned, at 117% of the planned period.

The project cost was kept within the plan, but the project period was longer than the plan. Therefore, the efficiency of the project is fair.

3.5 Sustainability (Rating: ②)

3.5.1 Institutional Aspects of Operation and Maintenance

An organizational chart for EPN is given in Figure 3, and their organizational structure with employees by department and field is given in Table 6. O&M for Namibe Port is mainly handled by the Department of Commerce and Operation, and the Department of Engineering.

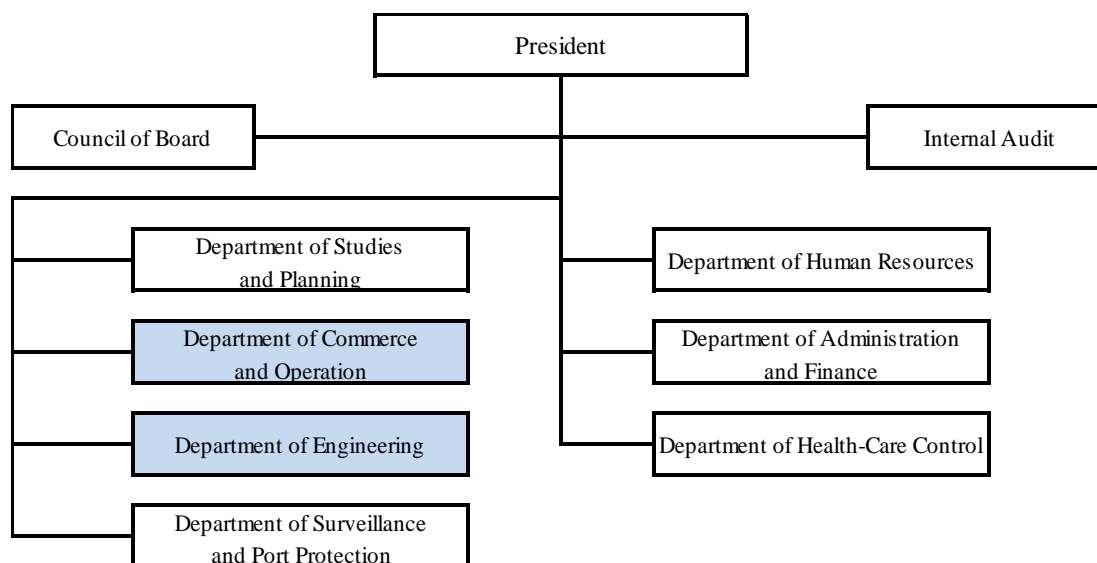


Figure 3 Organizational Chart of Namibe Port Authority

Source: Prepared from data provided by EPN

Table 6 Organizational Structure of Namibe Port Authority

(Unit: Persons, as of December, 2013)

| Unit | Operation | Technical | Admini- stration | Manage- ment | Total |
|--|-----------|-----------|---------------------|-----------------|-------|
| Council of Board | 1 | 5 | 10 | 4 | 20 |
| Internal Audit | 0 | 2 | 0 | 1 | 3 |
| Department of Studies and Planning | 0 | 3 | 2 | 5 | 10 |
| Department of Commerce and Operation | 162 | 40 | 36 | 14 | 252 |
| Department of Engineering | 69 | 18 | 8 | 11 | 106 |
| Department of Surveillance and Port Protection | 0 | 3 | 148 | 9 | 160 |
| Department of Human Resources | 15 | 17 | 12 | 9 | 53 |
| Department of Administration and Finance | 0 | 11 | 31 | 8 | 50 |
| Department of Health-Care Control | 0 | 24 | 13 | 6 | 43 |
| Total | 247 | 123 | 260 | 67 | 697 |

Source: Prepared from data provided by EPN

At ex-post evaluation in December 2013, EPN had 697 employees.

A total 202 of the 252 staff in the Department of Commerce and Operation are involved in operations at Namibe Port: 162 operational and 40 technical. Meanwhile, 87 of the 106 staff in the Department of Engineering handle O&M for equipment and machinery: 69

operational and 18 technical. Total staff figures involved in O&M for Namibe Port are 289: 231 operational and 58 technical.

Given that these staff members are undertaking O&M for container handling at Namibe Port smoothly and without delay, and that there are clear role distinctions between the departments, the Namibe Port has an appropriate O&M structure.

3.5.2 Technical Aspects of Operation and Maintenance

While no details were available on the qualifications and other data on the 289 technical staff involved in O&M, the implementing agency states that there are no issues in terms of capability and that training is held for capacity building, albeit irregularly.

During basic design in 2007 and again during project implementation in 2010, individual experts were dispatched for training in port administration and port facilities and equipment management. Given that cargo handling work is being performed without issue, there are no perceived issues with the capacities of O&M technical staff.

During defect inspection, staff was instructed to make proper use of tugboats for berthing during port entry of ships. It is now confirmed that tugboats are being properly used for berthing.



Photo 12 Berthed Ship (1)

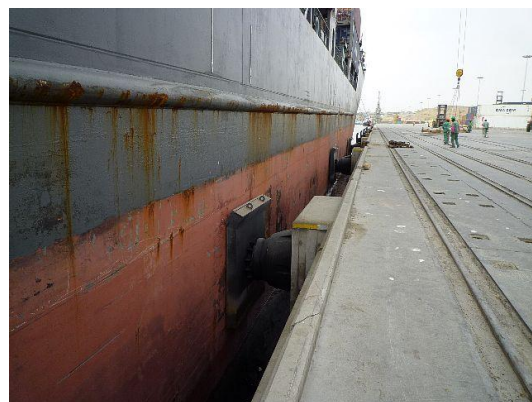


Photo 13 Berthed Ship (2)

For berthing work, EPN has no issues in terms of tugboat operation and other such technical skills. The problem that arose in berthing operations had to do with bumper O&M as the number of ships with tonnage exceeding design standards increased. EPN must now work to increase berthing operation skills, such as establishing basic limits for port entry of higher tonnage ships, and communicating closely with ships and dropping berthing speed further when forced to grant entry to ships at high tide at the ship's responsibility.

The Luanda Port Authority (APL²³) and Lobito Port Authority (EPL²⁴) are ahead of EPN in terms of capability and experience with regards to O&M of fenders and other port facilities, as well as operational skills for berthing heavy ships. EPN needs to learn from APL and EPL on these topics.



Photo 14 Fender No. 3

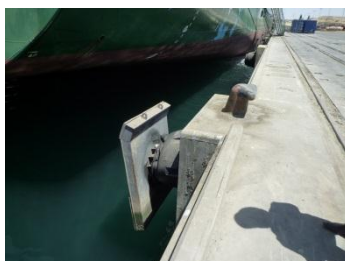


Photo 15 Fenders No. 3 & 4



Photo 16 Fender No. 4



Photo 17 Fender No. 15



Photo 18 Fenders No. 15 & 16

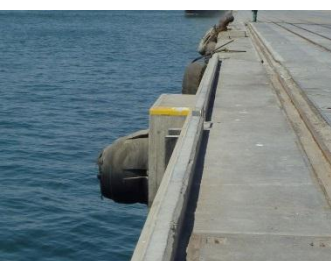


Photo 19 Fender No. 16

3.5.3 Financial Aspects of Operation and Maintenance

EPN revenues and expenditures are given in Table 7.

Table 7 Revenue and Expenditure of Namibe Port Authority

(Unit : Thousand Angola Kwanzas)

| Item | 2008 | 2009 | 2010 | 2011 | 2012 |
|------------------------------|---------------------|----------------------|----------------------|----------------------|----------------------|
| A. Revenue | 1,911,402 | 4,514,662 | 2,784,758 | 2,476,188 | 2,858,079 |
| B. Expenditure | 1,609,549 | 2,089,176 | 3,149,230 | 2,769,024 | 3,316,677 |
| 1) Materials | 0 | 0 | 0 | 0 | 454,076 |
| 2) Depreciation | 86,540 | 172,593 | 512,310 | 544,198 | 306,540 |
| 3) Staff Salary | 1,065,132 (66%)* | 1,196,737 (57 %)* | 1,579,795 (50 %)* | 1,589,222 (57 %)* | 1,517,571 (45 %)* |
| 4) Operation and Maintenance | 457,877 (28 %)* | 719,846 (34%)* | 1,057,194 (33 %)* | 635,604 (23 %)* | 1,038,490 (31 %)* |
| C. Profit | 181,216 | 1,567,383 | ▲302,612 | ▲88,013 | 131,067 |

Source: Data provided by EPN

*: Percentage to Expenditure

²³ Administracao do Porto de Luanda.

²⁴ Empresa Portuária do Lobito.

Looking at the budgets for fiscal years 2008 to 2012, the balance is unstable with two years of straight losses in 2010 and 2011. O&M costs have fluctuated somewhat between 23% and 34%, and staff salaries account for 45% to 66%. These two items account for a high percentage of expenses, especially salaries. Increasing staff numbers handling O&M after project completion by close to 80 staff has weighed down the budget (staff was up to 618 in FY 2009). As revenues at any moment will depend on the current economic climate, the budget needs to be restructured, possibly considering outsourcing some tasks to reduce personnel numbers or other measures.

The EPN balance sheet giving fixed assets, current assets, net assets and liabilities is shown in Table 8.

Table 8 Balance Sheet of Namibe Port Authority

(Unit: Thousand Angola Kwanza)

| Item | 2008 | 2009 | 2010 | 2011 | 2012 |
|-------------------|-----------|-------------|------------|-----------|-----------|
| Fixed Assets | 180,326 | 601,804 | 2,989,165 | 2,732,435 | 3,136,168 |
| Current Assets | 464,618 | 2,593,473 | 1,383,128 | 1,626,383 | 1,052,651 |
| Total Assets | 644,944 | 3,195,277 | 4,372,293 | 4,358,818 | 4,188,819 |
| Net Assets | 398,507 | 2,013,163 | 3,407,430 | 3,395,087 | 3,526,155 |
| (Balance) | (181,216) | (1,567,383) | (▲302,612) | (▲88,013) | (131,067) |
| Liabilities | 246,437 | 1,182,114 | 964,862 | 963,731 | 662,664 |
| Total Liabilities | 644,944 | 3,195,277 | 4,372,292 | 4,358,818 | 4,188,819 |

Source : Data provided by EPN

For FY 2014, EPN is discussing the migration of equipment and over 400 O&M staff to an experienced private contractor. EPN would also outsource part of the port O&M in the agreement, including container handling work and O&M for the apron and yard. At ex-post evaluation, the two parties had almost reached an agreement. While outsourcing may resolve the instability issues with balancing the budget, job security for the migrated staff and how EPN will maintain their salaries is not clear. Also, EPN and the subcontractor have yet to prepare the rules of operation and other contractual agreements regarding everyday O&M work. MOT, IMPA and other responsible authorities need to be brought in to help prepare and reliably perform the rules of operation, and a system must be established for EPN to manage these rules.

APL is already outsourcing its O&M work to a private contractor. With EPN already in negotiations with the same contractor, it would likely be effective for them to learn from APL with regards to the rules of operation and actual operation methodology.

3.5.4 Current Status of Operation and Maintenance

O&M at Namibe Port for the facilities and equipment installed in the project is being performed smoothly with sufficient staff and using proper techniques.

Some fender O&M issues have been detected, however. Fenders are consumables, and damaged sections of 3 fenders were replaced during a defect inspection during the warranty period. EPN is responsible for heeding safety and handling repairs and part replacements with the warranty period now past, but they are not handling O&M properly.

In the just two and a half years after which the warranty period elapsed, 3 of the 16 fenders installed had collapsed plates (Nos. 4, 15 and 16), and another (No. 3) was greatly damaged.

The EPN side sees the four damaged fenders as a design and specification issue. Meanwhile, as shown in Table 3, an increasing number of vessels exceeding the design standards of the fenders of pier facilities have entered port since 2012. More likely, despite proper berthing with the use of tugboats, the repeated berthing of heavy ships exceeding the design standards has taken its toll and damaged the fenders.

At this rate, the damage could greatly impact the structure of the pier itself in the near future, bringing financial losses for EPN and port users. As such, after quickly replacing the fenders, EPN must improve its berthing operations to include careful decision on granting port entry and guidance for shipper companies.

EPN and the construction contractor have agreed that the contractor will sell its temporary yard facilities and construction equipment to EPN. EPN is currently operating and maintaining the facilities without issue.

As seen above, some problems have been observed in terms of technique, finances and O&M status. Therefore, sustainability of the project is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

In this project, port facilities were rehabilitated and cargo handling equipment was provided in a major regional port of Angola in order to ensure safe cargo handling and improve handling efficiency. The implementation of this project was consistent with the development policy and needs both during the planning phase and ex-post evaluation, also conforming to Japanese aid policy at that time. It can be judged that there was no problem

with the implementation approach, though there were problems seen in terms of the measures taken by the Angolan side regarding the exclusion of Lobito Port. Therefore, the relevance of this project was high. The project largely achieved the planned results. In the Port of Namibe, safety, the container handling cycle and dust produced during port work are all confirmed to have improved. Also, port rehabilitation work in the project has reduced distribution costs by streamlining mooring and reducing warehousing costs and business expenses. Thus, the effectiveness and impact of the project was high. In terms of project implementation, the efficiency of the project was fair; project cost was kept within the plan, but the project period was longer than the plan. The sustainability of the project was also fair due to operation and maintenance issues with pier fenders and financial issues with the EPN administration.

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

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

4.2.1.1 Berthing Operation Improvements and Proper Fender Operation and Maintenance

As direct outcomes of implementation, project achievements consist of improved ship operational safety, reduced dust during work on the apron and in the yard, and an improved container handling cycle. However, EPN is not effectively maintaining the facilities and equipment rehabilitated in the project, particularly the pier fenders, an important piece of pier facilities. If this leads to pier damage, the effects of the improved safety and efficient cargo handling from the project may be reduced in the future.

As such, the damaged fenders must be replaced immediately, followed by a review of EPN berthing operations, confirmation and improvement of fender O&M plans, confirmation of berthing operational methods with port vendors, information sharing and discussions on insurance for fender damage.

As the responsible authorities, it is desirable that MOT and IMPA discuss issues with EPN, determine countermeasures, and monitor EPN implementation of those measures.

4.2.1.2 Financial Improvements

While EPN revenue is unstable, their O&M costs are on the rise. EPN needs to work to become more financially sound and stable by revising their budget, including O&M costs and salaries, and discuss how to improve their revenues.

Outsourcing O&M to a private contractor would be an appropriate means of balancing these budgetary issues. Also, as the responsible authorities, MOT and IMPA need to be active in directing daily EPN O&M activity.

4.2.1.3 Operation and Maintenance Structure

In terms of both the O&M issues with fenders and the O&M structure of EPN itself, there is a need for EPN to learn from more experienced Angolan port authorities in APL and EPL.

Further, it is considered effective for EPN to create figures and data with annual reports, also giving monthly reports on EPN activity and reporting on exchanges with subcontractors, information exchanged with port vendors, problems and their solutions to their regulatory agencies, as well as improve two-way systems for transmitting information. These measures should be allowing MOT and IMPA, the agencies regulating EPN, to quickly understand EPN problems and handle them just as swiftly.

4.2.2 Recommendations to JICA

In this ex-post evaluation, effectiveness and impact of the project was fully confirmed, but there are some problems in terms of the sustainability of port O&M by EPN. As illustrated with the issues with fender O&M, EPN is seen as inexperienced in actual port administration. From now, it should be important that JICA monitor how MOT, IMPA and EPN handle the 'recommendations to the implementing agency'. When support is needed in tackling new issues, such as expanding roles, private outsourcing, and building information systems, it is important to provide support to the implementing agencies in the fields in which they lack sufficient expertise in order to sustain the effects of the project.

4.3 Lessons Learned

Capacity Development for Sustainable Operation and Maintenance

This project helped to rehabilitate and improve port functionality by performing emergency rehabilitation of port facilities and procurement of port equipment. While a minimal amount of technique in facility and equipment O&M was transferred to the O&M body, the transfer did not go as far as to transfer sustainable O&M techniques or develop capacity in organizational management. In the future, it is expected that operational management capacities of the organization to perform O&M for facilities and equipment installed by the project will be analyzed in terms of structure, skill, and finances at the planning implementation and management phases. Also, it is desired that capacity development programs be considered in any fields in which the organization lacks sufficient expertise.

(End)