

Republic of El Salvador

FY 2015 Ex-Post Evaluation of Japanese ODA Loan

“La Union Port Development Project”

External Evaluator: Hiromi Suzuki S., IC Net Limited

0. Summary

The La Union Port Development Project (hereinafter referred to as “the Project”) was implemented for the purpose of meeting the increased demand for maritime cargo transportation by constructing La Union Port in the Gulf of Fonseca in the eastern part of El Salvador. The Project also envisaged that the increased port capacity in El Salvador resulting from the Project would stimulate distribution of goods and improve its efficiency, thereby contributing to the economic development of the eastern region of El Salvador. Although the Project is relevant to the country’s development plan and development needs as well as Japan’s ODA policy, there is a possibility that the necessity for La Union Port has slightly declined due to the lack of implementation of a maritime trade strategy and policies in line with the development plan and the recent improvement of Acajutla Port. The realization of positive project effects has been hampered possibly by insufficient preliminary investigation of the phenomenon of sedimentation in the berth and access channels; restriction of the port operation strategy to a concession-based operation when the relevant legal framework was not in place, and further stagnation of port operation resulting from the exclusion of gantry cranes¹ from the scope of the Project. Based on the above, the relevance of the Project is fair. The change of the project scope following the expansion of the target ships to include post-Panamax ships²; the necessity for additional dredging of the berth and access channels as a result of sedimentation exceeding the original forecast; and the steep rise of equipment and material prices, resulted in the actual project cost and project period significantly exceeding the planned cost and period. Therefore, the efficiency of the Project is low. The actual use of La Union Port has been very limited against the background of an insufficient water depth, lack of gantry cranes and decline of the demand for cargo transportation. As a result, the level of achievement of the project purpose is low with hardly any realization of the expected impacts. Therefore, the effectiveness and impact of the Project are low. The sustainability of the project effects is only fair because there are some problems concerning the technical capability to dredge the berth and the access channels, and the financial situation in addition to a lack of clarity regarding the future operating system and business plan for La Union Port. Based on the above, the Project is evaluated as being unsatisfactory.

¹ A gantry crane is a gate-type large crane with a structure which allows its movement on rails. In this ex-post evaluation, a gantry crane is defined as a container crane installed on a pier of a port to load and unload containers to/from container ships.

² A Panamax ship is a ship of which the size is the largest to pass through the Panama Canal. Any ship larger than this size is called a post-Panamax ship. In June 2016, a ceremony to celebrate the completion of the construction of the third set of locks in the Panama Canal was conducted and currently post-Panamax ships can also transit the canal.

1. Project Description



Project Location



La Union Port (Courtesy of CEPA)

1.1 Background³

In the 1990's, the economy of El Salvador steadily grew as a result of the policy introduced after the end of the civil war in 1992 which aimed at facilitating international trade, liberalization of finance, inward investment and productivity improvement. In the second half of the 1990's, international trade was the main driving force for the economic recovery of the country and the trade accounted for some 50% of the country's GDP. Maritime transportation played an important role as a means of transportation and one-third of international cargo was handled by Acajutla Port which was the only port in El Salvador that could be used for international trade. Cargo handling, especially the handling of containers which demands swift operation was restricted at Acajutla Port due to unfavorable natural conditions, including considerable swells because of the port's position directly facing the Pacific Ocean. Because of this, some export cargo, including container cargo, was transported to neighboring Guatemala by land for export via Puerto Barrios Port.

The demand for maritime cargo transportation in El Salvador was expected to grow to around 4.5 million tons by 2015 with container cargo accounting for 800,000 to 900,000 tons. As of 1996, however, the cargo handling capacity of Acajutla Port was 1.95 million tons. Even with improvement of the existing facilities, it was considered that the maximum cargo handling capacity would only increase to 2.5 million tons/year. By 1999, the cargo handling volume of Acajutla Port reached 2.3 million tons/year, approaching its expected maximum handling capacity. This situation made strengthening of the port facilities in El Salvador to meet the increasing demand for maritime cargo transportation⁴ an urgent task.

While Cutuco Port in La Union Province along the Gulf of Fonseca in the eastern region of El Salvador had been used for the export of coffee and cotton, this port was closed

³ Based on materials provided by JICA and the 2004 ODA Country Data Book for El Salvador published by Japan's Ministry of Foreign Affairs.

⁴ In the second half of the 1990's, the Government of El Salvador examined the possibility of constructing a full-scale container terminal at Acajutla Port but abandoned this plan due to technical reasons as well as the declared national policy of prioritizing the development of the eastern region.

down in 1996 due to its much deteriorated facilities. At that time, the Government of El Salvador emphasized the development of the eastern region which was traditionally a poor region ravaged by the civil war which raged in this region in the 1980's and made a request to JICA for the provision of technical cooperation for the development of an international port which would make the best use of the excellent natural conditions of much weaker wind and waves in the Gulf of Fonseca compared to Acajutla Port. In response, JICA conducted the *Study for Port Reactivation in the Union Province of the Republic of El Salvador (1997-1998)*. This study produced the *Master Plan for Port Reactivation in the Gulf of Fonseca* (target year of 2015) which proposed the construction of the new La Union Port at the former Cutuco Port site. This was followed by a feasibility study for a short-term plan (target year of 2005).

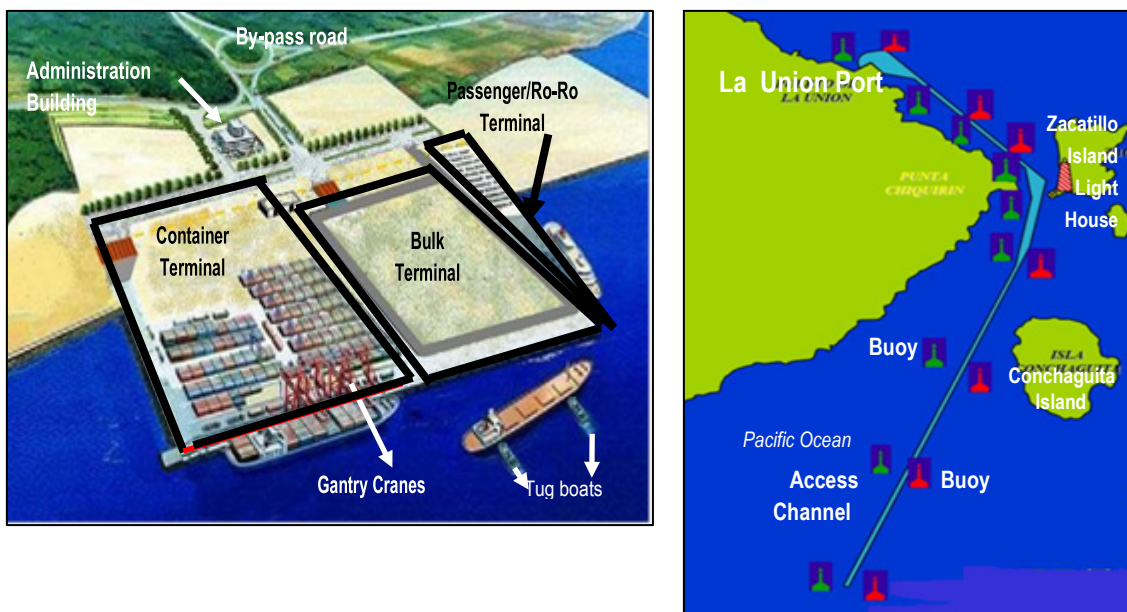
This Master Plan assumed that La Union Port would become the principal container port in El Salvador handling most of the container cargo arriving and leaving the country and would also handle other types of cargo in the eastern region. In addition, La Union Port was expected to play the role of facilitating the development of the eastern region, the development of an export processing zone with an area of some 100 ha was assumed in the neighboring area of the port to bring about new demand for cargo transportation. On the other hand, it was assumed that Acajutla Port would handle cargo other than container cargo in the west and central regions.

Under these circumstances, the Government of El Salvador gave the highest priority status to the development of La Union Port and made a request for an ODA loan to conduct the short-term plan⁵ of La Union Port. In response, a review of the feasibility study results was conducted and the appraisal of the plan was done in December 2000, and the Technical Evaluation and Appraisal for the *Detailed Design for the Port Reactivation Plan of La Union Province in El Salvador (2001-2002)* as an ODA loan-related D/D was implemented. The Project was subsequently implemented from October 2001, when the agreement for the ODA loan was signed, to July 2009.

1.2 Project Outline

The Project aimed at meeting the increased demand for maritime cargo transportation through an increase of El Salvador's port capacity by means of constructing La Union Port along the Gulf of Fonseca in the eastern part of the country, thereby stimulating distribution of goods and improving its efficiency and contributing to the economic development of the eastern region of the country.

⁵ According to the *Final Report for the Project for Maintenance Dredging of the Port of La Union* and the interview survey with CEPA, the Master Plan for La Union Port consists of four phases. This Project constitutes Phase I (short-term plan) while Phase II, Phase III and Phase IV entail the expansion of the port to the southeast, northwest and further southeast respectively.



Source: Provided by CEPA.

Figure 1 La Union Port: Terminal Layout, Port Access Channels and Port Access Channel Support Facilities

Loan Approved Amount/ Disbursed Amount	11,233 million yen/11,207 million yen
Exchange of Notes Date/ Loan Agreement Signing Date	May 2001 / October 2001
Terms and Conditions	Interest Rate Civil Works: 2.2% Consulting Service: 0.75% Repayment Period (Grace Period) Civil Works: 25 years (7 years) Consulting Service: 40 years (10 years)
	Conditions for Procurement: Civil Works: General untied Consulting Service: Bilateral tied
Borrower / Executing Agency	Guarantor: Government of El Salvador / Autonomous Executive Ports Commission (CEPA)
Final Disbursement Date	August 2010
Main Contractor (Over 1 billion yen)	Jan De Nul N.V. (Belgium) / Toa Corporation (Japan) (Joint Venture)
Main Consultant (Over 100 million yen)	Nihon Koei Co., Ltd. (Japan)
Feasibility Studies, etc.	F/S: “The Study for Port Reactivation in the Union Province of the Republic of El Salvador” (JICA Development Study, 1997- 1998), SAPI: “Special Assistance for Project Implementation for the La Union Port Development Project in El Salvador” (JICA Special Assistance for Project Implementation, 2008-2009)

Related Projects	<p>[Technical Cooperation] “The Study for Port Reactivation in La Union Province of the Republic of El Salvador” (1997-1998), “Technical Evaluation and Appraisal for Detailed Design on Port Reactivation Plan of La Union Province in El Salvador” (Loan-Related D/D 2001-2002), “The Project for Maintenance Dredging of the Port of La Union” (2010-2014), “The Project for the Strengthening of Teaching Quality of MEGATEC, La Union” (2008-2012), “Technical Assistance Study regarding the Operation Methods of the Container Terminal” (October 2009-June 2010), Advisor for Port Management and Promotion (2012-2014), “The Project for the Strengthening of Capacities for Rural Tourism Development in the Eastern Region of El Salvador” (2010-2013), Development Planning Advisor for the Technical Secretariat of the Presidency (2012-2016)</p> <p>[Projects of Other Organizations] World Bank: “Assistance for the Construction of MEGATEC, La Union” (2005-2009), World Bank: “Teacher Training and Curriculum Development for MEGATEC, La Union” (2005-2009)</p>
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2. Outline of the Evaluation Study

2.1 External Evaluator

Hiroshi S. Suzuki (IC Net Limited)

2.2 Duration of Evaluation Study

The ex-post evaluation study for the project was conducted over the following period.

Duration of the Study: October 2015 to March 2017

Duration of the Field Survey: January 31, 2016 - February 13, 2016, and June 11 - 20, 2016

2.3 Constraints During the Evaluation Study

Since its opening in 2010, La Union Port has not been fully utilized because of problems concerning dredging and concession (see “3.3 Effectiveness” for more details) and this situation has further developed into a political debate within El Salvador. At the time of this ex-post evaluation, a tendency towards rather over-heated coverage of the situation by newspapers, etc.⁶ was observed. Therefore, any policy or strategy for the maritime transportation sector, including La Union Port, is a very sensitive political issue and it was difficult to obtain information on the official position of the government or very reliable information during the field survey. Equally, through the interview survey with maritime transportation companies conducted as part of the beneficiary surveys it was difficult to obtain

⁶ The Project was originally requested and commenced by the government of the Nationalist Republican Alliance (ARENA, until 2009). Since 2009, the left wing government of the Farabundo Marti National Liberation Front (FMLN) took over, and since then has been operating the port.

opinions on the issue and frequently the evaluator came across opinions seemingly influenced by the inaccurate information from the newspapers, etc. Because it was not possible to obtain the official position of the government from the Technical Secretariat of the Presidency who leads the aspects of policy and strategy, extensive efforts were made to obtain information from multiple sources, including such relevant departments as the Department of Finance and the Department of Tourism and those involved in the Project under the previous administration. This ex-post evaluation is based on information that was available by the end of the second field work (June). Information obtained beyond the time was basically not taken into consideration for the evaluation and was described in the footnotes just as reference information.

3. Results of the Evaluation (Overall Rating: D⁷)

3.1 Relevance (Rating: ②⁸)

3.1.1 Relevance to the Development Plan of El Salvador

The *National Development Plan* (formulated in October 2000) of El Salvador at the time of the project planning designated four areas in the country as priority areas for development and specified public works to function as the driving force for development in each area. As the eastern region was one of these areas prioritized for development by the government, the Project, including the surrounding areas of the Gulf of Fonseca, was given the status of a development project of the highest priority to act as the main driving force for regional development. As a project contributing to the regional integration of Central America, the Project was also expected to contribute to the vitalization of distribution of goods throughout Central America.

The *Five Year National Development Plan 2014-2019* which is the ongoing national development plan at the time of the ex-post evaluation upholds three objectives: “sustainable economic growth”, “comprehensive education and social fairness” and “safe civil life”. The development of transportation infrastructure is aimed at achieving a better efficiency of the distribution of goods through consolidation of the transportation sector, and socioeconomic integration of Central America under the objective of “sustainable economic growth”, and ports are considered to form part of the said infrastructure. In 2012, the *Integral and Sustainable Development Strategy for the Coastal Zone 2012-2024* was formulated as a comprehensive development plan for Pacific coast areas of El Salvador, including the section from Acajutla Port to La Union Port. This regional development plan upholds four objectives: “improvement of productivity through investment”, “improvement of the living standard of local residents”, “infrastructure improvement and strengthening of distribution of goods” and “strengthening of

⁷ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory.

⁸ ①: Low; ②: Fair; ③: High

principal cities as centers for growth”. Both Acajutla Port and La Union Port are expected to play an important role in all of these objectives. This plan has clearly adopted a policy of seeking mutually complementary roles of these two ports in that Acajutla Port mainly handles bulk cargo and other miscellaneous cargo while La Union Port primarily handles container and transshipment cargo.⁹

In addition, according to the results of interviews to CEPA and Department of Tourism, the government has maintained its commitment to the development of the eastern region and has prepared the *Master Plan for the Comprehensive and Sustainable Development of the Eastern Region of El Salvador 2015-2025* with the cooperation of JICA.¹⁰ The priority sectors of this Master Plan include the transportation sector and it aims for the vitalization of the economy through the utilization of the Project.

However, the above policy and plan do not offer a concrete plan for La Union Port and no clear direction has been established for the operation of this port. Therefore, the relevance of the Project to the development policies of El Salvador at the time of its planning and time of ex-post evaluation is high but there is no clear policy for the operation of La Union Port at the time of the ex-post evaluation.

3.1.2 Relevance to Development Needs of El Salvador

As already described in “1.1 Background”, at the time of appraisal (2000) one-third of the international cargo of El Salvador was handled by Acajutla Port, the only international port in El Salvador, and the port was approaching its maximum handling capacity. It was predicted that even if the facilities and handling capacity of the port were improved, the country’s demand for cargo transportation would exceed the handling capacity of the port in 2005. Therefore, the construction of La Union Port was proposed to allow this new port to handle most container cargo.¹¹

By the time of the ex-post evaluation, the role of international trade in the economy of El Salvador has further expanded.¹² The cargo handling volume of ports temporarily dropped after the global financial crisis that occurred from 2008 to 2009 but has since recovered to reach 4.63 million tons in 2015 which is some 80% of that predicted at the time of appraisal (5.8 million tons in 2015).¹³

⁹ Bulk cargo (or just cargo) means cargo loaded onto a ship without being packed, such as grains, salt, coal and mining ore. Transshipment means the transfer of cargo at an intermediate port instead of cargo transported by the same ship from the port of embarkation to the port of disembarkation.

¹⁰ This Master Plan was announced to the nation by the President in October 2016. With respect to La Union Port it considers the starting of operations of the ferry (for information on the ferry see “3.3.1 Quantitative Effects” and footnote 32) and the operation of La Union Port as strategic undertakings, however, no details are described.

¹¹ *The Study for Port Reactivation in La Union Province of the Republic of El Salvador* (JICA Development study, 1997-1998)

¹² According to statistics of the Central Reserve Bank of El Salvador, the share of the amount of international trade in the GDP increased from 50% at the time of appraisal to 61% in 2014.

¹³ Technical Evaluation and Appraisal for Detailed Design on Port Reactivation Plan of La Union Province in El

However, the cargo handling volume of La Union Port in 2015 remained as small as 20,000 tons in 2015 because of such constraints as insufficient water depth due to the lack of dredging of the berth and access channels, lack of gantry cranes, etc. (see “3.3 Effectiveness” for more details). Therefore, the cargo handled by ports in El Salvador continues to be handled by Acajutla Port, including container cargo which accounts for almost one-third of the total cargo volume. According to CEPA, the cargo handling capacity of Acajutla Port has increased to 8 million tons which far exceeds the predicted figure (maximum of 2.5 million tons) at the time of appraisal as a result of recent investment in facilities and equipment.¹⁴ However, Acajutla Port has the limitation of only allowing calls by container ships equipped with on-board cranes because the ground at Acajutla Port is not strong enough to support a heavy gantry crane, and because of other constraints posed by the water depth and port structure. As a result, the container cargo handling capacity of Acajutla Port cannot be expected to increase beyond 8 million tons. There is, therefore, a strong need for El Salvador to provide a port which allows larger container ships, such as post-Panamax ships and container ships not equipped with an on-board crane to call. It is therefore, reasonable to assume that there is a need at the time of the ex-post evaluation to utilize La Union Port which was constructed as the only fully-fledged container port. However, it must be noted that the much greater increase of the cargo handling capacity of Acajutla Port beyond the assumption made at the time of appraisal means that Acajutla Port is now handling some of the container cargo which is supposed to be handled by La Union Port.

As such, the necessity for La Union Port, which was clear at the time of appraisal, has not been lost at the time of the ex-post evaluation but may have been slightly weakened by the fact that the improvement of Acajutla Port has been much more than predicted at the time of appraisal.

3.1.3 Relevance to Japan’s ODA Policy

The priority areas for Japan’s economic cooperation for Latin America, in the Medium-Term Policy on ODA (prepared in August 1999) at the time of appraisal included “development of basic infrastructure for the rectification of regional disparity” and “development of economic and social infrastructure for the development of the environment to contribute to the encouragement of the private sector and facilitation of foreign direct investment. In addition, based on the ODA Medium-Term Policy and the results of the economic policy dialogue, the ODA Policy for El Salvador was prepared in November 2011 which lists (1) vitalization of production sectors, (2) social development (education, health care and medical care), (3)

Salvador (ODA-related D/D; 2001-2002)

¹⁴ According to CEPA, the improvements at Acajutla Port include expansion of the container yard; change from the single stacking of containers to triple stacking, automatization of container management and introduction of transportation facilities for bulk cargo (belt conveyor, etc.)

environment and (4) democratization and stabilization of the economy as four priority areas. The assistance for the development of economic infrastructure and technology transfer for the transportation sector, etc. were considered to be a way to contribute to the vitalization of the production sector which has a big potential capacity.

Based on the above, the Project is highly relevant to Japan's ODA policies.

3.1.4 Relevance to Appropriateness of Project Planning and Approach

At the time of the ex-post evaluation, the cargo handling volume of La Union Port is quite limited and there is little realization of the expected project effects due to two direct causes which are the limited operational capacity of the port, and the unclear port management system including business strategy (see "3.3 Effectiveness" for more details). The following three issues relating to the appropriateness of project planning and project approach during implementation can be pointed out as the background.

(1) Insufficient Investigation of the Phenomenon of Sedimentation at Access Channels and Berth

In general, the berth and access channels require periodic dredging (maintenance dredging) as they experience the phenomenon of sedimentation by sand and silt. In the case of a port with long access channels, the cost of such dredging can account for a major part of the port maintenance cost. Therefore, proper assessment of the scale of this phenomenon (volume of sediment soil) and the dredging cost are important factors for the port's profitability analysis.

In the Project, the scale of sedimentation of the berth and access channels has been far greater than that predicted at the project planning stage. It is, therefore, necessary to re-dredge the access channels and also to continually conduct maintenance dredging. However, because of the huge cost of such work, no dredging has been conducted since the opening of La Union Port in 2010.¹⁵ This lack of dredging is one of the direct factors preventing the active use of the port, greatly affecting the effectiveness of the Project (see "3.3.1 Quantitative Effects (Operation and Effect Indicators)").

The chronology of the sedimentation surveys of La Union Port under the Project is as follows.

- a. Prior to the Feasibility Study in 1998, no survey had been conducted in the Gulf of Fonseca on the phenomenon of sedimentation. As part of the Feasibility Study, the volume of

¹⁵ According to the Concessions Law enacted in 2011, maintenance dredging was the responsibility of CEPA. The Law was revised in 2013 so that CEPA and private port operators could discuss and conduct such dredging using a mutually agreed manner. Although re-dredging is the responsibility of CEPA, it has not been conducted because of constraints in terms of equipment (dredging boats) and budget (see "3.5.4 Current Status of Operation and Maintenance" for details).

sedimentation was calculated in a trial manner using the results of past sounding surveys (surveying of the seabed topography using ultrasonic waves, etc.) and those of a newly conducted sounding survey. However, the necessity for more detailed investigation in the coming years was pointed out in view of the insufficient availability of data.

- b. As part of the Detailed Design Study (implemented as an ODA loan-related D/D outside the scope of the Project from 2001 to 2003), the annual volume of sedimentation was estimated by simulation using a numerical model. The resulting estimate was 1.24 million m³/year of sedimentation volume and the conclusion was that the dredging frequency would need to be increased compared to the assumed frequency at the time of the Feasibility Study. No field experiment to produce a much more accurate forecast of the rate of sedimentation took place because of the huge cost that would be incurred for such an experiment.¹⁶
- c. After the commencement of the construction work under the Project in 2005, a bathymetry study which was conducted in parallel with the dredging work discovered in 2007 that there was considerable sedimentation in the inner channels, outer channels and berth. The actual volume of sedimentation was estimated to be nearly four times the previously estimated volume, causing concern in regard to the prospect of a smooth port operation after opening.
- d. Because it was believed necessary to conduct a detailed investigation of various issues, including identification of the causes of the massive amount of sedimentation, in order to predict the future rate of sedimentation and to plan adequate measures, the Special Assistance for Project Implementation for the La Union Port Development Project in El Salvador (SAPI) was implemented from 2008 to 2009. This study disclosed that near the seabed, there was slow movement of suspended mud heading towards deeper areas of the seabed, causing severe burying of the access channels.¹⁷ Following this discovery, from June 2006 and onwards, the rate of sedimentation was newly estimated based on sounding data obtained both prior to and after dredging.

¹⁶ In a field experiment, pseudo-access channels are introduced in the subject area to investigate the mechanism and rate of sedimentation. While the preliminary study for the Detailed Design Study stated that “in-situ sedimentation data from at least a field experiment is essential to obtain a numerical value (i.e. volume of sediment soil) which can withstand rigorous evaluation”, it also stated that “in order to do that it takes a considerable cost, thus in most of the cases in reality it is impossible to obtain sedimentation data”. It also mentioned that “trial calculation of the volume of sedimentation this time is necessary to obtain a reference value for subsequent determination of the contents of a future access channel dredging plan”. It is a fact that the Japanese consultant proposed that CEPA conduct a detailed investigation of the phenomenon of sedimentation at the time of signing the consulting service agreement for the Project but as a result of discussions during the contract negotiation, such an investigation did not materialize, partly because it was not included in the scope of work agreed upon by JICA and El Salvador during appraisal and partly because of the huge cost. (These comments are based on materials provided by CEPA. The actual details, including whether or not the proposed investigation included a field experiment, have not been clarified.)

¹⁷ This kind of burying (sedimentation) mechanism was not assumed in the simulation mentioned earlier.

e. Because the accuracy of the SAPI estimation mentioned above was insufficient to calculate the volume of maintenance dredging, JICA conducted an additional sounding survey and data analysis from 2011 to 2012 as part of the *Project for Maintenance Dredging of the Port of La Union (2010-2014)*. As a result, it became clear that annual dredging of more than 8 million m³ of sediment would be required to maintain the access channel water depth of 14 m as planned. In addition, as part of this project, financial analysis was conducted using the dredging cost for various cases of water depth (8 m to 14 m) and the estimated demand for cargo transportation based on each water depth. This analysis suggested that when the port usage fee at La Union Port at the time remained unchanged, the operation of La Union Port would always be in deficit regardless of the water channel depth.¹⁸

(2) Exclusion of Gantry Cranes from the Scope of the Project

After the commencement of the Project, the water depth of the berth for the container terminal was changed from 14 m to 15 m in 2005 following a request by CEPA to enable La Union Port to receive post-Panamax ships. The resulting increase of the construction cost led to the exclusion of the procurement of gantry cranes from the scope of the Project based on the amendment of the loan agreement between the two countries through legal procedure and the procurement of gantry cranes was left to the private port operator of which the introduction was planned in the Project. The agreement between CEPA and JICA regarding this change included the clause that CEPA would procure gantry cranes if it was found difficult by private port operator to procure them. At the time of the ex-post evaluation, CEPA still assumed that gantry cranes would be procured by a private port operator as mentioned in the next section. Because the appointment of such a private port operator has so far not taken place, gantry cranes have not been procured.¹⁹

The existence of gantry cranes is essential for La Union Port which is conceived as the only full-scale container port in El Salvador. The exclusion of gantry cranes from the scope of the Project has led to a situation where a private port operator has not been forthcoming. The lack of gantry crane limits the size of container ships which are able to make port, posing a grave risk of preventing the realization of positive project effects. While this change of the plan took place before the discovery of the phenomenon of excessive sedimentation beyond the original estimate, the increase in the targeted water depth at the berth has further increased the dredging cost.

¹⁸ To improve the profitability of the port, this analysis proposed an increase of the port usage fee and extra efforts to realize the growth of La Union Port as a hub port for transshipping, among others.

¹⁹ See “3.2.1 Project Outputs” for more details. Apart from gantry cranes, the procurement of tug boats was also excluded from the scope of the Project. However, a tug boat was provided by CEPA by the time of the ex-post evaluation.

(3) Limitation of the Operating Method to a Concession

As far as the operating method of La Union Port is concerned, leasing of the terminal to a private port operator (hereinafter referred to as “a concession”) was assumed at the time of signing the loan agreement and JICA subsequently provided technical cooperation based on this assumption. However, there is still no prospect of fulfilling this assumption. The procurement of gantry cranes and dredging were also to be conducted by a private port operator, after changing the scope of the Project. The failure to find a suitable private port operator to act as a concessioner means that the achievement of the expected project effects has been hampered.

At the time of the planning of the Project, the idea of a concession enabling efficient operation of the port was commonly accepted throughout the world. In El Salvador, however, there was no precedence of a concession and the relevant legal framework was non-existent. After the completion of the construction work in December 2008, based on the situation that no consensus could be built in regards to the concession law, JICA conducted a technical assistance study regarding the operation methods of the container terminal from October 2009 to June 2010. As a result, it recommended a partial concession after a five-year period of self-operation, and based on this, CEPA bought the necessary equipment using its own means and started self-operation for the time being. However, the policy afterwards took a turn, and it was decided to pass the concession law through the congress instead. At the end, it took nearly 10 years for debates involving CEPA, the Technical Secretariat of the Presidency and the congress to bear fruit with the Concession Law for Container Oriented Multi-Purpose Terminal Phase I for La Union Port in 2011. This Law was revised in 2013. After a period of necessary preparation by CEPA, a tender was finally organized from 2014 to 2015 but no bidder came forward. Because of this, CEPA has been directly operating the port up to the present on a provisional basis.

As can be seen, it can be said that there has been insufficient consideration of the possibility that the development of a suitable legal framework might take much longer than originally predicted, and that the successful signing of a concession contract may take time because such contract is strongly susceptible to market conditions and the perceived profitability.

Based on the above, the Project was highly relevant to the development policies and development needs of El Salvador and also the ODA Policy of Japan for El Salvador. In this sense, the level of its relevance is high. However, it can be pointed out that there has been no concrete plan detailing the role, operation and other aspects of La Union Port and there is a possibility that the necessity for La Union Port has slightly declined because of the improvement of Acajutla Port in recent years. Moreover, the realization of positive project effects has been hampered by the facts that in spite the fact that there was a need for a preliminary investigation of the phenomenon of sedimentation of the berth and access channels,

civil works started without conducting such investigation taking into consideration CEPA’s decision; the exclusion of gantry cranes, which are crucial for a container port, from the scope of the Project; and the restriction of the port management method to a concession at a stage when the relevant legal framework was not in place. In short, the appropriateness of the project plan, approach and other aspects of the Project are questionable. Taking all of the factors to determine the relevance of the Project into consideration, the overall relevance of the Project is fair.

3.2 Efficiency (Rating: ①)

3.2.1 Project Outputs

The planned facilities under the Project and the actual results are shown in Table 1. Comparison of these actual results with the original plan is given in “Comparison of the Original and Actual Scope of the Project” at the end of this report.

Table 1 Actual Output at the Time of Ex-Post Evaluation

Item	Contents
I. Civil Engineering Work	
• Container Terminal	Pier: 1 berth, water depth 15m, total length approx. 360m (for Panamax ship) Container yard area: approx. 184,000m ² / Handling capacity 750,000TEU
• Bulk Terminal	Pier: 1 berth, water depth 14m, total length approx. 220m(for Panamax ship) Yard area: approx.162,000m ²
• Passenger Ship / Ro-Ro Ship Terminal	Pier: 1 berth, water depth 9.5m, total length approx. 240m
• Seawall	1,730m
• Buildings	Total building area: 6,300m ² (Maintenance Shop and Container Freight Station were cancelled.)
• By-pass Road	14.3km
• Paving Work	83,340m ²
• Dredging of Port Access Channels and Berth	Aggregate length : 22.3km (Inner channels 5km, Outer channels 17.3km) Water depth: Sedimentation to make the water depth of 7.1-14m for inner access channels and 10m-14.5m for outer access channels
• Land Reclamation Work	4.1million m ³
• Port Access Channels Supporting Facilities	16 GPS-mounted drifting buoys , one lighthouse and automatic ship identification system
II. Equipment (Gantry Cranes; Tug Boats)	Outside the scope of the Project. The gantry cranes have not been installed. Tug boats are procured by CEPA as needed.

III. Consulting Service	Review of the feasibility study, support for tender and supervision of the civil engineering work. A study on the landfill soil was added. Assistance for the procurement of equipment was cancelled following the decision to make equipment outside the scope of the Project.
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Source: Based on documents provided by CEPA.

Changes of the outputs greatly affecting the project period and project cost are explained below.

- As described in “3.1.4 Appropriateness of the Project Planning and Approach”, the maximum size of a container ship which can use La Union Port was assumed to be the Panamax size at the time of appraisal. This was later changed to the post-Panamax size following a proposal based on a new demand forecast for maritime transportation by CEPA. This change necessitated an adjustment of the water depth from 14 m to 15 m as well as extension of the container berth and an increase of the container yard area. To compensate for the increased construction cost caused by these changes, gantry cranes and tug boats were removed from the scope of the Project as it was expected that these would be provided by a private port operator. These changes that were based on the new demand forecast were made in consideration of the market conditions at the time as well as the situation of post-Panamax ships becoming the mainstream for container shipping. For several reasons, however, La Union Port has not been fully utilized since its opening. The principal reasons are: hasty deepening of the water depth without an adequate forecast of the dredging cost when it was pointed out that there was a strong need for further detailed investigation of the phenomenon of sedimentation, and passing-on of part of the facility cost to a private port operator (i.e. removal of gantry cranes from the scope of the Project) when preparations to develop a legal framework for a concession system were slow to proceed.
- The original plan was to use the dredged sediment to create the berth and access channels for reclamation. Following the discovery that the quality of the dredged sediment was unsuitable for reclamation, a study on the dumping of the dredged sediment was added and it was decided to dump the dredged sediment elsewhere in the Bay of La Union. In addition, in the case of the seawall, the originally planned length of 605 m was almost trebled because of the creation of a dumping site for the dredged sediment (in the western part of the bay). As this change was necessitated by the local natural conditions, it was appropriate.
- While a by-pass road was within the scope of the Project, the construction of such a road was not covered by the ODA loan and it was constructed by the Department of Public Works in

El Salvador.²⁰ Improvement of the section connecting the by-pass road to the coastal trunk road was added to the work. As this additional section connects the said trunk road and the City of La Union, it is important from the viewpoint of local development. Therefore, this change was appropriate.

3.2.2 Project Inputs

3.2.2.1 Project Cost

The total project cost at the time of appraisal was 14,977 million yen of which 11,233 million yen was to be covered by an ODA loan. The actual total project cost of 23,281 million yen (155% of the planned cost) was significantly higher than planned. In contrast, the actual ODA loan disbursed was 11,207 million yen which was almost as planned.

Table 2 Project Cost¹

(Unit: million yen)

	At the Time of Appraisal ²				Actual Result			
	Foreign Currency	Local Currency	Total		Foreign Currency	Local Currency	Total	
			Total	ODA Loan			Total (% to the Plan)	ODA Loan
Civil Engineering Work	6,747	2,577	9,324	7,030	10,308	9,008	19,316 (207%)	10,308
Equipment and Materials	2,333	0	2,333	2,333	0	0	0	0
Consulting Service	436	242	678	678	899	389	1,288 (190%)	899
Reserve	941	251	1,192	1,192	0	0	0	0
By-pass Road ³	0	863	863	0	0	2,058	2,058 (238%)	0
Administration Cost	0	54	54	0	0	587	587 (1,087%)	0
Tax	0	533	533	0	0	32	32 (6%)	0
Total	10,457	4,520	14,977	11,233	11,207	12,074	23,281 (155%)	11,207 (100%)

Source: Appraisal is based on documents provided by JICA. Actuals are based on documents provided by CEPA.

Notes

1. Foreign exchange rates [at the time of appraisal]: foreign currency portion (Yen 108.36 = US\$1); local currency portion (¢8.75 = US\$1); [at the time of ex-post evaluation]: foreign currency portion (Yen 108.8 = US\$1) (based on the average annual rate of the IMF for 2002 to 2010)
2. Price escalation factors: foreign currency portion 0.8%, local currency portion 3.0%; reserves: ground work 10%, underground work 15%, equipment and materials 5%; timing of quantity survey: December, 2000
3. While the by-pass road was within the scope of the Project, it was not covered by an ODA loan. It was, therefore, constructed by the Department of Public Works of El Salvador.

²⁰ This by-pass road connects La Union Port with San Miguel, a major city in the eastern region of El Salvador, and El Amatillo on the border with Honduras (both of these cities are on the Pan American Highway) without passing through urban areas of the City of La Union. Moreover, this by-pass road has also made it possible to connect La Union Port with the southern coastal trunk road. The construction of this by-pass road preceded the main construction work under the Project so that the by-pass road could function as a service road for the main construction work.

The total project cost over-ran the original budget by 8,304 million yen, most of which was attributable to the increased cost of the civil engineering work and not related to any increase or decrease of the project outputs.²¹ The main reasons for the increased civil engineering cost are explained below.

- The change of the maximum ship size from the Panamax size to the post-Panamax size increased the volume of the work, pushing up the civil engineering work cost by US\$ 23 million (approximately 2,507 million yen) and the consulting service fee by US\$ 1 million (approximately 108 million yen). These extra expenses were met by the re-allocation of the equipment budget (gantry crane and tug boat) for the ODA loan and CEPA's own funds.
- After the commencement of the Project, it was discovered that the rate of sedimentation of the access channels was far greater than predicted at the time of the detailed design, necessitating additional dredging to maintain the design water depth.
- The prices of materials which were steady at the time of appraisal began to increase since 2004 and the project cost was severely affected by global price increases of oil and construction materials in 2007 and 2008.

3.2.2.2 Project Period

While the assumed project period at the time of appraisal was from October, 2001 to March, 2006 (four years and six months or 54 months), the actual period was from October, 2001 to July, 2009 (seven years and 10 months or 94 months, 174% of the originally planned period), exceeding the original plan by three years and four months (Figure 2).²² La Union Port was completed in December 2008 and was handed over to CEPA in January, 2009, however, port operation did not commence immediately because of the delayed development of the necessary legal framework for the introduction of a private port operator. The port was finally opened on 21st July, 2010 under the direct management of CEPA.

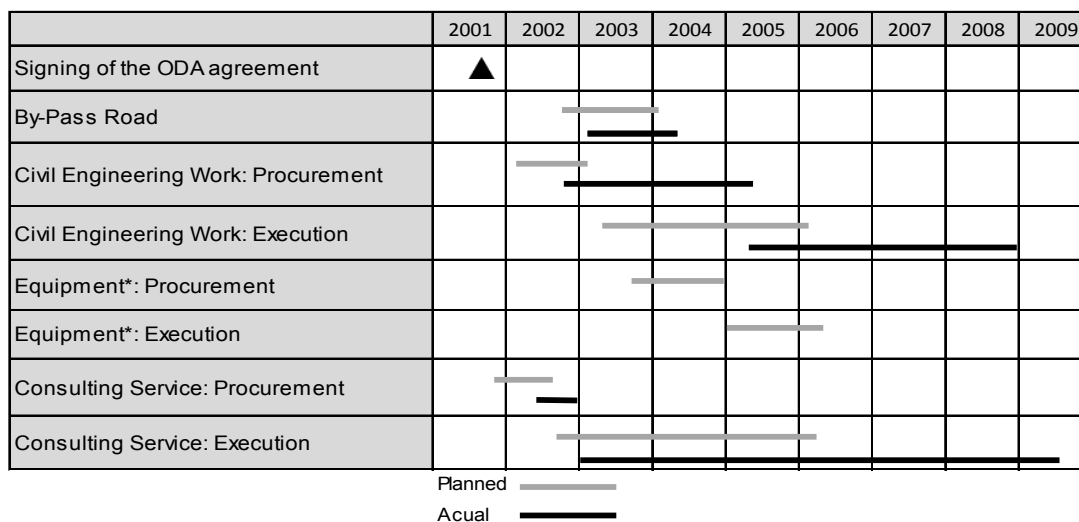
The main reasons for the significant delay of project completion are explained below.

²¹ The civil engineering cost exceeded the planned budget by 9,992 million yen. Considering that 1,297 million yen was re-allocated to the civil engineering work due to a decision to remove equipment (gantry crane and tug boat) from the scope of the Project, the net excess was as huge as 8,695 million yen. This exceeds by far the increase in the amount of the project cost (22,615 million yen) that resulted from the berth depth increase (increase in output). The exclusion of equipment from the scope of the Project meant a decrease of the outputs.

²² The idea of "project completion" based on the attachment of the loan agreement is defined as "the completion of the entire construction work and consulting services". Consulting services included the elaboration of the Project Completion Report among other tasks, since these continued until July 2009 after the opening of the port, the actual completion of the Project was considered to be July 2009. Although gantry cranes and tug boats were not procured, these were not considered in the actual performance of the Project in the project period due to their exclusion from the scope of the Project.

- The completion of the detailed design (conducted separately from the Project as an ODA-related D/D) was delayed from the planned March, 2002 to October, 2002, affecting the start of the procurement process for the civil engineering work by eight months.
- The procurement process from review of the tender documents to selection of the successful bidder for the civil engineering work took a long time because CEPA lacked experience of handling the tender process. In addition, the lengthy contract negotiations caused by a significant increase of the bidding price above the assumed price due to inflation, etc. resulted in an actual procurement period of 32 months instead of the planned 12 months.
- The civil engineering work was planned to last for 36 months. This work actually took 45 months to complete because of additional work necessitated by a modification in the detailed design following the change of the ship size to the post-Panamax size; additional investigation concerning sediment for reclamation; and implementation of additional dredging.
- Lengthening of the consulting service period: The delayed start of the civil engineering work and subsequent lengthening of the project period meant a longer contract period. As the consulting service contract included the preparation of a project completion report and assistance for a warranty completion report, the consulting service contract ended seven months after the completion of the construction work.

Figure 2 Planned and Actual Project Periods



Source: JICA for the planned periods and CEPA for the actual periods.

* Equipment means gantry cranes and tug boats. As these were removed from the scope of the Project, their procurement did not take place.

3.2.3 Results of Calculation of Internal Rates of Return

The EIRR at the time of appraisal was 15%.²³ At the time of the ex-post evaluation, efforts were made to calculate the FIRR and EIRR but no actual results were obtained because of the difficulty of accurately estimating the costs and benefits.²⁴

Both the project cost and project period significantly exceeded the plan. Therefore, the efficiency of the Project is low.

3.3 Effectiveness²⁵ (Rating: ①)

3.3.1 Quantitative Effects (Operation and Effect Indicators)

The assumed effect of the implementation of the Project was the ability of El Salvador to cope with increasing shipping cargo traffic and the annual cargo handling volume at La Union Port and these were set as the indicators for the quantitative effect of the Project.

Table 3 Operation and Effect Indicators for La Union Port

Indicator (Unit)	Target	Actual Results					
	2015 ¹	2010 (Year of Opening)	2011	2012	2013	2014	2015 (Target Achievement Rate)
【Principal Indicators】							
1. Total Cargoes Handled							
a. Container Cargoes (Thousand TEU)	275	0.6	4.0	18.4	0	0	0 (0%)
b. Bulk & General Cargoes ³ (Thousand tons/year)	841	9.9	23.4	37.5	30.5	32.3	21.9 (3%)
【Auxiliary Indicators (for Reference)】							
2. Annual Number of Ships Docked (Number of Ships by Category /Year)							
a. Container Ship	208	4	14	48	0	0	0 (0%)
b. Bulk & General Cargo Ship	53	2	3	4	6	6	4 (8%)
c. Passenger Ship/ Ro-Ro Ship	34	0	0	0	0	1	0 (0%)
d. Other (Mostly Fishing Boats ²)	—	1	0	5	9	4	19
3. Berth Occupation Ratio ³ (%)	—	1.3%	1.9%	2.5%	10.1%	1.4%	10.3%

Source: CEPA.

Notes

- As the target values for these indicators were revised based on the demand forecast at the detailed design (ODA Loan-Related D/D) stage, the revised target values are used for the ex-post evaluation. In addition, although target values were also set for 2005 and 2010, the level of achievement of the target values in 2015 is used for ex-post evaluation purposes after consultation with CEPA because of the operation commencement year of La Union Port (2010).
- There is a canned tuna factory run by Calvo, a Spanish canned tuna producer, at Corsain Port located next to La Union Port. La Union Port and Calvo have an agreement that La Union Port will be responsible for the entire maintenance service for the tuna fishing boats including refuelling.

²³ According to JICA materials, for the calculation of the EIRR at the time of appraisal, the costs consisted of the construction cost and maintenance cost while the benefits consisted of the difference between the with-project and without-project cargo transportation cost and cargo handling cost at another port, and the income from the transshipment handling of foreign cargo.

²⁴ Discussions were held with CEPA regarding the possibility of calculating the FIRR only. However, partly because of the lack of a clear picture of the future operation of La Union Port, no agreement was reached to calculate the FIRR based on, for example, the current income and current operation and maintenance cost.

²⁵ The effectiveness is rated in consideration of not only the effects but also the impacts.

3. Berth occupation ratio: A target figure of 43% was set only for the container berth. Because the available berth occupation ratio includes that of a berth belonging to the bulk terminal, no target figure is entered on the table. In 2015, the occupation time by fishing boats was said to be quite long.

At the time of appraisal, the “total cargo handled” among the various indicators listed in Table 3 was set as the principal indicator while the “number of ships docked” and “berth occupation ratio” were set as auxiliary indicators.²⁶ Subsequently, based on the review results of the feasibility study conducted as part of the ODA loan-related D/D, the total cargo was divided into “container cargo” (thousand TEU/year) and “bulk and general cargo” (thousand tons/year) and a target value was set for each.²⁷ Each of the other indicators was also given a target value.

In July, 2010, La Union Port was opened under a provisional management regime directly run by CEPA. As shown in Table 4, the cargo handling volume so far has been much lower than the target. Even though this port was constructed as the sole full-scale container port in El Salvador, the handling of containers ended in 2012. Similarly, the handling volume of bulk and general cargo declined from some 40,000 tons in 2012 to 20,000 tons in 2015, achieving only 3% of the target volume. At present, most of the maritime cargo traffic still goes through Acajutla Port (see “3.1.2 Relevance to Development Needs”).

To facilitate the use of La Union Port, CEPA granted such preferential treatment as a discounted port usage fee for a joint venture of American President Lines (APL) and Hamburg Sud, successfully attracting a regular weekly service of container ships (maximum draft of 9.5 m) at the end of 2011. This joint venture originally used Acajutla Port but took this opportunity in view of the potential handling of the maritime cargo of Honduras at La Union Port. However, it withdrew its operation involving La Union Port at the end of 2012 after one year of operation because of the comparative disadvantage of La Union Port when various components of the transaction cost were taken into consideration.²⁸ This disadvantage was caused by the slow progress of market penetration in Honduras, and the concentration of the cargo transportation demand in El Salvador around Acajutla Port. No container ships have called at La Union Port since 2013 and only bulk cargo ships (mostly carrying fertilizer) and fishing boats (for maintenance) currently call at La Union Port. Because of this situation, the total annual cargo handled, annual number of ships docked and berth occupation ratio have been far below the planned levels.

²⁶ The provisional target value was shown only for the “total cargo handled”.

²⁷ TEU (Twenty-Foot Equivalent Unit) is a unit which roughly indicates the volume of cargo and is used to indicate the loading capacity of a container ship or cargo handling capacity of a container terminal. Of containers of standard sizes, one 20 foot container is considered to constitute 1 TEU.

²⁸ Here, the transaction cost includes the cargo transportation cost from La Union Port to the western part of El Salvador where there is a concentration of major markets and the additional cargo transportation cost to and from San Bartolo near San Salvador for export inspection by the customs office located in San Bartolo due to the absence of a customs office at La Union Port. By the time of ex-post evaluation, remedial measures to reduce such transaction cost have been introduced by CEPA, including the introduction of customs, immigration and quarantine facilities and the deployment of the requirement manpower, for La Union Port.

Based on the results of interviews with CEPA and findings of a study on relevant enterprises (see “3.4.1 Intended Impacts”), the reasons for the slow progress of use of La Union Port can be summarized as follows.

Constraints in Terms of Port Capacity

The berth and access channels at La Union Port have not undergone re-dredging or maintenance dredging (see “3.5.4 Current Status of Operation and Maintenance” for details) and the water depth of the inner access channels has become approximately 7 m in parts, restricting the navigable ship size. Ships capable of making port at La Union Port at the time of ex-post evaluation are restricted to those with a maximum draft of approximately 8 m to 8.5 m even if they are able to use the water depth at high tide (9 m), exploiting the tidal range of approximately 2 m (the draft of a Panamax ship is 12 m). Meanwhile, the absence of a gantry crane at La Union Port restricts the use of this port only by container ships equipped with an on-board crane. Because of these facts, the cargo handling capacity of La Union Port is restricted.

Declined Demand for Cargo Handling²⁹

The target values for the indicators described earlier were set based on the demand forecast conducted as part of the review under the feasibility study implemented from 2001 to 2002. However, the economic growth of El Salvador stagnated following the global financial crisis that occurred from 2008 to 2009 and the overall demand for cargo handling in El Salvador fell below the forecast.³⁰

Despite the original assumption of the development of a complementary relationship between La Union Port and Acajutla Port in terms of official policy and planning, the cargo handling capacity of Acajutla Port has gradually increased since 2009 against the background of slow progress of the use of La Union Port (the total cargo handling volume increased to 8 million tons and the container handling capacity increased to 135,000 TEU in 2009 and 180,000 TEU in 2015).



Acajutla Port

As Acajutla Port is now capable of handling a much larger cargo volume that was forecast at the time of the appraisal, it has absorbed much of the cargo transportation demand which was supposed to be handled by La Union Port.³¹

²⁹ See “3.1.2 Relevance to the Development Needs”.

³⁰ According to reference materials provided by the Central Reserve Bank of El Salvador and CEPA, the GDP growth rate of El Salvador in 2008 was -3.5%. The cargo handling volume of Acajutla Port steadily increased until 2008 but declined by 24% in 2009 compared to the 2008 level. The overall cargo handling volume of ports in El Salvador in 2015 was approximately 80% of the forecast made at the time of appraisal. Deterioration of public security in El Salvador, especially in the eastern region which in turn caused stagnation of domestic and foreign direct investment in the said region can also be considered as exogenous factors that explain the declining of cargo demand.

³¹ According to CEPA, Acajutla Port handled 1.59 million tons of container cargo in 2015. This volume is believed

Uncertain Port Operating System and Business Strategy

The original plan for the operation of La Union Port was leasing of the terminal to a private port operator. The actual tender was held from 2014 to 2015, four years after the opening of the port, due to the lengthy time required to develop a suitable legal framework. Unfortunately, however, no bidder came forward. La Union Port is provisionally operated directly by CEPA, but the future operating system is under consideration and it has not been defined.

Meanwhile, despite the official policy of making Acajutla Port and La Union Port primarily handle bulk cargo and container cargo respectively, the container handling volume of Acajutla Port has been increasing through a series of investment in port facilities. In reply to the evaluator's question about the future port management strategy and roles of these ports during an interview, CEPA replied that as the Government of El Salvador (Technical Secretariat of the Presidency) is responsible for any decisions on policy and strategy, CEPA cannot give an official answer. In this



La Union Port:
Container terminal, cranes and
administration building

interview, no clear explanation was given regarding either the marketing efforts for La Union Port or management efforts, including revision of the port usage fee to a more competitive level.

Interviews with maritime shipping companies and shippers found that the situation described above constitutes uncertainty along with the problem of sedimentation of the berth and access channels in regard to use of La Union Port. Because these uncertainties are regarded as risks by potential port users, they are partly responsible for the slow progress of the utilization of this port.

One positive move to help achieve the intended effects of the Project is the coordination that is being done between El Salvador and Costa Rica for the introduction of a ferry service between La Union Port (El Salvador) and Caldera Port (Costa Rica).³² This ferry would provide a regular service between these two ports three times a week with a travelling time of 16 hours one-way. The CEPA believes that the start of this ferry service as a first step towards the better utilization and operation of La Union Port will attract more users to vitalize port operation.

to be equivalent to approximately 80% of the container cargo which was originally supposed to be handled by La Union Port in the year concerned. The CEPA intends to continue to invest in equipment, etc. for Acajutla (introduction of a container scanner and widening of the access road to the port, etc.) in the coming years as part of the plan to increase this port's cargo handling capacity by a further 30%.

³² This ferry service will be operated by a joint venture of Spanish, French, Tunisian and Mexican enterprises. The total amount of investment is approximately US\$ 44 million. The information given in the main text is based on an interview with a representative of this joint venture and materials provided by the joint venture. A ferry boat is 150 m in length and 14,700 DWT and can carry 100 container trucks and 400 passengers. According to JICA, as of August 2016, ground levelling of the port premises, parking lot and access roads had already been completed anticipating the operation of the ferry.

Phase 1 (six month period from the start) will be confined to the transportation of 60 – 100 container trucks per trip and Phase 2 will be the commencement of a passenger transportation service. Travel between El Salvador and Costa Rica takes approximately three days by land and also involves customs clearance and other procedures when crossing borders in Nicaragua and Honduras. Travel by sea would reduce the number of such procedures as well as the transportation cost. There is also an indirect effect of improving the safety of truck drivers. This ferry service is mentioned in the *Master Plan for the Comprehensive and Sustainable Development of the Eastern Region of El Salvador 2015-2025* referred to earlier.³³

3.3.2 Qualitative Effects

The qualitative effects of the Project envisaged at the time of appraisal were “vitalization and improved efficiency of distribution of goods in El Salvador”, “short-term creation of employment as a result of implementation of the Project”, “creation of employment through port operation”, and “economic development of the city of La Union as a port city and vitalization of the local economy through an export processing zone, etc.” All of these are analysed as impacts.

3.4 Impacts

3.4.1 Intended Impacts

The assumed impacts of the Project were the vitalization and improved efficiency of distribution of goods and promotion of the local economy in the eastern region of El Salvador. To be more precise, this promotion of the local economy meant “the creation of short-term employment through the implementation of the Project”, “employment through port operation” and “economic development of the city of La Union as a port city and vitalization of the local economy through an export processing zone, etc.” as mentioned earlier. Because of the limited use of La Union Port, however, as mentioned below, these impacts have hardly materialized except for creation of the short-term employment.

- The vitalization and improved efficiency of distribution of goods were expected to ease the congestion at Acajutla Port in particular. Both the cargo handling capacity and actual cargo handling volume of Acajutla Port have greatly increased beyond the assumptions made at the time of appraisal as a result of investment in equipment as well as infrastructure and automation of container management. The average waiting time for container ships using this port fell from 13.7 hours in 2004 to 5.1 hours in 2015, achieving the improved efficiency

³³ Besides the ferry operation, other items that are being considered in the Master Plan are the construction of a logistical park, promotion of tourism businesses, and construction of a sustainable energy generation center, among others.

of distribution of goods. However, this improvement has been achieved irrespective of the Project and cannot be considered to be an impact of the Project.

- Because of the much greater scale of the civil engineering work than originally planned, it is safe to infer that the scale of short-term employment created during construction was larger than originally assumed. In regard to employment through port management, four graduates and three interns from the fairly new MEGATEC (*Modelo Educativo Gradual de Aprendizaje Técnico y Tecnológico*; a two year technical college) La Union have been employed at the port along with some local residents employed as security personnel. All other people working at the port are full-time employees of CEPA and their recruitment has no local preference. According to the ferry operator, once the ferry mentioned in 3.3.1 – Quantitative Effects is at the operational stage, this operator may well be able to newly employ some 75 MEGATEC graduates by the start of Phase 2 of the ferry operation.
- The Master Plan at the moment of appraisal (year 2000) calls for the construction of an export processing zone covering some 100 ha of land located next to La Union Port but no concrete moves have been made to materialize this plan. According to the municipal government of La Union, a series of investment totalling some US\$ 6 million was made in the three year period from 2008 to 2010 with the expectation of knock-on effects from La Union Port. This investment included a hotel and branches of a bank and mobile service provider. By the time of the ex-post evaluation, all of these have ended or suspended their business operation and the expected increase of local employment and tax revenue has not materialized.

A questionnaire survey was conducted as part of the ex-post evaluation to clarify the awareness of the impacts of the Project among local residents.³⁴ This survey found that 38% of local residents are aware that La Union Port was constructed as an international port. Less than 30% believe that La Union Port has successfully achieved the expected boost to the local economy in terms of investment, employment and income (see Table 5). Around 2013 and 2014, large cruise ships and training vessels of the US Navy called at La Union Port several times, bringing many visitors to the restaurants and shops of the city of La Union. The reply that La

³⁴ The questionnaire survey was conducted in February, 2016 with 100 local residents of the City of La Union and neighboring area. The sampling method used was judgement sampling where approximately the same number of people was sampled from each of five occupation groups (commerce, company employee, full-time housewife, student and other) in each of the five nearest districts to the project site (La Union, Concepcion, El Centro, Pueblo Viejo and San Carlos) so that the gender ratio would be roughly equal. For this judgement sampling, the representative sampling method was used. The attached condition for sampling was that the respondent must have lived or had a business in one of these districts before and after the Project. 54 respondents were male and 46 were female. By age group, 33% were in their 20's, 17% in their 30's, 16% in their 40's, 18% in their 50's and 16% in their 60's or older. Strictly speaking, this survey should have covered a much wider area because the development of the eastern region was part of the project purpose. However, in view of the limited port operation, only the nearest districts to the port were selected. There is no major bias in the subject districts of this survey but there is a possibility of localized bias in a wider area.

Union Port has contributed to increased investment, employment and income appears to be based on the experience of these visits. 79% of local residents replied that “La Union Port is currently (i.e. at the moment of the ex-post evaluation) not operating although it operated in the past” while 19% replied that “La Union Port is currently operating to some degree but it has nothing to do with the local economy”. These results indicate that most people questioned have no information on the actual state of port operation. A question about the level of income before and after the Project found the possibility that there may have been a general decline of income among residents.

The most hoped for impact at the time of commencement of the Project, according to 70% of the respondents, was “increased employment in the eastern region”. At the time of ex-post evaluation, 57% of the respondents continued to expect this impact and 41% replied that in order to achieve it a “leadership of the government” would be required, clearly indicating the desire among local residents for a strong government leadership to vitalize La Union Port as well as the eastern region.³⁵

Table 4 Resident Questionnaire Survey Results: Degree of Achievement of Project Purposes

Project Purpose	Nearly or Sufficiently Achieved	Fairly or Totally Unachieved
1. La Union Port has been developed as an international port.	38%	62%
2. The Project has contributed to the handling of increasing maritime cargo and also to the vitalization and improved efficiency of distribution of goods in El Salvador.	30%	70%
3. The Project has contributed to increased investment and businesses in the eastern region.	28%	72%
4. The Project has contributed to increased employment in the eastern region.	22%	78%
5. The Project has contributed to the increased income of local residents of the eastern region.	23%	77%

Source: Resident Questionnaire Survey Results.

An interview survey was conducted with 13 enterprises, such as maritime shipping companies and shippers, which may possibly use La Union Port, asking them to freely express their expectations and opinions with respect to the said port.³⁶ The most representative opinions obtained were the following:

³⁵ In contrast, 7% of the respondents replied that “La Union Port should be closed and the area should be used for other purposes”.

³⁶ As part of the ex-post evaluation, an interview survey was conducted from 8th February to 31st March, 2016 with 13 companies which could possibly use La Union Port. The target companies consisted of six shipping companies, two service companies, two agro-industrial companies and three manufacturers. As far as shipping companies are concerned, a list of candidate companies was provided by CEPA while likely shippers were introduced by the Chamber of Commerce and Industry of El Salvador, Association of Exporters of El Salvador, the American Chamber of Commerce of El Salvador, etc. The questions asked are what they expect of La Union Port, what they consider to be a bottleneck for their use of this port, what remedial measures they think are necessary and what

- At the early stage of the Project, there was an expectation that La Union Port would become a strategic port linking all countries in Central America. Our company established a branch in the City of La Union in expectation of the economic development of the eastern region.
- The government should introduce a much clearer policy for ports in El Salvador. Whether or not two ports are really necessary should be clarified by means of conducting an appropriate market survey. If they are found to be necessary, the respective roles of Acajutla Port and La Union Port should be clearly determined.
- La Union Port has become a tool for political argument. It should be separated from politics returning to the original point where the Project was genuinely upheld as an important infrastructure development project necessary for the development of El Salvador.
- La Union Port has, in fact, the best infrastructure, including the location of the container yard, etc., to handle container cargo. Additional investment should be made in a gantry crane, re-dredging, etc. It is necessary to actively attract a private port operator, shipping companies and shippers through a subsidy for the dredging cost, adequate revision of port usage fees and other measures.
- There are ships which can call at La Union Port during high tide with the current water depth, suggesting a possible need for the use of this port. Under the guidance of the government, CEPA should make active marketing efforts to attract new users.

3.4.2 Other Impacts

(1) Impacts on the Natural Environment

Every change of the detailed design for the Project made in 2000 and 2002 were approved by the Department of Environment and Natural Resources and all work requested by the Department at the time was properly conducted. This included a bottom materials survey as well as a biological survey involving dredged sediment and additional environmental conservation measures, such as a biological survey at the terminal construction site, surveys to analyze the constituents of the sediment to be used for land reclamation, surveys for the proposed location of the dredged sediment dumping site and impact survey to the marine ecology, deforestation and reforestation³⁷, monitoring of other effects from the construction works such as exhaust gas, dust, muddy water, noise and vibration, and no special problems were observed in regard to the natural environment.

they consider the advantages and disadvantages of La Union Port as an international port to be.

³⁷ In the Detailed Design, deforestation area due to the Project was decreased from 26 ha to 23 ha, however, with the new regulation of 2002 it was established that 625 trees would have to be planted per each deforested hectare, thus a total afforestation of 14,375 trees was conducted.

(2) Land Acquisition and Resettlement

Part of the planned construction site for La Union Port was owned by the neighboring Corsain Port Authority and this piece of land was purchased by CEPA from the Corsain Port Authority. 66 households (approximately 250 people) illegally occupying this land were relocated to a newly developed residential site located some 7 km from the city of La Union. Houses and such basic infrastructure as water supply and electricity supply were provided by CEPA. Because of the absence of a law concerning the relocation of illegal residents in El Salvador, the conditions, etc. for this relocation were agreed through consultations between CEPA, Corsain Port Authority and local resident. This relocation was completed in 2001. As of the time of ex-post evaluation, a local school has been constructed by the Department of Education and a church has also been constructed with the own funding of residents.

A group interview with relocated residents found that the housing conditions have certainly improved since relocation. Most of the relocated people used to be fishermen and their families, and have engaged in unfamiliar farming since relocation. Their income is said to be rather unsteady as many people work as seasonal laborers due to a lack of funds to rent farming land, difficulties caused by drought and other reasons. As they were told at the time of consultations that “there would be more employment opportunities during the construction and after the opening of La Union Port and that their income would increase”, many of them expressed a hope for the early re-vitalization of port operation.

(3) Other Impacts

There have been some other impacts as described below.

- Impact on local fisheries: During the project implementation period, meetings were constantly held with local fishermen to explain the progress situation of the Project, including the advance notice of restricted navigation and explanation of the compensation scheme for damaged fishing nets. Several measures, including the installation of buoys to clearly mark the construction and dredging areas and water quality monitoring at the time of dredging, were implemented. As a result of these measures, the negative impact on local fisheries was limited.
- By-pass road: In addition to the construction of a new road which by-passes urban La Union to connect La Union Port with the nearby trunk road (Pan American Highway), the road section connecting the port to the coastal trunk road was improved. Even though the traffic volume of these roads was small at the time of ex-post evaluation, there is a possibility that these roads will contribute to improved local traffic with the former acting as a suburban circular road for the city of La Union and the latter as a connecting road between the city of La Union and the coastal trunk road.

- Collaboration with MEGATEC La Union: MEGATEC is a two year college that educates advanced engineers and to foster human resources, making the best use of local industries. MEGATEC La Union was opened in 2008 and JICA implemented the Project for the Strengthening of Teaching Quality of MEGATEC La Union from 2008 to 2010 as a technical cooperation project accompanying an ODA loan project. This college has such specialist courses as “Port Management” and “Physical Distribution and Customs Inspection”. The former in particular was introduced with La Union Port in mind. The Port Management Course produces some 30 to 40 graduates a year. According to the college, it is difficult to secure employment for these graduates because of the lack of full-scale operation at La Union Port.³⁸ The college intends to conduct a follow-up survey on graduates with a view to significantly modifying the curriculum or even withdrawing these courses depending on the survey findings.

To summarize the effectiveness and impacts of the Project, the use of La Union Port has been extremely limited due to an insufficient water depth, lack of gantry cranes and decline of the maritime transportation demand. As a result, the project purpose of meeting the increased demand for maritime cargo transportation in El Salvador has been minimal. This means that the Project has had little impact on the vitalization and improved efficiency of distribution of goods in El Salvador and promotion of the local economy in the eastern region.

Compared to the plan, the Project has achieved its objectives at a limited level and, therefore, its effectiveness and impacts are low.

3.5 Sustainability (Rating:②)

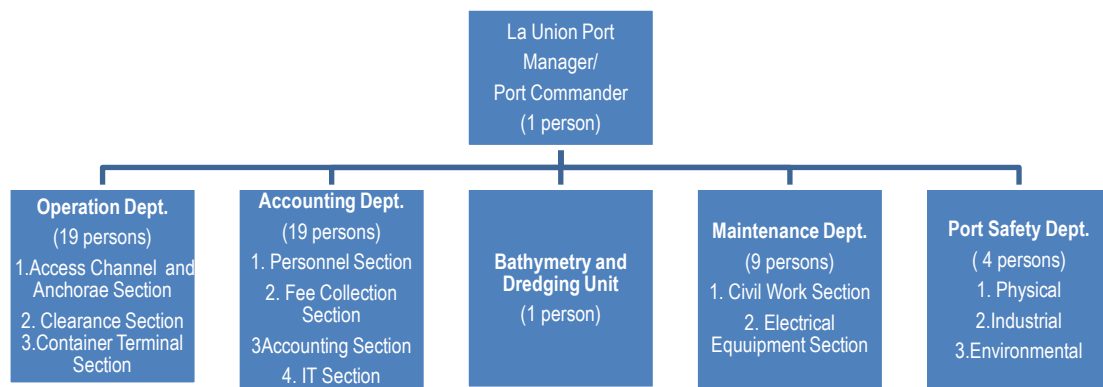
As mentioned earlier, the originally planned operating system for La Union Port was that the terminal would be leased to a private port operator and would operate under the supervision of CEPA. A tender was eventually held after a lengthy period to develop the required legal framework but no bidder came forward. Since its opening in 2010, La Union Port has been operating under the direct but provisional management of CEPA and a future operating system for the port is currently being examined.³⁹ Because of the future operating system is uncertain, the following issues are analysed here based on the current operating system.

³⁸ Although some graduates have found employment at Acajutla Port, there is a significant possibility that other graduates have been unable to utilize their specialist knowledge and skills at their current places of employment.

³⁹ Interviews with some companies (conducted by CEPA) which had been expected to participate in the tender found that the reasons for no bidders were lack of prospects for the cargo transportation demand (due to the lack of local industries in the eastern region and little prospect of international cargo transportation); lack of a consistent vision for La Union Port on the part of CEPA; and likely huge financial burden on a private port operator in terms of the cost of gantry cranes and dredging. In addition, according to interviews conducted during the ex-post evaluation to CEPA, it was confirmed that as of June 2016, CEPA was considering four alternatives for port operation: (1) revision of the Concession Law again to reduce the financial burden caused by maintenance dredging, etc. on a private port operator and launch of a new tender, (2) wait for the completion of separate efforts to develop a legal framework for public-private cooperation and development of a flexible public-

3.5.1 Institutional Aspects of Operation and Maintenance

At the time of ex-post evaluation, the operating and maintenance of La Union Port are directly conducted by a subsidiary of CEPA. The organization and manpower strength of the current operating system are shown in Figure 3. There are a total of 89 people, including full-time staff members of CEPA, outsourced doctor, nurse, personnel department assistants, accounting assistants and security guards.



Source: CEPA.

Figure 3 Operating and Maintenance System of La Union Port

An interview survey conducted at La Union Port confirmed that the decision-making process for operation and maintenance was clearly established. Actual observation at the port confirmed that security was strictly enforced. In view of the current level of use of this port, the available operating and security systems are judged to be adequate.⁴⁰

3.5.2 Technical Aspects of Operation and Maintenance

The technical level of CEPA personnel at the time of ex-post evaluation is judged to be sufficient in almost all of the relevant fields, partly because of a series of technology transfers provided by various donors, including JICA and the World Bank, since the onset of the Project. As far as dredging of the access channels and berth is concerned, however, the current system cannot be described as fully satisfactory because the envisaged dredging work requires a

private partnership (with private sector investment in facilities and equipment and public sector investment in basic infrastructure under a regime of broadly-defined cooperation) within the legal framework, (3) outsourcing of only some services, such as loading and unloading, port security, etc., as is currently the case at Acajutla Port and (4) continued direct management of the port by CEPA.

⁴⁰ La Union Port was certified as “a safe port for ships” by the El Salvador Maritime Port Agency based on the International Ship and Port Facility Security (ISPS) Code in May 2014.

dredging boat equipped with a high level of equipment and suitable technical capability of its operators.

Table 5 shows the academic background, specialist field and length of employment of those employed at La Union Port. Considering the operating status of the port at the time of ex-post evaluation, the staff level as well as their technical competency is satisfactory⁴¹ even though the Bathymetry and Dredging Unit should be further strengthened.

Table 5 Technical Background of Operation and Maintenance Staff at La Union Port

	Academic Career / Specialist Field	Average Years of Employment
Operating Section	4 graduates (2 engineers) 17 technicians (9 specializing in port management)	5 years and 8 months
Maintenance Section	1 graduate (engineer) 7 technicians (6 specialist engineers and 1 high school leaver)	13 years
Bathymetry and Dredging Section	1 engineer (having completed a bathymetry and dredging training course)	5 years and 8 months

Source: CEPA.

In regard to facilities and equipment other than the berth and access channels (including the generator, control system, waste water treatment facilities, water purification facilities, navigation aid facilities and fire-fighting/disaster prevention equipment), staff members responsible for these at the Operating Section and Maintenance Section have undergone the relevant training on operation and management provided by the manufacturer or supplier. The present operation and maintenance of La Union Port is adequate as it is conducted in line with the relevant manuals introduced under the Project as well as manuals provided by equipment manufacturers and suppliers. The original manuals are kept by either the Operating Section or Maintenance Section and there are enough copies for use in the field.



Routine maintenance of buoy (provided by CEPA)

An annual maintenance plan is prepared for La Union Port and the budget is set after approval of the plan by the Maritime Port Authority. In principle, preventive maintenance is conducted in accordance with the plan. At La Union Port, inspection is conducted based on a clear maintenance plan to allow use of the port at any time, except for the berth and access

⁴¹ According to a JICA advisor dispatched to CEPA from 2012 to 2014 (as a port operation advisor), the port operation and maintenance capacity of CEPA has greatly improved through a series of technical cooperation, etc. Especially notable is CEPA's infrastructure management capacity as evidenced by the maintenance of the Acajutla Port facilities which are in good condition.

channels. Equipment, etc. is regularly operated to check its working status.⁴² Both the Operation Section and Maintenance Section keep their own maintenance records.

Every year, CEPA establishes the staff training needs prepares a training program within the budget and conducts training. In the case of La Union Port, each employee undergoes an average of 32 hours of training.⁴³ This training mainly takes place at the Central American Commission for Maritime Transport (COCATRAM), El Salvador Institute for Vocational Training or at MEGATEC. At Acajutla Port, field training is conducted. According to CEPA, the types of training required for those working at La Union Port include operation and maintenance relating to dredging and navigation aid facilities, exchange of electronic data, port safety management and operation of port management software.

At the time of ex-post evaluation, the only technical weak point at La Union Port in terms of operation and management is dredging of the access channels and berth (see Footnote 41). Hardly no-one who received technology transfer concerning dredging under the Project for Maintenance Dredging of the Port of La Union implemented by JICA has left their job at CEPA as of the time of ex-post evaluation. One of these is an engineer working in the Bathymetry and Dredging Unit.⁴⁴ In regard to maintenance of the access channels and berth dredging work, the Access Channel and Berth Dredging Plan (Manual) prepared by CEPA in 2014 under the above-mentioned project has not been implemented because of the lack of related equipment as well as financial constraints. To make matters worse, CEPA is unable to put forward a clear long-term plan for dredging.

While some ships can still call at La Union Port with the present water depth, there appears to be no clue at present to solve the problem of sedimentation. Under such circumstances the opinion of the port management expert (who was dispatched to assist La Union Port by JICA from 2012 to 2014) that “there is a need to solve the problem of sedimentation at La Union Port, which poses a high level of technical difficulty, by utilizing the world’s highest level of technology in the relevant field”⁴⁵ seems to be reasonable thus far.

⁴² For example, the maintenance plan for 2016 has 46 preventive maintenance items and four breakdown maintenance items. The plan gives detailed descriptions of the maintenance required, including the responsible section, outline of the required work and detailed procedure of the work, timing of execution (timing of tender in the case of outsourcing), frequency of inspection, monitoring and budget.

⁴³ In 2015, training was provided for those working at La Union Port on five operation-related subjects (total of 34 participants) and 20 maintenance-related issues (total of 45 participants). In 2016, training is planned on 18 operation-related issues and 12 maintenance-related issues.

⁴⁴ Under this project, two staff members of CEPA received training in Japan for a period of one month from November to December 2011 on such subjects as the operation and management of dredging work, bathymetry method and tidal level prediction. The engineering team for the project delivered lectures, exercises, discussions and OJT a total of 12 times. At the same time, the economy team conducted technology transfer regarding the current situation of container transportation in Central America, level of port usage fees and industrial development in the neighboring area of the port, port planning and inward investment through lectures and discussions 16 times. (Based on the *Final Report for the Project for Maintenance Dredging of the Port of La Union*, 2014).

⁴⁵ Completion Report for the Work of the Port Management Expert, 2014.

Accordingly, appropriate dredging is essential if the main role of La Union Port is that of a full-scale international container port as envisaged by the original plan.

3.5.3 Financial Aspects of Operation and Maintenance

The CEPA has four subsidiaries (one airport, two port and one railway management companies) in addition to its headquarters. Apart from the one which is responsible for La Union Port, all other subsidiaries are making a profit. The CEPA as a whole has been operating in the black since 2013 (Table 6).

Table 6 Profit and Loss Statement of CEPA

(Unit: US\$ 1,000)

Item	2013	2014	2015
Turnover	96,189	92,160	94,704
General Administration Cost	73,485	82,291	86,761
Net Profit for the Term before Tax	22,704	10,248	7,943
Tax	2,494	2,039	NA
Net Profit for the Term	20,210	8,201	NA

Source: CEPA.

The actual financial performance of La Union Port from 2013 to 2015 (Table 7) shows that while the turnover never reached half a million US dollars, the general administration cost, including the maintenance cost of maintaining the port's capability of receiving ships at any time was almost US\$ 1.8 million to 2.5 million, recording a permanent operating loss. In addition, non-operating expenses as depreciation and interest payment for Japan's ODA loan and other exceeded US\$ 9 million, resulting in annual losses of more than US\$10 million/year. It must be noted that these figures do not include the berth and access channel dredging cost.⁴⁶

Table 7 Profit and Loss Statement for La Union Port

(Unit: US\$ 1,000)

Item	2013	2014	2015
Turnover	395	408	253
General Administration Cost	2,453	2,117	1,789
Operating Profit/Loss	(2,058)	(1,709)	(1,535)
Non-Operating Expenses	9,655	9,040	9,185
Net Profit for the Term before Tax	(11,699)	(10,376)	(10,699)

Source: CEPA.

⁴⁶ The Concession Law stipulates that CEPA is responsible for the cost of re-dredging and the payment for maintenance dredging is divided between CEPA and port operator by negotiation. The 2014 Final Report for the Project for Maintenance Dredging of La Union Port estimates that the actual dredging cost (i.e. maintenance dredging cost plus one-tenth of the re-dredging cost as of 2020) will depend on the water depth, ranging from some US\$ 12 million/year for a depth of 10 m to some US\$ 45 million/year for a water depth of 14 m (originally planned water depth). Based on the technical and financial analysis results for dredging and port management, the report recommends positive efforts to minimize the financial risk are required by examining the implementation of "phased dredging" in the coming years (for the first 10 years, the water depth of some 10 m will be maintained using a contracted dredging boat and the water depth will then be deepened to some 13 m with second re-dredging).

The above findings clearly indicate that the operation and maintenance cost for La Union Port which has been constantly operating in the red has been supported by the other subsidiaries operated by CEPA the healthier profit-making operation of Acajutla Port, El Salvador International Airport, etc. There is, therefore, concern regarding the financial sustainability of the Project.

3.5.4 Current Status of Operation and Maintenance

The maintenance conditions of the infrastructure facilities, etc. at La Union Port are generally good as described in Table 9 except for the state of dredging of the berth and access channels. Because of the problem of sedimentation at the access channels, the types of ships which can call at the port are rather limited. The port itself is ready to receive these ships at any time. The field survey conducted as part of the ex-post evaluation discovered relatively minor problems in addition to the problem of dredging but these problems can be dealt with by CEPA (Table 8).

Table 8 Operation and Maintenance Problems Experienced by La Union Port at the Time of Ex-Post Evaluation

Infrastructure and Facilities	Operation and Maintenance Situation at the Time of Ex-Post Evaluation
Terminal: No problems in general	<ul style="list-style-type: none"> • Minor cracks in the concrete/asphalt surfaces are observed. These cracks do not pose a structural problem and CEPA plans to conduct resurfacing. • The attachment of seaweed is prominently observed at parts of the piers in direct contact with seawater. This seaweed requires periodic removal. • The emergency shower and eye-washing facilities are slightly rusty due to their direct exposure to salty wind. Scouring of the rust to remove it and the application of a corrosion-resistance coating is necessary.
Building: No problems in general	<ul style="list-style-type: none"> • The elevator control system for the building has experienced frequent breakdowns but this problem has been solved by repair work conducted by the manufacturer.
Dredging of berth and access channels: Urgent response required	<ul style="list-style-type: none"> • No maintenance dredging has been conducted since the completion of the Project. At the time of ex-post evaluation, the water depths of the inner and outer access channels are 7.1 m to 14 m and 10 m to 14.5 m respectively and are almost the same as the commencement of the Project. It is planned to conduct re-dredging to make the water depth 9 m over an eight month period in 2017, and after conduct the planned procurement of a dredging boat.
Navigation aid facilities: Continual response required	<ul style="list-style-type: none"> • Of the 16 buoys deployed, No. 12 Buoy forces ships to unnecessarily change course by almost 55°. The urgent removal of this buoy is essential while examining whether or not this buoy is required and, if required, a suitable position. Although consultations are in progress with a contractor, removal and possible re-positioning of this buoy will require the approval of the Maritime Port Authority. Work is, therefore, in progress to follow the necessary procedure.

Source: CEPA and site visits

As far as dredging of the berth and access channels is concerned, CEPA has signed an agreement with a Cuban company (waiting for approval from the Ministry of Foreign Affairs as of August 2016) and plans to conduct a sedimentation survey while at the same time conducting the maintenance dredging. For the said dredging, it plans to borrow a cutter suction dredging boat from the Navy, enhance its dredging capacity with its own funding over a period of six months and conduct re-dredging to a water depth of 9 m in an eight month period during 2017 (the current water depth is 7 m).⁴⁷ The CEPA is also planning in the long-term to procure its own dredging boat at a cost of some US\$ 2 million.⁴⁸

Based on the above, it is clear that there are technical and financial problems regarding dredging of the berth and the access channels in addition to a lack of clarity concerning the future operating system as well as business plan. Some problems are observed as described above in relation to the operation and maintenance aspects of the Project. Therefore, the sustainability of the project effects is fair.

4 Conclusions, Lessons Learned and Recommendations

4.1 Conclusions

The Project was implemented for the purpose of meeting the increased demand for maritime cargo transportation by constructing La Union Port in the Gulf of Fonseca in the eastern part of El Salvador. The Project also envisaged that the increased port capacity in El Salvador resulting from the Project would stimulate distribution of goods and improve its efficiency, thereby contributing to the economic development of the eastern region of El Salvador. Although the Project is relevant to the country's development plan and development needs as well as Japan's ODA policy, there is a possibility that the necessity for La Union Port has slightly declined due to the lack of implementation of a maritime trade strategy and policies in line with the development plan and the recent improvement of Acajutla Port. The realization of positive project effects has been hampered possibly by insufficient preliminary investigation of the phenomenon of sedimentation in the berth and access channels; restriction of the port operation strategy to a concession-based operation when the relevant legal framework was not in place, and further stagnation of port operation resulting from the exclusion of gantry cranes from the scope of the Project. Based on the above, the relevance of the Project is fair. The change of the project scope following the expansion of the target ships to include post-Panamax ships; the necessity for additional dredging of the berth and access channels as a result of

⁴⁷ The company that will do the enhancement of the dredging capacity and the maintenance dredging to be conducted afterwards is planned to be decided by public tender. In order to maintain the water depth of 9 m after the re-dredging, it is necessary to re-dredge every three months. With respect to the dumping site of the re-dredged sand (two sites) the approval from the Ministry of Environment and Natural Resources has already been obtained.

⁴⁸ According to JICA, as of August 2016, CEPA had entered into an agreement regarding the dredging with a Cuban company, and was waiting for the approval by the Ministry of Foreign Affairs. Once approved, the plan is to conduct a study on sedimentation while re-dredging at the same time. In addition, the procurement of a dredging boat is under consideration as a mid-term plan.

sedimentation exceeding the original forecast; and the steep rise of equipment and material prices, resulted in the actual project cost and project period significantly exceeding the planned cost and period. Therefore, the efficiency of the Project is low. The actual use of La Union Port has been very limited against the background of an insufficient water depth, lack of gantry cranes and decline of the demand for cargo transportation. As a result, the level of achievement of the project purpose is low with hardly any realization of the expected impacts. Therefore, the effectiveness and impact of the Project are low. The sustainability of the project effects is only fair because there are some problems concerning the technical capability to dredge the berth and the access channels, and the financial situation in addition to a lack of clarity regarding the future operating system and business plan for La Union Port. Based on the above, the Project is evaluated as being unsatisfactory.

4.2 Recommendations

4.2.1 Recommendations for the Government of El Salvador

Recommendations to the Government of El Salvador (Technical Secretariat of the Presidency)

The Government of El Salvador must fulfil its responsibility to determine a new maritime strategy for both La Union Port and Acajutla Port and clearly demonstrate the political will to execute such strategy so that these two ports can realize their respective roles of vitalizing and improving the efficiency of distribution of goods in El Salvador. To be more precise, clear determination of the role and business policy for each of these two ports is essential to maintain their mutually complementary relationship in an appropriate manner based on the enhanced capacity of Acajutla Port, the establishment of a clear concept for a dredging plan for La Union Port through the technical cooperation of JICA, etc. and the latest trend of the international maritime transportation market and trend of and need for local development of the eastern region.

Potential port operators, shipping companies, etc. have been reluctant to manage or use La Union Port because of uncertainty regarding the expected role, operating system, water depth of the berth and access channels and general business policy, including suitable usage fees, at this port. There is a real need for the Government of El Salvador to clearly indicate its vision for the business operation of this port to facilitate its use.

Recommendations to the Executing Agency

CEPA needs to work on the use and revitalization of La Union Port that were observed during the ex-post evaluation, that is, it needs to consider the operation method of the port, the operation of the ferry, the enhancement of the dredging ship and dredging up to 9 m of water depth, conduct sedimentation surveys, construction of the logistics park, promotion of the tourist industry and construction of a sustainable energy generation center needs to be realized.

At the same time, CEPA should continue to examine a desirable port operating system and every possible means of enabling the active use of La Union Port other than those mentioned above.

4.2.2 Recommendations to JICA

It is essential for JICA to continually work on the Government of El Salvador concerning the utilization of the outputs of the Project as well as technical cooperation provided in connection with the Project through the submission of the recommendations described in 4.2.1 to the Government of El Salvador.

4.3 Lessons Learned

Adequate Evaluation of the Volume of Sedimentation in a Port Project

In the case of a port construction project where any sort of investigation on the phenomenon of sedimentation at the planned anchorage site and access channels has never been conducted before the project or there is a possibility that the success of the project significantly depends on the size of the maintenance dredging cost due to the long length of the access channels to be dredged, it is necessary to conduct detailed investigation of the rate of sedimentation, including a field test, as when required, at the planning stage to evaluate the volume of sedimentation with sufficiently reliable accuracy. For the present Project, although the necessity for a detailed test was already recognized when the findings of the Feasibility Study were reviewed, such a test was not conducted because of the cost involved. However, the actual rate of sedimentation at the dredged channels is far greater than the forecast, causing serious adverse impacts on port utilization and the financial health of port operation. The detailed analysis conducted later revealed the mechanism and speed of sedimentation were specifically unique at this port which was not expected at the time of project planning. If detailed investigation, including a field test, had been conducted at the earliest possible stage when the possibility of a greater scale of sedimentation than that assumed was suggested, there is a strong likelihood that the worsening of the problem could have been prevented and correct judgement on changes of the project design during the implementation period could have been made.

Risk Assessment and Follow-Up When Deciding the Legal Removal of an Important Component from the Project Scope

When an important component of a project, which is essential for project success, is removed from the project scope (defined in the loan agreement and legally bound) for some reason, the risk associated with the removal of the component in question should be fully assessed to judge whether or not the intended removal is acceptable. Moreover, measures

designed to minimize the conceived risk must be implemented and a full-scale follow-up survey/analysis must be conducted. In the case where such judgement must be made at the project implementation stage, similar attention must be paid based on the risk which has been re-evaluated, taking changes of the various conditions assumed at the planning stage into consideration. In the case of the Project, as a result of the change of the target ship size from Panamax ship size to post-Panamax ship size, gantry cranes were removed legally from the scope of the Project on the grounds of project cost, and was planned to be subsequently procured by the private port operator which would secure the concession. At this time, as gantry cranes were considered to be a crucial component for the successful development of La Union Port, there was an agreement between JICA and CEPA to minimize the risk by CEPA procuring the gantry cranes in the case that the said private port operator could not afford to do so. These gantry cranes to be procured by a private operator have not yet been procured, however, because a concession contract has not been made. The fact that CEPA has been unable to procure this crane has restricted the use of La Union Port. In short, the risk concerning the viability of a concession should have been properly assessed, including the background that the development of the legal framework for a concession had been much slower than originally assumed. Even if the gantry cranes were to be removed from the scope of the loan, the possibility of retaining the gantry cranes within the scope of the Project, by designating them as a project component to be funded by the El Salvador side should have been examined. In this way, monitoring and follow up of the gantry crane procurement situation would have been legally possible and the actual procurement of the crane would have been more likely.

Risk assessment and prior measures to be taken in case there is a shift to a new operating system (introduction of a concession system)

When an operating system is to be newly developed under a project, the preconditions for the successful development of the said system must be carefully recognized. If a risk that cannot be ignored is recognized, a more feasible alternative should be prepared. Especially when the introduction of the private sector through a concession, etc. is envisaged, it is essential to assess the risks associated with various conditions, including the development of the relevant legal framework, market prospects and profitability, which enable the participation of the private sector. It is also necessary to examine a possible operating system in advance in preparation for the non-participation of the private sector and to monitor these conditions so that the course of action can be steered towards the introduction of a more realistic and appropriate operating system, such as direct port management, if a change of action is found to be needed. In the case of the Project, there was an agreement between JICA and CEPA right from the planning stage that port operation would be conducted by means of a concession contract, and thus JICA and CEPA have been working on the legislation and technical cooperation centered

on the assumption of the concession method. A suitable legal framework was finally put in place more than 10 years later than originally scheduled and the tender for the concession was held. As the market situation surrounding La Union Port and the profitability of port operation had considerably changed during this time, no bidder came forward. The decision to make a concession holder, i.e. private operator of the port, responsible for the procurement of gantry cranes restricted the port's functions because of failure to materialize a concession contract. Since its opening, La Union Port has been operated directly by CEPA on a provisional basis and the actual level of port usage has been low. More active use of the port may have been possible if alternative port operating systems, including direct management, had been examined along with a concession contract to start with, and also if a change of the system to a more realistic operating system, such as direct management, had been considered at the time when the development of a legal framework was taking much longer than expected along with changes in both market conditions and prospective profitability of port operation.

Comparison of the Original and Actual Scope of the Project

Item	Original	Actual
<p>I. Project Outputs</p> <p>I. Civil engineering work</p> <p>I-1 Container terminal</p> <p>a. Pier</p> <p>b. Container yard</p> <p>I-2 Bulk terminal</p> <p>a. Pier</p> <p>b. Bulk yard</p> <p>I-3 Passenger/Ro-Ro pier</p> <p>I-4 Seawall</p> <p>I-5 Buildings</p> <p>I-6 By-pass road</p> <p>I-7 Paving</p> <p>I-8 Dredging of access channels and berth</p> <p>I-9 Land reclamation</p> <p>I-10 Navigation aid facilities</p> <p>II. Equipment</p> <p>II-1 Gantry crane</p> <p>II-2 Tug boat</p> <p>III. Consulting service</p>	<p>1 berth; water depth to 14 m Length: approx. 300 m Area: approx. 120,000 m² Handling capacity: 750,000 TEU</p> <p>1 berth; water depth to 14 m Length: approx. 260 m Area: approx. 100,000 m²</p> <p>1 berth; water depth to 9.5 m Length: approx. 240 m 605 m</p> <p>Port administration building, maintenance shop, container gate, cargo gate, power supply station, office for employees and engineers, water supply and drainage facilities, etc. Total building area: 4,400 m²</p> <p>Approx. 7 km 58,800 m²</p> <p>Inner access channels (7.5 km): dredged to a water depth of 13 m Outer access channels (15.9 km) and berth: dredged to a water depth of 14 m Total volume of dredged sediment: approx. 9.7 million m³</p> <p>1.83 million m³</p> <p>Buoys and lighthouse: 1 set</p> <p>Two (40.6 tons) Two (rated horse power: 3,600 PS)</p> <p>Procurement support; construction supervision (including guidance and supervision regarding implementation of environmental measures) support for operation and maintenance aspects of the Project</p>	<p>1 berth; water depth: 15 m Length: approx. 360 m Area: approx. 184,000 m² Handling capacity: as planned</p> <p>1 berth: water depth: 14 m Length: approx. 220 m Area: approx. 162,000 m²</p> <p>1 berth: water depth: 9.5 m Length: as planned 1,730 m</p> <p>Maintenance shop and container cargo station were cancelled. Total building area: 6,300 m²</p> <p>14.3 km 83,340 m²</p> <p>Sedimentation has made the water depth of inner access channels and outer access channels to be 7.1 m to 14 m and 10m to 14.5m respectively Total access channel length: 22.3km (5km of inner access channels and 17.3km of outer access channels) 4.1 million m³</p> <p>As planned</p> <p>Outside the scope of the Project Outside the scope of the Project</p> <p>Support for equipment procurement that was excluded from the scope of the Project was cancelled. The contract period was extended because of the need to revise the design and other reasons.</p>
2. Project Period	October 2001 to March 2006 (54 months)	October 2001 to July 2009 (94 months)
3. Project Cost		
Amount Paid in Foreign Currency	10,457 million yen	12,074 million yen
Amount Paid in Local Currency	4,520 million yen (US\$ 42 million)	10,026 million yen (US\$ 92 million)
Total	14,977 million yen	23,270 million yen
Japanese ODA Loan Portion	11,233 million yen	11,207 million yen
Exchange Rate	US\$ 1=108.36 yen (As of October 2000)	US\$ 1=108.80 yen (Average between January 2002 and January 2010)