

Republic of Iraq

FY2018 Ex-Post Evaluation of Japanese ODA Loan Project

“Port Sector Rehabilitation Project”

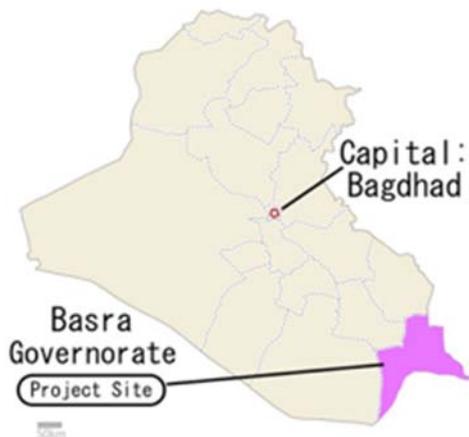
External Evaluator: Tokiko Ito, Octavia Japan, Co., Ltd.

0. Summary

The project was implemented with the goal to recover and increase efficiency of the functions at Umm Qasr Port and Khor Al-Zubair Port located in the southern part of Iraq, through procurement of marine and cargo handling equipment and development of port facilities and navigation routes, thereby contributing to the regional revitalization of Iraq. The relevance of this project is high given that the recovery of port functions, which act as crucial hubs for international logistics, is consistent with the country’s development policy, which aims to reinforce and secure its infrastructure for post-war recovery and economic growth mainly through the oil sector, development needs, and Japan’s ODA policy, which prioritizes reconstruction support for the economic infrastructure of Iraq. With regard to efficiency, project cost was within the planned amount due to the influence of exchange rate fluctuations, despite partial changes in the scale of dredging etc. Based on the project period that exceeded the planned timeframe due to the delay in equipment procurement, the efficiency of the project is judged to be fair. As for the effects of the project, the number of large vessels calling at Umm Qasr Port North has increased compared to before the start of the project, with cargo handling volume, which is the quantitative indicator, reaching its target value. Moreover, it was confirmed that efficiency had increased for logistics, with examples including stabilized navigation of ships and reduction of cargo handling time. In addition, there was an impact on the local economy in and around the port as investment by private businesses increased in the relevant sectors. Furthermore, it is believed that this and the other southern ports functioned as the country’s only route for international cargo transport when international security was deteriorating, underpinning Iraq’s economy. Therefore, the project’s effectiveness and impact is high. The sustainability of the project’s operation and maintenance is fair, since there is room for improvement in terms of the structural, technical, financial, and operation and maintenance conditions of the organization.

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

1. Project Description



Project Location



Berth Developed by This Project

1.1 Background

Though Iraq suffered great economic and social damages from years of economic sanctions and conflicts, the country is pursuing recovery with the help of the international community after the war. The country's transportation sector, which is the key infrastructure for economic restoration, was experiencing dramatic decline in functions in all areas of land, air, and marine transportation due to years of insufficient new investments and maintenance. Iraq has a coastline approximately 48 km in length sandwiched between its borders with Iran and Kuwait; port facilities are located only along the waterway between Khor Abd-Allah and Khor Al Zubair in Basra Governorate and along the Shatt Al-Arab River. Of these, Umm Qasr Port (commercial port) and Khor Al-Zubair Port (industrial port) were the only two of the finite fully functioning trade ports that the country had prior to the start of this project, as well as being the key hub of logistics. However, due to inadequate maintenance resulting from the impact of economic sanctions etc., as well as sediment accumulation and shipwrecks etc., these two ports were facing deterioration in functions related to navigation routes, port facilities, and cargo handling machines. The yearly cargo handling volume, which exceeded 10.1million tons in 2001, was in continued stagnation at around 7 million tons prior to the start of this project, with roughly 60% of the imported cargos being handled at ports in other countries. Therefore, there was an urgent need to implement a port rehabilitation project in order to put Iraq on track for recovery.



Source: Evaluator processed materials provided by JICA

Figure 1: Location Map of the Project

1.2 Project Outline

The objective of this project is to recover and increase efficiency of the functions at Iraqi port system, by rehabilitating Umm Qasr Port and Khor Al-Zubair Port,¹ located in the southern part of Iraq through development of port facilities and navigation routes, thereby contributing to the revitalization of regional economy.²

¹ Prior to the start of the project, the target area of the project was set as “Southern ports of Iraq including Umm Qasr Port” in the Ex-Ante Evaluation Table, with the output mainly concerning Umm Qasr Port. With regards to Khor Al-Zubair Port, baseline survey and detailed design were planned and implemented through the project’s consulting service for an ODA Loan project “Port Sector Rehabilitation Project (II),” which is a subsequent project that targets Khor Al-Zubair Port; the ODA Loan project has been implemented at the time of the ex-post evaluation for the development of the port’s facilities and navigation routes etc. In addition, most of the equipment procurement and civil works of the project were implemented at Umm Qasr Port, while all that was done in Khor Al-Zubair Port was the removal of a sunken ship, which was not in the initial plan. It can be concluded that at the time of the appraisal, the project was planning to develop Iraq’s key logistics hubs through two projects: Umm Qasr Port for this project, and Khor Al-Zubair Port for the subsequent project. Therefore, while there are two ports for the project’s targets areas, the survey will conduct evaluation judgment for the project’s “effectiveness and impact” as well as “sustainability” in relation to Umm Qasr Port, based on the information and data of the same.

² Prior to the start of the project, its impact was predicted to be “the economic and social reconstruction of Iraq”. Meanwhile at the time of the ex-post evaluation, it was predicted that the project would be achieved through recovery and increased efficiency of a single port’s functions. Therefore the reasonable logical impact was concluded to be “the revitalization of regional economy.”

Loan Approved Amount/ Disbursed Amount	30,211 million yen / 29,904 million yen	
Exchange of Notes Date/ Loan Agreement Signing Date	January 2007 / January 2008	
Terms and Conditions	Interest Rate	0.75%
	Repayment Period (Grace Period)	40 years 10 years)
	Conditions for Procurement	General Untied
Borrower/ Executing Agency	The Government of the Republic of Iraq / Ministry of Transport	
Project Completion	May 2016	
Target Area	Umm Qasr Port and Khor Al-Zubair Port in Basra Province	
Main Contractor(s) (Over 1 billion yen)	Plant Equipment Supply and Installation: Toyota Tsusho Corporation (Japan), Construction Work: KS Denizcilik Ltd. STI. (Turkey), Jan De Nul N.V. (Belgium), Equipment Supply: GHI Group (Republic of Korea), Avic International Holding Corporation (China)	
Main Consultant(s) (Over 100 million yen)	Nippon Koei Co., Ltd. (Japan) / Interdisciplinary Research Consultants (Jordan) (JV)	
Related Studies (Feasibility Studies, etc.)	-“Special Assistance for Project Formation for Port Sector Rehabilitation Project” (2006)	
Related Project	[Japanese ODA Loan Project] -“Port Sector Rehabilitation Project (II)” (February 2014) [Technical Cooperation Projects] -“Master Plan Study for Port Sector in the Republic of Iraq” (2013–2016) -“Project for Improvement of the Capacity on Port Management” (2017–2020) [Other Aid Agency] -United Nations Development Plan (UNDP) “Dredging of Approach Channel from the Gulf to the Port of Umm Qasr” (July–December 2005)	

2. Outline of the Evaluation Study

2.1 External Evaluator

Tokiko Ito (Octavia Japan, Co., Ltd.)

2.2 Duration of Evaluation Study

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

Duration of the Study: October, 2018–October, 2019

Duration of the Meeting in the Third Country: February 3–7, 2019, June 23–27, 2019

2.3 Constraints during the Evaluation Study

Since the external evaluator was unable to enter the project target country for security reasons, a field survey (information and data collection and interview survey) was conducted by the contracted field survey assistant. The external evaluator had meetings with the field survey assistant in a third country (Jordan) and has conducted evaluation analysis and judgment after examining the obtained information and data.

3. Results of the Evaluation (Overall Rating: B³)

3.1 Relevance (Rating: ③⁴)

3.1.1 Consistency with the Development Plan of Iraq

At the time of the appraisal, the country's development policy *National Development Strategy* (2005–2007) was aiming to reinforce infrastructure for economic growth required for post-war recovery and national development. In relation to the development of the transportation sector, the goals were set to include the improvement of the acutely dysfunctional facilities related to the sector, in order to bring these up to the same standard as those of neighboring countries. As for the port sector in particular, the following are positioned as critical developmental challenges: dredging, shipwreck removal, improvement of operational efficiency, and organizational optimization.

At the time of the ex-post evaluation, the Iraqi government's *National Development Strategy* (2018–2022) has set forth the establishment of effective foundation for development, by means of a multi-sectoral development plan, which aims for economic growth where the oil sector (oil production and exportation) plays the key role. In the port sector plan, the focus is on the improvement of the existing port facilities that act as hubs for exportation of oil products and international logistics, construction of new ports, and encouragement of the private sector's contribution to the operation of port services.

Thus, the project is in line with the country's development policies given that it was a project

³ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

⁴ ③: High, ②: Fair, ①: Low

that performed port facility development as well as dredging and wreck removal along the navigation routes at oil-exporting international logistics hubs: Umm Qasr Port and Khor Al-Zubair Port.

3.1.2 Consistency with the Development Needs of Iraq

Prior to the start of the project, Iraq's port facilities were suffering from inadequate maintenance caused by factors including destruction during the war and prolonged economic sanctions, as well as deteriorating functions due to sediment accumulation and shipwrecks. Fully functioning trade ports were limited to Umm Qasr Port and Khor Al-Zubair Port. Though both ports exceeded 10.1 million tons in yearly cargo handling volume in 2001, they went through continued stagnation of around 7 million tons at most ever since then. Around 60% of the imported cargo was being handled at ports in other countries. Therefore, there was an urgent need for a port facility rehabilitation project for the country's recovery.

At the time of the ex-post evaluation, both ports are still the Iraq's most important international logistics hubs. At Khor Al-Zubair Port, port development is being implemented by this project's subsequent ODA Loan project "Port Sector Rehabilitation Project (II)." The two ports' yearly cargo handling volume including that of Umm Qasr Port reached 27.5 million tons in 2018, and is on the upswing. However, because the port facilities and functions are inadequate for the increasing cargo handling volume, improvement of port facilities and functions as well as development of new ports are required, and the private sector's contribution towards the operation of port services is also expected. Moreover, in order to secure routes for Iraq's international transportation, ports—being one of the country's major routes—must function stably and continuously.

Therefore, the necessity of developing the southern ports and the importance of improving cargo handling capacity have been highlighted during the appraisal and ex-post evaluation. The project was in line with the development needs, given it developed the most crucial ports: Umm Qasr Port and Khor Al-Zubair Port.

3.1.3 Consistency with the Japan's ODA Policy

In October 2003, Japan announced at the donors' assembly that took place in Madrid that they would provide 1.5 billion USD grant aid for the urgent reconstruction needs of Iraq; in 2005 Japan announced that they would provide assistance up to 3.5 billion USD through ODA Loan projects for the midterm reconstruction needs. In JICA's *Overseas Economic Cooperation Operation*

Policy (April 2005), the priority area was set as “assistance for peace building.” It also set its explicit goal as the medium- to long-term assistance for social stability and peace consolidation of Iraq, focusing on the reconstruction of the country through development of socioeconomic infrastructure, which underpins improvement in living conditions and economic growth.

The project aims to contribute to economic regeneration of the local region by means of port facility development for Umm Qasr Port and Khor Al-Zubair Port, which falls under economic infrastructure reconstruction. Therefore, the project is in line with Japan’s ODA policy.

3.1.4 Appropriateness of the Project Plan and Approach

[Perspectives for project evaluation in conflict affected countries and areas]

Since the project is based in Iraq, which is a conflict affected country, the following confirmations were made based on the perspective of the *Guideline for Project Evaluation in Conflict Affected Countries and Areas* by Japan International Cooperation Agency (JICA).

- 1) Timing: The project implemented urgent rehabilitation of ports that acted as the most important hubs of international logistics, whose functions had deteriorated. The implementation took place at the time that the Iraqi government was encouraging actions such as reinforcement of infrastructure for economic growth during the post-war recovery. The timing for the project implementation is considered to have been appropriate.
- 2) Governmental and political contributions: The Iraqi government is committed to post-war recovery and national development of the country, and therefore port development constitutes crucial assistance for the effective implementation of reconstruction and economic growth. Japan’s assistance in reconstruction of economic infrastructure is acknowledged for its significance in governmental and political contribution.
- 3) Activities: As part of assistance for peace consolidation, the project assisted port rehabilitation. For dredging, safety measures including detection and removal of unexploded ordnances were conducted beforehand. The project is considered to have planned an output that contributes to the nation’s reconstruction and revitalization of its economy, and does not encourage factors for unrest.
- 4) Selection of region and beneficiary groups: The project targeted Umm Qasr Port, which is Iraq’s most important hub of logistics and one of the only fully functioning trade ports, aiming to improve the functions of international logistics that affects the entire nation, as well as benefit the local economy. The project took place in existing port facilities or offshore,

and was considered relatively less susceptible to security concerns. There were considerations on the region and beneficiary groups to prevent encouragement of factors for unrest.

- 5) Implementation Mechanism: The main actor was the General Company for Ports of Iraq (hereafter GCPI), which is a subsidiary organization of Iraq’s Ministry of Transport, while Japan set up its main posts in the neighboring country, ensuring safety control during the implementation of the project. JICA signed an operation cooperation agreement⁵ with UNDP in 2009 and conducted supervision on the project. Moreover, safety and security systems were ensured with the cooperation of the port police and the Iraqi military. The project achieved a mechanism by which the impact of security concerns on the project was kept to a minimum.

Based on the above, this project has been highly relevant to the country’s development plan and its development needs, as well as Japan’s ODA policy. Therefore its relevance is high.

3.2 Efficiency (Rating: ②)

3.2.1 Project Outputs

The project performed dredging and shipwreck removal along the navigation routes in the port’s waters, procurement of marine and cargo handling equipment, as well as development of port facilities, mainly at the Umm Qasr Port North⁶. The project’s output plan and results are as presented in Table 1.

Table 1: Output Plan and Actual

Item	Plan (2007)	Actual (2019)
a. Construction & Equipment		
1) Marine Equipment		
• Dredging Ships		
-Trailer Suction Hopper Dredger (TSHD) ⁷	2 (3,500 m ³)	1 Reconstruction (1800 m ³), 1 (3,500 m ³)

⁵ The agreement was signed between JICA and UNDP to promote administration of economic development projects, as well as the development of infrastructure in the key areas including electricity, water, health, oil, traffic, and industrials.

⁶ Umm Qasr Port has south and north ports. The project’s target was mainly set as the equipment in the port’s northern area, excluding shipwreck removal at Khor Al-Zubair Port and the Khor Abdullah waterway, which is a navigation route that leads to Umm Qasr Port.

⁷ Trailer Suction Hopper Dredger (TSHD) is a dredger which places a device mounted at the tip of the suction pipe of a dredging pump at the seabed and towed, pumping up, loading and then transporting the seabed sediment and water to treatment facilities. Grab Hopper Dredger (GHD) is a dredger that grabs and lifts up underwater sediment and loads

-Grab Hopper Dredger (GHD) • Floating Crane Ships • Diving Ship (including diving equipment) • Tugboats • Fuel Tanker • Spare parts	1 (1,000 m ³) 2 (1,000 t and 1,500 t) 1 4 (4,000 HP ⁸) 1 (1,000 t) Spare parts for various work boats	1 (500 m ³) 1 (2,000 t) and 1 Barge Ship ⁹ (1,000 t) 1 3 (55 t ¹⁰) 1 (1,000 t) Excluding dredger engine spare parts
2) Land Equipment • Mobile Crane • Forklifts • Workshop Vehicle for land equipment • Hydraulic Platform	2 (150 t) 2 (7 t and 20 t) 3 1	2 (150 t) 4 (2 7 t and 2 20 t) 2 1
3) Dredging Works • Umm Qasr North Port	Approx. 7.50 mil. m ³ (300 m × 4,000 m, Depth -12.5 m)	Approx. 5.17 mil. m ³ (200 m × 4,000 m, Depth -12.5 m)
4) Wreck Removal Works • Channel up to and in the Umm Qasr Port	8-10	3 1 in Khor Al-Zubair Port
5) Port Facilities Development and Urgent Rehabilitation of Berth ¹¹ • Fenders Replacement / Apron Repairs • Yard Paving • Building for Workshop and Storage	50 (5 Berths) Rehabilitation of Paving Yards for Container Yard 45,000 m ² , Setting Fences and Gates (Behind Berth No.20 and 21) 1 Building for Workshop, and a Set of Tools and Equipment	80 (10 Berths) Development of Container Yard 116,000 m ² , Setting Fences and gates (Behind Berth No.20 and 21) Electricity Supply and Distribution Facilities, Telephone and Fire alarm, Water supply, Fire Hydrant, and Drainage Equipment for Berth No.12-21
b. Consulting Service		
1) Project Management	• Basic Design and Strengthening Capacity of Ministry of Transport • Procurement Support (Detailed Design, Pre-Qualification and Tendering Documentation, Tendering Preparation, Implementation, and	Implemented as planned.

it onto a hopper or a hopper barge alongside a vessel.

⁸ Horsepower (hereafter referred to as "HP") is a unit of power output used for marine engines. At the time of the project's appraisal, the towing capacity of the tugboats scheduled for procurement was presented in HP.

⁹ A barge is a flat-bottomed vessel loaded with heavy cargo that navigates in ports or inland waterways such as rivers and canals.

¹⁰ The towing capacity of the procured tugboats is considered to be approximately 3,670 to 4,580 HP when calculated in horsepower.

¹¹ Berth is a place where vessels dock to load and unload cargo, an anchorage.

2) Basic and Detailed Design for future project	Evaluation, and Contracting Support, etc.) (Excluding Dredging and Procurement for Dredging). • Management of Implementation • Basic and Detailed Design for Future Project	
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Source: Documents provided by Executing Agency

Main changes of outputs and its reasons are as follows:

1) Procured equipment

With regards to marine equipment, one trailer suction hopper dredger's procurement was replaced with reconstruction of an existing vessel. Grab hopper dredgers, cranes, and tugboats decreased in vessel size or number compared to the plan. The reason for this was the bidding prices being higher than expected. As for the vessel spare parts, because it took time for proposals to procure genuine products that meet the requirements of GCPI, it was switched to procure spare parts as a separate contract in the ODA Loan apart from ship procurement. Among them, for some parts for dredgers, the parts suppliers were slow to respond. The GCPI canceled the procurement after agreeing with JICA because it would not directly affect the project effect. For cargo handling equipment, the numbers of fork lifts and workshop vehicles were amended during the detailed design stage according to the level of on-site necessity.

2) Civil work

The amount of dredging decreased relative to the plan (difference being approximately 2.33 million m³ less). Scope reduction was inevitable due to unexpectedly higher bidding prices, and dredging was performed with priority given to areas with the most urgent need. According to GCPI, the depth of water is as planned with no influence on ease of navigation due to the change of scope. With regard to shipwreck removal, the number of vessels to be removed was reduced to four as a result of the initial survey that took place after the start of the project. The breakup was: two vessels in the Khor Abdullah waterway, one in Umm Qasr Port North, and one in Khor Al-Zubair Port. In regard to the vessel at Khor Al-Zubair Port, a failed search for a sunken ship during the project implementation, which was thought to be in Umm Qasr Port at the time of the planning, prompted the change of location of shipwreck removal to Khor Al-Zubair Port, which had equally

high urgency. As for development of port facilities, number of targeted berths increased in comparison to the plan, and the container yard itself was developed additionally. Moreover, electronic devices, as well as phones and fire detectors at the existing workshops and warehouses of multiple berths were upgraded instead of renovating the building for workshops and warehouses. This change was due to the reflection on priorities that took place during the detailed design stage, where the conditions of berths and utilization demands were taken into account. According to GCPI, the change of scope for marine equipment had no influence on dredging and wreck removal operations. GCPI also said that the change of output had no significant influence on the port functions of Umm Qasr Port North.



Photo 1: Fenders Installed by This Project¹²



Photo 2: Container Yard Developed by This Project



Photo 3: Floating Crane Procured by This Project



Photo 4: Dredging Boat Rehabilitated by This Project

¹² Source for the photo 1–4: Provided by Nippon Koei Co., Ltd.

3.2.2 Project Inputs

3.2.2.1 Project Cost

The total project cost at the time of the appraisal was planned to be 34,655 million yen (of this 30,211 million yen was covered by the ODA Loan). The actual total project cost was 30,894 million yen (of this 29,904 million yen was covered by the ODA Loan), which was within the plan (approx. 89% of the plan). During the project implementation, the bidding prices were higher than expected for marine equipment and dredging, reducing the overall project cost by changing the scope etc. The main reason that the project cost ultimately stayed comfortably within the planned amount was the effect of foreign exchange rate fluctuations during the project implementation (strong yen, weak USD)¹³.

3.2.2.2 Project Period

At the time of the appraisal, the project period was planned from January 2008 (signing of loan agreement) to September 2010 (completion of civil works and equipment procurement) (33 months). The actual project period was the 101 month period from January 2008 (signing of loan agreement) to May 2016 (completion of civil works and equipment procurement), far exceeding the plan (approx. 306% of the plan). Table 2 shows the project's planned and actual period for each output.

Table 2: Plan and Actual of Project Period

	Plan at Appraisal	Actual at Ex-Post Evaluation
Whole Project	Jan 2008–Sep 2010 (33 months)	Jan 2008–May 2016 (101 months)
Selection of Consultant	Apr 2007–Mar 2008 (12 months)	Aug 2008–Dec 2008 (5 months)
Consulting Services	Apr 2008–Sep 2010 (42 months)	Dec 2008–Jun 2015 (80 months)
Tendering Procedure	May 2008–Dec 2009 (20 months)	Jan 2009–Feb 2012 (38 months)
Civil Work	Aug 2009–Aug 2010 (13 months)	Aug 2009–Aug 2010 (13 months)
Procurement of Equipment	Sep 2009–Sep 2010 (13 months)	Jun 2010–May 2016 (72 months)
-Trailer Suction Hopper Dredger, Grab Hopper Dredger		Oct 2011–Jan 2013 (16 months)

¹³ At the time of appraisal, the exchange rates were 1 dollar = 118 yen, 1 dollar = 1,470 Iraqi dinar, and 1 Iraqi dinar = 0.0803 yen, but actually 1 dollar = 96.79 yen, 1 dollar = 1,169 Iraqi dinar, and 1 Iraqi dinar = 0.0827 Yen (International Monetary Fund (IMF) international financial statistics data (IFS data) (average during the period (2009 – 2016)). The yen was on a trend of appreciation.

-Floating Crane Ship, Barge Ship		May 2011–Mar 2014 (35 months)
-Diving Boat, Tag Boat and Fuel Tanker		Dec 2011–Oct 2014 (35 months)
-Spare Parts for ships		Jun 2015–May 2016 (12 months)
-Land Equipment		Jun 2010–Nov 2011 (18 months)

Source: Document provided by JICA and answers for questionnaire

The main reasons the project period exceeded the plan are as follows: 1) As noted above, with regard to the contract of the procurement of service vessel spare parts for marine equipment, because the initially planned contractor was falling behind the timeline, switching to the contract that procures separately from vessels, etc. occurred. Adjustment required time, and this significantly delayed the project period; 2) Since this was the first Japanese ODA Loan project implemented in Iraq, approval process, payment procedure, international bidding procedure, and conclusion of banking agreement were delayed partly due to the country's lack of experience. Customs clearance in Iraq also took a long time; 3) This project involved international procurement and work regarding equipment and materials. In addition to unpredictable situations, the work took place in the vicinity of the border shared with Kuwait, with which the country has a delicate diplomatic relationship. These resulted in the adjustment procedure taking longer than expected, with the bidding process also being delayed.

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

Financial Internal Rate of Return (FIRR) was estimated at 1.9% at the time of the project's appraisal. FIRR of Umm Qasr Port North was recalculated at the time of the ex-post evaluation using the revenue from port charges as profit, while project cost and operation and maintenance costs required for Umm Qasr Port North facilities are treated as costs, and assuming the project life of 25 years. The result was 4.3%, which is higher than the value calculated at the time of the project's appraisal. The basis for calculation of the value presented at the time of the project's appraisal was unclear during this survey, and so a detailed comparative analysis on the recalculated value and the estimation of cost and profit cannot be made. However, the main factor behind this is believed to be the increasing revenue from port charges (annual average growth rate of about 10% over the most recent three years), which is proportionate to the increasing number of ship calls, and the handling volume at Umm Qasr Port North that has exceeded the target value. Furthermore, Economic Internal Rate of Return (EIRR) has not been calculated at the time of the

project's appraisal, and therefore EIRR was not recalculated in this survey.

[Perspectives for project evaluation for conflict affected countries and areas]

The project was implemented inside port facilities or offshore areas that were considered relatively less susceptible to security concerns. Through questionnaires and interviews with GCPI and the project's construction supervising consultant, it was confirmed that achievement of output, as well as project cost and period were not influenced by external conditions or preconditions such as growing security concerns or changes in the state of affairs.

[Summary for Efficiency]

There were some changes to the outputs of the project for reasons of priority level of utilization demands and project cost control. The project cost was within the planned amount because of changes to the outputs that resulted from the bidding prices being higher than expected, and also due to the effects of foreign exchange rate fluctuations. The project period exceeded the plan mainly due to delays in procurement for equipment and materials. In light of the above, while the project cost was within the plan, the project period exceeded the plan, and therefore, efficiency of the project is fair.

3.3 Effectiveness and Impacts¹⁴ (Rating: ③)

3.3.1 Effectiveness

3.3.1.1 Quantitative Effects (Operation and Effect Indicators)

Table 3 shows the baseline and target values of the quantitative effect indicator "cargo handling volume" planned at the time of appraisal and the actual values confirmed in this survey.

¹⁴ Sub-rating for Effectiveness is to be put with consideration of Impacts.

Table 3: Operation and Effect Indicators of the Project Cargo Handling Volume

(Unit: Million tons/ Year)

Port	Baseline	Target	Actual		
	2005	2 Years After Completion	2016 Completion Year	2017 1 Year After Completion	2018 2 Years After Completion
Umm Qasr North Port	4.3	6.5	6.8	8.1	7.7
(Reference) Umm Qasr Port	4.3	6.5	12.3	13.7	18.2
(Reference) Khor Al-Zubair Port	Not set	Not set	5.4	7.8	9.3

Source: Document provided by JICA (Baseline and Target) and answer to Questionnaire (Actual)

At the time of the appraisal, the baseline value and target value were only set for the cargo handling volume of Umm Qasr Port North¹⁵. As stated above (1.2 Project Outline), the target area of the project was set as Umm Qasr Port and Khor Al-Zubair Port, while the output of the project mainly concerned Umm Qasr Port North. Therefore, this survey performed evaluation judgment for the project's effectiveness and impact based on the information and data about Umm Qasr Port North. Target values at the time of the appraisal were set two years after the project's completion. Though the project's completion was in May 2016, the target year was set as 2016 since civil works and main equipment procurement, through which the effects of the project manifested, were finished by 2014; thus comparison and analysis was carried out for target values and actual values for 2016–2018.

As shown in Table 3, the actual value of Umm Qasr Port North's cargo handling volume exceeded the target value. At the time of the appraisal, it was estimated that cargo handling volume would increase as a result of improved port services enabled by procurement of service vessels such as tugboats and fuel tankers, with the number of large vessels calling at the port rising given widening and deepening of the port and the waterways as a result of dredging and wreck removal works by the project. Though for reference only, the figures in Table 4 present Umm Qasr Port North's annual ship call by average deadweight. The port's number of ship call has increased (for the decrease in 2018, see note 3 below the table), with the number of vessels in large classes

¹⁵ Through interviews with GCPI and the project's construction supervising consultant, it was confirmed that Umm Qasr Port South was not functioning at the time of the appraisal, thus Umm Qasr Port North's cargo handling volume was essentially set as the baseline and target values of the cargo handling volume for the entire Umm Qasr Port. The target value was set based on the maximum figure of Umm Qasr Port's pre-war cargo handling volume.

regarding Deadweight Tonnage (hereafter referred to as “DWT”)¹⁶ also rising. At the port, dredging had also been performed by UNDP before the project’s commencement¹⁷, enabling maximum of 50k DWT class vessels calling at the port using the high tide. However, this did not lead to development of the entire port area. This project performed dredging to increase the depth of water, with the goal to further ease the entry of 50k DWT class vessels at the port. According to a GCPI executive, the maritime companies who had been avoiding Iraqi ports for reasons of lack of navigation routes’ water depth, safety, and port services at the time of the appraisal have increased their utilization of the same by the time of the ex-post evaluation. Meanwhile, GCPI jointly operates all the berths and terminals at Umm Qasr Port North with a private business, which is thought to have had an influence on the improvement of port services outside of this project to some extent. However, dredging, shipwreck removal and marine towing services continue to be run by GCPI only. According to the project’s construction supervising consultant, “It would have been difficult to increase cargo handling volume if there were no improvement to marine services.”

(Reference) Table 4: Annual Number of Ships Calling at the Port by Average Deadweight at Umm Qasr North Port (Actual)

(Unit: Number)

Average Deadweight per Ship (DWT)	Year 2011	Year 2014 Note 1	Year 2015 Note 2	Year 2016 Note 3	Year 2017	Year 2018 Note 3
0–9,999	43	49	27	100	112	56
10,000–19,999	16	48	11	10	9	31
20,000–29,999	17	12	14	11	14	25
30,000–49,999	148	93	13	79	109	167
50,000–80,000	266	310	302	657	792	621
Total	490	512	657	932	1,036	900

Source: Answers to Questionnaire

Note 1: For 2014, figures exclude data of a part of DWT class in March that did not exist.

Note 2: For 2015, figures exclude data of a part of DWT class in June and all the data of August to December that did not exist.

Note 3: For 2016, figures exclude data of March and for 2018, figures exclude data of all August that did not exist.

¹⁶ Deadweight tonnage is a unit used to refer to the carrying capacity of an underway vessel or the carrying capacity for a vessel to navigate safely, and is used when referring to a vessel’s maximum carrying capacity.

¹⁷ Through the “Iraq Reconstruction and Employment Program,” which was emergency grant aid carried out through UNDP, dredging projects were conducted by UNDP with the goal of achieving 12 m depth at Umm Qasr Port in 2003, and at the Khor Abd-Allah waterway in 2005.

The reason for the rise in cargo handling volume can be attributed to the influence of the closure of two out of three major routes¹⁸ for Iraq’s international transportation due to the internal conflict against the Islamic extremist group Islamic State in Iraq and the Levant (hereafter referred to as “ISIL”) during 2013–2018. That is, while the land transportation routes that accounted for a little over 40% of cargo volume into Iraq (in 2004) were closed, the route that connected the southern ports of the country—which included Umm Qasr Port that was developed through this project—functioned as the only lifeline for cargo shipping to the northern and central regions of the country, including the capital Baghdad. According to a GCPI executive, “There is a possibility that the increase in construction material caused by domestic demand for construction has also had an influence on the increase of cargo handling volume.”

On the other hand, the actual value of Khor Al-Zubair Port’s cargo handling volume has also increased during 2016–2018. Factors for the Khor Abd-Allah waterway, where shipwreck removal was performed through the project, are considered to be the fact that the waterway is a navigation route to the port, and that there has also been one wreck removal inside the port. Moreover, another important factor is that other donors have also offered recovery assistance to Iraq for its main industry—the oil industry—during the post-war recovery phase, and according to a GCPI executive, “There is a possibility that the rapid increase in the handling of oil products at the port in recent years may have also had an influence.”

3.3.1.2 Qualitative Effects (Other Effects)

At the time of the project’s appraisal, it was predicted as the qualitative effect to be improved efficiency in logistics. At Umm Qasr Port North, securing depth of water through dredging and development of the berths, as well as procurement of fenders¹⁹ and service vessels have enabled steady docking and departing of vessels inside the port, as well as increasing fuel supply to vessels coming to the port. With minimal development made to the port’s facilities, the project encouraged the entry of private businesses, with all berths and terminals being jointly operated by GCPI and private companies, and development of terminals and measures for mitigating congestion (development of roads in the premises, introduction of control system for trucks

¹⁸ Iraq’s three major routes for international transportation are as follows: 1) Syrian and Turkish Corridor (the Mediterranean route): Land transportation route between Syrian, Turkish and Jordanian ports—Central and Northern Iraq; 2) Jordan and Aqaba Port Route (the Red Sea route): Land transportation route between Syrian and Jordanian ports—northern and central regions of Baghdad, Iraq; 3) Iraqi Ports Route (Umm Qasr Port and Khor Al-Zubair Port route): Transportation route between southern Iraqi ports—southern Iraqi regions.

¹⁹ Fenders are used to absorb the shock of collision and prevent damage on both vessels when a vessel is mooring or being brought alongside another vessel.

transporting goods etc.) being performed. Though information about average waiting time for vessels and entry/departure time at the port was not available since such data have not been gathered, according to a GCPI executive, these have further driven the improvement of cargo handling time and congestion mitigation. Moreover, roads leading from the surrounding areas of Umm Qasr Port to the capital and other major cities have been developed by the World Bank and Iraq's Ministry of Construction and Housing²⁰. There is a possibility that the reduction of cargo transportation time and cost has led to further increase in the port's cargo handling volume. In light of the above, increased efficiency in logistics is believed to have been achieved at Umm Qasr Port North, although this is not caused solely by the project. The project implementation and the reinforcement of the operation and maintenance system intended by the Ministry of Transport will be broken down in "3.4 Sustainability."

3.3.2 Impacts

3.3.2.1 Intended Impacts

1) Impact to domestic economy

As stated above, when Iraq's land routes closed down due to the internal conflict against ISIL, the route that connected the ports including Umm Qasr Port became the country's only route for international logistics, and functioned as the country's lifeline for shipping import and export cargos. According to the project's construction supervising consultant, "If the project had not been implemented, and if the functions of the southern ports including this port remained low, the country's logistics and economic restoration would have suffered devastating damage." Therefore, the project is believed to have underpinned the economy in the country by offering port routes for international logistics and contributing to the mitigation of negative impact on its economy.

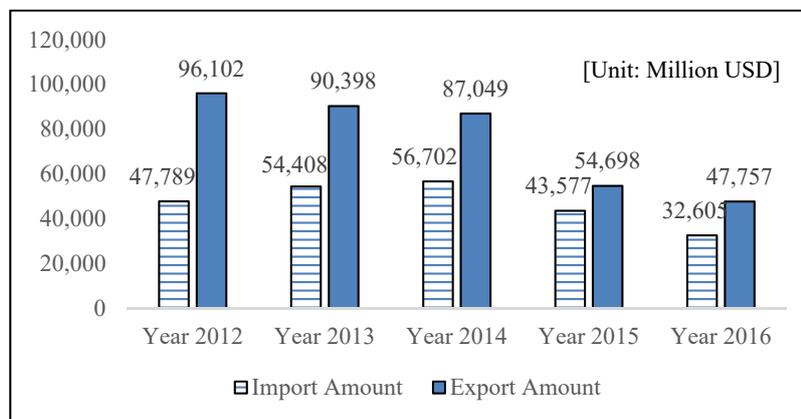
On the other hand, it is difficult to verify the direct causal relationship between the project and the restoration of the domestic economy, since changes as major as such restoration are influenced by many factors. Though for reference only, Iraq's GDP growth trend and its import and export value trend for a term with data available are as shown in Figures 2 and 3.

²⁰ Highway improvement project (Transport Corridors Project) of Basra, which connects the surrounding areas of Umm Qasr Port to the highway that leads to Baghdad was conducted by the World Bank (completed in 2015). Moreover, Iraq's Ministry of Construction and Housing is also conducting a repair project on the junction that connects Umm Qasr Port and its highway.



Source: World Bank

(Reference) Figure 2: Trend of Iraq's Real GDP Growth Rates



Source: United Nations Trade Center

(Reference) Figure 3: Trend of Iraq's Import and Export Value

Oil exportation, which is the country's main industry and accounts for a little over 80% of its national revenue, has suffered significant damage from the declining crude oil price since mid 2014. Moreover, the internal conflict against ISIL from 2013 and the closure of international logistics routes mainly affected the economic activities from central to northern regions. During the time of project implementation and ex-post evaluation, when the cargo handling volumes at Umm Qasr Port and Khor Al-Zubair Port were on the rise, there had been sharp fluctuations in the economic growth rate and import and export value trends, and it is believed that various factors influenced the restoration of the country's economy.

2) Revitalization of regional economy

At the time of the ex-post evaluation, revitalization of the regional economy was set as the

project's impact. According to a GCPI executive, since the project was underway, private businesses have been investing in the facilities and cargo handling equipment of Umm Qasr Port North, looking ahead at the increasing cargo handling volume and number of large vessels calling at the port. They said that the interest of private cargo handling companies has further increased ever since the completion of the project. As noted above, in addition to the fact that all berths and terminals of the port are now being jointly operated by GCPI and private companies, the berths and terminals are being expanded further. Moreover, the road network was developed around the port by the World Bank and Iraq's Ministry of Construction and Housing. According to the GCPI executive, it is believed that investment in the service and transportation industries has significantly increased in the surrounding areas and job opportunities growing in reaction to these improvements. Based on the above, it is believed that development of Umm Qasr Port North by the project has stimulated the growth of investment by private businesses in and around the port, while also contributing to the economic activities of the surrounding communities that were stagnating after the conflict. In light of the above, the project is believed to be contributing to the revitalization of the regional economy.

3.3.2.2 Other Positive and Negative Impacts

1) Impacts on the Natural Environment

The project was concluded not critical for the undesirable environmental impact, given it is listed as category B in *JBIC Guidelines for Confirmation of Environmental and Social Considerations* (April 2002). Iraq's domestic laws do not make it mandatory to compile an Environmental Impact Assessment (EIA) report on the project. While the project was in operation, environmental specialists from Japan Loan Organization, which was set up for the project's operation and management in GCPI, performed environmental monitoring and submitted monthly environmental monitoring reports. When implementing the project, mitigation measures were taken against air and water pollution, while dredged sediment was appropriately disposed at the planned disposal site in order to minimize negative impact on the natural environment. At the time of the ex-post evaluation, it was confirmed that environment staff at GCPI was in charge of environmental monitoring and inspection. According to a GCPI executive, in the event that concerns for water quality or air arises, the same is to be handled upon coordination with relevant institutions; however there were no environmental problems such as air or water pollution, noise and vibration, or impact on the ecosystem during the implementation or after the completion of the project.

2) Resettlement and Land Acquisition

There was no land acquisition or resettlement in this project, since it took place within the existing port facilities, and it was confirmed through an interview with a GCPI executive that there were no particular issues nor complaints.

[Perspectives for project evaluation for conflict affected countries and areas]

Through questionnaires and interviews with GCPI and the project's construction supervising consultant as well as with UNDP officials, it was confirmed that there were no particular issues caused by the project implementation, concerning the relationships with personnel involved with the project, local residents of the surrounding area, and other countries. Moreover, it was confirmed that manifestation of the project's effectiveness and impact was not negatively influenced by external conditions or preconditions, or factors for unrest or obstruction, such as growing security concerns or changes in the state of affairs. It was also confirmed that the project implementation did not encourage or reduce unintended factors for unrest in the Iraqi society, directly or indirectly.

[Summary of effectiveness and impact]

The cargo handling volume of Umm Qasr Port North, which is the quantitative effect indicator predicted through the project, has exceeded the target value. The number of large vessels calling at the port has been also increasing. Moreover, improvement of cargo handling time and mitigation of congestion are both being promoted. Furthermore, although not caused solely by the project, increased efficiency in logistics can be observed given the improvements in port facilities and services following the joining of private businesses, as well as the improved road networks to major cities. In addition, it is believed that the port route functioned as the only route for international logistics and supported the domestic economy during the deterioration of security. It is also believed that the project has contributed to the regeneration of the local economy, given the observed growth of service and transportation industries among port related businesses and the surrounding areas, as well as the increased employment opportunities. In light of the above, the project implementation manifested a positive effect, thus the effectiveness and impact of the project is judged to be high.

3.4 Sustainability (Rating: ②)

3.4.1 Institutional/Organizational Aspect of Operation and Maintenance

The executing agency of this project is the Ministry of Transport. GCPI, which is a subsidiary organization of Iraq's Ministry of Transport, is a state-run corporation responsible both for the operation and regulation of Iraq's port facilities. All berths and terminals at Umm Qasr Port North are jointly operated by GCPI and newly joined private businesses. Operation and maintenance of facilities and equipment developed through the project are carried out by GCPI's following departments: Marine Dredging Dept., Dry Docks and Marine Industry Dept., Marine Salvage Dept., Maritime Affairs Dept., and the port's Technical Affairs Dept. GCPI had a total number of 8,047 employees in 2012 (of which 1,234 were at Umm Qasr Port North), which marked a fall from the approximate 11,000 staff it had in 2008. According to the project's construction supervising consultant and a UNDP official, "GCPI is believed to be in the structural formation stage after years of the country being at war, and there is a shortage of experienced staff, rather than in the number of staff." From the perspective of more efficient operation, it is believed that there is no negative impact on operation and maintenance caused by the decline in the number of staff. However, this also means that there is a shortage of staff who are experienced in taking the initiative with operation and maintenance of facilities and equipment developed through the project.

Therefore, GCPI's operation and maintenance system is believed to face some challenges, as it needs to secure staff that possess the required skills.

3.4.2 Technical Aspect of Operation and Maintenance

In this project, the project's construction supervising consultant provided technical support to GCPI staff through surveys and proposals regarding port management and arranged an observation training for the Ministry of Transport and GCPI staff for the port management method at Aqaba Port in Jordan. In addition, before the start of operation of equipment and materials under this project, procurement contractors conducted trainings on their specifications, operation / work, and maintenance for GCPI staff in Iraq and abroad. It was confirmed through an interview with a GCPI executive that GCPI duly recognizes the importance of port operation and maintenance work. They also said that the content of the trainings given to the Ministry of Transport and GCPI staff by this project was practical and beneficial, and is being applied in port operation. At the time of the ex-post evaluation, trainings have been provided at the GCPI Training Institute as well as domestically and abroad in relation to operation management of ports,

as well as operation and maintenance of equipment such as vessels. Moreover, staff have been performing maintenance work including routine inspections according to the equipment maintenance manual. However, as noted above, GCPI is believed to be in its structural formation stage, and there is an overall shortage of experienced staff due to turnover as a result of trained staff retiring or leaving for other companies. In the basic design survey performed during the project's operation and in JICA's *Project on Master Plan Study for Port Sector in Iraq*, the necessity of GCPI's capacity strengthening was brought to attention. According to the project's subsequent ODA Loan project "Port Sector Rehabilitation Project (II)," there are efforts presented for further capacity building, with training on dredging and equipment being in the plan. After years of being at war, continuous reinforcement of the staff's expertise is required in order to cope with technological innovation in the port system, increasing cargo handling volume, and special technology such as dredging.

In light of the above, it is believed that continuous improvement of staff competence is required in relation to the technical aspect of project's operation and maintenance.

Box: Roles and contributions of the Iraqi government, UNDP, and JICA's project implementation mechanism

The project was the first ODA Loan project implemented in Iraq, and it was commenced while the Iraqi government lacked project supervising experience, and when legislative systems such as public procurement methods were still underdeveloped. Moreover, the Japanese consultants set their posts mainly in the neighboring country as a safety measure on the security front, thus limiting their direct commitment to the project especially in the early stages of the project. Given this situation, JICA also acquired information by UNDP, who was commissioned for the dredging project prior to the implementation of this project and utilized their information in formulating the project's plan. Furthermore, JICA signed an operation partnership agreement with UNDP at the project implementation stage in order to reinforce Iraq's project supervising capacity, and decisions were made for the Iraqi government, UNDP, and JICA to jointly implement the project and conduct monitoring. This structure was for verifying whether the project is being implemented appropriately according to JICA's international standard guidelines and rules, and whether Japan's ODA Loan is fulfilling accountability, and if it is being run under transparency and efficiency. With the cooperation of UNDP, it was possible to offer advice to the Iraqi government and improve the project by

identifying challenges that obstructed the project through evaluation of its progress and supervising capacity.

With regard to the project’s implementation mechanism, a full-time member of staff of the project at GCPI was allocated as the manager, with measures taken for project operation capacity to grow within the organization. According to a UNDP official, “GCPI as an organization is now able to carry out independent and objective decision-making as a result of this. With time required for the procurement process by GCPI sped up over several years during the project implementation, UNDP came to evaluate positively its procurement of materials and equipment.” According to a GCPI executive, the project’s implementation mechanism and lessons learned from it have been applied to the way subsequent projects are being run.

Moreover, the project has triggered the Monitoring Committee to be held regularly every quarter by the Iraqi government, UNDP, and relevant Japanese institutions, on sharing and adjusting the knowledge and experience related to Japanese ODA projects across governmental agencies. The conference also welcomed GCPI staff who experienced operation and management through this project; and they have actively shared with other executing agencies their experience and lessons learned from the project. The conference is not only used for a single project, but also for the entire country’s accumulation of knowledge about ODA project supervision, which is realizing simplification of administrative procedures and improvement of project supervision.

3.4.3 Financial Aspect of Operation and Maintenance

The maintenance budget of facilities managed by GCPI is planned by the Ministry of Transport, who take into consideration plans proposed by the Planning and Follow-up Department of GCPI as well as revenue from port charges; the budget is then decided by the Ministry of Finance. Results of the operation and maintenance costs at Umm Qasr Port North, and GCPI’s revenue and expenditure situation (from the accessible data of the most recent five years) are as shown in Tables 5 and 6.

Table 5: Actual Management and Operation Cost at Umm Port North

(Unit: USD)

Year 2013	Year 2014	Year 2015	Year 2016	Year 2017	Year 2018
10,872,917.17	13,611,483.47	16,133,495.48	28,192,609.68	21,635,006.78	16,383,393.61

Source: Answers to questionnaire

Table 6: Actual Revenue and Expenditure of GCPI

(Unit: Million Iraq Dinar)

Year	2013	2014	2015	2016	2017
Revenue	374,754	347,357	338,091	355,153	420,167
Expenditures	217,138	194,160	241,180	257,040	230,636
Total Profit	157,616	153,197	96,911	98,113	189,531

Source: Answers to questionnaire

As shown in Table 5, although the results of Umm Qasr Port North's operation and maintenance costs had increased up to 2016, it has been on the decline in the most recent two years. According to a GCPI executive, the amount of the budget allocated by the government has been reduced due to stagnation of the Iraqi economy as a result of oil prices falling. As shown in Table 6, revenue of GCPI as a whole had decreased in 2014 and 2015, but has been increasing since 2016. Given the increasing scale of Umm Qasr Port and Khor Al-Zubair Port, their cargo handling volume and number of ship calls, it is believed that the revenue from port charges is increasing though its breakdown could not be obtained. According to a GCPI executive, the revenue is predicted to continue increasing, and there are no particular matters for concern. Therefore, while the operation and maintenance budget is not necessarily large, it is not to the extent of obstructing operation and maintenance or affecting the port's cargo handling volume.

In light of the above, there is a possibility that concerns may arise in the future for the sustainability of the project's effect in the event that operation and maintenance budgets continue to decrease, but no major problems were observed at the time of the ex-post evaluation regarding the financial aspects of the project's operation and maintenance.

3.4.4 Status of Operation and Maintenance

At the time of the ex-post evaluation, the facilities and equipment developed through the project have been applied almost without any issues²¹. The project's dredgers and trained divers are being utilized, with requests being made for them to be dispatched to operations of other ports in Iraq. According to a GCPI executive, daily and periodic inspections of equipment are conducted based on the manual. Spare parts are safely kept in storage, and replacement or repair of parts are performed where necessary. They also said that staff work according to their shifts which

²¹ The diving vessel was not in operation due to damage caused by an accident at sea. GCPI is said to be in the process of a legal procedure since the other party is responsible for the accident.

correspond with their tasks. Though the executive has said that operation and maintenance of equipment are based on the vessel operation plan and annual equipment maintenance plan, they provided no answer to their specific content or whether these are being enforced, thus the same could not be verified. According to the project's construction supervising consultant and a UNDP official, "It is believed that there is room for further improvement for operation and maintenance that follow a plan to be implemented at the standard that was expected at the time of the appraisal." In light of the above, there were no major issues observed in relation to the state of the project's operation and maintenance at the time of the ex-post evaluation. However, improvement on operation and maintenance is considered necessary as much as possible in order to sustain the manifested effects; there should be enforcement on the formulation of the vessel operation plan, which is also related to anchorages and navigation routes maintenance by dredging and shipwreck removal, and annual equipment maintenance plan, as well as on implementation and verification of the project according to the plan.

[Perspectives for project evaluation for conflict affected countries and areas]

As a project in a conflict affected country, there is a possibility that deteriorated security from the internal conflict against ISIL which affected the Iraqi economy may have had an impact on the governmental budget. However, GCPI's revenue is increasing and there was no influence that could obstruct the project's operation and maintenance. Through questionnaires and interviews with GCPI and the project's construction supervising consultant, it was confirmed that there was no influence by external factors and other elements on institutional, structural, technical, financial, and operation and maintenance conditions of the organization.

In light of the above, there is still room for improvement in terms of the institutional/organizational, technical, and status of the operation and maintenance of this project, Therefore, sustainability of the project effects is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The project was implemented with the goal to recover and increase efficiency of the functions at Umm Qasr Port and Khor Al-Zubair Port located in the southern part of Iraq, through procurement of marine and cargo handling equipment and development of port facilities and navigation routes, thereby contributing to the regional revitalization of Iraq. The relevance of this

project is high given that the recovery of port functions, which act as crucial hubs for international logistics, is consistent with the country's development policy, which aims to reinforce and secure its infrastructure for post-war recovery and economic growth mainly through the oil sector, development needs, and Japan's ODA policy, which prioritizes reconstruction support for the economic infrastructure of Iraq. With regard to efficiency, project cost was within the planned amount due to the influence of exchange rate fluctuations, despite partial changes in the scale of dredging etc. Based on the project period that exceeded the planned timeframe due to the delay in equipment procurement, the efficiency of the project is judged to be fair. As for the effects of the project, the number of large vessels calling at Umm Qasr Port North has increased compared to before the start of the project, with cargo handling volume, which is the quantitative indicator, reaching its target value. Moreover, it was confirmed that efficiency had increased for logistics, with examples including stabilized navigation of ships and reduction of cargo handling time. In addition, there was an impact on the local economy in and around the port as investment by private businesses increased in the relevant sectors. Furthermore, it is believed that this and the other southern ports functioned as the country's only route for international cargo transport when international security was deteriorating, underpinning Iraq's economy. Therefore, the project's effectiveness and impact is high. The sustainability of the project's operation and maintenance is fair, since there is room for improvement in terms of the structural, technical, financial, and operation and maintenance conditions of the organization.

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

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

GCPI is considered to be in its structural formation stage after years of the country being at war. Reinforcement of staff competence continues to be carried out in and out of GCPI and through subsequent projects, and it was confirmed that GCPI duly recognizes the importance of port operation as well as operation and maintenance tasks, although staff turnover has caused an overall shortage of experienced and skilled employees. It is desirable for GCPI to work harder to secure a skilled and talented workforce through continuous staff training and hiring new employees. Moreover, it is desirable for GCPI to work for further improvement of the state of operation and maintenance by carrying out data management related to port operation such as average waiting time for vessels and entry/departure time at the port, and making sure to compile operation and maintenance plans for equipment and materials related to anchorages and

navigation routes maintenance by dredging and shipwreck removal, and enforce verification of the content of those implementation as much as possible.

4.2.2 Recommendation to JICA

None

4.3 Lesson Learned

Setting an appropriate impact and an indicator for measuring the effect of the project

In this project, “economic and social restoration” was set as the impact at the time of the appraisal. However, changes as major as economic restoration of a country are influenced by many factors. From the time of the project implementation until the time of the ex-post evaluation, Iraq’s deteriorating security and the fall in crude oil prices, the country’s main industry, are believed to have had an impact on its economic growth. Moreover, other donors and the Iraqi government have also provided development works for a major road network and recovery assistance for its oil industry during the post-war recovery phase. These are believed to have also had an impact on the economic activities. In addition, this project is related to the southern port route, which is one of the three major routes for international transportation in Iraq, but the project has developed North Port and navigation routes for the Umm Qasr Port as one of the ports of those. Furthermore, after the commencement of the project and before the ex-post evaluation, capital investment by private companies that jointly operate berths and terminals at the North Port and development of the South Port and Khor Al-Zubair Port have been implemented. Therefore, it is difficult to measure the direct impact of the project on national economic and social reconstruction. Considering the above, in a similar project in the future, it is desirable for JICA and the executing agency to set an impact and its available indicator that can more directly measure the effect of the project rather than a general impact and its indicator such as economic and social reconstruction at the time of appraisal. For example, indicators based on the impact of regional economic reconstruction (increasing employment opportunities in the port’s surrounding regions, number of investments by businesses, and increase in household income, GDP trend in the target areas, industrial structure, etc.), and depending on the contents of the project, domestic prices trend of the main imported items handled at the target port when considering the impact on the national economy can be considered as indicators. Considerations are believed to be particularly effective for projects that take place in countries or times of instability that have a possibility of major changes in the socioeconomic environment that surround the project and of

difficulty to obtain country-level statistical data.

Cooperation and division of roles with other aid agencies in conflict affected countries where new ODA projects or different schemes are to be implemented

The project was the first implementation of an ODA Loan project towards Iraq, where lack of experience in project supervising needed to be addressed. However, there was a limit to direct on-site commitment of JICA and the Japanese consultant to the project in light of safety control on the Japanese part in the early stages of the project. JICA had been cooperating since the planning stage with UNDP, who was conducting a preceding project in Iraq, and the two signed an operation partnership agreement for the implementation of the project. The agreement sought to reinforce the supervising capacities of the executing agency, with monitoring being conducted with it in terms of accountability, transparency, and efficiency of ODA projects. As a result, the state of the project operation by the executing agency improved from the actual advice given. In addition, the project led Iraq and the relevant Japanese institutions to establish an opportunity for conferences on Japanese ODA projects across governmental agencies. The conference is not only used for a single project, but also for the accumulation of knowledge about ODA project operation and supervision, realizing simplification of administrative procedures and improvement of project supervision. In the future, if the conditions for project commitment proposed by the Japanese side present security limitations in a country where a new ODA project or a different scheme are to be implemented, it is considered effective to establish a project operation and supervision system that includes reinforcement of the counterpart government's project supervising capacities, while JICA will also seek to build a cooperative system with relevant agencies from the point of project formation, and consider dividing roles with other aid agencies where necessary.

Comparison of the Original and Actual Scope of the Project

Item	Plan	Actual
<p>1. Project Outputs</p>	<p>a. Construction & Equipment</p> <p>1) Marine Equipment</p> <ul style="list-style-type: none"> • Dredging Ships: 2 Trailer Suction Hopper Dredger 3,500 m³ and 1 Grab Hopper Dredger 1,000 m³ • 2 Floating Crane Ships (1,000 t, 1,500 t) • 1 Diving Ship (including Diving Equipment) • 4 Tugboats (4,000 HP) • 1 Fuel Tanker (1,000 t) • Spare parts for various work boats 	<p>a. Construction & Equipment</p> <p>1) Marine Equipment</p> <ul style="list-style-type: none"> • Dredging Ships: 1 Trailer Suction Hopper Dredger 1 Reconstruction 1800 m³ and 1 3,500 m³, and 1 Grab Hopper Dredger 500 m³ • 1 Floating Crane Ships (2,000 t), 1 Barge Ship (1,000 t) • 1 Diving Boat (including Diving Equipment) • 3 Tugboats (55 t) • 1 Fuel Tanker (1,000 t) • Spare parts excluding a part of spare parts for dredging boats
	<p>2) Land Equipment</p> <ul style="list-style-type: none"> • 2 Crane (150 t) • 2 Forklifts (7 t and 20 t) • 3 Workshop Vehicles • 1 Hydraulic Platform 	<p>2) Land Equipment</p> <ul style="list-style-type: none"> • 2 Crane (150 t) • 4 Forklifts (2 7 t and 2 20 t) • 2 Workshop Vehicles • 1 Hydraulic Platform
	<p>3) Dredging</p> <p>Umm Qasr North Port Approx. 7.50 mil. m³ (300 m×4,000 m, Depth – 12.5 m)</p>	<p>3) Dredging</p> <p>Umm Qasr North Port Approx. 5.17 mil. m³ (200 m×4,000 m, Depth – 12.5 m)</p>
	<p>4) Wreck Removal Works</p> <p>Channel up to and in the Umm Qasr Port 8–10 ships</p>	<p>4) Wreck Removal Works</p> <ul style="list-style-type: none"> • Channel up to and in the Umm Qasr Port 3 ships • Khor Al-Zubair Port 1 ship
	<p>5) Port Facilities Development and Urgent Rehabilitation of Berth in Umm Qasr North Port</p> <ul style="list-style-type: none"> • Replacement of 50 Fenders and Repair of Apron (5 Berth) • Container Yard Paving Rehabilitation of Paving Yards for Container Yard 45,000 m², Setting Fences and Gates (Behind Berth No.20 and 21) • Building for Workshop and Storage 1 Building for Workshop and a Set of Tools and Equipment 	<p>5) Port Facilities Development and Urgent Rehabilitation of Berth in Umm Qasr North Port</p> <ul style="list-style-type: none"> • Replacement of 80 Fenders and Repair of Apron (10 Berth: Berth No.12–21) • Container Yard Paving Development of Container Yard 116,000 m², Setting Fences and Gates (Behind Berth No.20 and 21) • Electricity Supply and Distribution Facilities, Telephone and Fire Alarm, Water supply, Fire Hydrant, and Drainage Equipment for Berth No.12-21
	<p>b. Consulting Service</p> <ul style="list-style-type: none"> • Project Management -Basic Design and Strengthening Capacity of Ministry of Transport -Procurement Support (Detailed Design, Pre-Qualification and Tendering Documentation, Tendering Preparation, Implementation, Evaluation and 	<p>b. Consulting Service</p> <p>Implemented as planned.</p>

	Contracting Support, etc.) (Excluding Dredging and Procurement for Dredging) -Management of Implementation • Basic and Detailed Design for Future Project	
2. Project Period	January 2008–September 2010 (33 months)	January 2008–May 2016 (101 months)
3. Project Cost Amount Paid in Foreign Currency	30,211 Million Yen	29,242 Million Yen
Amount Paid in Local Currency	4,444 Million Yen	1,652 Million Yen
	(55,342 Million Iraq Dinar)	(19,976 Million Iraq Dinar)
Total	34,655 Million Yen	30,894 Million Yen
ODA Loan Portion	30,211 Million Yen	29,904 Million Yen
Exchange Rate	1 USD = 1,470 Iraq Dinar 1 USD = 118 Yen 1 Iraq Dinar = 0.0803 Yen (As of January 2006)	1 USD = 1,169 Iraq Dinar 1 USD = 96.79 Yen 1 Iraq Dinar = 0.0827 Yen (Average between 2009 and 2016) (Source: International Financial Statistics Data (IFS data) of IMF)
4. Final Disbursement	October 2016	