China

Qingdao Port Qianwang Phase 2 Construction Project

Report Date: October , 2002
Field Survey: September, 2001

1. Project Profile and Japan's ODA Loan

Site Map: Quindao Port

Site photo: Container berths

1.1 Background

Located on the southeast coast of Huanghai-Jiaozhouwan, Qingdao Port is the largest commercial port of Shandong Province and also one of the major foreign trade ports of China. The Port is the originating point of Jiaozhouwan-Ji'nan Railway and Ji'nan-Qingdao Expressway and important for the economic development of its hinterland (Shandong, Henan, Hebei, Shanxi and Sha'anxi Provinces).

This Project is the only port project included in the early phase of the 9th Five Year Plan of China and the highest priority project in 10 major construction projects of Qingdao City in 1995.

The throughput of the Port in 1995 was 51.03 million tons among which container cargo was 6.0 million tons and general cargo 21.13 million tons. On the other hand, the capacities for handling these cargos in 1995 were 2.8 million tons and 13 million tons, respectively, which were by far exceeded by throughputs, demanding the expansion of the capacities.

1.2 Objectives

To construct two container berths and four general cargo berths at Qianwan District of Qingdao Port in Shandong Province, thereby to meet the growing transport demand associated with the economic development of its vast hinterland.

1.3 Scope of the Project

The Project consists of the construction of six berths (design water depth: -10.7 to –11.8m; length: 153 to 169 m), installment of loading equipments and various utility facilities/equipments, and procurement of vessels and vehicles. Japan's ODA Loan covers the total foreign currency cost component.

1.4 Borrower/ Executing Agency

Ministry of Foreign Trade and Economic Cooperation/ Ministry of Communications

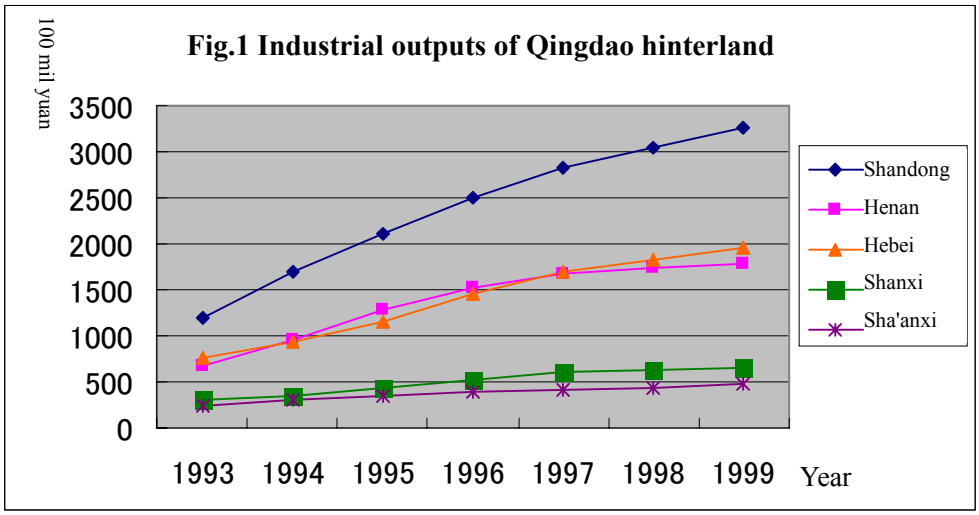
1.5 Outline of Loan Agreement

Loan Amount Loan Disbursed Amount	2,700 million yen 2,695 million yen
Date of Exchange of Notes Date of Loan Agreement	Dec. 1996 Dec. 1996
Terms and Conditions Interest Rate Repayment Period (Grace Period) Procurement	 2.3% 30 years (10 years) General untied
Final Disbursement Date	Oct. 2002

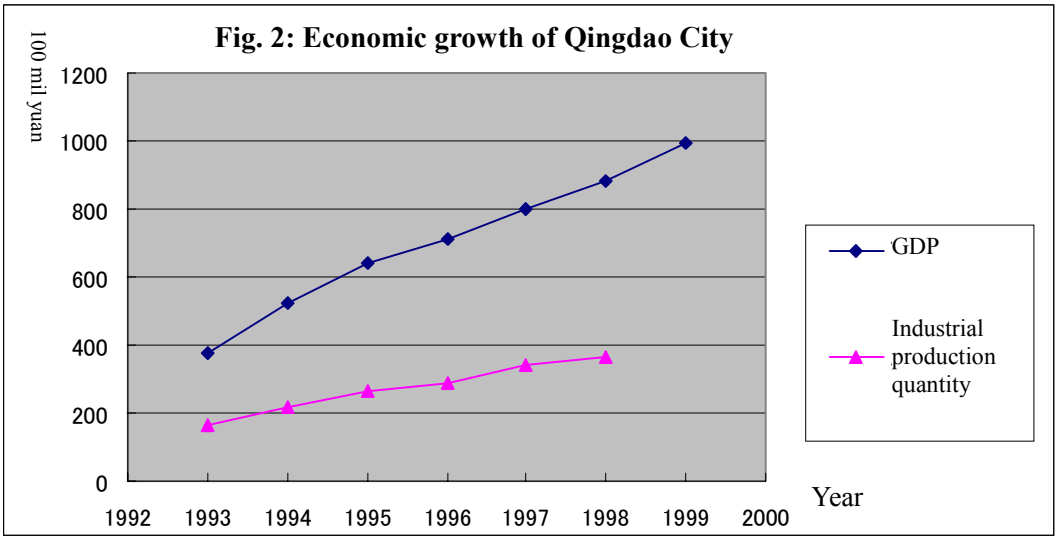
2. Results and Evaluation

2.1 Relevance

Petroleum, coal and ore are the major throughput items of Qingdao Port, and the Port is supporting the economic development of the vast hinterland encompassing Shandong, Henan, Hebei, Shanxi and Sha'anxi Provinces through transportation of these goods. It also serves a key role of the economic development of its direct hinterland, Qingdao City as its transportation hub. Figures 1 and 2 show the recent economic development of these hinterlands. Comparing these figures with Figure 3 that displays the trend of throughputs of Qingdao Port reveals a high correlation between the economic development of hinterlands and the throughput of Qingdao Port. While the priority of the development policy of Chinese Government is shifting from the development of Economic Development Zones in coastal areas including Qingdao city to the development of inland areas to alleviate regional disparity, the development of coastal areas as Qingdao city and the provinces of Shandong, Henan, and Hebei is still expected to play the role of the engine of the economic development of Chinese economy and carries a high priority (Outlines for the China 10th 5 Year Plan, Outlines of Qingdao City 10th 5 Year Plan). Also, the importance of coals produced in Shanxi and Sha'anxi Provinces will not diminish in the foreseeable future. Therefore, the relevance of the development of Qingdao port in general, and the construction of the new port at Huangdao (Qianwan) area (see Figure 4) in particular that is specialized in transporting coal an ore, still holds for the economic development of China.



Source: Material provided by the implementing agency



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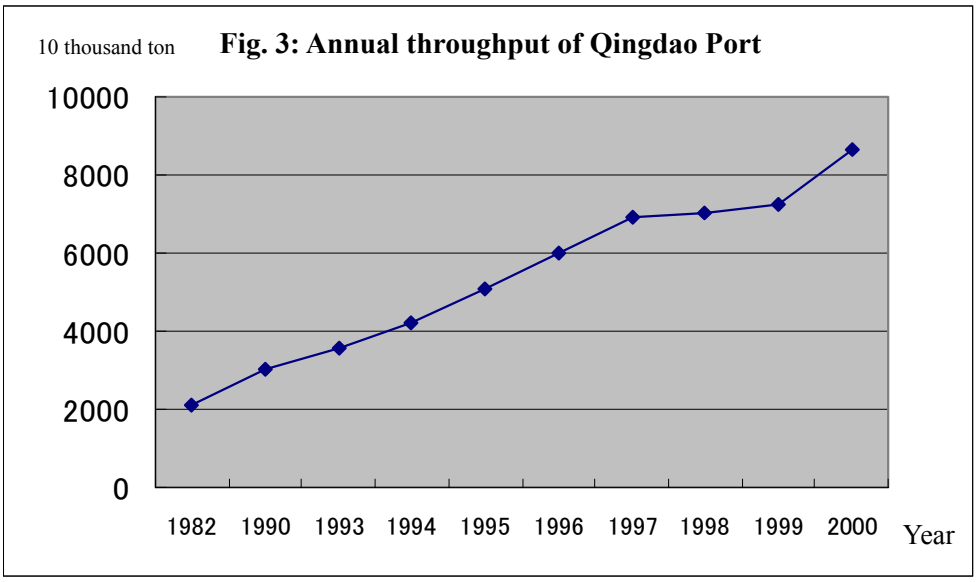

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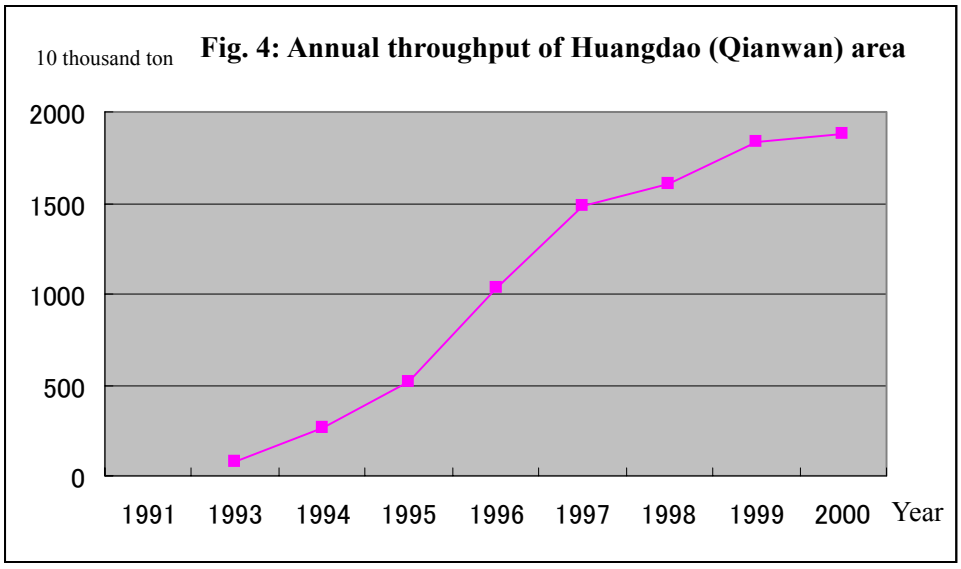

Source: Material provided by the implementing agency

2.2 Efficiency

（2.2.1） Project costs

Project costs both in foreign currency and local currency were almost as planned. Also, as the exchange rate had been relatively stable since the time of the appraisal till the completion of the Project, the discrepancies between the actual total costs and planned total costs are small both in yen amount and yuan amount

Table 1: Comparison between Planned and Actual (Project costs)

	Plan	Actual
Foreign currency	2,700 million yen	2,695 million yen
Local currency	1,028 million yuan	1,028 million yuan
Total	15,036 million yen	15,031 million yen
ODA Loan portion	2,700 million yen	2,695 ,million yen
Exchange rate	100 yen＝8.33 yuan(1996)	100 yen＝8.33 yuan（1996）

（2.2.2） Construction period

Most construction works were completed almost as planned including water supply and drainage, dredging, paving of yards and roads, and construction of port railways. However, since the procurement of loading equipments, vessels and vehicles was delayed, the completion of the Project was delayed by a year and 6 months. Acceptance test was completed in September 1999.

Table 2: Comparison between Planned and Actual (Construction period)

	Plan	Actual
1.civil works (construction of wharf, dredging of anchoring pond, reclamation, etc.)	Jan. 1994～Dec. 1997	Jan. 1994～Dec. 1997 (±0)
2.loading equipments	Oct. 1996～Dec. 1997	Oct. 1996～Dec. 1999 (+2yrs)
3.vessels/ vehicles	Jan. 1997～Mar. 1998	Jan. 1997～Dec. 1999 (+1 yr 9 mos)
4.paving of yards and roads	Jun. 1996～Jun. 1998	Jul. 1996～Jun. 1998 (±0)
5.port rail	Jun. 1996～Dec. 1997	May. 1997～Jun. 1998 (+6mos)
6.construction works	Jan. 1996～Dec. 1997	Jan. 1996～Dec. 1997 (±0)
7.power supply, lighting, control facility, communication equipments, navigation support system	Jun. 1996～Dec. 1997	Jun. 1996～Sep. 1999 (+1 yr 9 mos)
8.water supply and drainage, heating, ventilation	Jun. 1996～Jun. 1998	Aug. 1996～Dec. 1998 (+6 mos)
9.environmental protection	Jun. 1996～Feb. 1998	May. 1996～Sep. 1999 (+1 yr 7 mos)

（2.2.3） Project Scope

The trend of the dominance of large container ships still continued after the approval of the Project by the Government. To keep up with this trend 35m-40t gantry crane was upgraded to 50m-50t, and 4000HP tugboat to 5000HP tugboat. These changes made the Project more responsive to the growing transport demand, thus contributed to the early achievement of the Project objective. These changes, however, did not cause cost over-run.

Table 3: Comparison between Planned and Actual (Project scope)

	Plan at appraisal	Actual	Difference
1. New berth	35000DWT container berth x 1 25000DWT container berth x 1 20000DWT general cargo berth x 4	35000DWT container berth x 1 25000DWT container berth x 1 20000DWT general cargo berth x 4	None
2. Loading equipments	Gantry container cranes （40m－40t） x 2 （35m－40t） x 1 transfer cranes （40t） x 1 （35t） x 4 Others (Tractors, trailers, forklifts, etc.)	Gantry container cranes （40m－40t） x 2 （50m－50t） x 1 Transfer cranes （40t） x 1 （35t） x 4 Others (Tractors, trailers, forklifts, etc.)	With the approval of Ministry of Communications (MOC), 35m － 40t gantry container crane was changed to 50m－50t.
3. Vessels/ vehicles	Tugboat (4000HP)x1	Tugboat (5000HP)x1	With the approval of MOC, the type of the tugboat was changed.
4. Utility facilities and equipments	Power and communication facility, navigation support system, environment protection facility, water supply and drainage facility	Power and communication facility, navigation support system, environment protection facility, water supply and drainage facility	None

2.3 Effectiveness

The original plan was to increase the capacities for handling containers and general cargos of Qingdao Port to 1.8 million tons and 1.35 million tons, respectively, by constructing new berths in June 1998. In contrast, the throughput of these cargos increased by 5.7 million tons and 2.97 million tons, respectively, in 2000 compared to the previous year when the Project was completed (see Table 4). The majority of these increases can be regarded as the throughputs at the berths constructed by the Project.

The financial internal rate of return (FIRR) computed with the data collected through this study is 6.70 %, which is very close to 6.51 % estimated at the time of the appraisal. However, as the operation of the berths constructed by the Project started only in 1999, it may be a little too early to evaluate the FIRR.

The computation of economic internal rate of return (EIRR) was not possible, since necessary data for the computation such as prices of cargos were not available.

Table 4. Throughput and average ship stay of new berths

(unit: 10,000tons; number of days)

		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Qingdao Port throughput	Capacity										
	Realization	3055	3125	3545	4213	5103	6003	6916	7018	7257	8636
Container throughput	Capacity	280	280	280	280	280	280	280	460	460	460
	Realization	180	220	300	430	600	680	821	1085	1256	1826
General cargo throughput	Capacity	1307	1307	1307	1307	1307	1307	1307	1442	1442	1442
	Realization	712	738	892	1256	2113	2622	2598	3120	3034	3331
Average working days (Qingdao Port)	Planned										
	Realization				88	104	137	177	134	169	210

Source: Planned average working days of Qingdao Port are based on JBIC material.

Note: Average working days is the average number of days spent for loading and unloading at all berths of Qingdao Port

2.4 Impact

Since the Project was completed very recently, it was not possible to obtain data pertaining to the economic development of the hinterland after its completion. The hinterland of Qingdao Port, Shandong, Henan, Hebei, Shanxi, and Sha'anxi Provinces, has continued remarkable economic development without being much affected by the Asian Currency Crisis, and its immediate hinterland, Qiungdao City, also has shown steady economic growth with the development of Huangdao Technological and Economic Development Zone as leverage. Since, the development of these hinterlands can be attributed to the capacity increase and efficiency gain of the Qingdao Port, the impact of the present Project that further increased the capacity of Qingdao Port can be expected to materialize before long.

During the construction of the Project, the following six mitigation measures were implemented to protect the environment and no environmental problems were reported. Also, the Project did not cause any land acquisition nor resettlement of residents.

① To minimize the emission of exhaust gases from loading equipments and heating boilers for buildings, desulfuring facilities are to be installed and machinery with smaller emissions to be procured.

② To minimize the effects of increased water discharge produced through various port activities and cleaning of containers, treatment plant is to be constructed (expansion of the plant constructed in the phase one Project)

③ To mitigate the noise caused by loading gear and cargo moving traffic, buffer zones with planting are to be installed.

④ To prevent the diffusion of pollution, appropriate measures are to be taken for dredging and reclamation.

⑤ To procure the measuring instruments at the environmental monitoring center using the proceeds of ODA Loan, and environmental monitoring on water quality, air quality and noise is to be implemented.

⑥ To prevent the diffusion of pollution from vessels using the port, the discharge water and oil, and garbage should be collected using the two environmental protection vessels procured through the proceeds of ODA Loan for the first phase Project.

2.5 Sustainability

Seikou Corporation established within Qingdao Port Authority to conduct the maintenance exclusively, is in charge of the maintenance of the facilities constructed through the Project and has 750 persons. The technical level, staff size and its organization satisfy the requirements of daily operation and maintenance needs, and have caused no problems since the start of its operation. As it plans to enhance its staff as the increase in throughputs, there is no concern as to the physical side of the sustainability of operation and maintenance.

The revenues and expenses for operation and maintenance for the two years after the completion of the Project are as shown in Table 5. As the Project was completed only recently, it is still difficult to evaluate its financial sustainability. The ultimate financial sustainability of the Project, however, depends on the financial sustainability of the Port Authority, since Ministry of Communications has decided to use the revenues from the entire operations of the Port as the source for the repayment of ODA Loan. The financial situation of the Port Authority can be regarded sound as shown in the financial statements for year 2000 .

The throughput of Qingdao Port has been growing after the completion of the Project. To cope with the growing demand, the Port Authority is planning to undertake the third phase construction project of Qiangang port while striving to increase the productivity of existing facilities (see Table 4), demonstrating the excellent sustainability.

Table 5. Revenues and Expenses for Operation and Maintenance (Realization)

（in 10,000yuan）

	1999	2000
Revenues	710	6,026
Expenses for O&M	1,078	10,276

Table6. Revenues and Expenses for Operation and Maintenance (Prediction)

（in 10,000 yuan）

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Revenues	13,100	22,800	32,500	39,100	45,600	45,600	45,600	45,600	45,600
Expenses for O&M	19,232	25,820	30,450	33,680	36,950	37,090	37,170	37,220	37,370

Comparison of Original Plan and Actual Scope

Item		Plan	Actual	Difference
① Project Scope	1. New Berths	35,000DWT Container berth x 1 25,000DWT Container Berth x 1 20,000DWT General cargo Berth x 4	35,000DWT Container berth x 1 25,000DWT Container Berth x 1 20,000DWT General cargo Berth x 4	None
	2. Loading gear	Gantry container cranes （40m－40t） x 2 （35m－40t） x 1 Transfer cranes （40t） x 1 （35t） x 4 Others（Tractors, Trailers, Forklifts, etc.）	Gantry container cranes （40m－40t） x 2 （50m－50t） x 1 Transfer cranes （40t） x 1 （35t） x 4 Others（Tractors, Trailers, Forklifts, etc.）	A gantry container crane (35m－40t) was replaced with another type (50m－50t) by Ministry of Communications.
	3.Vessels/Vehicles	A tugboat (4000HP)x1	A tugboat (5000HP)x1	A tugboat of 4000Hpwas replaced with another type (5000HP) by Ministry of Communications.
	4. Various Utility Facilities and Equipments	Electric power and communication facilities, Navigation support facilities and equipments, environmental protection facilities and equipments, water supply and drainage system	Electric power and communication facilities, Navigation support facilities and equipments, environmental protection facilities and equipments, water supply and drainage system	None
② Construction period		Jan. 1994～Jun. 1998	Jan. 1994～Sep. 1999 （till acceptance test）	1 year 6 month delay
③Project costs Foreign currency Local currency Total Japan's ODA Loan portion Exchange rate		 2,700 mil yen 1,028 mil yuan 15,036 mil yen 2,700 mil yen 100 yen＝8.33 yuan (1996)	 2,695 mil yen 1,028 mil yuan 15,031 mil yen 2,695 mil yen 100 yen＝8.33yuan （1996）	