China

Qingdao Port Expansion Project (I)-(VI)

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

1. Project Profile and Japan's ODA Loan

Site Map: Quindao Port


Site Photo: Loading equipments of Coal Berth procured as part of the Project

1.1 Background

While the construction of ports has been a priority area in China, there were only 141 berths that could cater for ships larger than 10,000 DWT at harbors open for foreign ships as of 1983 when the Chinese government requested the ODA Loan for this project. The total throughput of these ports reached 210 million tons in 1980, the major portion of which consisted of petroleum and coal. (The share of these commodities at ports such as Qinhuangdao, Dalian, Zhanjiang, Lianyungang, and Qingdao exceeded 50%.)

The average demurrage at these ports was 3.7 days in 1981, which became 7 plus days in 1984. The average number of ship calls at Qingdao port during three months between April and June 1982 was 122, while the average stay per ship at the port exceeded four days. The lack of the capacity of the port in terms of the number of berths per incoming ship (there were only 24 berths at the time of the appraisal), insufficient mechanization and inefficient use of cargo handling equipment , and the poor coordination with rail links in the hinterland were deemed as causes of these problems.

While the throughput of Qingdao port was 20.83 million tons (of which coal was 5.21, petroleum 8.11, mineral ore 0.35, construction material 1.07, timber 0.71, others 5.38) in 1982, it was estimated to grow at 7% per year resulting in 36.3 million tons (of which coal 15, petroleum 9.8, mineral ore 1.5, construction material 1.1, timber 1.05, others 7.85) in 1990. Therefore, even with the completion of the berths that were under construction at the time of the appraisal (seven berths were expected to be completed by 1985), the demurrage at Qingdao port was not expected to dissipate; the situation was feared to become worse.

1.2 Objective

The objective of the project is to cater for the expected increase in the throughput as well as to alleviate the chronic demurrage of the port.

1.3 Project Scope

The scope includes the dredging of steamship routes and anchoring site, the construction of a 35 thousand DWT and a 50 thousand DWT coal berths, a 50 thousand DWT ore berth, a 25 thousand DWT timber berth, 20 thousand DWT general cargo berth, a 20 thousand DWT sand berth, harbor railway system, power supply system, 43.2km railway connecting Huangdao and Jiaoxian, and water supply

system (see Comparison of Original and Actual Scope). ODA Loan applies to the whole foreign currency portion.

1.4 Borrower/ Executing Agency

Ministry of Foreign Trade and Economic Cooperation, PRC/ Ministry of Communications, PRC

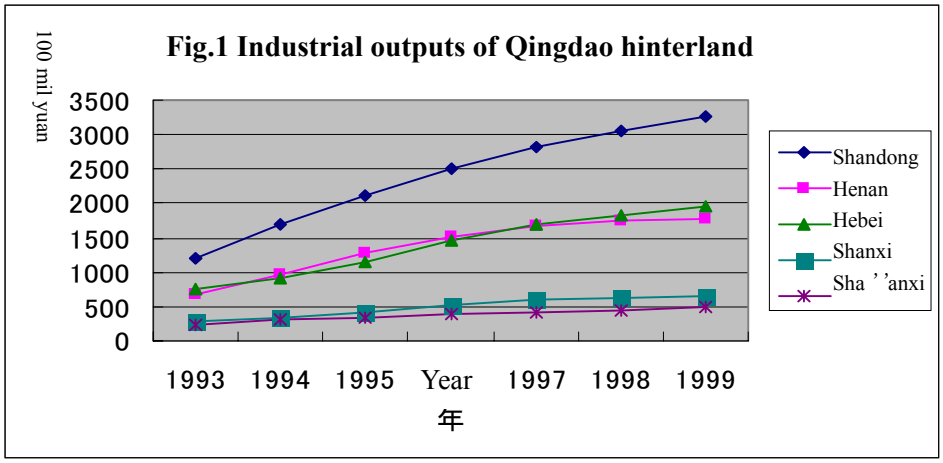
1.5 Outline of Loan Agreement

	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Total
Loan Amount Loan Disbursed Amount	2,203 mil yen 2,137 mil yen	3,937 mil yen 3,619 mil yen	2,620 mil yen 1,707 mil yen	8,683 mil yen 6,070 mil yen	13,043 mil yen 10,109 mil yen	26,514 mil yen 22,142 mil yen	57,000 mil yen 45,784 mil yen
Date of Exchange of Notes Date of Loan Agreement	Oct. 1984 Oct 1984	Jul 1985 Aug 1985	May 1986 Jun 1986	Jun 1987 Jul 1987	Jul 1988 Aug 1988	May 1989 May 1989	
Terms and Conditions Interest Rate Repayment Period (Grace Period) Procurement	 3.25% 30 yrs (10 yrs) General untied (Partial untied for consultants)	 3.5% 30 yrs (10 yrs) General untied (Partial untied for consultants)	 3.5% 30 yrs (10 yrs) General untied (Partial untied for consultants)	 3.0% 30 yrs (10 yrs) General untied (Partial untied for consultants)	 2.5% 30 yrs (10 yrs) General untied	 2.5% 30 yrs (10 yrs) General untied (Partial untied for consultants)	
Final Disbursement Date	Oct 1989	Aug 1990	Jun 1991	Jul 1992	Aug 1993	May 1994	

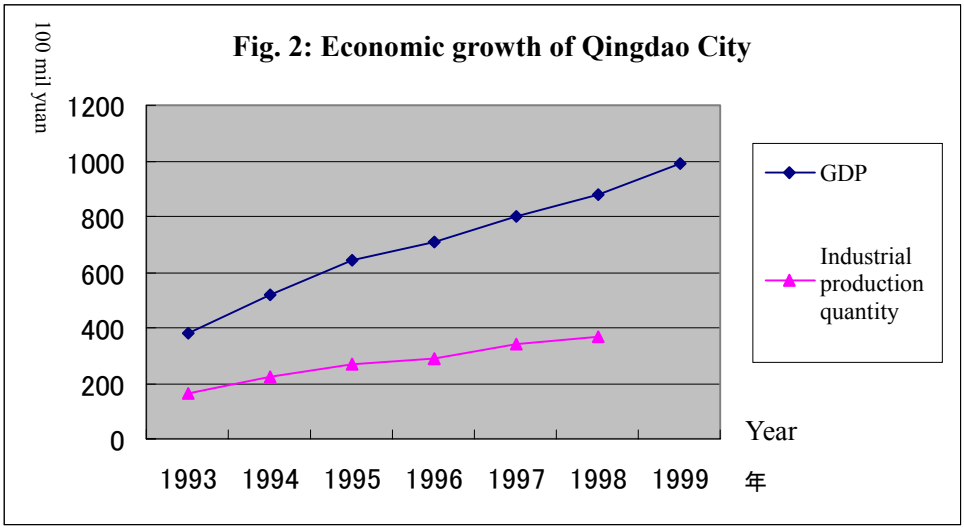
2. Results and Evaluation

2.1 Relevance

The port of Qingdao supports the economic growth of the vast region consisting of the provinces of Shandong, Henan, Hebei, Shanxi and Sha ’ ’anxi, through the transportation of industrial basic inputs such as petroleum, coal and mineral ore. Also, as the transportation hub of Qingdao city, its immediate hinterland, it is playing a vital role for the city ’ ’ s economic development. The comparison of Figures 1 and 2 depicting the recent economic development of these hinterland areas, and Figure 3 illustrating the trend of the throughput of Qingdao port reveals that the throughput of Qingdao port shows a very high correlation with the economic development of the hinterland areas. 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, and Hebei is still expected to play the role of the engine of the economic development of Chinese economy and carries a high priority (China 10th 5 Year Plan, 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 and ore, still holds for the economic development of China.



Source: Executing Agency



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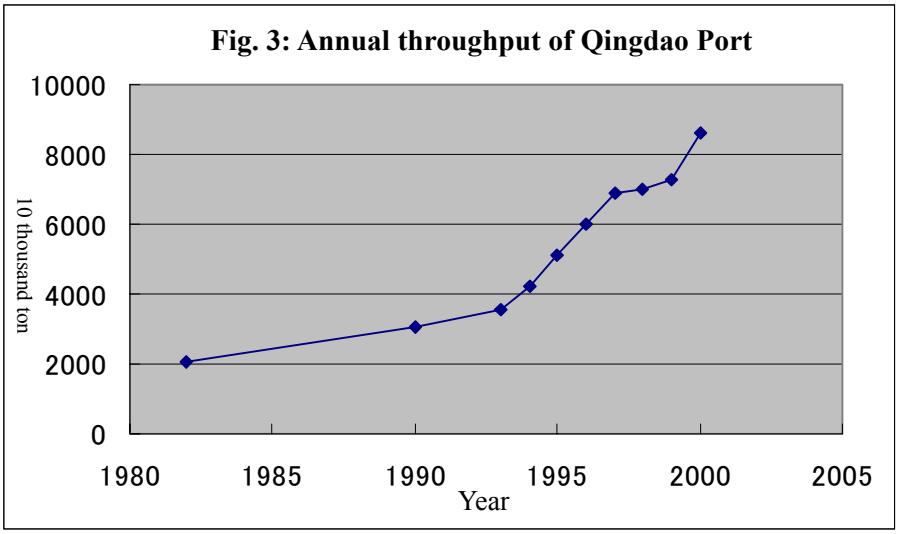

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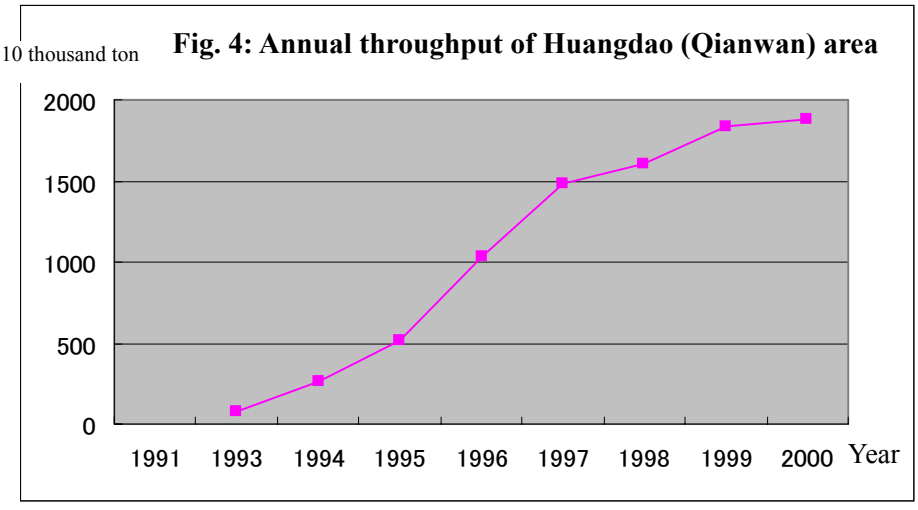


Source: Executing Agency

2.2 Efficiency

(2.2.1) Project Cost

The project cost was 19.7 % and 25.1 % less than originally expected in terms of foreign currency portion and local currency portion, respectively. It can be attributed to the rapid appreciation of yen since 1984 (when the L/A was signed) when the exchange rate was 117 yen per 1 yuan. Table 1 shows the year-end exchange rate of each year during 1985 through 94 (the implementation period) and the total project costs in yen and yuan. It shows that the project cost was 60 % under run in yen, while 87 % over run in yuan. The high appreciation of yen during the period caused 19.7% savings in the loan amount for Chinese (see Table 2) but increased the repayment amount in yuan at present.

Table 1. Project Cost Calculation

	Foreign	Local	Exchange Rate		Total	
Year	Million yen	10 thousand yuan	Yuan/yen	Yen/yuan	Million yen	10 thousand yuan
1985	129.8	271	0.012311	81.2272	349.9	430.8
1986	3370.1	2000	0.020489	48.8068	4346.2	8905.0
1987	2306.4	3260	0.025734	38.8598	3573.2	9195.2
1988	4618.5	6952	0.029045	34.4295	7012.0	20366.4
1989	3616.3	9690	0.027291	36.6418	7166.9	19559.3
1990	4798	11700	0.033035	30.2705	8339.6	27550.4
1991	5182.2	13000	0.039517	25.3053	8471.9	33478.7
1992	11868.1	11054	0.043542	22.9663	14406.8	62730.2
1993	3686.3	11052	0.051816	19.2989	5819.2	30153.1
1994	6208.1	1000	0.084323	11.8591	6326.7	53348.8
Total (A)	45783.8	69979			65812.6	265717.9
Comparison						
Appraisal (B)	57000	93391	0.008547	117	166267.5	142108.9
Ratio (A/B)	0.80	0.75			0.40	1.87

Table 2. Comparison of Original and Actual (Project costs)

	Original	Actual
Foreign Currency	57,000 million yen	45,784 million yen
Local Currency	93,391 million yuan	69,979 million yuan
Total	166,268 million yen	64,788 million yen
ODA Loan Portion	57,000 million yen	45,784 million yen
Exchange Rate	1yuan＝117yen ／as of 1984	1yuan＝18.6～62.9yen ／Average of 1985～94

Source: Executing Agency

(2.2.2) Implementation Schedule

While the L/A was signed after the ratification by the State Development Panning Commission in 1984, the start of the construction was delayed by two years due to the delay in internal procedures. As the executing agency tried after the start of construction to reduce the construction period by hiring more laborers and increasing the efficiency in construction management, the construction was expected to complete with only one year delay. However, due to the slow down of Chinese economy after Tiangyengmen Incident in 1989, the project was completed in December 1993 after all, two years later

than the original plan.

Table 3. Comparison of Original and Actual (construction period)

	Original	Actual (source: project completion report)
1.Quay	1985.1-1991.9	1988.12-1993.8 (＋1.11)
2. Dredge	1985.7-1991.9	1987.6-1992.6 (+0.9)
3.Improvement of the weak foundation	1986.7-1990.9	1990.6-1992.6 (+1.9)
4. Reclamation	1985.1-1991.9	1987.6-1990.6 (-1.3)
5.Road & Yard	1985.1-1990.9	1989.3-1993.10 (+3.1)
6. Cargo handling equipment & Vehicles vessel (including coal transportation system)	1988.1-1991.12	1989.9-1993.11 (+1.11)
7. Railroad inside the port	1987.7-1991.12	1991.7-1993.11 (+1.11)
8. Electric supply & Lighting	1985.7-1991.9	1989.1-1991.12 (+0.3)
9. Car damper	1987.7-1990.6	1989.1-1990.12 (+0.6)
10. Building	1985.7-1991.12	1989.1-1992.12 (+1.0)
11. Railroad outside the port	1987.1-1989.6	1988.1-1993.11 (+4.5)
12. Water supply, Sewage, heating, oil supply facilities	1988.1-1990.12	1990.3-1993.10 (+2.10)
13. Consultant	1985.1-1990.12	1985.1-1991.12 (+1.0)
14. Construction vessel	1985.1-1986.12	1986.1-1987.12 (+1.0)

Source: Executing Agency

(2.2.3) Executing Agency

The Ministry of Communications, PRC with Qingdao Port Authority as the lower executing body executed all the components of the project except the railway outside of the port area. Except for the acquisition of the items financed by the Loan that was executed by the Ministry of Communications, Ministry of Railways constructed the railway outside of the port using own budget.

(2.2.4) Project Scope

As shown in Table 4, all items were completed as planed. However, as to construction of ore berth, its usage was modified twice and it resulted in the same as originally planned. In other words, the berth was planned for handling ore at the beginning and was modified for handling general cargo at the time of completion against the background of growing demand associated with the development of the Qingdao Technological and Economic Development Zone. Contrary to this assumption, however, the growth of container traffic was at a lower rate after the completion of the berth in March 1993. On the other hand,

the importation of iron ore increased at much higher rate than expected (see Table 6 and Figure 6) and the volume of its import was about to exceed the handling capacity of the eastern port district of Qingdao port (i.e., old port). Given this situation and in order to increase the efficiency in the utilization of coal trains that were largely empty westbound, the plan was again revised to convert the general cargo berth into exclusive ore berth, i.e. the original plan at the time of appraisal. Using own budget, various facilities for transporting ore were installed since July 1993 including ore yard, belt conveyers, stackers, reclaimers. (The total investment for these facilities was reported to be 50 million yuan.) Consequently, the capacity of the ore berth was substantially increased and the design vessel was changed from 50,000-ton class to 100,000-ton class.

As seen from this case, the transportation demand for port throughputs inevitably changes as the consequence of the industrial policy of governments (such as that for the Technological and Economic Development Zone) and the competition with other ports. The twice modifications of the plan regarding the ore berth can be regarded as a flexible response to such changes timely undertaken during the implementation of the project and appropriate in increasing the effectiveness of the project. Moreover, it can be highly regarded as the realization of self-help that the executing organization invested its own money to enhance the facility and to increase the handling capacity of ore after the completion of the project. No major disadvantage was observed as the consequence of the second change from general cargo berth to exclusive ore berth, as the multi-purpose crane originally purchased for general cargo is functioning well for transporting ore with the replaced attachment.

Table 4. Comparison of Original and Actual (project scope)

Items	Original	Actual
Anchorage place	Route width: 160m The maximum model of a ship: Cargo ship 15,000 DWT Water surface diameter: 460m	
New construction of berth	Coal-50,000 DWT :1berth Coal -35,000 DWT:1berth Mineral ore-50,000 DWT:1berth Timber-25,000 DWT:1berth Miscellaneous goods-20,000 DWT:1berth Sand-20,000 DWT:1berth	
Railway inside the port	Each berth of Huangdao to Quidgdao A part for coal：10 tracks, 4 marshalling engine Other：6 tracks, 2 marshalling engine Operation reserve engine: 2 Maintenance reserve engine: 2	Same as plan
Power supply system	Huangdao Plant（The main power supply extension） Xinan substation（Auxiliary power supply establishment） The power line from the source of electric power to the substation in the above area: 15km The subterranean line from the substation in an area to each facility	
Railway outside the port	43.2km railway connecting Huangdao and Jianxian 3 intermediate stations are established newly. Calvert extension: 1000m Bridge extension: 2000m	
Water supply system	Water supply equipment (20 thousand ton/day) to Huangdao (Qianwan) area	
Consultant	Forms of bid, port management technical training	

Source: Executing Agency

2.3 Effectiveness

(2.3.1) The enhancement of cargo handling capacity of Qianwan port district

The Project constructed a new port district of Qingdao port equipped with six modern berths, and along with the development of the Technological and Economic Development Zone in the hinterland, totally changed the landscape of the newly renamed Huangdao (Yellow Island) district that had been called Huangdao (the same pronunciation but meaning deserted island) which was an undeveloped deserted island with a small oil jetty. The trend of the throughput of these berths is as shown in Table 5. The

total throughput exceeds in 1999 the planed value of 17 million tons, although this observation does not hold with its breakdowns. (If the increase in capacity of the ore berth up to 5 million tons from 0.9 million tons after its completion is incorporated, the throughput amounts to 89 % of the capacity(17 million tons plus 4.1 million tons) in 2000.) Also, the throughput of the whole Qingdao port substantially increased and it became 2.4 times larger in 2000 than in 1993 (see Table 6). In terms of average annual increase rate it amounts to an astonishing rate of 13.6% that is 2.7 times as large as the 5% of the preceding period. On the other hand, thanks to the increase in the handling capacity of the port resulted from this Project, the average demurrage at Qingdao port reduced dramatically from 4 days at the time of the appraisal, and it was as short as one day in recent three years (see Table 7). These facts show that the Project has contributed to catering for the new transport demand at Qingdao port and to the reduction of demurrage costs of the existing traffic and thus can be regarded as effectively serving its purposes.

Table 8 lists the amount of incoming and outgoing cargos transported through the external rail system with their breakdowns. It shows that the major share of the cargos shipped by the external railway is taken by coal and ore, and the eastbound and westbound cargos are well balanced consisting of these goods. Also, the volumes of transport of coal and ore are 113% and 75% of the throughput of the port, respectively, showing the fact that the railway caters for the majority of transport of these goods between the port and the hinterland.

(2.3.2) Financial Internal Rate of Return (FIRR)

The FIRR value computed with the data obtained in this study is negative that is below the target value of 3.49%. This can be attributed to the cost over run of 87% in yuan as discussed above. While the primary Project objectives of alleviating the demurrage and increasing the capacity of the port have been achieved, this result indicates that the cost for attaining these objectives was too high. Incidentally, the Ministry of Communications now intends to repay the Project loan from the revenues of the operations of all facilities of Qingdao port as opposed to the revenues of the operation of the Project facilities as originally planned.

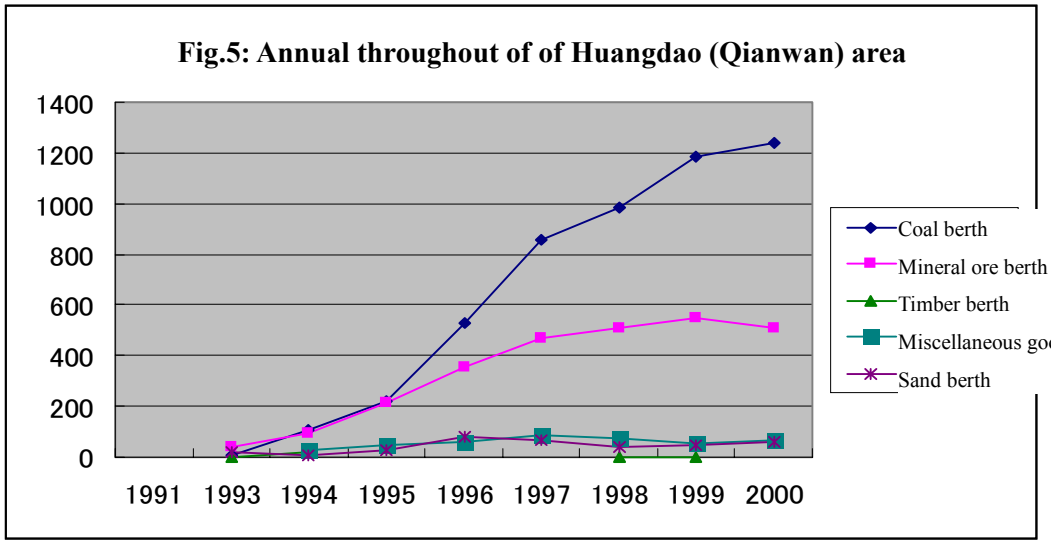
(2.3.3) Economic Internal Rate of Return (EIRR)

Since detailed data such as the share of Chinese vessels in the total throughput handling, prices of cargoes, etc. were not available, EIRR was not computed in this study.

Table 5：Annual throughput of Huangdao (Qianwan) area （Unit：10 thousand ton）

		Ability	1993	1994	1995	1996	1997	1998	1999	2000
Coal berth	Plan	1500	50	80	210	600	800	920	1000	1300
	Actual		9	110	220	532	856	983	1183	1238
Mineral ore berth	Plan	90	35	120	260	340	500	520	550	550
	Actual		41	95	216	357	472	507	551	512
Timber berth	Plan	40	10	20	5	5	5	5	5	5
	Actual		2	23				2	1	
General cargo berth	Plan	30		60	50	60	90	70	50	60
	Actual			30	48	63	89	74	51	66
Sand berth	Plan	40	21	5	120	70	70	40	50	60
	Actual		23	8	30	78	67	37	50	60
Total	Plan	1700	116	285	645	1075	1465	1555	1655	1975
	Actual	0	75	266	514	1030	1484	1603	1836	1876

Source: Plan data is based on JBIC material (September, 1984), and actual data is based on the information provided by the Executing Agency . The actual volume of sand handled in 1995 exceeded substantially the planned 1.2 million tons.



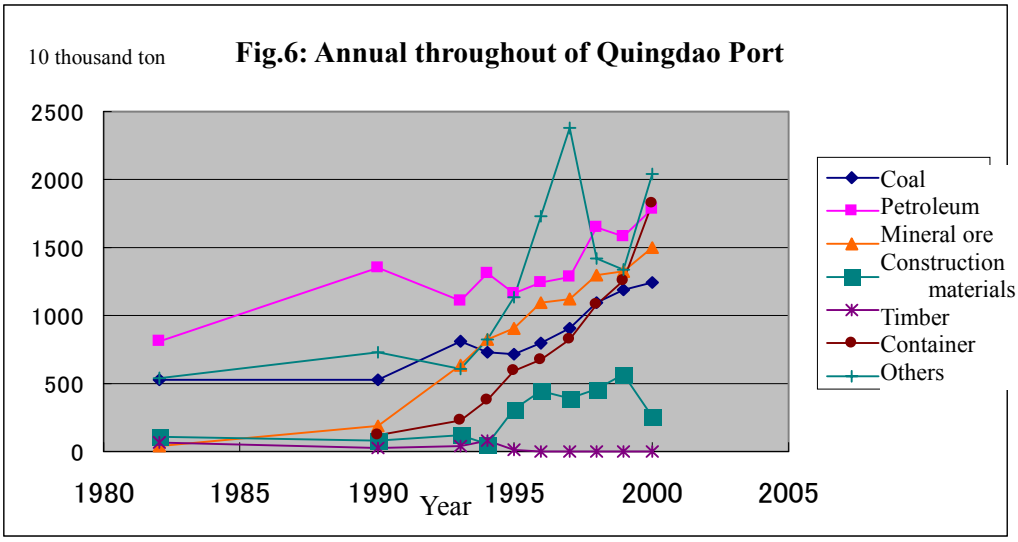
Source: Executing Agency

Table 6：Annual throughput of Qingdao Port (Unit:10 thousand ton)

		1982	1990	1993	1994	1995	1996	1997	1998	1999	2000
Coal	Plan		1500	800	850	800	900	1050	1200	1300	1400
	Actual	521	526	812	731	711	800	912	1100	1183	1238
Petroleum	Plan		960	1300	1300	1400	1500	1700	1700	1900	2200
	Actual	811	1350	1109	1312	1161	1250	1285	1650	1585	1786
Mineral ore	Plan		160	600	800	900	1100	1200	1200	1300	1500
	Actual	35	190	630	826	910	1100	1120	1295	1321	1497
Construction materials	Plan		110	50	80	200	400	400	500	400	200
	Actual	107	81	115	56	310	440	398	463	568	251
Timber	Plan		105	20	10	8	5	5	5	5	5
	Actual	71	30	39	80	15	2	5	3	2	2
Container	Plan		100	280	400	600	800	900	1100	1300	2000
	Actual		124	235	380	600	680	821	1085	1256	1826
Other	Plan		785	600	1000	1300	1400	1300	1500	1200	1200
	Actual	538	733	605	828	1396	1731	2375	1422	1342	2036
Total	Plan		3720	3650	4440	5208	6105	6555	7205	7405	8505
	Actual	2083	3034	3545	4213	5103	6003	6916	7018	7257	8636

Source: The actual data of 1982 and the plan data of 1990 are based on the project completion report. The planned data of 1990 is not consistent with 36.3 million tons as indicated in 1.1 above.

The amount of container handling is converted based on 1 TEU=8.5t.



Source: Executing Agency

Table 7. Average ship stay at Qingdao Port (working days and demurrage)

	1993	1994	1995	1996	1997	1998	1999	2000
Average demurrage	2.3	2	2	1.8	1.6	1	1	1
Average working days		88	104	137	177	134	169	210

Average working days: The average of all the wharves of the Qingdao Port which actually did cargo work.

Table 8：Amount of cargo transported through external rail system

（Unit: 10 thousand ton）

	1993	1994	1995	1996	1997	1998	1999	2000
Coal		120	315	635	971	1106	1305	1402
Mineral ore	20	90	208	342	478	565	908	1122
Timber		15						
General cargo		12	16	19	40	20	14	21
Sand	11	2	18	42	51	19	36	39
Total	31	239	557	1038	1540	1710	2263	2584

Source: Executing Agency

2.4 Impact

Without being much suffered from Asian Currency Crisis, the economy of hinterlands of Qingdao port, the Provinces of Shandong, Henan, Hebei, Shanxi, and Sha ’’ anxi, is remarkably developing without interruption afer the completion of the Project (see Table 9, Figure 1). Also, the economy of Qingdao city, the immediate hinterland of the port, is steadily growing, benefiting also from the development of Huangdao Technological and Economic Development Zone (see Table 10 and Figure 2). Consequently, many job opportunities have been created and the standard of living of the people in the hinterland has been raised. As these changes appear to have occurred as the result of the expansion of the handling capacity and the improvement of the efficiency of Qingdao port which was achieved through the implementation of the Project, the impact of the Project can be regarded as substantial.

Incidentally, to mitigate the dust problem associated with coal transport, wet and dry dust control

systems were installed and buffer green belt was constructed that contributes to mitigation of noise problems. Also, under the Qingdao City instruction, wastewater treatment facility was installed and appropriate drainage system is in place . Furthermore, a monitoring center is established and periodic monitoring on environmental parameters is being conducted and results are reported to the municipal authority. No problems have arisen with respect to environmental affairs.

Table 9：Economic indices of Qingdao hinterland

		1993	1994	1995	1996	1997	1998	1999
Population （10 thousand people）	Shandong	8,620	8,653	8,701	8,747	8,810	8,872	8,922
	Henan	8,946	9,027	9,110	9,172	9,243	9,315	9,387
	Hebei	6,334	6,388	6,437	6,484	6,525	6,569	6,614
	Shanxi	3,013	3,045	3,077	3,109	3,141	3,172	3,204
	Sha ’ ’ anxi	3,443	3,481	3,513	3,543	3570	3,596	3,618
Employment （10 thousand people）	Shandong	4,379	4,382	4,385	5,239	5,256	5,288	5,314
	Henan	4,400	4,448	4,509	4,638	4,820	5,000	5,205
	Hebei	3,171	3,210	3,252	3,300	3,324	3,367	3,312
	Shanxi	1,384	1,404	1,425	1,441	1,439	1,398	1,402
	Sha ’ ’ anxi	1,708	1,720	1,748	1,776	1,792	1,788	1,808
GDP （100 million yuan）	Shandong	2,779	3,872	5,002	5,960	6,650	7,162	7,662
	Henan	1,663	2,224	3,003	3,661	4,079	4,357	4,576
	Hebei	1,691	2,187	2,850	3,453	3,954	4,256	4,569
	Shanxi	672	806	1,034	1,226	1,381	1,486	1,507
	Sha ’ ’ anxi	661	817	1,000	1,176	1,300	1,382	1,488
Industrial output （100 million yuan）	Shandong	1,205	1,700	2,113	2,500	2,830	3,052	3,252
	Henan	682	958	1,275	1,526	1,681	1,742	1,789
	Hebei	758	926	1,150	1,463	1,701	1,822	1,950
	Shanxi	294	342	429	517	604	630	651
	Sha ’ ’ anxi	242	311	339	390	420	445	487

Source: Executing Agency

Table 10 ：Economic indices of Quingdao City

Indices	1993	1994	1995	1996	1997	1998	1999
Population （10 thousand people）	675	679	685	690	695	700	703
Employment （10 thousand people）	366	368	374	382	389	393	
GDP （100 million yuan）	379	521	642	710	798	880	993
Industrial output （100 million yuan）	166	220	266	290	340	365	
No. of foreign investment contracts	1,623	1,019	1,130	1,300	617	533	714
Foreign investment : contract amount （10 thousand dollar）	18,1578	123,485	154,179	168,809	73,398	98,448	172,850
Foreign investment : actual amount （10 thousand dollar）	42,197	63,708	62,263	79,325	83,597	72,830	91,966

Source: Executing Agency

2.5 Sustainability

Qiangang Corporation, which was established within the Port Authority to exclusively carry out the operation and maintenance of the facilities constructed through the Project, have been conducting the task since the completion of the Project. Qiangang Corporation employs 1850 workers. The technical competence, size and organization of staff satisfy the requirements of daily operation and maintenance, and there have been no problems since the start of operations. The staff size is to be expanded as the throughput increases, and there is no foreseeable problem on the physical side of sustainability either.

The financial side of sustainability has not been reached due to the cost over run of the Project (see Table 11, 12), but the Ministry of Communications has changed the repayment plan of yen loan to apply the revenues from the entire operation of Qingdao port, not only the operation of the Project facilities as originally planned. According to the statements of profits and losses of 1997 through 2000, the financial situation of Qingdao Port Authority has been improving as shown by the yearly increase of total profits. Although detailed information about the balance sheet and cash flow is unknown, judging from the fact that further construction investment is being done and surplus benefits have been accumulated, the financial situation may be regarded as relatively sound and there appears to be no particular concern regarding the sustainability of the Project.

As stated above, Qingdao Port Authority invested its own budget to increase the handling capacity of the ore berth after the completion of the Project. It also constructed the largest exclusive ore berth in China adjacent to the Project site using its own budget. Also, it completed the second phase construction project of Qianwan port using another ODA Loan and the capacity of the port was further expanded. Furthermore, the third phase construction project of Qianwan port is under preparation, demonstrating the sound sustainability of the Project

Table 11. Revenues and Expenditures of Operation and Maintenance (Actual)

（Unit: 10 thousand yuan）

	1993	1994	1995	1996	1997	1998	1999	2000
Operating revenues	637	2,016	5,687	8,436	14,999	18,624	19,966	28,801
Expenditures for O&M	1,475	5,151	13,267	11,844	15,429	19,182	20,194	27,879

Note: Expenditures of O&M do not include depreciation .

Source: Executing Agency

Table 12. Revenues and Expenditures of Operation and Maintenance (Projection)

（Unit: 10 thousand yuan）

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Operating revenues	28,760	29,623	30,511	31,427	32,370	33,341	34,341	35,371	36,432
Expenditures for O&M	28,082	28,644	29,217	29,801	30,397	31,005	31,625	32,257	32,903

Note: Expenditures of O&M do not include depreciation .

Source: Executing Agency

Comparison of Original and Actual Scope

Item	Original	Actual
①Project Scope		
Anchorage place	Route width: 160m The maximum model of a ship: Cargo ship 15,000 DWT Water surface diameter: 460m	
New construction of berth	Coal-50,000 DWT :1berth Coal-35,000 DWT:1berth Mineral ore-50,000 DWT:1berth Timber-25,000 DWT:1berth Miscellaneous goods-20,000 DWT:1berth Sand-20,000 DWT:1berth	
Railway inside the port	Each berth of Huangdao to Quidgdao A part for coal：10 tracks, 4 marshalling engine Other：6 tracks, 2 marshalling engine Operation reserve engine: 2 Maintenance reserve engine: 2	Same as plan
Power supply system	Huangdao Plant（The main power supply extension） Xinan substation （Auxiliary power supply establishment） The power line from the source of electric power to the substation in the above area: 15km The subterranean line from the substation in an area to each facility	
Railway outside the port	43.2km railway connecting Huangdao and Jianxian 3 intermediate stations are established newly. Calvert extension: 1000m Bridge extension: 2000m	
Water supply system	Water supply equipment (20 thousand ton/day) to Huangdao (Qianwan) area	
Consultant	Forms of bid, port management technical training	
②Implementation Schedule	January, 1985～December, 1991	June, 1987～December, 1993
③Project Cost		
Foreign Currency	57,000 million yen	45,784 million yen
Local Currency	933,910 thousand yuan	699,790 thousand yuan
Total	166,268 million yen	127,669 million yen
ODA Loan Portion	57,000 million yen	45,784 million yen
Exchange Rate	1yuan＝117yen／1984	1yuan ＝ 18.6-62.9 yen/Average of each year end of 1985-1994