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PROJECT PERFORMANCE AUDIT REPORT

KOREA FIRST AND SECOND PORT PROJECTS

(LOANS 917-KO/1401-KO)

June 28, 1985

Operations Evaluation Department

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IBRD 10383R
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PROJECT PERFORMANCE AUDIT REPORT

KOREA FIRST AND SECOND PORT PROJECTS
(LOANS 917-KO/1401-KO)

PREFACE

The following report is a performance audit on the First and Second Port Projects in Korea for which two loans were made one in June 1973 (Loan 917-KO, US\$80.0 million) and the other in April 1977 (Loan 1401-KO, US\$67.0 million). Both projects were delayed by about one year and the final disbursements were made in June 1980 and June 1984 respectively.

This report consists of a Project Performance Audit Memorandum (PPAM) prepared by the Operations Evaluation Department (OED) which covers both projects, and two Project Completion Reports (PCRs), one for each project, prepared by the East Asia and Pacific Regional Office. The PPAM is based on a review of the Minutes of the Executive Directors' Meeting at which the projects were approved, the President's and Staff Appraisal Reports, Bank files and documents including Supervision Reports and the PCRs. OED also interviewed Bank and Borrower staff familiar with the project. An OED mission visited Korea in October 1983 for the purpose of reviewing the projects; the assistance of the Government and of the Korean Maritime and Port Authority (KMPA) are gratefully acknowledged.

Based on the above, the audit concludes that the projects met part of their declared objectives, and that some components failed to have their expected impact. OED's views on the projects are summarized and contrasted with the PCR's in the Highlights, and developed in the PPAM.

The draft audit report was sent to the Borrower for comments; the comments are attached as an appendix.

PROJECT PERFORMANCE AUDIT REPORT

KOREA FIRST AND SECOND PORT PROJECTS
(LOANS 917-KO/1401-KO)

KEY PROJECT DATA

<u>Item</u>	<u>Appraisal Estimates</u>		<u>Actual or Reestimate</u>	
	<u>First Project</u>	<u>Second Project</u>	<u>First Project</u>	<u>Second Project</u>
Total Project Cost (US\$million)/ <u>a</u>	118.6	98.5	142.6	111.3
Overrun (%)	-	-	20	20
Loan Amount (US\$million)	80.0	67.0	80.0	67.0
Disbursed	80.0	67.0	80.0	66.2
Principal Repaid to 11/30/84	-	-	14.9	17.36
Outstanding to 11/30/84/ <u>b</u>	-	-	55.3	39.2
Project Completion Date	06/78	12/81	08/79	03/83
Proportion of Time Overrun (%)	0	0	23	27
Proportion of Main Project Elements				
Finished by Expected Date (%)	100	100	70	75
Economic Rate of Return (%)/ <u>c</u>	32.5	17.0	52.5 / <u>c</u>	40.0 / <u>c</u>

CUMULATIVE ESTIMATED AND ACTUAL DISBURSEMENTS
(US\$million)

	<u>FY74</u>	<u>FY75</u>	<u>FY76</u>	<u>FY77</u>	<u>FY78</u>	<u>FY79</u>	<u>FY80</u>	<u>FY81</u>	<u>FY82</u>	<u>FY83</u>	<u>FY84</u>
Estimated	1.5	17.1	37.9	58.2	79.8	98.8	116.1	141.8	147.0	-	-
Actual	-	-	6.6	22.9	42.8	70.3	86.5	111.1	127.2	137.8	146.2
Actual/Estimated	0	0	17	39	54	71	75	78	87	94	99

OTHER PROJECT DATA

<u>Item</u>	<u>Original Plan</u>		<u>Actual</u>	
	<u>First Project</u>	<u>Second Project</u>	<u>First Project</u>	<u>Second Project</u>
First Mention in File	-	-	03/72	02/76
Government's Application	-	-	06/72	02/76
Appraisal	09/72	05/76	11/72	05/76
Negotiations	04/73	02/77	05/73	02/77
Board Approval	06/73	04/77	06/73	04/77
Loan Agreement Date	06/73	04/77	06/73	04/77
Date of Effectiveness	09/73	07/77	09/73	07/77
Closing Date	06/79	12/82	06/80	12/83
Borrower	Republic of Korea			
Executing Agency	Ministry of Transport (KMPA)			
Fiscal Year of Borrower	January 1-December 31			

MISSION DATA

	<u>Month/</u> <u>Year</u>		<u>No. of</u> <u>Staff</u>		<u>Staff-</u> <u>weeks /^d</u>		<u>Date of</u> <u>Report</u>	
	<u>First</u>	<u>Second</u>	<u>First</u>	<u>Second</u>	<u>First</u>	<u>Second</u>	<u>First</u>	<u>Second</u>
	<u>Proj.</u>	<u>Proj.</u>	<u>Proj.</u>	<u>Proj.</u>	<u>Proj.</u>	<u>Proj.</u>	<u>Proj.</u>	<u>Proj.</u>
Preappraisal	10/72	08/75	4	2	4	3	10/72	09/75
Appraisal	11/72	05/76	3	4	6	10	05/73	03/77
Supervision I	02/73	03/78	3	1	3	1	04/74	06/78
Supervision II	10/74	11/78	1	1	1	1	12/74	01/79
Supervision III	04/75	07/79	3	2	6	2	05/75	09/79
Supervision IV	09/75	02/80	2	3	4	4	10/75	05/80
Supervision V	05/76	03/81	3	3	9	5	07/76	06/81
Supervision VI	11/76	11/81	1	1	1	1	01/77	12/81
Supervision VII	07/77	02/82	2	1	4	2	08/77	03/82
Supervision VIII	03/78	09/82	1	2	2	2	07/78	12/82
Supervision IX	11/78	10/83	1	2	1	2	01/79	12/83
Supervision X	07/79	-	2	-	2	-	09/79	-
Supervision XI	02/80	-	3	-	3	-	05/80	-
Completion	06/81	08/84	2	2	2	4	12/81	09/84

COUNTRY EXCHANGE RATES

(Won Per US\$)

<u>Name of Currency (Abbreviation)</u>	<u>Korean Won (W)</u>	
	<u>First</u> <u>Project</u>	<u>Second</u> <u>Project</u>
Appraisal year average (1973) (1976)	400	484
Intervening years average (1973-79) (1976-82)	478	607
Completion year average (1980) (1983)	681	802

- /a Appraisal estimates are adjusted to reflect comparable items as executed.
- /b Includes exchange adjustments of negative US\$9.7 million for First Project and negative US\$9.7 million for Second Project.
- /c These are the PCR estimates; the audit is unable to substantiate several elements in the PCR calculation and under appropriate adjustments believes the ERR would be lower; however, the audit lacks the data and resources to calculate an alternative ERR.
- /d Adjusted to reflect time spent on specific project only; most missions involved work on other projects.

PROJECT PERFORMANCE AUDIT REPORT

KOREA FIRST AND SECOND PORT PROJECTS
(LOANS 917 AND 1401-KO)

HIGHLIGHTS

The projects included civil works at two ports: Pusan, the main port of Korea; and Mukho, a small coal and cement port on the northeast coast. The purpose of the works was to increase the capacity and improve the efficiency at the two ports to meet expected traffic developments to about 1986. At Pusan the projects included (i) rehabilitation of four piers (Piers 1, 2, 3 and 4), (ii) rehabilitation of the Central and the Lighterage wharves, and (iii) construction of new facilities to handle: domestic and international passengers (the Pubkin Pier and Pier 1, respectively), containers and grain (Composite Pier), and coal, ore, minerals, scrap iron and steel (Pier 7). Also included in Pusan were the dredging of the entrance and access channels, and alongside the old and new piers (12.5 million cubic meters). At Mukho the project included the construction of two new coal loading piers, one on each side of the old pier which was rehabilitated, the installation of new coal loading equipment; rehabilitation of the central wharf; improvement of the breakwater; and dredging alongside the piers and wharf (PPAM, paras. 5 and 6).

Civil works in both projects were substantially completed, although some cutbacks were made and some delays occurred. Overall cost overruns were about 20% in US dollars, 45% in Won in the First Project, and 13% in US dollars, 60% in Won in the Second Project. However, some individual items had important cost overruns: the rehabilitation of Piers 1, 2, 3 and 4 in Pusan cost 90% more than expected and the domestic ferry terminal (Pubkin wharf) cost almost twice the estimate, all in real monetary terms (PPAM, paras. 10, 11 and 13). Similarly, equipment purchased in the First Project turned out to be much costlier than estimated; in contrast, however, equipment purchased under the Second Project cost less than expected, an event for which the audit has no explanation (PPAM, para. 13).

Overall, traffic exceeded appraisal forecasts; however, as opposed to the forecasts which predicted larger increases in bulk and break bulk traffic than in containerized general cargo, the largest increase was in container traffic (PPAM, Tables 2 and 3). The growth in container traffic created a demand which could have been accommodated in the container facility; however, a large number of containers has continued to arrive in non-cellular container ships and has been moved through the conventional general cargo berths (PPAM, paras. 16 and 17). The fact that nearly half of the containers still use the general cargo berths has also to do with the peculiar arrangements of the port with the stevedoring companies, a factor that was not taken into account when the size of the terminal was determined (PPAM, para. 17). The stevedoring companies own about 30 container yards at

various locations in and near Pusan and receive and make delivery of their containers alongside the ship on the conventional berths rather than use the port's container terminal (PPAM, para. 22).

The audit has been unable to make projections of the likely future volume and pattern of container traffic through Pusan and of the likely throughput that could be accommodated with the existing port facilities. Moreover, the audit is unable, without detailed operational studies, to determine what levels and types of traffic could be accommodated at the port; nor is the audit able without such studies to specify the operational changes and marginal investments which might increase the container throughput at the port (PPAM, para. 24).

The audit has discussed the question of possible throughput at the terminal because it affects the calculation of the ERR in a major way. In both projects the PCR calculated an ERR much higher than at appraisal. The audit has examined these calculations and is unable to substantiate several elements including the investment costs which are shown to be much lower than at appraisal. Appropriate adjustments would in the view of the audit tend to lower the ERR below the levels indicated in the PCRs. However, the audit lacks the data and resources to calculate an alternative ERR. In particular, it is unable at present, to specify alternative throughput projections for the terminal. This leaves for determination at another occasion the question as to how much traffic can be handled at the existing facilities in Pusan and under what cost and efficiency criteria. In turn this would affect how many benefits the two projects would generate in the future. While the audit is unable to specify levels of throughput for the facility, it does observe that use of the two berths built under the second project is below projections at appraisal. This is not due to inefficiency in operations but due to the nature of demand (many more shipments in smaller batches on smaller vessels) and due to the continued preference for direct delivery. Both factors tend to divert traffic from the container terminal to the break bulk general cargo berths (PPAM, paras. 24 and 25).

Aside from the container terminal, some of the other project-assisted investments in Pusan have not achieved their intended use: coal throughput at Pier 7 is somewhat lower than forecasted because the anticipated growth in cabotage traffic did not occur as domestic production has been generally lower and more coal is being moved by rail; less ore and minerals are being handled at Pier 7 because contamination by coal dust has discouraged use of the pier for those commodities; the forecast volume of scrap metal has not happened because a new ship-wrecking plant is now operating in the area, and because the poor output of the magnetic scrap crane at Pier 7 has limited the amount that can be handled; and grain throughput was initially lower because a shortage of inland storage delayed evacuation of transit grain from the silos and restricted volumes handled at the new facility. In contrast, the general cargo piers rehabilitated under both projects are well utilized principally on account of the continued arrival of containers in smaller ships which are more efficiently handled at

general cargo berths than at the container terminal, but also on account of the increased general cargo traffic and the shortcomings of Pier 7 and the grain handling facility. Finally, the expected increase in international passengers to and from Japan has not materialized which, together with a considerable drop in the cargo moved by the ferries, has left the new international ferry terminal underused. In contrast, the domestic passenger terminal which was improved much more modestly than the international terminal, is now crowded (PPAM, paras. 27 to 32).

Facilities at Mukho are underused as well because coal production in the area has not grown. Notwithstanding the lower volumes, it has been impossible to reach the design capacity of the coal loading equipment because of design shortcomings. In addition, the expected increase in cement traffic at Mukho has not materialized because the Ministry of Construction, with the help of the Japanese Government, built, some 10 km south of Mukho, a new cement port at Pugpyong which, due to its better location and newer facilities, has captured a large proportion of the traffic. The result was a 4.4 million ton short-fall over expected traffic volumes in 1981 (PPAM, para. 33).

As indicated, the audit is unable to substantiate several elements in the PCR's ERR calculation for the container terminal which accounts for 60% of the expenditures under the two projects. Under appropriate adjustments to these calculations, the audit believes the ERRs would be lower. The rest of the investments, which account for 40% of expenditures, would have had lower rates of return than expected except for the improvements and additions in general cargo berths which are well used.

The overall financial results of the two projects were better than expected mainly because container traffic has been so much higher. In contrast, the financial results for everything else are much worse. However, revenues generated by the container traffic have assured the financial stability of the port of Pusan and KMPA as a whole, including the other ports it operates. Among them, Mukho is not meeting its expected financial goal and can only become self-sufficient with its existing traffic at much higher tariffs than presently charged (PPAM, paras. 34 to 36).

The First Project was meant to help establish an independent and autonomous Korean Ports Authority (KPA) (PPAM, para. 2). Planning, coordinating, controlling and regulating port activities in the country had been scattered between a number of agencies over different Ministries and the project was to bring those together under one head (to avoid, for example, the Mukho-Pukpyong duplications). The institutional form of this authority was specified in the Loan Agreement to be that of a "chong", a statutory body under Korean law which the Bank believed (inaccurately as it turned out) had the requisite autonomy. The Government established the ports authority as a "chong", but the Bank soon discovered that a "chong" was not the sort of organization it had in mind as it did not have the legal autonomy the Bank felt was necessary for KMPA to operate efficiently. Since 1973, the Bank has been seeking to have the Government change its view on the status of the

authority and have it operate as a commercial entity with organizational, managerial and financial autonomy. The continuation of this dialogue for more than a decade, so far with only limited results, raises the question of whether the Bank has been trying to have the Government accept a type of organization with which it is not comfortable. A settlement of the issue has been proposed by the Government which, while leaving KMPA with its present administrative status, would make it mandatory for it to keep parallel commercial accounting books (PPAM, paras. 37 to 39).

Experience under this project supports again the proposition that it was not good administrative practice to appraise projects without the final engineering at hand. At the time the Second Project was approved this practice was already discouraged by the Bank; yet, despite that the project was appraised. As a result of the lack of final engineering delays occurred and changes in project content had to be made.

Lessons learned from this project include the need for better traffic projections; the need for detailed operating plans for facilities created under a project; the need for better performance specification and control of installation of equipment; and the obvious need to have a clear understanding of Government wishes before institutional changes are attempted.

PROJECT PERFORMANCE AUDIT MEMORANDUM

KOREA FIRST AND SECOND PORT PROJECTS
(LOANS 917 AND 1401-KO)

I. BACKGROUND

1. As Korea began to rebuild after the war in the 1950s transportation was almost at a standstill; rail services were slow, antiquated and unreliable; there were no paved roads outside urban areas and no public bus lines; coastal shipping was the only means of moving around coastal areas, and for the most part people either walked or did not travel at all. By the early 1960s significant improvements had been made. In 1965-66 a UNDP financed, Bank executed study found many bottlenecks in all modes of transport and as a sequel to that study the Bank (including the International Development Association, IDA) engaged in a program to assist the Government in financing various projects in railways and highways. In the late 1960s another UNDP-Bank study reviewed the country's first class commercial ports. That study concluded that except for a few, most Korean ports had ample capacity to handle future traffic flows: ports were, in fact, underutilized, operations were inefficient, the use of equipment was limited, most work was done manually, lighterage was used more than necessary, documentation was excessive and cumbersome, and, port services such as stevedoring and maintenance were found to be disorganized and inefficient. In the consultant's opinion only Pusan, Mukho and Masan needed to resort to physical developments to handle the expected traffic to about 1986. The Government and the Bank then agreed to concentrate on improving the physical facilities and operations at the ports of Pusan and Mukho, while at the same time improving overall port coordination and administration, management and planning, and streamlining financial arrangements by creating a unified ports administration.

2. The First Port Project was centered around increasing the physical capacity of the ports of Pusan and Mukho and improving their operational procedures. It was also to be instrumental in the establishment of the Korean Ports Authority (KPA) initially with jurisdiction over just Pusan and Mukho but later to be extended to include all first class commercial ports. KPA was to be autonomous, with full independence to decide on its finances and budget, as well as on day-to-day operations at the ports under its jurisdiction. After the creation of KPA, first class ports in the country were to be operated on a commercial basis rather than as Government agencies. Although KPA's General Manager would have the rank of a Vice-Minister reporting to the Minister of Transport, he was expected to be fully independent to fix rates and charges for the use of ports, budget their expenditures, plan their development, and ensure the financial self-sufficiency of the organization.

3. At the time the First Project was prepared the port of Pusan had four piers and a long central wharf separating Piers 1 and 2 from Piers 3 and 4, a total of 3,845 m of berthing length (about 32 berths) of which only 2,445 m (about 20 berths) were used for commercial purposes; the rest was used by the military and the local fishing industry. The dry cargo handling capacity of the commercial berthing space was estimated to be about 1.4 million tons per year, an average of about 350 tons per linear meter of berth per year (close to 45,000 tons per berth/year) a relatively low figure by international standards. Yet, at the time, the port was moving a total of about 7.2 million tons of dry cargo (about 6.0 million excluding timber usually unloaded into a floating area), reflecting an intensive use of lighterage. There were 5,250 meters of lighter berths at the port, including 1,500 m operated by private companies. These wharves handled roughly 4.5 million tons of cargo a year, three times as much as the regular port berths. Part of the reason for the intensive use of lighterage appears to have been the comparatively shallow depth at the piers and wharves. In addition, the port had 25 anchorages, some with about 10 meters of water but the majority with no more than seven meters; thus, the average size of vessel that called at the port was no more than 15,000 to 20,000 DWT.

4. The First Project was expected to help rectify some of these deficiencies, an extensive dredging program would allow larger vessels to access the berths and piers, additional commercial berthing space would be made available for break bulk cargo by removing bulk commodities (grain, coal, ores, cement and scrap metal) to a special pier, fishing activities and the military would be moved to new areas thus liberating Piers 1 and 3 and a specialized container pier was to be constructed. At the same time, improvements in operations were to be obtained from a more intensive use of mechanization and from the use of specialized equipment to handle containers on the general cargo berths. As a result of all these measures the port would end up with some spare capacity for handling break bulk freight.

5. The First Project included: (i) the construction of a Composite Pier for handling containers (2 berths) and grain (1 berth), this included construction of the piers, a container stacking area, all necessary equipment for handling containers (4 gantry cranes, transtainers, and other ancillary equipment), three grain silos and equipment for mechanically unloading the grain; (ii) the construction of Pier 7 for handling bulk commodities, in particular, coal (1 berth), ores and minerals (2 berths), and scrap iron and steel (1 berth), and included the procurement of equipment and bulk handling systems; (iii) the rehabilitation and improvement of Piers 1 North and 2 for general cargo; and (iv) the provision of modern and improved facilities for the handling of passengers on Pier 1 South for international passengers (especially Japan traffic) and the Pubkin wharf for domestic passengers.

6. At the time of the First Project Mukho was a comparatively small, artificial port enclosed by two breakwaters, which handled mostly coal and cement. However, the crest elevation of the breakwater was so low that overtopping by the waves was a common event and the port was unsafe and unusable about 15 to 25 days a year. The berthing facilities at the port consisted of two piers adjacent to one another for loading coal by conveyor

(two berths), south of the coal facility a 330 meter wharf and a 130 meter pier for loading cement and clinker, and north of the coal facility about 750 meters of wharves and piers of general use including fishing. The wharf backup areas at the cement terminal were all paved and in good condition; however, all coal loading facilities including the piers, conveyors, conveyor supports, loaders, reclaimers, etc., were in poor condition, some beyond repair. Since the 2.8 million tons of freight handled through Mukho in 1970 were expected to increase to about 8.5 million tons by 1986 (6.0 million tons of cement and 2.5 million coal), improving the port was considered a high priority. Therefore, the project included (i) reinforcing and raising the breakwater; (ii) constructing, abutting to the existing two coal piers two new coal piers fitted with three 300 ton per hour loaders with telescopic arms which would be fed by the existing but rehabilitated conveyors; (iii) two new coal reclaimers; (iv) rehabilitation of the cement berths, and (v) dredging at the new coal piers to allow larger vessels to come alongside and be used in what was essentially cabotage transport to Pusan. These civil works, along with a reorganization of the operating procedures at the coal yard and better scheduling of the sailings, mostly to Pusan (for the coal) and Pohang (for the limestone), were expected to produce a high utilization of the port and a high return on the investment. Rehabilitation of the cement berths were comparatively minor works to improve the handling of cement and clinker also moved mostly to domestic ports.

7. The increased traffic and the improved facilities and operating procedures, together with the introduction of cost related tariffs, were expected to make the two ports self-sufficient and independent of Government subsidies. To achieve this self-sufficiency tariffs were to be increased in two stages: a rate adjustment by the beginning of 1974, and the enactment of fully cost related tariffs by early 1976. Consultants were to assist in improving cost accounting and in implementing a commercial type accounting system for the new KPA so that a uniform cost-based tariff could be charged at all ports.

8. Implementation of the First Project began in late 1973 and civil works were started a year later in 1974. By late 1975 it was already evident that container traffic at Pusan was growing much faster than had been forecast when the project was designed. Consultants determined that there was a need for additional container berths and a follow on project was appraised in May 1976. This Second Port Project (Loan 1401, US\$67.0 million) essentially aimed at expanding the container terminal then under construction, but it also included extensive rehabilitation and rebuilding of other facilities (Piers 3 and 4, the Central Wharf and the Lighterage Wharf), which further added to the port's capacity to handle break bulk general cargo. The Second Project was approved by the Bank in April 1977.

II. PROJECT IMPLEMENTATION

9. Except for some bureaucratic delays in contracting the civil works implementation of the First Project proceeded smoothly (PCR, para. 3.05); however, implementation of the Second Project was delayed by the hiring of

consultants to prepare the detailed engineering for the project (PCR, para. 3.02). The project had been, in fact, approved without final engineering designs on hand, a risky practice that was already being discouraged by the Bank at the time.

10. Bids for the execution of the works in the First Project were received in late 1974 and soon it was realized that the appraisal cost estimate, which was done before the oil price crisis, would be significantly overrun. While at appraisal the project was estimated to cost US\$118.6 million, by the end of 1974 the estimate had risen to US\$168.0 million. As the Bank would not increase its participation in the project, the Government resorted to the Saudi Development Fund for assistance in financing US\$35.0 million of the estimated cost overrun. However, in the end, the project cost only US\$142.6 million to complete, mostly because of a sharp devaluation of the Won in late 1974 and thus, fewer of the Saudi funds were used. While the project was originally to be financed 68% by the Bank (US\$80.0 million) and 32% by the Government (US\$38.6 million), the final sharing of costs was 55% by the Bank (US\$80.0 million), 14% by the Saudi Fund (US\$21.2 million) and 31% by the Government (US\$45.4 million). Still, the project had a considerable cost overrun of 20% in US dollars or 45% in Won.

11. In the First Project the cost overrun on civil works was considerably less than the overrun for equipment reflecting the closer control that the Government could exercise over the domestic portion of the project than over the internationally procured elements. Nonetheless some civil works, particularly at Pusan, turned out to be considerably more expensive than expected at appraisal: rehabilitation of Pier 2 and the Domestic Ferry Terminal exceeded the appraisal estimate by 150% and 80% respectively. In contrast, the grain handling equipment and the scrap iron cranes cost four and three times more than the estimate, respectively, and the container handling equipment cost about 50% more than forecast (see PPAM, Table 1).

12. The design of the container terminal incorporated a particularly useful feature in that it allowed the pier to be enlarged in stages as need arose. In the event, the need was perceived even before the First Project was completed and the expansion was financed under the Second Project (Loan 1401-KO, 1977, US\$67.0 million). However, works under the Second Project could not commence for a year after approval of the loan because of the time it took to hire consultants to complete the engineering designs and also on account of budgetary constraints of the Government. The works were a simple extension of what was already being done under the First Project and, as expected at appraisal (PCR, para. 3.05), it should have been comparatively simple to get on with the task. However, although the processing of the project may have been too early, the Bank seized the opportunity to quickly proceed with the project before the preparatory work was done, this contributed to later delays. Once underway project execution was efficient. The Region believes that delays were mostly due to lack of Government funds.

13. Instead of the three lots of construction contracts foreseen at appraisal, works under the Second Project were broken down into four lots and the two lots for the container terminal extension were awarded to the same

contractor. All works were completed by mid 1983 about one year behind schedule. Cuts and additions were introduced to the project as it progressed. For instance, whereas a 700 meter extension to the container pier was planned, only 600 meters were built; however, two sheds for stuffing and unstuffing containers were built (20,500 sq. meters) as opposed to only one proposed (8,000 sq. meters), eight new sheds were built on Piers 3 and 4 (four each) when none were provided for at appraisal, and seven other buildings were erected elsewhere in the port when none were planned. Of the ten transtainers, nine were bought; of 24 yard tractors, 18 were received; and of 72 chassis for moving containers, 70 were purchased; also, only one tugboat was procured when two were planned; however, four forklifts that had not been planned were procured. Also feasibility studies and detailed engineering for a proposed Third Port Project which were not planned were done under the project. On the basis of items that can be compared, the Second Project was almost 60% more expensive in Won, 13% more expensive in US dollars (PPAM, Table 1). However, in contrast with the First Project, cost overruns in the Second Project were larger for the civil works than for the equipment. In fact, equipment purchases turned out to cost much less than forecast, an event for which the audit found no explanation. The Region thinks that the statements in this paragraph relating to the length of pier extension, to the construction of new sheds and to the rise in costs are inconsequential. For example, according to the Region, eight sheds were done as part of the rehabilitation of Piers 3 and 4 called for in the appraisal report, although no specific mention was made of them; the 700 m figure for the container terminal expansion mentioned at appraisal was only indicative as the detailed engineering produced the length of 600 m; and that the cost overruns can not be supported.

14. While all civil works are providing satisfactory service, not all mechanical equipment procured under the two projects is performing as well as expected. In particular the scrap cranes have not been able to generate their expected output apparently because their magnets are too weak, their down time is too high, their span is too wide to work two hatches at the same time, and they have been placed so that visibility is poor and their operation complicated. The problem can be traced partly to poor specifications and partly to poor supervision of their installation. The consequence is that scrap ships wait five times longer for a berth and take three to four times as long to unload as the average waiting and operating times at the port. The coal loading equipment at Mukho also has not been able to reach its design capacity due apparently to the purchase of poorly specified equipment. At Mukho, however, the significantly lower traffic has made the consequences of the equipment's poor performance less noticeable. The Region strongly objects to the statements in this paragraph regarding poor supervision and poorly specified equipment because it believes that there is little or no evidence to support them.

15. All other equipment seems to be working as planned and productivity at the port has improved considerably since the introduction of the mechanization that the project made possible.

III. PROJECT RESULTS

A. Economic Impact of the Project

16. It is unfortunate that otherwise well executed projects should have been planned and designed on the basis of traffic forecasts that turned out to be quite inaccurate. The traffic projections indicated the need to build additional facilities when adapting existing berths and piers to alternative uses would, in hindsight, have sufficed. Had the traffic forecast been more accurate in predicting the growth in container flows, for example, provision could have been made at the time to adapt the existing piers for intensive container operation instead of rehabilitating them for break bulk use. Although not an imminent need, if container traffic continues to grow at high rates it may become necessary to take such an action and recondition again piers that were just rehabilitated under the two projects. This is because in the absence of throughputs of several hundreds of thousands of TEUs it is more economical to convert a conventional pier to container use than to build a new container terminal. Similarly, given what is now known about developments at Mukho, facilities there could have been made considerably smaller.

17. Traffic forecasts for Pusan (PPAM, Table 2) were already off by 20% when the First Project was approved in 1973. Although traffic estimates were updated for the Second Project, when it was approved in 1977 traffic was already 35% higher than the revised estimate (which was, in turn, 100% higher than had been estimated four years earlier at the time of the First Project). When the First Project was completed in 1978, traffic exceeded forecasts by a factor of two and when the Second Project was completed in 1983, it was 1.5 times higher than forecast. This increase in traffic should have been foreseen at the time the First Project was appraised as indicators were clearly showing Korea's export drive and rapid industrialization; however, according to the Region, the high ex-post growth rates could not have been foreseen. Similarly, the growth in foreign trade should have been a major element in forecasting traffic four years later when the Second Project was appraised; yet, the SAR (Annex 7, para. 1) admitted that "...available statistics of cargo movement through Pusan provide an unsatisfactory basis for projections..." and that "this was particularly true for movements of general cargo, the key commodity from the point of view of the project." Since the expansion of Korea's trade was concentrated on consumer products, much of the increase was likely to be in general cargo which could have been predicted to eventually move in containers; this trend was missed in the forecasts prepared for both projects (PPAM, Table 3).^{1/} Instead, the appraisal for the First Project forecast a significantly larger growth in bulk and break bulk commodities and for this reason the project was

^{1/} Failure to predict the rate of containerization has created difficulties with other Bank projects such as the First and Second Port Projects in Papua New Guinea, the Yemen Arab Republic Port Project and the Mauritius Port Project, among others.

designed to make available space for handling those cargoes (Piers 1, 2 and 7). Similarly, in the Second Project a considerable proportion of investments was dedicated to improving general cargo facilities (Piers 3 and 4, the Central Wharf and the Lighter Wharf) when the traffic that was increasing most rapidly was containers. While bulk traffic increased moderately in the decade since the First Project, break bulk general cargo increased until 1978 and has decreased significantly since then as containers have been used more and more (PPAM, Tables 2 and 3). Thus, the need for space to handle bulk and break bulk general cargo (more recently) has been below forecasts with the result that some project financed facilities are now less used. Failure to predict the rapid increase in container traffic and to identify how the containers would flow through the port also seems to have affected the judgment on the appropriate capacity that was necessary at the container terminal. When traffic grew faster than the forecast the decision was made to double the size of the terminal (Second Project); however, this has proven to be excessive because a large number of containers still arrive in non-container ships that can be handled as expeditiously, cheaply and safely at the conventional piers (PCR for Second Project, para. 4.07). The Region feels this statement is unwarranted and premature. The terminal, according to the Region, was built to handle container traffic growth to 1990 and hence it is anything but excessive because capacity will most likely be reached long before that date.

18. A similar miscalculation occurred at Mukho where future coal and cement production trends as well as traffic patterns were missed in the forecast. Coal shipments instead of growing at 4% per year, have been moving erratically but roughly hovering at around 65% of the volume forecast. The main reason has been a drop in coal production in the port's hinterland and a switch from cabotage to a more intensive use of rail transport. Cement shipments through Mukho after increasing at about the rate forecast, fell significantly when the new specialized port of Pukpyong was opened just 10 km south of Mukho. The net result of these changed traffic flows and patterns was a shortfall of about 4.4 million tons vis-a-vis the forecast for 1981 (PPAM, Table 9).

19. The audit's review of the economic performance of the projects tends to confirm the PCR's conclusion that the benefits obtained from container traffic compensate for the rather marginal benefits generated by all other investments in the projects. However, the audit does not agree that the economic rate of return of the First Project is 60% higher than estimated at appraisal and that that of the Second is almost 2.5 times higher. Instead, for reasons developed in the following paragraphs, the audit estimates that the completion rates of return were no more than the rates estimated at appraisal.

(i) The Container Terminal at Pusan

20. According to the PCR the construction (under the First Project) and expansion (under the Second Project) of the container terminal resulted in high economic returns. The audit concurs that in view of the rapid build up of container traffic in the 1970s, proper container handling facilities were

required at Pusan. At the time of the First Project there were no specialized facilities at the port and it would have been impossible to handle economically the traffic that came to Pusan in the succeeding several years without a proper terminal. By constructing the first two berths of the container terminal (under the First Project) and by improving the capability of the general cargo berths to handle containers the Korean authorities prevented a serious breakdown of the country's foreign trade. The doubling of the container terminal to four berths under the Second Project provided an increased container handling capacity. However, the audit is not clear whether this additional capacity was necessary or economically justified, or whether it represented the least cost solution for handling the container traffic that was forecast at appraisal, the traffic which is now passing through Pusan or the traffic likely to come in the near future.

21. The SAR for the First Project estimated an ERR of 37% for the first two berths of the terminal based on a throughput of 1.8 m tons (equivalent to about 200,000 containers) in the early 1980s and a throughput of roughly twice that in 1986. The SAR for the Second Project estimated an ERR of 17% for the two additional berths and, though it is unclear what throughput was projected at the time, no more than 170,000 containers were expected to use the facility by 1986 (SAR, Table 6). While total containers passing through Pusan in the early 1980's exceeded the projections of both appraisals, the completed container terminal (all four berths) handled less than 400,000 containers in 1983 mainly because of the continued high use of other port facilities to move them. If one were to arbitrarily assign current traffic unevenly, say 250,000 containers to Pier 5 and 100,000 to Pier 6, one would conclude that use of the piers was in accordance with the respective SAR projections. However, if one were to make the more reasonable assumption that the terminal's throughput is distributed evenly over the four berths, the use of Pier 5 would have been slightly above projections in the first few years after it came into service and slightly below after the expansion came on line and Pier 6 would be significantly underutilized.

22. The audit notes that the design of a container handling facility in a port is considerably influenced by the characteristics of the distribution chain of the containers both on the seaward and landward sides of the port. If containers arrive in large batches on large ships, an automated, dedicated terminal would provide the lowest total (main haul) costs; however, if, as in Pusan, containers arrive in smaller batches in smaller vessels, adaptation of existing berths may be the least cost alternative for handling them, especially if this solution is tied to a system of direct delivery of containers to and from inland locations. Thus, the suitability of container handling facilities at Pusan is determined to a considerable extent by the way in which container traffic was forecast to develop. However, as indicated, the forecasts in the two projects failed to predict accurately the development of container traffic. In hindsight, the following facts about actual traffic development are relevant:

- (a) in the year 1981 (the third full year of operation of Pier 5) the average batch was 318 containers and the average container ship calling at Pusan was a 700 TEU vessel^{2/} (indications are that the type of vessel size has not changed greatly since 1981);
- (b) in the most recent year for which data are available (1983) roughly 55% of all Pusan containers were handled at the terminal and 45% at other berths in the port, and the majority of the latter were marshalled at privately owned container yards on the periphery of Pusan City and picked up and delivered directly by truck at shipside.

Thus, the typical container ship currently calling at Pusan is at the smaller end of the scale by container ship size standards and while there is no full explanation for this phenomenon, the geographic position of Pusan in relation to world shipping lanes may have some bearing on this fact, and so may the attractiveness (based on cost, tariff or other considerations) of the system of direct delivery used by forwarders in Pusan. In turn, this may be influenced by the fact that over 80% of all containers moved through Pusan do not have their origin or destination in Pusan.

23. The audit concludes that the objective of using the terminal mainly for mainline (larger) container vessels (SAR for the Second Project, para. 5.13) has not yet been met and that in consequence "a smaller project at a lower cost would have sufficed," as the appraisal for the Second Project indicated would be the case if not enough mainline container ships called at the port (para. 5.13).^{3/} Similarly, the projected future use of the terminal also has an important effect on the ERR. If a greater proportion of containers comes in larger batches on larger vessels the container terminal would be the most appropriate place to handle them. If unacceptable delays and costs should occur as such traffic increases, the expansion of the terminal might be the most economical course of action. However, if the present pattern of batch and ship size continues into the future, several strategies would be available to optimize the use of the available facilities in Pusan, including concentration of larger vessels at the terminal while at the same time making greater use of the rest of the port for containers.

24. The audit observes that the number of containers that can be handled at the terminal within acceptable delay and cost parameters vis-a-vis

2/ See detailed engineering for 3rd Phase Pusan Port Development, Lyon Associates Inc., Consulting Engineers; Tables 11-12.

3/ The Region would like to reiterate that the terminal throughput should not be an issue. According to the Region, all of the "complex operational analyses" have been done and the maximum throughput was established as outlined in the PCR.

the demands of the trade is not a unique number but a range.^{4/} The range can only be determined by means of complex operational analyses^{5/} which take into account the unique characteristics of the particular trade and facility, and establish the total distribution costs from origin to destination. So far as the audit can determine, such analyses have not been made.^{6/} Yet, under reasonable cost and delay standards, and assuming that the proportion of larger vessels (2,000 TEU ships) using the port were to increase significantly, the audit estimates that the container terminal could handle at least 50% more than the 340,000 containers which used the facility in 1983 if use of berth length, crane number and productivity, and ground equipment efficiency are optimized. If, on the other hand, the terminal is used for smaller batches and vessels, as at present, the number of boxes that could be handled would be less, though still in excess of the 1983 levels. Furthermore, depending on the distribution of batches and ship sizes the number of containers that could be handled at the port could be varied significantly by varying the number of cranes and by making other adjustments to the operation of the port as a whole.

25. The audit has discussed the question of possible throughput at the terminal because it affects the calculation of the ERR in a major way. In both projects the PCR calculated an ERR much higher than at appraisal. The audit has examined these calculations and is unable to substantiate several elements including the investment costs which are shown to be much lower than at appraisal. Appropriate adjustments would in the view of the audit tend to lower the ERR below the levels indicated in the PCRs. However, the audit lacks the data and resources to calculate an alternative ERR. In particular, it is unable at present, to specify alternative throughput projections for the terminal. This leaves for determination at another occasion the question as to how much traffic can be handled at the existing facilities in Pusan and under what cost and efficiency criteria. In turn this would affect how many

^{4/} An indication of the wide variations in capacity estimates is provided by reference to Table 22 in the SAR of the First Project where the first two berths alone were shown to be able to handle the equivalent of 400,000 containers for many years into the future, presumably at acceptable economic costs. On the other hand, the SAR for the Second Project shows that Pier 6 came into use on an economic basis after the first two berths had reached an annual throughput of only 200,000 containers.

^{5/} See footnote 3 above.

^{6/} Studies made in connection with the feasibility of the third phase development at Pusan such as Final Report Korea Port Phase Three Development Study by a group of consultants February 1981 and related studies do not make total distribution cost analyses for various alternative uses of existing and proposed systems to determine total cost to the economy and they cost out private sector alternatives including the cost of land without corresponding opportunity cost solutions for publicly owned land.

benefits the two projects would generate in the future. While the audit is unable to specify levels of throughput for the facility, it does observe that use of the two berths built under the second project is below projections at appraisal. This is not due to inefficiency in operations but due to the nature of demand (many more shipments in smaller batches on smaller vessels) and due to the continued preference for direct delivery. Both factors tend to divert traffic from the container terminal to the break bulk general cargo berths.

26. In both the First and Second Projects adverse consequences have resulted from building up facilities which did not fit well with the containerized and non-containerized distribution of general cargo traffic. The lesson which emerges is that the Korean authorities would be well advised to make careful and comprehensive analyses in order to decide on the need for further expanding the container terminal, and on the design of such an expansion if it is needed. In that connection, the authorities may also wish to consider the appropriateness or otherwise of discontinuing the direct delivery of containers and of closing down the private satellite container terminals. As long as container marshalling services are being provided by the private sector and cost and service characteristics are acceptable to users, the authorities may wish to be cautious in developing a wholly publicly owned alternative scheme. Possible externalities in the form of congestion and pollution costs for the city, and inappropriate land use patterns would, of course, need to be taken into consideration in such analyses.

(11) Other Investments at Pusan

27. Other investments in Pusan, which represented about 40% of total expenditures, have produced marginal returns, a fact that is concealed by the joint analysis of all investments (including the container berths) in the PCR for the First Project, and their exclusion in the ERR calculations of the Second Project.

(a) Grain Handling Facility

28. Within acceptable cost and delay limits for the average size grain vessels that call at Pusan (20,000 DWT), the grain handling facility located at one of the ends of the Composite Pier can handle between 3.0 and 4.0 million tons per year. The Region commented that the appraisal estimated 2 million tons per year; the audit believes that the limiting conditions which determine an economical capacity of 2 million tons/year have not occurred. However, traffic through it was about 1.6 million tons in 1983 and over 100,000 tons have had to be moved over the less efficient general cargo berths. This suggests that the grain facility is not being adequately used (PPAM, Table 6). The explanation provided in the PCR is that the silos are used for storage rather than just as a transit facility. This raises questions about the reasonableness of the PCR's use in the ex-post evaluation of the same benefits as were forecast at appraisal. Quite likely the benefits have been somewhat lower because less grain than expected has moved through the terminal, and the costlier handling at general cargo berths has

made savings correspondingly smaller. In addition, traffic has been added to berths that should be used otherwise. Some of the loss is compensated, however, by the benefit arising from the dead storage of grain in the silos; yet, this use of the existing assets is not likely to be one that maximizes benefits to the economy. Also, the silos, and particularly the equipment, turned out to be much more expensive than expected: the silos were 30% more expensive and the equipment was four times dearer than forecast. The audit agrees with the marginality of the rate of return estimated in the PCR.

(b) Bulk Commodities Pier (Pier 7)

29. An important objective of the project was to remove the handling of bulk commodities from the general cargo berths to a specialized pier so that more capacity would be available to cope with the expected increase in break bulk shipments. Thus, Pier 7 was built to handle coal, ores, minerals, scrap metal and steel. The size and design of Pier 7 was matched to the traffic forecasts but in contrast to grain, for which traffic just about matched the forecast, traffic intended for Pier 7 fell greatly short of appraisal projections (PPAM, Table 7). One reason for the shortfall in traffic is that the pier was designed to handle coal side by side with ores and minerals both of which are easily contaminated by coal dust. The contamination has discouraged the use of the pier for the ores and minerals and thus, while they were to be over 55% of Pier 7's traffic they are now less than 35% of what moves over it. Another reason for the low volumes is that a ship wrecking company started operating close to the port with the consequent decrease in imports of scrap and steel. Finally, the decreased domestic production of coal and a shift in coal shipping from cabotage to rail transport have also contributed to reduce the use of Pier 7. Given the much lower traffic volumes and the 60% higher than forecast cost of building and equipping Pier 7, the audit estimates the facility to have had a very low, if not negative, rate of return.

(c) Piers 1 North, 2, 3 and 4, Central Wharf and Lighter Wharf

30. Break bulk general cargo traffic grew faster than forecast until 1978 and the rehabilitation of Piers 1 and 2 was a welcome relief; however, it has fallen back considerably since then, mostly because of the rapid pace of containerization (PPAM, Table 3). The significantly improved and enlarged number of general cargo berths of the port are now used somewhat below their capacity, although more intensely than projected in part because of their use for containers but also because of the shortcomings of the grain terminal and Pier 7. The Region notes the throughput in Pusan is higher than in most ports and that it is high in consideration of these berths being used for container traffic. However, their rehabilitation was, overall, 88% more expensive than expected (measured in US dollars Pier 1 was 22% more, Pier 2 was 100% dearer and Piers 3 and 4 and the Central and Lighter Wharves were 200% more expensive than forecast) and thus the audit conjectures that the rate of return on investments would be no more than estimated at appraisal. The Region indicates that in its view the statement regarding 88% and 200% overruns cannot be supported.

(d) Passenger Facilities (Pier 1 South and the Pubkin Wharf)

31. At appraisal a significant increase was anticipated in the flow of passengers both on the international ferry to and from Japan and on domestic routes. The former was also expected to move a certain number of roll-on/roll-off container trailers. Thus, the First Project included the improvement of Pier 1 South for international passengers and ro-ro traffic, and improvement of the Pubkin Wharf for domestic use. However, as can be seen from PPAM, Tables 4 and 8, both the international ro-ro, and passenger traffic have been less than one-third of the expected volume and the domestic flow, though closer to expectations, has also been less than anticipated. The net result is that the international facility is considerably oversized and underutilized even in peak travel periods, while the domestic terminal, which was improved much more modestly than the international, is at times congested and crowded.

32. Also, due to the existence of a large rock formation at the end of the pier the full length of it cannot be used to dock either other ferries or tourist liners which are now calling quite often at Pusan. The lack of enough soundings prevented the detection of that formation which is only at 4 meters depth and would now be very expensive to remove. Therefore, it is unlikely that the utilization of the international terminal can be significantly increased.

(iii) Port of Mukho

33. The PCR for the First Project estimated the rate of return on investments at Mukho to be slightly less than 5%. The audit agrees that this probably reflects well the poor investment that the improvement of Mukho has turned out to be. Construction and equipment costs averaged well over 50% more than expected and traffic is but a fraction of what was expected (PPAM, Table 9). Although the port is well operated and maintained, it is considerably larger than necessary for its present and likely future traffic. The lack of port investment coordination manifest itself vividly in the construction of a new port at Pukpyong just a few kilometers south of Mukho. The new port competes directly with Mukho and has attracted a considerable proportion of what was expected to be Mukho's traffic. Another reason for the considerable shortfall at Mukho was the switch in the transport of domestic coal from cabotage to rail. A careful study of the alternatives for the transport of coal and also cement would have been needed prior to engaging in investing at Mukho; this was not done and the investment in Mukho has become largely redundant. In as much as the switch of mode of transport by the coal was the result of regulatory actions decreed by the Government, it could have been avoided if a proper coordinating authority had existed. The Region feels that the foregoing is not correct because rail and cabotage complement each other rather than compete for coal traffic at Mukho and also that a careful analysis was done but that obviously plans for a similar development at Pukpyong were not known to the appraisal team. The audit notes that the coal shipped from Mukho originated at mines which had direct access to Korea's rail system.

B. Financial Impact of the Project

34. At the time the Bank became involved with Korean ports financial control was unsatisfactory and record keeping was tailored for Government budgetary requirements rather than to assist management. In fact, there was no single and complete set of accounts, and although revenues were recorded in detail, expenses were only indicative of the true costs of operations. Remedial measures were to be implemented under the projects: consultants would help introduce a full commercial type accounting system where costs would be recorded by cost centers and intensive training in the bookkeeping aspects of the new system would be carried out. The new accounting system was to be a principal aid to the new ports authority in determining its costs and hence its cost-based tariff. However, since the Ports Authority was never created as an independent agency, it was not until fiscal year 1983 that commercial accounts were produced in parallel with the traditional administrative accounting used in the Government. In fact, the necessary legal actions that would sanction the use of the new accounting procedures have never been taken (PCR, para. 6.02).

35. The new accounting system was expected to generate the information to determine a uniform cost-based tariff for Pusan and Mukho and later all other ports under the jurisdiction of the new ports authority. A cost-based tariff has yet to be implemented.

36. The financial objective of the projects was to have the new ports authority become self sufficient by the time the First Project was completed; in particular, it was expected that Pusan and Mukho would no longer depend on subsidies. Financial self-sufficiency has been achieved at Pusan (PCR of First Project, paras. 5.03 to 5.06 and PCR for Second Project, paras. 5.01 to 5.06), not due to the introduction of the cost based tariff, but because the rapid rise in containerization has allowed the generation of sufficient revenues to improve the port's overall financial results. Container tariffs are high and unit costs to handle them are low. In contrast, at Mukho it will take a considerable time before the port breaks even in a commercial sense (PCR for First Project, paras. 5.07-5.10), and the cost-based tariff may never be introduced there because of its competitive disadvantage vis-a-vis Pukpyong.

C. Institutional Impact of the Project

37. At the time of the First Project there was little coordination of activities within or among individual ports. Too many operators were involved with the handling of cargoes within ports (which resulted in low throughputs) and there was little coordination between different ports as they were under the jurisdiction of a number of Governmental agencies spread across different ministries. The scattering of functions, plus the Economic Planning Board's control over budgets, resulted in weak, uncoordinated management, poor investment planning and disjointed financial and operational policies (SAR for First Project, paras. 11, 3.11-3.18).

38. It was proposed to deal with these problems by creating an independent and autonomous body similar to a statutory corporation. This new body would control all first class commercial ports in the country and would

be financially self-sufficient to insure that it made optimal investment decisions. The Korean Ports Authority (KPA) was expected to be free to determine its own budget, control its costs and determine port tariffs in a manner that would secure its viability by charging fully allocated costs to its users. A Plan of Action to achieve these objectives was attached as Schedule 5 to the Loan Agreement for the First Project which included, at the suggestion of the Bank, the Korean word "chong" to describe the nature of the new organization. Had the Bank known that a "chong", as was explained to the audit mission, is not an autonomous agency but a Government Department, it would most likely not have been used to describe the kind of organization that was proposed. Following the terms of the agreement the Government created the Korean Maritime and Ports Authority (KMPA) as a "chong" and also empowered it with regulatory functions such as licensing ships and crews and controlling cabotage and ocean-going shipping. Clearly, the Government was not prepared to relinquish control over port affairs and their administration and planning. However, for the past 10 years the Bank has been seeking unsuccessfully to relieve the agency of its regulatory functions and change it to an independent and autonomous port administration.

39. The dialogue that has taken place over the last decade puts in question the reasonableness of the objective still being sought by the Bank. Independent of whether the organization proposed by the Bank at the time of the project was one that satisfied both the Bank and the Government, the question now is whether the Bank should persist in institutionalizing an organizational arrangement with which the Government is evidently not comfortable. Since, according to Bank staff, due to the good Government/Bank dialogue, better coordination of investments and improved port planning for class one ports has already been largely implemented by the Government,^{7/} the outstanding issue would be the management of KMPA's financial and economic goals. The question is then whether those goals could not also be reached under the framework currently used by the Government. The Bank has under review a proposal by the Government under which the Government would institutionalize the use of commercial accounting to help guide the achievement of those financial and economic goals while leaving KMPA's administrative structure untouched (PCR on Second Project, para. 6.02 and Attachment to Table 8). A prompt decision would be desirable to both sides.

^{7/} Industrial ports, however, are still under the jurisdiction of the Ministry of Construction and the coordination mechanism with class one ports is still the same as it was before.

PROJECT PERFORMANCE AUDIT MEMORANDUM

KOREA FIRST AND SECOND PORT PROJECTS
(LOANS 917 AND 1401-KO)

Appraisal Cost Estimate vs. Actual Expenditures

	<u>APPRAISAL COST ESTIMATE</u>				<u>ADJUSTED APPRAISAL ESTIMATE /a</u>				<u>ACTUAL EXPENDITURES</u>					
	<u>First Project</u>		<u>Second Project</u>		<u>First Project</u>		<u>Second Project</u>		<u>First Project</u>		<u>Second Project</u>		<u>TOTAL</u>	
	<u>Won ₮</u>	<u>US\$m /b</u>	<u>Won ₮</u>	<u>US\$m /c</u>	<u>Won ₮</u>	<u>US\$m</u>	<u>Won ₮</u>	<u>US\$m</u>	<u>Won ₮</u>	<u>US\$m /d</u>	<u>Won ₮</u>	<u>US\$m /d</u>	<u>Won ₮</u>	<u>US\$m /d</u>
PUSAN														
<u>Civil Works</u>														
- Dredging	5,508	13.77	1,736	3.58			1,736	3.58	3,317	6.87	49,000	70.75	74,415	123.37
- Composite Pier	14,832	37.08	29,552	60.93			25,330	52.23	22,098	45.75))		
- Pier 1	4,656	11.64	-	-			-	-	6,868	14.22	-	-	6,868	14.22
- Pier 2	784	1.96	-	-			-	-	1,979	4.10	-	-	1,979	4.10
- Pier 3 & 4	-	-	2,088	4.31	-	-	2,088	4.31	-	-))		
- Central Whf.	-	-	757	1.56	-	-	757	1.56	-	-	14,211	20.25	14,211	20.25
- Lighter Whf.	-	-	503	1.04	-	-	88	0.18	-	-))		
- Pier 7	5,420	13.55	-	-			-	-	6,974	14.44	-	-	6,974	14.44
- Grain Silos	1,896	4.74	-	-			-	-	2,408	4.98	-	-	2,408	4.98
- Domestic Pax Tranl.	786	1.97	-	-			-	-	1,429	2.96	-	-	1,429	2.96
	<u>33,884</u>	<u>84.17</u>	<u>34,636</u>	<u>71.42</u>			<u>29,999</u>	<u>61.86</u>	<u>45,072</u>	<u>93.32</u>	<u>63,211</u>	<u>91.00</u>	<u>108,283</u>	<u>184.32</u>
<u>Equipment</u>														
- Container Handling	2,828	7.07	11,416	23.54			11,416	23.54	3,964	8.21	8,251	11.86	12,215	20.07
- Coal and Ore Hdlg.	1,664	4.16	-	-			-	-	2,921	6.05	-	-	2,921	6.05
- Scrap Handling	448	1.12	-	-			-	-	1,945	4.03	-	-	1,945	4.03
- Grain Handling	772	1.93	-	-			-	-	4,371	9.05	-	-	4,371	9.05
- Ro-Ro Ramp	172	.43	-	-			-	-	-	-	-	-	-	-
- Tugboats	-	-	3,787	7.79	-	-	1,893	3.90	-	-	919	1.40	919	1.40
	<u>5,884</u>	<u>14.71</u>	<u>15,203</u>	<u>31.33</u>			<u>13,309</u>	<u>27.44</u>	<u>13,200</u>	<u>27.33</u>	<u>9,170</u>	<u>13.26</u>	<u>22,370</u>	<u>40.60</u>
SUB-TOTAL PUSAN	39,768	99.42	49,839	102.75			43,308	89.30	58,272	120.65	72,381	104.25	130,653	224.90
MUKHO														
<u>Civil Works</u>														
- Dredging	32	.08	-	-			-	-	829	1.72	-	-	829	1.72
- Coal Pier	1,048	2.62	-	-			-	-	-	-	-	-	-	-
- Central Wharf	228	.57	-	-			-	-	2,310	4.78	-	-	2,310	4.78
- Breakwater	860	2.15	-	-			-	-	-	-	-	-	-	-
	<u>2,168</u>	<u>5.42</u>	-	-			-	-	<u>3,139</u>	<u>6.50</u>	-	-	<u>3,139</u>	<u>6.50</u>
<u>Equipment</u>														
- Coal Handling	1,576	3.94	-	-			-	-	2,561	5.30	-	-	2,561	5.30
SUB-TOTAL MUKHO	3,744	9.36	-	-			-	-	5,700	11.80	-	-	5,700	11.80
<u>CONSULTING SERVICES</u>	3,908	9.77	3,444	7.10			3,444	7.10	4,913	10.17	3,498	5.98	8,411	16.15
<u>TECHNICAL ASSISTANCE</u>	-	-	1,000	2.06			1,000	2.06	-	-	727	1.07	727	1.07
<u>ADDITIONS TO PROJECT /e</u>	-	-	-	-			-	-	-	-	4,622	6.29	4,622	6.29
TOTAL	47,420	118.55	54,283	111.92			47,752	98.46	68,886	142.62	81,228	117.59	150,113	260.21

/a Adjusted to reflect actual execution of project items.

/b At Won 400 per US\$

/c At Won 482 per US\$

/d At Average exchange rate of period when expenditures were incurred.

/e Includes forklift trucks and feasibility and engineering studies for possible Third Ports project.

Source: PCRs

January 1985

PROJECT PERFORMANCE AUDIT MEMORANDUM

KOREA FIRST AND SECOND PORT PROJECTS
(LOANS 917 AND 1401-KO)

Pusan Port - Forecast vs. Actual Dry Cargo Throughput
(Thousands of Tons)

	APPRAISAL FORECAST						ACTUAL		
	FIRST PROJECT			SECOND PROJECT			Dry Bulk	Gral. Cgo.	Total
	Dry Bulk	Gral. Cgo.	Total	Dry Bulk	Gral. Cgo.	Total			
1972	5,250	3,682	8,932	-	-	-	n.a.	n.a.	n.a.
1973	5,488	3,803	9,291	-	-	-	4,766	6,453	11,219
1974	5,803	4,001	9,804	-	-	-	4,443	7,650	12,093
1975	6,153	4,079	10,232	-	-	-	6,045	8,631	14,676
1976	6,513	4,332	10,845	8,404	8,153	16,557	7,724	11,668	19,392
1977	6,847	4,567	11,414	8,677	8,505	17,182	9,413	13,693	23,106
1978	7,230	4,785	12,015	8,632	8,874	17,506	7,975	16,218	24,193
1979	7,604	5,024	12,628	8,991	9,262	18,253	7,817	17,304	25,121
1980	7,998	5,249	13,247	9,379	9,667	19,046	6,394	16,327	22,721
1981	9,456	4,296	13,752	9,794	10,095	19,889	7,973	19,149	27,122
1982	-	-	-	10,033	10,549	20,582	9,882	16,573	26,455
1983	-	-	-	10,284	11,029	21,313	10,781	18,044	28,825
1986	7,360	9,905	17,265	11,103	12,603	23,706	-	-	-

Source: PCRs

March 1985

PROJECT PERFORMANCE AUDIT MEMORANDUM

KOREA FIRST AND SECOND PORT PROJECTS
(LOANS 917 AND 1401-KO)

Pusan Port - Forecast vs. Actual Throughput of Break Bulk and Containerized General Cargo
(Thousands of Tons)

	APPRAISAL FORECAST						ACTUAL		
	FIRST PROJECT			SECOND PROJECT			Break Bulk	Contain-erized	Total Gral. Cgo.
	Break Bulk	Contain-erized	Total Gral. Cgo.	Break Bulk	Contain-erized	Total Gral. Cgo.			
1973	3,333	470	3,803	-	-	-	5,510	943	6,453
1974	3,331	670	4,001	-	-	-	6,120	1,530	7,650
1975	3,199	880	4,079	-	-	-	5,130	3,501	8,631
1976	3,232	1,100	4,332	4,778	3,375	8,153	6,470	5,198	11,668
1977	3,192	1,375	4,567	4,944	3,561	8,505	7,040	6,653	13,693
1978	3,145	1,640	4,785	5,090	3,784	8,874	8,325	7,893	16,218
1979	3,116	1,908	5,024	5,089	4,173	9,262	8,062	9,242	17,304
1980	3,077	2,172	5,249	5,080	4,587	9,667	5,913	10,414	16,327
1981	1,859	2,437	4,296	5,136	4,959	10,095	7,149	12,000	19,149
1982	-	-	-	5,150	5,399	10,549	2,044	14,529	16,573
1983	-	-	-	5,158	5,831	11,029	2,082	15,962	18,044

Source: PCRs

March 1985

PROJECT PERFORMANCE AUDIT MEMORANDUM

KOREA FIRST AND SECOND PORT PROJECTS
(LOANS 917 AND 1401-KO)

Pusan Port - Forecast vs. Actual Throughput of Container Traffic
(Thousands of Containers)

	APPRAISAL FORECAST					ACTUAL			
	FIRST PROJECT				SECOND PROJECT	At General Cargo Berth	Interntl. Ferry Berth	Container Pier	TOTAL
	At General Cargo Berth	Interntl. Ferry Berth	Container Pier	Total	Total				
1972	12	15	-	27	-	35	-	-	35
1973	20	26	-	46	-	82	-	-	82
1974	28	37	-	65	-	133	-	-	133
1975	34	47	-	81	-	173	-	-	173
1976	40	56	-	96	-	238	-	-	238
1977	76	56	-	132	224	312	-	-	312
1978	0	56	108	164	232	347	-	-	347
1979	0	56	140	196	253	209	17	176	402
1980	0	56	172	228	275	223	19	195	437
1981	0	56	204	260	298	286	18	223	527
1982	-	-	-	-	321	269	n.a.	283	552
1983	-	-	-	-	346	286	n.a.	340	626
1986	0	56	344	400	395	-	-	-	-

Source: PCRs

May 1984

PROJECT PERFORMANCE AUDIT MEMORANDUM

KOREA FIRST AND SECOND PORT PROJECTS
(LOANS 917 AND 1401-KO)

Pusan Port - Forecast vs. Actual Throughput of Container Traffic
(Thousands of Tons)

Year	APPRAISAL FORECAST					ACTUAL			
	FIRST PROJECT				SECOND PROJECT	At General Cargo Berth	Interntl. Ferry Berth	Container Pier	TOTAL
	General Cargo Berth	Interntl. Ferry Berth	Container Pier	Total	Total				
1972	100	175	-	275	-	425	-	-	425
1973	190	280	-	470	-	943	-	-	943
1974	280	390	-	670	-	1,530	-	-	1,530
1975	370	510	-	880	-	3,501	-	-	3,501
1976	480	620	-	1,100	3,375	5,198	-	-	5,198
1977	759	620	-	1,375	3,561	6,653	-	-	6,653
1978	0	620	1,020	1,640	3,784	7,893	-	-	7,893
1979	0	620	1,288	1,908	4,173	5,817	200	3,232	9,242
1980	0	620	1,552	2,172	4,587	6,417	213	3,784	10,414
1981	0	620	1,817	2,437	4,959	7,305	212	4,483	12,000
1982	-	-	-	-	5,399	8,174	n.a.	6,355	14,529
1983	-	-	-	-	5,871	8,539	n.a.	7,423	15,962
1986	0	620	3,165	3,785	6,984	-	-	-	-

Source: PCRs

May 1984

PROJECT PERFORMANCE AUDIT MEMORANDUM

KOREA FIRST AND SECOND PORT PROJECTS
(LOANS 917 AND 1401-KO)

Pusan Port - Forecast vs. Actual Grain Traffic
(Thousands of Tons)

Year	APPRAISAL FORECAST				ACTUAL		
	FIRST PROJECT			SECOND PROJECT	At General Cargo Berth	At New Grain Facility	TOTAL
	At General Cargo Berth	At New Grain Facility	Total	Total			
1972	1,000	-	1,000	-	917	-	917
1973	1,060	-	1,060	-	1,087	-	1,087
1974	1,120	-	1,120	-	644	-	644
1975	1,180	-	1,180	-	977	-	977
1976	1,250	-	1,250	1,002	1,099	-	1,099
1977	1,300	-	1,300	1,042	1,296	-	1,296
1978	0	1,400	1,400	1,084	1,189	-	1,189
1979	0	1,460	1,460	1,127	637	1,014	1,651
1980	0	1,530	1,530	1,172	200	1,255	1,455
1981	0	1,600	1,600	1,219	321	1,225	1,546
1982	-	-	-	1,286	81	1,420	1,501
1983	-	-	-	1,318	126	1,678	1,804
1986	0	2,000	2,000	1,483	-	-	-

Source: PCRs

May 1984

PROJECT PERFORMANCE AUDIT MEMORANDUM

KOREA FIRST AND SECOND PORT PROJECTS
(LOANS 917 AND 1401-KO)

Pusan Port - Forecast vs. Actual Coal, Ore & Minerals, Scrap & Steel Traffic
(Thousands of Tons)

	APPRAISAL FORECAST						ACTUAL					
	Coal		Ore & Minerals		Scrap & Steel		Coal		Ore & Minerals		Scrap & Steel	
	At Gen. Cargo Berth	at Pier 7										
1972	1,000	-	650	-	1,070	-	383	-	277	-	n.a.	-
1973	1,060	-	660	-	1,095	-	446	-	384	-	n.a.	-
1974	1,120	-	670	-	1,195	-	725	-	368	-	n.a.	-
1975	1,185	-	685	-	1,170	-	950	-	359	-	n.a.	-
1976	1,250	-	700	-	1,320	-	806	-	522	-	n.a.	-
1977	0	1,310	0	715	385	950	783	-	650	-	n.a.	-
1978	0	1,370	0	730	350	1,000	873	-	497	-	n.a.	-
1979	0	1,450	0	755	315	1,065	287	790	450	16	n.a.	260
1980	0	1,525	0	770	280	1,110	219	1,012	313	69	n.a.	442
1981	0	1,600	0	800	240	1,150	351	1,039	478	85	n.a.	734

Source: PCRs

May 1984

TABLE 8

PROJECT PERFORMANCE AUDIT MEMORANDUM
KOREA FIRST AND SECOND PORT PROJECTS
(LOANS 917-KO AND 1401-KO)

Pusan Port - Forecast vs. Actual Passenger Traffic
(Thousands of Passengers)

	<u>INTERNATIONAL</u> <u>TERMINAL</u>		<u>DOMESTIC</u> <u>TERMINAL</u>	
	<u>Appraisal</u> <u>Estimate</u>	<u>Actual</u>	<u>Appraisal</u> <u>Estimate</u>	<u>Actual</u>
1972	48.0	-	2,050.0	-
1976	70.0	-	2,400.0	-
1979	-	-	-	1,439.0
1980	-	40.7	-	1,509.2
1981	115.0	51.2	2,900.0	1,548.3
1982	-	56.5	-	1,781.8
1986	185.0	-	3,550.0	-

Source: KMPA

May 1984

PROJECT PERFORMANCE AUDIT MEMORANDUM

KOREA FIRST AND SECOND PORT PROJECTS
(LOANS 917 AND 1401-KO)

Mukho Port - Forecast vs. Actual Coal, Cement and Limestone Traffic /a
(Thousands of Tons)

	<u>APPRAISAL FORECAST</u>				<u>ACTUAL</u>			
	<u>Coal</u>	<u>Cement</u>	<u>Limestone</u>	<u>TOTAL</u>	<u>Coal</u>	<u>Cement</u>	<u>Limestone</u>	<u>TOTAL</u>
1972	1,800	2,150	60	4,010	1,043	1,461	22	2,526
1973	1,900	2,350	66	4,316	1,054	1,797	17	2,868
1974	1,967	2,600	265	4,832	1,454	2,263	12	3,729
1975	2,033	2,850	265	5,148	1,670	2,895	12	4,577
1976	2,100	3,100	265	5,465	1,421	3,043	8	4,472
1977	2,180	3,350	325	5,855	1,593	3,240	8	4,841
1978	2,260	3,600	385	6,245	1,506	2,794	6	4,306
1979	2,340	3,850	445	6,635	1,572	2,245	6	3,823
1980	2,420	4,100	505	7,025	1,619	1,793	6	3,418
1981	2,500	4,400	565	7,645	1,397	1,875	6	3,278

/a 99% of total traffic at port.

Source: PCRs

May 1984

KOREA
FIRST PORT PROJECT
PROJECT COMPLETION REPORT

1. INTRODUCTION

1.01 The need for greatly increased investments in the Korean transport sector was identified in 1965/66 by an overall transport study financed by the Bank and carried out by French and Dutch consultants. Successive economic missions found that bottlenecks in rail and road transport and in ports would hamper the continued growth of the economy. These findings led to a substantial lending program in the transport sector, including ports.

1.02 The Bank's aim in the transport sector and in the port subsector in particular is to support the Government's strategy of: (a) increasing the capacity of the most vital elements of the system; (b) improving the efficiency of the system; and (c) creating and developing appropriate policies and institutions. This first project addressed all three objectives. It increased the capacity of Korea's most important foreign trade port in Busan; it improved port efficiency by introducing container facilities at Busan, and specialized bulk handling facilities at Busan and Mukho, a coal and cement port of the northeastern region; it assisted Government to establish a port authority to carry out the project and operate, maintain, and develop facilities at Korea's main commercial ports. Subsequent to the First Port Project the Bank-financed the Second Port Project in 1977 (Loan 1401-KO), and the loan amount was US\$67.0 million.

1.03 This project completion report is based on information provided by Korea Maritime and Ports Administration (KMPA) during a project completion mission in June 1981 and a review of the Bank's files in Washington.

2. PROJECT PREPARATION AND APPRAISAL

2.01 The project was based on a UNDP-financed and Bank supervised study which drew up a Master Plan for developing the two project ports and Korea's 15 other first class ports. Upon completion of the study in November 1972, the Government of Korea prepared a Five-Year (1972-1976) ports investment program totaling Won 91,400 (US\$228 million), and requested the Bank to assist in financing improvements to the ports of Busan and Mukho.

2.02 The project agreed to at negotiations totalled US\$131.05 million with a foreign exchange component of US\$87.5 million and a Bank loan of 80.0 million. Its breakdown is given below:

APPRAISAL COST ESTIMATES (US\$ million)

	Local	Foreign	Total
A. Civil works, Busan	22.670	42.610	65.280
Muhko	2.275	1.900	4.175
B. Mechanical, Busan	1.325	11.610	12.935
Muhko	0.375	3.100	3.475
C. Final design and supervision	1.350	4.900	6.250
D. Development study Phase II	0.190	0.800	0.990
E. Technical assistance	0.160	1.200	1.360
F. Physical contingencies	4.080	7.220	11.300
G. Price contingencies	6.125	6.660	12.785
Subtotal	<u>38.550</u>	<u>80.000</u>	<u>118.550</u>
Military wharf	5.000	7.500	12.500
Total	<u>43.550</u>	<u>87.500</u>	<u>131.050</u>

2.03 The main components of the project were as follows:

(a) At Busan

- (i) a composite pier with two 330 m container berths and stacking area; and a 370 m long grain berth with storage silos of 80,000 tons capacity both with appropriate equipment;
- (ii) a bulk handling pier (No. 7) with one coal import berth, two ore and mineral export berths and one import berth for scrap and heavy steel with a total length of 585 m; necessary cranes and bulk handling equipment;
- (iii) dredging to provide a 13.5 m deep access channel, 10 m depth alongside at the bulk pier (for 15,000 dwt ships) and 12.5 m depth alongside at the composite pier (for 60,000 dwt ships);

- (iv) a new international ferry berth on pier No. 1 South with roll-on/roll-off ramp (RO/RO) and passenger facilities, and rehabilitation of pier No. 1 North for general cargo;
- (v) coastal ferry berth with passenger facilities;
- (vi) rehabilitation of pier No. 2 for general cargo; and
- (vii) a new military berth-pier No. 8 (Government financed).

(b) At Mukho

- (i) Two new coal piers with improvement to the existing conveyor systems and new mechanical loaders;
- (ii) a new belt reclaimer system in the existing open storage area for the delivery of coal and limestone to the pier conveyor system;
- (iii) dredging to 8 m depth alongside the new coal piers (for 8,000 dwt ships);
- (iv) raising the existing East breakwater to an elevation of 5 m and strengthening the side slopes; and
- (v) rehabilitation of the existing cement and general cargo berths.

(c) Consulting Services

- (i) for detailed design and supervision of the construction of the above works (consultants employed were: Lyon Associates, USA); and
- (ii) to prepare a Phase II Development Plan (consultants employed were: King & Gavaris, Trans-Asia and A. D. Little, USA).

(d) Technical Assistance to assist in formation of policies and procedures for KMPA and for on-the-job training of personnel.

2.04 The particular covenants included in the Loan Agreement are shown in Annex I, with the degree of compliance for each of them. The project completion date was set at June 30, 1978 and the closing date at June 30, 1979.

3. PROJECT IMPLEMENTATION AND COST

Implementation

3.01 Except for the usual minor difficulties, implementation was satisfactory. Consultant's performance for feasibility studies as well as for detailed design and supervision (para. 2.03c) was good; and construction proceeded without significant problem. The only remarkable event occurred at Mukho where work on the breakwater was seriously affected by storms during the winter season. This resulted in damage from high waves and the contractors were granted an extension of 108 days which brought the contract scheduled completion date to August 12, 1973.

3.02 The closing date was extended one year to June 30, 1980 in order to satisfactorily complete the technical assistance and training in commercial accounting procedures, and container operations, including computer programming in Busan. Terminal operating companies (TOCs') appointed by KMPA, are now satisfactorily operating the coal handling facilities at Mukho and the container, grain, coal, and scrap metal handling terminals in Busan. The computer control of the TOCs' operations is satisfactory. KMPA's coordination with port users including other government agencies such as the railways, municipalities, could, however, be strengthened.

Cost

3.03 The total cost estimate for commercial facilities in the appraisal report was US\$118.5 million equivalent, including US\$80.00 million in foreign exchange. This estimate was revised in 1974, following the first major oil price increase, to a total cost of US\$168 million including US\$115 million in foreign exchange. At this time, the Saudi Fund for Development (SFD) agreed to finance the estimated US\$35 million overrun in foreign exchange. However, in the end, the project cost was only Won 71.0 billion with US\$101.2 million in foreign exchange. Details of actual project cost as compared to appraisal cost estimates are presented in Table 1. The actual SFD expenditure for the project thus amounted to only US\$21.2 million, and the SFD agreed with the Korean government to use the surplus of US\$13.8 million in works outside the project scope. The reason for over estimating the foreign exchange component of the project cost in 1974 is the 20% Won devaluation which occurred in December 1974. The Won previously valued at US\$1 = 398 was changed to US\$1 = 484; the latter rate remained unchanged until the end of 1979.

Project Implementation Schedule

3.04 The Basic Data Sheet summarizes the appraisal estimate of project timing compared with actual achievements. Also, the actual Procurement Schedule for Bank financed items is presented in Table 2. The notable feature

is the long time taken by Government between Bank's agreement to the tender documents and the bid invitation for some of the contracts. For example, this period exceeded eight months for the completion contract for pier 7, and seven months for the rehabilitation contract for pier 2. The latter delay involved moving the completion date to June 1980. These delays were mainly due to KMPA's lack of experience of Bank's procurement procedures and the long time taken for Bank review and long mail delivery.

Disbursement

3.05 The actual disbursement schedule as compared to the appraisal estimate is given in the following table:

Cumulative (US\$,000)

Bank fiscal year	Actual total disbursements	Appraisal estimate	Actual disbursement % of appraisal estimate
1974		1,500	00
1975	-	17,100	00
1976	6,600	37,950	39
1977	22,872	57,700	60
1978	42,810	74,050	74
1979	69,464	80,000	93
1980	80,000	-	100

4. TRAFFIC

Busan

4.01 Dry Cargo traffic at Busan port increased much faster than estimated at appraisal. Extremely rapid growth occurred in the three years 1974 to 1977 when traffic almost doubled from 12 to 23 million tons (Table 3). Since then, traffic has remained at about twice the appraisal forecast, except for 1980 when it fell with the overall economy.

4.02 On the special berths financed by the project, the traffic in the first two full years of operation 1979 and 1980 has been somewhat below forecast in total, reaching 95% of the estimate in 1980. Traffic is however, expected to exceed the estimate in 1981. This aggregate hides major differences in the use of the various specialized berths. While the container pier is already used at capacity, and the overflow is handled on the general cargo berths, the grain terminal, the bulk terminal (pier 7) and the ferry terminal are used less than anticipated.

4.03 The lesser use of the grain pier is explained by congestion at the port's silo, in which grain is stored longer than planned to make up for insufficient storage facilities in the interior of the country. However, total grain traffic through the port matched almost exactly appraisal forecasts, as general cargo berths were used to make up for the inadequate use of the project grain berth.

4.04 Traffic on the bulk terminal Pier 7 is less than half the forecast (1.5 million tons in 1980 versus 3.4 million expected). The various reasons are: (a) the decision to limit the use of the pier to coal and scrap i.e. excluding the handling of ores because of their contamination by coal dust; (b) the lower volumes of coal shipped from Mukho due to lower coal production and more rail transport rather than coastal shipping; and (c) the poor performance of the equipment on the scrap pier. The expected Ro-Ro container traffic on the ferry terminal has not materialized either and is only a third of the forecast. The reason is that much traffic from Japan is now coming by air rather than by sea.

4.05 In the future, container capacity will remain the major bottleneck in Busan. The extension to the container berth being built under the second project will be fully used at opening, and preparation is being made for a further expansion. The situation of the bulk pier is less certain since the city of Busan plans to construct a new coal terminal in the outer harbor. The facilities for scrap will however be upgraded.

Mukho

4.06 Traffic at Mukho is falling short of appraisal forecasts. In 1980 the port handled 4.5 million tons compared to a forecast of 7.4 million tons (Table 4). The reasons for the shortfall are (a) the lower production of domestic anthracite (total production for the country should have reached 24 million tons in 1981 according to the 1977-81 five year plan but is stagnating around 19 million tons), and (b) the diversion of cement traffic to the new industrial port of Bugpyeong about 10 km away from Mukho. No future traffic growth is expected at this time; further traffic decrease is even likely as more cement traffic (still accounting for 1.8 million tons/year compared with the appraisal forecast of 4.1 million tons) is diverted to Bugpyeong. The latter port was planned and built by MOC which was responsible for building "industrial ports" without prior coordination with MOT/KMPA. This major inadequacy in port planning is discussed further in para. 8.02.

5. FINANCIAL PERFORMANCE OF THE BORROWER

5.01 With respect to finances, the objectives of the project were to (a) have KMPA apply commercial financial procedures, planning, budgeting and accounting; (b) take action aimed at assuring the financial viability of the project ports of Busan and Mukho; and (c) assess conditions under which KMPA as a whole can become financially viable without depending on Government subsidies.

5.02 For reasons to be explained in Chapter 6, KMPA was established as an office operating under the government budget system and could consequently not "manage its affairs, plan its future investments and maintain its financial position in accordance with appropriate business and financial principles and practices" as provided for under Section 3.02(c) of Loan Agreement 917-K0. As explained in para. 6.06 and 6.07 the switch from the administrative budgeting system to the commercial financial system is difficult and is not expected to be completed prior to January 1, 1983. Consequently, KMPA's present administrative accounting procedures do not permit assessing KMPA's overall financial performance nor defining criteria necessary for setting its financial goals. To assess the financial performance of the two project ports, KMPA prepares Busan and Mukho's financial statements under a commercial form in parallel with administrative accounting statements. While these statements, which are not based on comprehensive subsidiary books do not provide fully accountable data, their accuracy is sufficient for analyzing the Project Ports' financial performance and situation.

Busan

5.03 Tables 5 to 8 show Busan's income statement, sources and applications of funds, balance sheet and significant financial ratios as anticipated at appraisal for 1973-81, and actuals for 1973-79, estimated for 1980 and forecast for 1981. The following table summarizes these statements for (a) 1974, the first year during which the loan was effective; (b) 1978, the first year during which project investments were fully utilized, and which was at the same time the first year during which the project's port were expected to meet the rate of return target; and (c) 1980 the year of the loan's closing date.

Income Statement

5.04 The following table shows that the port of Busan achieved rates of return on net fixed assets in use substantially higher than forecast at appraisal despite (a) the project's cost overrun explained in para. 3.04 and (b) additional investments undertaken using excess funds under the SFD loan (para. 3.04), and (c) implementation of the Second Bank's Port Project. The port's better than expected performance is explained by (a) its much higher than forecast overall traffic performance, (b) higher than expected revenues per ton in current and real terms, and (c) lower than anticipated operating

BUSAN
SUMMARY OF FINANCIAL SITUATION
(Won million)

	1974		1978		1980	
	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual
Income Statement						
Traffic ('000 metric tons)	13,109	14,165	17,494	27,212	20,904	25,590
Operating revenue	1,531	1,586	7,184	7,432	7,333	14,317
Working expenses	618	388	1,699	626	1,707	1,664
Depreciation	410	410	1,646	444	1,678	2,014
Net operating revenue	503	788	3,839	6,362	3,948	10,639
Financial charges	314	243	2,547	2,385	2,601	5,413
Book profit (loss)	189	545	1,292	3,977	1,347	5,226
Sources and Application of Funds						
Internal cash generation	913	1,204	5,485	6,806	5,626	12,653
Government subsidies	1,168	-	-	7,508	-	12,920
Borrowing	3,770	665	4,910	13,584	-	11,614
<u>Total Sources</u>	<u>5,851</u>	<u>1,869</u>	<u>10,395</u>	<u>27,898</u>	<u>5,626</u>	<u>37,187</u>
Capital investments	5,940	1,626	7,753	25,091	1,000	29,582
Debt service	314	243	2,547	2,384	4,420	7,772
<u>Total Application</u>	<u>6,254</u>	<u>1,869</u>	<u>10,300</u>	<u>27,475</u>	<u>5,420</u>	<u>37,354</u>
Annual variations in working capital	(403)	-	95	423	206	(167)
Balance Sheet						
Working capital	-	-	257	524	702	(251)
Net fixed assets	19,331	23,601	67,522	95,566	66,396	131,320
Other assets	-	-	-	456	-	18,391
<u>Total Assets</u>	<u>19,331</u>	<u>23,601</u>	<u>67,779</u>	<u>96,546</u>	<u>67,098</u>	<u>149,460</u>
Long-term debt	3,970	665	37,285	36,994	33,943	73,022
Equity equivalent	15,361	22,936	30,494	59,552	33,155	76,438
<u>Total Liabilities</u>	<u>19,331</u>	<u>23,601</u>	<u>67,779</u>	<u>96,546</u>	<u>67,098</u>	<u>149,460</u>
Ratios						
Working (working expenses/operating revenue)	40	25	24	8	23	12
Rate of return on net fixed Assets in use	4.0	4.6	8.0	15.0	6.0	10.0
Current assets/current liabilities	NA	NA	1.8	1.5	3.0	0.9
Debt to equity	21/79	28/72	55/45	38/62	50/50	49/51

costs per ton in both current and real terms, mainly thanks to the port's staff high productivity which allowed it to handle additional traffic at low incremental cost.

Financial Situation

5.05 The following table compares the Busan Port's sources and applications of funds cumulated over 1973-80 as planned at appraisal with actuals in won million and in percentage of totals:

	Sources			
	Appraisal	%	Actuals	%
Internal cash generation	23,604	36	41,495	30
Government contribution to investments	4,642	7	33,601	25
Borrowing	31,335	57	60,644	45
<u>Total</u>	<u>65,581</u>	<u>100</u>	<u>136,190</u>	<u>100</u>
	Applications			
	Appraisal	%	Actuals	%
Investments	48,878	75	117,691	86
Debt services	16,001	25	18,750	14
<u>Total</u>	<u>64,879</u>	<u>100</u>	<u>136,441</u>	<u>100</u>
Variation in working capital	702		(251)	

The actual cash generation exceeded appraisal forecasts by about 76%. Despite this increase, the share of the cash generation in the financing of investments was only 35% while appraisal anticipation was 48% due to the faster increase in investment cost. To make up for the relevant shortfall without unduly increasing the port's debt service the Government provided won 29 billion more than forecast at appraisal. However, this was not enough to maintain the working capital at an adequate level as shown by the won 250 billion excess of short-term liabilities over current assets by the end of 1980. Based on KMPA's budgetary projections this situation is expected to continue in 1981. Under KMPA's present status as an office operating under the Government budget system this situation does not require immediate remedial action. However, Busan port's working capital will have to be raised to an adequated level by early 1983 when commercial financial procedures will be applied.

5.06 Except for the shortage in working capital, Busan's financial situation is in line with appraisal forecasts as reflected by the 49/51 debt to equity ratio which matches appraisal anticipation. Implementation of the

Second Ports Project, which consists mainly of a further extension of Busan's container handling capacity, will increase its profitability and allow it to generate funds needed for providing its share in the financing of the Third Project now under preparation.

Mukho

5.07 Mukho's port income account, sources and applications of funds, balance sheet and significant financial rates as anticipated at appraisal for 1973-81, actuals for 1973-79, estimated for 1980, and forecast for 1981 are given in tables 9 to 12. These tables are summarized below for the same key years used for analyzing the finances of the Port of Busan (see following page).

Income Statement

5.08 The table next page shows that the Port of Mukho never met rates of return anticipated at appraisal and was somewhat short of meeting the target set under Section 4.05(a) of the Loan Agreement. The two main reasons behind this failure are the lower than anticipated traffic performance explained in para. 4.05 and the project's cost overrun explained in para. 3.04.

Financial Situation

5.09 The following table compares appraisal forecasts and actuals of the Mukho ports sources and applications of funds cumulated over 1973-80 in Won million and in percentage of totals.

	Sources			
	Appraisal	%	Actuals	%
Internal cash generation	3,607	49	3,192	38
Government contribution to investments	917	13	2,077	24
Borrowing	2,765	38	3,225	38
<u>Total</u>	<u>7,289</u>	<u>100</u>	<u>8,494</u>	<u>100</u>
	Applications			
	Appraisal	%	Actuals	%
Investments	5,529	83	7,198	85
Debt service	1,170	17	1,291	15
<u>Total</u>	<u>6,699</u>	<u>100</u>	<u>8,489</u>	<u>100</u>
Variation in working capital	590		5	

MUKHO

SUMMARY OF FINANCIAL SITUATION
(Won million)

	1974		1978		1980	
	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual
Income Statement						
Traffic ('000 metric tons)	5,054	4,140	6,548	5,081	7,371	4,453
Operating revenue	327	194	941	793	1,023	1,747
Working expenses	156	97	255	203	266	707
Depreciation	56	56	175	100	200	255
Net operating revenue	115	41	511	490	557	785
Financial charges	-	-	-	349	198	346
Book profit (loss)	68	14	314	251	359	439
Sources and Application of Funds						
Internal cash generation	171	96	686	590	757	1,040
Government subsidies	326	-	-	314	-	155
Borrowing	630	-	210	607	-	-
<u>Total Sources</u>	<u>1,121</u>	<u>96</u>	<u>896</u>	<u>1,511</u>	<u>757</u>	<u>1,195</u>
Capital investments	1,080	70	610	1,558	400	735
Debt service	47	26	196	221	243	468
<u>Total Application</u>	<u>1,127</u>	<u>96</u>	<u>806</u>	<u>1,779</u>	<u>643</u>	<u>1,203</u>
Annual variations in working capital	-	-	-	(268)	114	(8)
Balance Sheet						
Working capital	-	-	381	17	590	5
Net fixed assets	3,958	6,415	7,068	11,573	7,491	15,881
Other assets	-	-	-	13	-	1,219
<u>Total Assets</u>	<u>3,958</u>	<u>6,415</u>	<u>7,449</u>	<u>11,603</u>	<u>8,081</u>	<u>17,105</u>
Long-term debt	630	-	2,755	3,225	2,699	4,253
Equity equivalent	3,328	6,415	4,694	8,378	5,382	12,852
<u>Total Liabilities</u>	<u>3,958</u>	<u>6,415</u>	<u>7,449</u>	<u>11,603</u>	<u>8,081</u>	<u>17,105</u>
Ratios						
Working Rate of return on net. fixed assets in use	48	50	27	26	26	40
Current assets/current liabilities	4.5	0.9	8.6	5.5	7.9	5.7
Debt to equity	NA	NA	5.8	1.1	8.6	1.0
	16/84	0/100	37/63	28/72	33/67	25/75

Investment costs exceeded appraisal projection by about 30% while the internal cash generation was 12% lower than those projections. As for Busan the Government made up for most of the consequent shortage of funds by providing additional contributions rather than increasing borrowing and the relevant debt service. However, the port's working capital is depleted and will need to be restored by early 1983, when KMPA will operate under commercial financial procedures.

5.10 Once its working capital is restored, the port of Mukho will be in a comfortable financial situation as disclosed by the easy 26/74 debt to equity ratio anticipated by the end of 1981. This situation is not expected to deteriorate in the future considering that: (a) the investments constructed under the project are under utilized, i.e. no substantial additional investments are contemplated, and (b) under present tariff levels it can generate enough funds to finance its renewals and serve its long term debt in addition to covering its working expenses.

6. INSTITUTIONAL PERFORMANCE AND DEVELOPMENT

6.01 The project's main institutional objective was the establishment of a Korean Port Authority (KPA) to assume full control of Korea's 17 first class ports. In the past this control was fragmented between: (a) MOT, whose Bureau of Marine Transportation was in charge of supervising operation and administration; (b) MOC, whose Bureau of Harbor Development looked after design and construction; and (c) the Economic Planning Board (EPB), which approved and controlled port budgets.

6.02 Under the provisions of Section 3.02(c) of Loan 5 --KO, KPA (named KMPA by the Government) was to have "independence and autonomy similar to that of Borrower's statutory corporations in their day-to-day operations". This provision was further detailed in the Plan of Action (Schedule 5 of Loan Agreement 917-KO) which listed KMPA's functions and responsibilities, the most significant of which were the "maintenance of financial viability" and the "formulation of budgets and tariffs for individual ports".

6.03 The Plan of Action provided that KMPA was to be established "as an Office (chong)" with: (a) a Director-General of Vice Minister's rank assisted by a Deputy Director-General; (b) six main bureaus in charge of Planning, Technical Operations, Finance, Internal Audit, Administration and Data Processing respectively, the last to be established at a later stage. The January 1979 supervision mission found that the introduction of the Korean term "chong" into the Plan of Action had "caused confusion", since a "chong" is an office operating under the government budget system, which implied that KMPA's management and accounts would follow administrative rules and procedures. This is contrary to the intent of Section 3.02 of the Loan Agreement and of the Plan of Action which contemplated a commercial-type management and commercial financial and accounting procedures.

6.04 In July 1974, the consulting firm of Booz, Allen and Hamilton International (Bahint) was hired to carry out a study to formulate KMPA's future optimal financial, operational and managerial procedures. Bahint recommended that KMPA be established as a commercial type entity with wide organizational, managerial and financial autonomy. However, the Government's literal interpretation of the word "chong" resulted in its refusal to accept Bahint's recommendations and legislation was drafted providing for an administrative-type organization and management, under which KMPA was established on March 13, 1976. This implied that KMPA's accounting would be in accordance with the budgetary system. However, mainly as a result of Bank pressure, the Government agreed in principle that KMPA would adopt a commercial accounting system. This implied a revision of Law 928 which regulates government agencies accounting procedures along the budgetary system. However, this revision has not yet been carried out and KMPA's official accounts are still kept under the budgetary system. The accounts of the project ports of Busan and Mukho are also prepared under the commercial form, but the relevant statements are not based on comprehensive and reliable subsidiary books and are consequently not fully accurate and not audited. Audits along Bank guidelines are planned to start in early 1984, upon completion of KMPA's first formal commercial accounting fiscal year.

6.05 In June 1977, KMPA started procedures to select consultants to help in implementing the commercial accounting, costing and budgetary system recommended by Bahint. The Korean accounting firm Ahn, Kwon and Co., in association with Sycip, Gorres and Velayo (Philippines) (SGV) were selected. SGV started work in July 1978 and completed it in June 1980. Its activities consisted of updating Bahint's manuals and training KMPA staff in commercial budgeting and accounting procedures rather than assisting KMPA to implement the Bahint system. The update of the Bahint manuals was necessary to adapt its recommendations to KMPA's organization. The training effort was aimed at upgrading KMPA staff in view of KMPA's inability to recruit qualified and experienced accountants due to its rigid and low administrative salary scale.

6.06 In order to grant KMPA the independence and authority originally intended under Section 3.02(c) of Loan 917-KO the Government and the Bank agreed during negotiations of the Second Ports Project that KMPA be vested not later than January 1, 1979 with "autonomous power including, inter alia powers to incur debt, fix emoluments of its staff, prepare its budgets in commercial form, maintain a bank account and keep its records in a commercial form" (Loan Agreement 1401-KO, Section 3.02(a)). The target date of January 1, 1979 could not be maintained, mainly because of several changes in key ministerial staff during the last two years. KMPA, the Government and the Bank have now agreed that formal implementation of KMPA's commercial budgeting and accounting system will start on January 1, 1983.

6.07 However, despite continuous pressure by Bank supervision missions, the Government is reluctant to take the legal action required to implement the other organizational changes listed in Section 3.02 of Loan Agreement 1401-KO. To obtain compliance with all the provisions of this section, the Bank will have to convince KMPA's new managerial staff and the newly appointed government officials in charge of supervising KMPA of the beneficial effect of such

implementation on KMPA's productivity and profitability. While enforcing these changes at the time KMPA was established would most probably have been easy, it will now be a much more difficult process. The ongoing preparation of the Third Ports Project provides the Government and the Bank with an opportunity to reopen the dialog on KMPA's status.

7. ECONOMIC REEVALUATION

7.01 At the time of appraisal, the main project benefits were expected to be those related to container traffic. They were forecast to account for half of the total benefits in the first year of operation (1977) and to increase to 87% of total benefits by 1986. The actual situation shows that the large benefits related to containers expected by 1986 were achieved already in 1980; when the container pier was used at capacity, handling almost 2.5 times the traffic forecast at appraisal. Since all other traffics through the project facilities are less than estimated, benefits of container traffic are dominating even more, accounting for over 90% of the project benefits. The reevaluated rate of return for the project is 52.5% versus the 32.5% estimated at appraisal (see following table). This high return, mainly for container berths indicates that a larger container terminal would have been justified; indeed the second port project was limited to the provision of more capacity for containers.

REEVALUATED PROJECT COSTS AND BENEFITS (in 1972 \$)

Year	<u>Benefits Busan</u>				Costs	<u>Mukho</u>		<u>Total</u>	
	<u>Composite pier</u>	<u>Pier 7</u>	<u>Ferry terminal</u>	<u>Total</u>		<u>Benefits</u>	<u>Costs</u>	<u>Benefits</u>	<u>Costs</u>
1975	-	-	-	-	7.8	-	-	-	7.8
1976	-	-	-	-	18.2	-	0.3	-	18.5
1977	-	-	-	-	20.2	-	3.6	-	23.8
1978	-	-	-	-	16.2	-	1.4	-	17.6
1979	49.9	1.0	2.3	53.2	9.6	0.56	0.7	53.8	10.3
1980	64.0	1.1	2.7	67.8	0.5	0.56	-	68.4	-
1981	75.4	1.1	3.0	79.5	-	0.53	-	80.0	-
1982	75.9	1.1	3.0	80.0	-	0.53	-	80.5	-
1983	77.0	1.1	3.0	81.1	-	0.53	-	81.6	-
1984	78.2	1.1	3.0	82.3	-	0.53	-	82.8	-
1985	79.6	1.1	3.0	83.7	-	0.53	-	84.2	-
1986-98	81.1	1.1	3.0	85.2	-	0.53	-	85.7	-

Economic rate of return = 52.5%.

7.02 As already mentioned under the section dealing with traffic, this high return for the project as a whole conceals major differences between various project components. While the composite pier is paid back within two years and the productivity on the container berths is high at some 20-25 containers per hour, the return on other investments is marginal. On Pier 7, coal traffic is only 65% of estimate, and scrap, ores and steel traffic only 27%. The productivity of the scrap section of this pier is far below estimate and even below the productivity of some 100 tons per hour indicated without the project. The reasons being that the scrap handling cranes have not achieved the rate of output for which they were designed; the magnet capability is low, the visibility limited, the down time high. Although the problem has been discussed with the supplier and operating personnel no conclusion has been reached yet about ways to improve productivity. This matter is being reviewed in the course of preparing the next project.

7.03 For Mukho, as already mentioned the expected coal traffic has not materialized and is not expected to increase in the foreseeable future. Furthermore, coal shipping has not been rationalized and the old small ships are still in operation. The combination of these factors give project benefits at about one third the expected level and a return of about 6% which is clearly below the opportunity cost of capital. The solution might have been to develop the project in phases, dredging only one side of the coal pier and installing only one loading system (reclaimer, conveyor belt) in the first phase, until traffic growth would justify the double operation.

8. THE ROLE OF THE IBRD

8.01 The objectives of the project were to assist the Government to (a) improve its control over the organization, planning, operations and finances of the Korean first class ports' system through the establishment of a Korean Ports Authority (KPA) which would concentrate responsibilities previously fragmented among numerous agencies spread over different ministries and report to the sole Ministry of Transport (MOT); (b) increase the capacity and rationalize operations of the ports of Busan and Mukho through the institution of a container terminal and of passenger facilities and the expansion of dry bulk cargo handling facilities at Busan and by the expansion and improvement of coal and cement handling facilities at Mukho.

Institution Building

8.02 The Government established KPA on March 13, 1976 under the name of "Korea Maritime and Ports Authority" (KMPA) under the sole control of MOT. However, for reasons explained in Chapter 6 KMPA was not vested with the managerial and financial independence, autonomy and powers needed for playing

its role efficiently. This is especially true with respect to port planning, a field which MOT/KMPA share with MOC responsible for planning and constructing "industrial ports" generally without prior coordination with KMPA. This inadequacy was noted during preparation of the Second Ports Project. To remedy the situation, the Government agreed at negotiations of the relevant Loan to establish an Inter-Ministerial Committee under the chairmanship of EPB, in charge of coordinating port planning and investment. In addition the Government agreed to a covenant in Loan Agreement 1401-KO (section 5.02) providing for consultation between MOT and KMPA and MOC on the latter's port investment budget. However the duplication of coal and cement facilities at Mukho and at the 10 kilometer distant industrial port of Buggyeong shows that coordination on port construction planning between the two ministries is inadequate. The Bank is pursuing its action toward changing KMPA's legal status and improving port construction and operation planning within the framework of the preparation of the Third Ports Project.

8.03 KMPA has broadly met the objectives for which it was established. Ports controlled by it, mainly Busan and Incheon, the two largest in the country, are well designed and work efficiently. Once the above mentioned inadequacies will be overcome it will satisfactorily fulfill its role in the Korean economy. The Bank's suggestion to establish it was consequently constructive.

8.04 The suggestion to put it under MOT is however questionable. MOC has been responsible for planning and constructing ports for many years. As it remains responsible for designing and constructing large industrial ports, it has the planning capability which MOT lacks. An organization similar to that of the Korea Highway Corporation which is responsible under MOC for maintaining and operating toll roads designed and built by that Ministry might have presented several advantages, the main one being the unification of port planning, construction and operation under the same ministerial authority. The opportunity of switching the control over KMPA from MOT to MOC will be studied during preparation of the Third Ports Project.

Investments

8.05 Busan. The high economic rate of return and the satisfactory financial performance of the Port of Busan show that the decision to give priority to container traffic related investments in Busan and the design of these investments were right. The investments aimed at expanding and improving dry bulk cargo handling facilities did not quite meet their objective mostly due to operating difficulties of the scrap pier caused by inadequate crane design.

8.06 Mukho. Because of the lower than planned demand for cement and coal traffic, the investments constructed in Mukho mainly for handling coal have not been fully utilized. The low growth in coal traffic has been chiefly caused by the lower than anticipated domestic coal production during 1973-81, which adversely affected coastal shipments to the South and Southwest of the country. As mentioned in para. 4.05, traffic is not expected to increase in the foreseeable future. A substantial proportion of the shortfall in cement traffic is explained by a diversion to Buggyeong which is closer and better connected to the cement plants than Mukho. The lack of coordination in port planning between MOT/KMPA and MOC has thus adversely affected Mukho's cement traffic.

Working Relationship

8.07 Mainly because of the misunderstanding between the Government and the Bank on the legal status of KMPA explained in Chapter 6 relations between the Bank and MOT/KMPA have been more difficult than is usually the case in Korea. To improve these relations Bank staff has tried to persuade their counterparts within EPB, MOT and KMPA of the advantage for KMPA to be reorganized along Bank's views. These efforts start to be fruitful but need to be continued in order to restore a climate of full confidence between government agencies concerned with Ports projects, KMPA and the Bank. A special effort will be made to reopen the dialogue on port planning and construction coordination between MOT/KMPA and MOC.

Conclusion

8.08 Despite some misunderstanding, the role of the Bank in project preparation and implementation has been widely positive. The establishment of KMPA has led to substantial improvements in ports planning, design and operations. The investments constructed under the project have helped the Government to cope with the increasing demand in port's activities generated by the country's fast growing economy. This action is being continued under the ongoing Second Ports Project and will be pursued under the proposed Third Ports Project.

KOREA

FIRST PORTS PROJECT (LOAN 917-KO)

PROJECT COMPLETION REPORT

Degree of Compliance with Covenants in the Loan Agreement per Loan 917-KO

<u>Section</u>	<u>Action required</u>	<u>Action taken</u>
2.03	Except as the Bank shall otherwise agree, the goods and services required for the project and to be financed out of the proceeds of the Loan, shall be procured on the basis of international competition under procedures consistent with the Guidelines for Procurement under World Bank Loans and IDA Credits, published by the Bank in April 1972, as revised in October 1972.	Complied with.
3.01(a)	The Borrower shall carry out the Project through the MOT, or cause BMPU, and KPA, when established, in accordance with the Plan of Action, to carry out the Project.	Complied with.
3.02(a)	The Borrower shall, not later than January 1, 1974 (i) establish the Busan and Mukho Project Unit, in which the Borrower's Ministries of Transport and Construction will be represented, in MOT, for the purpose of carrying out the Project and managing the Ports of Busan and Mukho and (ii) maintain the said Project Unit until KPA shall be established and in operation, all in accordance with the Plan of Action.	Complied with.
3.02(b)	The Borrower shall, not later than June 1, 1975, establish and maintain a port authority to be responsible for carrying out of the Project and for the operation, maintenance and development of facilities at such ports of the Borrower as may be agreed between the Borrower and the Bank.	KPA was established on March 13, 1976 under the name of Korean Maritime and Ports Administration (KMPA).

Section	Action required	Action taken
3.02(c)	Without limitation upon the generality of the provisions of Section 3.02(b), the Borrower shall establish KPA in such manner that (i) while being subject to policy directives of the Minister, MOT, KPA shall have independence and autonomy similar to that of Borrower's statutory corporations in their day-to-day operations; (ii) the Director-General of KPA shall have the power to prepare KPA budgets and shifts, subject to prior advice to the Minister, Economic Planning Board, the funds within the amounts appropriated (including contingencies) under Borrower's annual budget; and (iii) KPA shall have the power to propose to the Borrower tariffs and charges from time to time for the ports under KPA's jurisdiction.	Not complied with.
3.03	The Borrower shall cause KPA to establish and maintain a Port Unit for each port controlled by KPA, with the duties, responsibilities, functions, staff, facilities and resources as set out in Schedule 6 to this Agreement.	Complied with.
3.04	In order to assist the Borrower in carrying out (i) the detailed design and supervision of Parts A and B and (ii) Part C of the Project, the Borrower shall employ or cause to be employed consultants acceptable to the Bank upon terms and conditions satisfactory to the Bank.	Complied with.
3.05	In carrying out Parts A and B of the Project, the Borrower shall employ or cause to be employed contractors acceptable to the Bank upon terms and conditions satisfactory to the Bank.	Complied with.
4.03(a)	The Borrower shall cause KPA to maintain records adequate to reflect in accordance with consistently maintained appropriate accounting practices the operations and financial condition of KPA.	Complied with.

Section	Action required	Action taken
4.03(b)	<p>The Borrower shall cause KPA to: (i) have its accounts and financial statements (balance sheets, statements of income and expenses and related statements) for each fiscal year audited, in accordance with appropriate auditing principles consistently applied, by independent auditors acceptable to the Bank; (ii) furnish to the Bank as soon as available, but in any case not later than four months after the end of each such year, (A) certified copies of its financial statements for such year as so audited and (B) the report of such audit by said auditors, of such scope and in such detail as the Bank shall have reasonably requested; and (iii) furnish to the Bank such other information concerning the accounts and financial statements of KPA and the audit thereof as the Bank from time to time may reasonably request.</p>	<p>Under the present administrative system the audit of KMPA's accounts is carried out by the Government's Board of Auditors which controls strictly the materiality of KMPA's cash operations and their conformity with the Budget. Formal implementation of the Bank's auditing procedures will only be possible by the end of 1983 after completion of the first year of KMPA's commercial accounting procedures.</p>
4.05(a)	<p>Except as the Bank shall otherwise agree, the Borrower shall: (i) not later than January 1, 1974, establish or cause to be established for Busan and Mukho such tariffs and rates as are set forth in Schedule 7 to this Agreement; (ii) in respect of each Scheduled Port, cause KPA, not later than January 1, 1974, to (A) establish a separate operating Budget, (B) charge or cause to be charged all cargo-handling operators such concession fee as may be agreed upon among the Borrower, KPA and the Bank, (C) establish or cause to be established such tariffs and rates as may be agreed upon among the Borrower, KPA and the Bank; and (iii) take or cause KPA to take all necessary measures (including but not limited to adjustments of the tariff structures and rates at Busan and Mukho) to enable KPA to generate sufficient to earn at Busan and Mukho in its fiscal year 1978 and thereafter an annual rate of return of not less than 6% on its net fixed assets in operation at Busan and Mukho, respectively.</p>	<p>Tariffs were adjusted as of May 1, 1974 in accordance with the Loan Agreement. Tariffs were also adjusted as of May 1, 1975 resulting in a substantially higher net income for 1975 as compared to 1974.</p> <p>Busan earned rates of return exceeding 10% in each year since 1976 but Mukho has been marginally short to meet its rate of return target.</p>

Section	Action required	Action taken
4.05(b)	Take or cause KPA to take all necessary steps (including but not limited to adjustment of the tariff structure and rates of KPA to enable KPA to earn in fiscal year 1978 and thereafter a rate of return which shall be agreed among the Borrower, the Bank and KPA on the basis of the study to be made for the purposes of Part C(ii) of the Project on its net fixed assets in operation.	For reason explained in Chapter 6 of this PCR accounting data needed for assessing the financial performance of ports other than Busan and Mukho will not be available prior to 1983. An overall rate of return on KMPA's fixed assets in use can consequently not be set prior to this date.

KOREA
FIRST PORTS PROJECT (LOAN 917-KO)
PROJECT COMPLETION REPORT

Actual and Appraisal Estimates of Project Costs
(million)

Loan category	Comple- tion date	Contract amount (Won) (1)	Actual cost		Appraisal estimate		Actual cost as % Contract	
			Total in Won (2)	Foreign exchange (US\$)	Total in Won (3)	Foreign exchange (US\$)	Appraisal	amount
<u>Civil Works</u>								
Dredging	11/30/78	2,389	4,146	5,236	4,246	8,240	-2.3	+73.5
<u>Composite Pier</u>								
Rough grading	11/30/77	15,404	18,177	22,956)	11,428	19,220	+93.3	+15.2
Completion	09/25/78	3,562	3,911	4,919)				+8.9
<u>Pier No. 7</u>								
Rough grading	04/25/77	4,741	5,773	7,291)	4,178	5,620	+66.9	+21.8
Completion	08/29/78	1,133	1,201	1,517)				+6.0
Pier No. 1 - rehabilitation	05/30/78	6,030	6,868	8,674	3,588	5,170	+91.4	+13.8
Coastal ferry pier	05/30/78	980	1,419	1,792	608	770	+133.4	+44.8
Pier No. 2 - rehabilitation	08/03/79	940	2,033	2,917	606	840	+235.5	116.2
Mukho port	08/11/78	1,982	2,310	2,917	1,670	1,900	+38.3	+16.5
Grain silos civil works	12/08/78	1,935	2,408	3,041	1,450	2,750	+66.1	+24.4
Subtotal		<u>39,096</u>	<u>48,246</u>	<u>60,931</u>	<u>27,783</u>	<u>44,510</u>	<u>+73.6</u>	<u>+23.4</u>
<u>Mechanical</u>								
Mukho coal handling equipment	12/31/77	2,316	2,561	5,503	-	-		+10.6
Busan coal handling equipment	10/30/78	2,251	2,921	6,048	-	-		+29.7
Container crane & transfer crane	09/13/78))	
2 Scrap handling cranes	08/31/78)	3,770	4,792)	9,921	-	-)	+27.1
10 Straddle carriers))	
Grain facility equipment	12/30/78	3,676	4,393	9,096	-	-		+19.5
<u>Mobile Container & Mineral Handling Equipment</u>								
16 Yard tractors	02/13/78 }							
2 Tractors	01/12/78 }							
2 Forklifts	04/19/78 }							
2 Mobile cranes	12/03/77 }	967	1,121	2,312	-	-		+15.9
2 Front end loaders	11/05/77 }							
120 Chassis	03/27/78 }							
6 Hopper loaders	04/02/78 }							
6 Trailers	04/02/78 }							
Subtotal		<u>12,980</u>	<u>15,788</u>	<u>32,680</u>	<u>6,564</u>	<u>14,710</u>	<u>+140.5</u>	<u>+21.6</u>
Consulting services		3,277	3,320	5,119	2,500	4,900	+32.8	+1.3
Technical assistance & training		1,857	3,685	2,515	940	2,000	+292.0	+98.4
Subtotal		<u>5,134</u>	<u>7,005</u>	<u>7,634</u>	<u>3,440</u>	<u>6,900</u>	<u>+103.6</u>	<u>+36.4</u>
Contingencies		-	-	-	9,633	13,880		-
<u>Total</u>		<u>57,210</u>	<u>71,039</u>	<u>101,245</u>	<u>47,420</u>	<u>80,000</u>	<u>+49.8</u>	<u>+24.2</u>

KOREA

FIRST PORTS PROJECT (LOAN 917-KO)

PROJECT COMPLETION REPORT

Procurement Schedule for Bank's Financed Items

Loan category	Events /a							
	I	II	III	IV	V	VI	VII	VIII
<u>Civil Works</u>								
Dredging	06/12/74	06/29/74	07/19/74	09/07/74	(09/30/74)	(10/24/74)	11/08/74	11/30/78
<u>Composite Pier</u>								
Rough grading	06/12/74	06/29/74	07/19/74	09/07/74	(09/30/74)	(10/24/74)	09/03/74	09/30/77
Completion	(12/15/75)	(12/15/75)	08/23/76)	11/24/76	(12/20/76)	01/14/77)	04/08/77	09/29/78
<u>Pier No. 7</u>								
Rough grading	06/12/74	06/29/74	(07/19/74)	09/07/74	(09/30/74)	(10/24/74)	11/08/74	04/24/77
Completion	(12/15/75)	(12/15/75)	08/23/76)	11/24/76	(12/20/76)	(01/14/77)	(02/01/77)	08/29/78
Pier No. 1 - rehabilitation	(06/10/75)	(05/01/75)	(08/28/75)	09/10/75	(09/22/75)	10/07/75	(11/01/75)	04/15/78
Coastal ferry pier	(09/01/75)	(09/01/75)	(02/02/76)	04/23/76	(05/24/76)	(06/14/76)	08/31/76	03/30/78
Pier No. 2 - rehabilitation	(02/02/76)	(02/02/76)	(09/17/76)	12/20/76	(01/19/77)	(02/14/77)	04/07/77	06/20/79
Mukho port	(07/01/75)	(07/01/75)	(09/10/75)	12/02/75	(11/24/75)	(12/15/75)	(01/05/76)	08/12/78
Grain silos civil works	(03/11/75)	(04/01/75)	(05/15/75)	09/02/75	06/00/76	06/12/76	04/06/76	11/31/78
<u>Mechanical</u>								
Mukho coal handling equipment	03/31/75	(05/10/75)	-	07/15/75	09/25/75	-	12/17/75	12/31/77
Busan coal handling equipment	06/19/75	(05/12/75)	(06/23/75)	09/26/75	(12/27/75)	(11/17/75)	06/01/76	07/26/78
Container crane & transfer crane	04/17/76	(06/16/75)	-	03/16/76	-	-	12/29/76	09/15/78
	09/14/75	-	-	-	-	-	02/15/77	09/30/78
Scrap handling crane & straddle carriers	04/17/76	(09/22/75)	-	03/16/76	-	-	12/29/76	06/13/78
Grain facility equipment	(03/11/75)	(04/01/75)	(05/15/75)	09/02/75	02/11/76	02/12/76	04/06/76	12/31/76
<u>Mobile Container & Muneral Handling Equipment</u>								
16 Yard tractors	(03/11/75)	04/17/76	-	05/20/77	08/23/77	-	08/29/77	04/14/78
2 Tractors	(03/11/75)	04/17/76	-	05/20/77	08/23/77	-	08/29/77	04/14/78
2 Forklifts	(03/11/75)	04/17/76	-	05/20/77	08/23/77	-	08/29/77	04/14/78
2 Mobile cranes	(03/11/75)	04/17/76	-	05/20/77	08/23/77	-	08/29/77	04/14/78
2 Front end loaders	(03/11/75)	04/17/76	-	05/20/77	08/23/77	-	08/29/77	04/14/78
120 Chassis	(03/11/75)	04/17/76	-	05/20/77	08/23/77	-	08/29/77	04/14/78
6 Hopper loaders	(03/11/75)	04/17/76	-	05/20/77	08/23/77	-	08/29/77	04/14/78
6 Trailers	(03/11/75)	04/17/76	-	05/20/77	08/23/77	-	08/29/77	04/14/78

/a Events: I - Bank's first comment on tech. spec.; II - Bank's agreement on tender documents; III - bid invitation; IV - bid opening (price quotation); V - bid evaluation and proposals for award submitted to the Bank; VI - Bank's agreement to award of contract; VII - contract date; VIII - completion and/or delivery.

KOREA
FIRST PORT PROJECT (LOAN 917-KO)
PROJECT COMPLETION REPORT

Busan Port

Freight Traffic Forecast and Actual by Type of Cargo
('000 metric tons)

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	/a Cumulative total 1973-81
I. CARGO ON GENERAL CARGO BERTHS											
<u>Ocean In</u>											
<u>Appraisal Estimate</u>											
<u>Bulk</u>											
Grain	1,000	1,060	1,120	1,180	1,250	1,300	-	-	-	-	5,910
Ores and minerals	100	100	100	100	100	-	-	-	-	-	400
Coal	50	60	70	85	100	-	-	-	-	-	315
<u>Total</u>	<u>1,150</u>	<u>1,220</u>	<u>1,290</u>	<u>1,365</u>	<u>1,450</u>	<u>1,300</u>	-	-	-	-	<u>6,625</u>
Others	2,432	2,247	2,057	1,862	1,652	1,023	945	866	797	709	12,158
<u>Actual</u>											
<u>Bulk</u>											
Grain	917	1,087	644	977	1,099	1,296	1,189	637	200	642	7,771
Ores and minerals	32	18	1	1	38	47	25	24	25	8	187
Coal	50	18	11	26	29	22	133	49	84	286	658
<u>Total</u>	<u>999</u>	<u>1,123</u>	<u>656</u>	<u>1,004</u>	<u>1,166</u>	<u>1,365</u>	<u>1,347</u>	<u>710</u>	<u>309</u>	<u>936</u>	<u>8,616</u>
Others (incl. oil in 1972)	7,638	5,320	4,599	3,667	5,187	6,180	7,490	6,808	5,061	5,568	49,880
<u>Ocean Out</u>											
<u>Appraisal Estimate</u>											
<u>Bulk</u>											
Ores and minerals	550	560	570	585	600	-	-	-	-	-	2,315
Cement	150	160	170	185	200	210	220	230	240	250	1,865
Others	625	686	749	812	880	865	850	835	820	800	7,297
<u>Total</u>	<u>1,325</u>	<u>1,406</u>	<u>1,489</u>	<u>1,582</u>	<u>1,680</u>	<u>1,075</u>	<u>1,076</u>	<u>1,065</u>	<u>1,060</u>	<u>1,050</u>	<u>11,477</u>
<u>Actual</u>											
<u>Bulk</u>											
Ores and minerals	245	321	307	358	484	603	472	426	288	470	3,729
Cement	394	366	367	559	1,169	1,690	520	195	207	-	5,073
Others (incl. oil in 1972)	2,388	872	1,113	811	1,601	1,665	1,820	1,828	1,623	1,397	12,730
<u>Total</u>	<u>3,027</u>	<u>1,559</u>	<u>1,787</u>	<u>1,728</u>	<u>3,254</u>	<u>3,958</u>	<u>2,812</u>	<u>2,449</u>	<u>2,118</u>	<u>1,867</u>	<u>21,532</u>
<u>Containerized Ocean</u>											
<u>Appraisal Estimate</u>											
<u>Number of containers ('000)</u>											
Inward full	3	7	12	16	20	30	-	-	-	-	85
Inward empty	3	3	2	1	-	8	-	-	-	-	14
Outward full	6	10	14	17	20	38	-	-	-	-	99
<u>Total</u>	<u>12</u>	<u>20</u>	<u>28</u>	<u>34</u>	<u>40</u>	<u>76</u>	-	-	-	-	<u>198</u>
<u>Cargo in revenue tons ('000)</u>											
Inward	30	80	130	180	240	340	-	-	-	-	970
Outward	70	110	150	190	240	419	-	-	-	-	1,109
<u>Total</u>	<u>100</u>	<u>190</u>	<u>280</u>	<u>370</u>	<u>480</u>	<u>759</u>	-	-	-	-	<u>2,079</u>
<u>Actual</u>											
<u>Number of containers ('000)</u>											
Inward	19	45	70	82	110	146	158	177	174	180	1,142
Outward	16	37	63	91	128	166	189	225	242	320	1,461
<u>Total</u>	<u>35</u>	<u>82</u>	<u>133</u>	<u>173</u>	<u>238</u>	<u>312</u>	<u>347</u>	<u>402</u>	<u>416</u>	<u>500</u>	<u>2,603</u>
<u>Cargo in revenue tons ('000)</u>											
Inward	214	533	768	1,068	1,385	1,953	2,590	1,660	1,327	1,301	12,585
Outward	211	410	762	2,433	3,813	4,700	5,303	4,150	5,092	6,004	32,667
<u>Total</u>	<u>425</u>	<u>943</u>	<u>1,530</u>	<u>3,501</u>	<u>5,198</u>	<u>6,653</u>	<u>7,893</u>	<u>5,810</u>	<u>6,419</u>	<u>7,305</u>	<u>45,252</u>

	1972	1973	1974	1975	1976	1977	1978	1979	1980	/a 1981	Cumulative total 1973-81
Coastal											
<u>Appraisal Estimate</u>											
Bulk coal	950	1,000	1,050	1,100	1,150	-	-	-	-	-	4,300
Others	350	400	525	525	700	350	350	350	350	350	3,900
<u>Total</u>	<u>1,300</u>	<u>1,400</u>	<u>1,575</u>	<u>1,625</u>	<u>1,850</u>	<u>350</u>	<u>350</u>	<u>350</u>	<u>350</u>	<u>350</u>	<u>8,200</u>
Bulk cement	850	920	1,000	1,100	1,200	1,300	1,400	1,500	1,625	1,750	11,795
<u>Actual</u>											
Bulk coal	333	428	714	924	777	761	740	238	135	65	4,782
Others	999	1,284	2,142	2,772	2,331	2,283	2,220	2,208	992	1,909	18,141
<u>Total</u>	<u>1,332</u>	<u>1,712</u>	<u>2,856</u>	<u>3,696</u>	<u>3,108</u>	<u>3,044</u>	<u>2,960</u>	<u>2,446</u>	<u>1,127</u>	<u>1,974</u>	<u>22,923</u>
Bulk cement	570	562	665	1,080	1,479	1,906	1,691	1,386	912	1,753	11,434
<u>Total</u>											
<u>Appraisal Estimate</u>											
Freight	7,157	7,383	7,691	7,904	8,310	5,803	3,765	3,781	3,832	3,859	52,328
Timber into floating area	-	1,628	1,723	1,818	1,913	2,012	2,110	2,209	2,308	2,306	18,027
<u>Total</u>	<u>7,157</u>	<u>9,011</u>	<u>9,414</u>	<u>9,722</u>	<u>10,223</u>	<u>7,815</u>	<u>5,875</u>	<u>5,990</u>	<u>6,140</u>	<u>6,165</u>	<u>70,355</u>
<u>Actual</u>											
Total (including timber into floating area)		<u>11,219</u>	<u>12,033</u>	<u>14,676</u>	<u>19,392</u>	<u>23,106</u>	<u>24,193</u>	<u>19,609</u>	<u>15,946</u>	<u>19,403</u>	<u>159,637</u>
II. CARGO ON SPECIAL BERTHS											
<u>International Ferry Berth</u>											
<u>Appraisal Estimate</u>											
<u>Containerized</u>											
Inward cargo	70	130	190	250	310	310	310	310	310	310	2,430
Outward cargo	105	150	200	260	310	310	310	310	310	310	2,470
<u>Total</u>	<u>175</u>	<u>280</u>	<u>390</u>	<u>510</u>	<u>620</u>	<u>620</u>	<u>620</u>	<u>620</u>	<u>620</u>	<u>620</u>	<u>4,900</u>
<u>Container numbers ('000)</u>											
Inward	6	12	17	23	28	28	28	28	28	28	220
Outward	9	14	18	24	28	28	28	28	28	28	224
<u>Total</u>	<u>15</u>	<u>26</u>	<u>35</u>	<u>47</u>	<u>56</u>	<u>56</u>	<u>56</u>	<u>56</u>	<u>56</u>	<u>56</u>	<u>444</u>
<u>Actual</u>											
<u>Containerized</u>											
Inward cargo								94	93	91	278
Outward cargo								106	120	121	347
<u>Total</u>								<u>200</u>	<u>213</u>	<u>212</u>	<u>625</u>
<u>Container numbers ('000)</u>											
Inward								8	9	8	25
Outward								9	10	10	29
<u>Total</u>								<u>17</u>	<u>19</u>	<u>18</u>	<u>54</u>
<u>Composite Pier</u>											
<u>Appraisal Estimate</u>											
<u>Containerized</u>											
Inward cargo	-	-	-	-	-	-	428	515	602	690	2,235
Outward cargo	-	-	-	-	-	-	592	773	950	1,127	3,442
<u>Total</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>1,020</u>	<u>1,288</u>	<u>1,552</u>	<u>1,817</u>	<u>5,677</u>
<u>Container numbers ('000)</u>											
Inward full	-	-	-	-	-	-	39	47	55	62	203
Inward empty	-	-	-	-	-	-	15	23	31	40	109
Outward	-	-	-	-	-	-	54	70	86	102	312
<u>Total</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>108</u>	<u>140</u>	<u>172</u>	<u>204</u>	<u>624</u>
Bulk grain	-	-	-	-	-	-	1,400	1,460	1,530	1,600	5,990
<u>Total</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>2,420</u>	<u>2,748</u>	<u>3,082</u>	<u>3,417</u>	<u>11,667</u>

	1972	1973	1974	1975	1976	1977	1978	1979	1980	/a 1981	Cumulative total 1973-81
Actual											
Containerized											
Inward cargo								1,405	1,430	1,608	4,443
Outward cargo								1,827	2,354	2,875	7,056
Total								3,232	3,784	4,483	11,499
Container numbers ('000)											
Inward								88	97	111	296
Outward								88	98	112	298
Total								176	195	223	594
Bulk grain								1,014	1,255	1,166	3,435
Total								4,246	5,039	5,649	14,934
Pier No. 7											
Appraisal Estimate											
Ocean in coal	-	-	-	-	-	100	100	120	135	150	605
Coastal in coal	-	-	-	-	-	1,210	1,270	1,330	1,390	1,450	6,650
Ocean in ores	-	-	-	-	-	100	100	110	110	125	545
Ocean out ores	-	-	-	-	-	615	630	645	660	675	3,225
Ocean in scrap	-	-	-	-	-	535	520	505	490	470	2,520
Coastal steel	-	-	-	-	-	415	480	560	620	680	2,755
Total	-	-	-	-	-	2,975	3,100	3,270	3,405	3,550	16,300
Actual											
Ocean in coal								297	423	456	1,176
Coastal in coal								493	589	583	1,665
Ocean in ores								-	4	4	8
Ocean out ores								16	65	81	162
Ocean in scrap								260	442	734	1,436
Coastal steel								-	-	-	-
Total								1,066	1,523	1,858	4,447
Total											
Appraisal Estimate											
Port facilities	-	280	390	510	624	3,599	6,144	6,644	7,109	7,587	32,887
Actual											
Port facilities								5,512	6,775	7,719	20,006
III. TIMBER											
(unloaded into floating areas)											
Appraisal estimate	-	1,628	1,723	1,818	1,913	2,012	2,110	2,209	2,308	2,306	18,027
Actual (included in I others)	-	-	-	-	-	-	-	-	-	-	-
IV. TOTAL PORT TRAFFIC, INNER PORT											
Appraisal estimate	-	9,291	9,804	10,232	10,847	11,414	12,019	12,634	13,249	12,752	102,242
Actual	-	11,219	12,093	14,676	19,392	23,106	24,193	25,121	22,721	27,122	179,643
V. OIL											
Appraisal estimate	-	2,875	3,305	3,800	4,330	4,890	5,475	6,135	6,855	7,630	45,295
Actual	-	2,125	2,072	2,063	2,182	2,562	3,019	2,842	2,869	3,000	22,734
VI. TOTAL PORT TRAFFIC											
Appraisal estimate	-	12,166	13,109	14,032	15,177	16,304	17,494	18,769	20,904	21,382	149,337
Actual	-	13,344	14,165	16,739	21,574	25,668	27,212	21,963	25,590	30,122	196,377

/a Actual is the planned figure for 1981, which may be somewhat optimistic as to the recovery from 1980.

KOREA

FIRST PORT PROJECT (LOAN 917-KO)

PROJECT COMPLETION REPORT

Mukho Port

Freight Traffic Forecast and Actual by Type of Cargo
('000 metric tons)

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	Cumulative total 1973-81
FREIGHT ('000 tons)											
<u>Ocean In</u>											
<u>Appraisal Estimate</u>											
Bulk	50	54	58	62	66	76	86	97	107	117	723
Others	10	10	10	10	10	10	12	13	14	15	104
<u>Total</u>	<u>60</u>	<u>64</u>	<u>68</u>	<u>72</u>	<u>76</u>	<u>86</u>	<u>98</u>	<u>110</u>	<u>121</u>	<u>132</u>	<u>827</u>
<u>Actual</u>											
Bulk	36	26	44	76	63	32	6	74	140	551	792
Others	41	75	117	82	59	108	298	252	125	197	1,308
<u>Total</u>	<u>77</u>	<u>101</u>	<u>161</u>	<u>158</u>	<u>122</u>	<u>140</u>	<u>304</u>	<u>326</u>	<u>260</u>	<u>528</u>	<u>2,100</u>
<u>Ocean Out</u>											
<u>Appraisal Estimate</u>											
Bulk											
Mech. handled coal	300	300	300	300	300	300	300	300	300	300	2,700
Mech. handled cement	1,000	1,100	1,250	1,400	1,550	1,700	1,850	2,000	2,150	2,300	15,300
Others	5	5	5	5	5	5	5	5	5	5	45
<u>Total</u>	<u>1,305</u>	<u>1,405</u>	<u>1,555</u>	<u>1,705</u>	<u>1,855</u>	<u>2,005</u>	<u>2,155</u>	<u>2,305</u>	<u>2,455</u>	<u>2,605</u>	<u>18,045</u>
<u>Actual</u>											
Bulk											
Mech. handled coal	217	210	29	-	-	-	-	-	-	-	239
Mech. handled cement	328	713	959	962	1,128	1,002	958	706	593	650	7,671
Others	3	19	13	14	11	4	13	2	3	3	82
<u>Total</u>	<u>548</u>	<u>942</u>	<u>1,001</u>	<u>976</u>	<u>1,139</u>	<u>1,006</u>	<u>971</u>	<u>708</u>	<u>596</u>	<u>653</u>	<u>7,992</u>
<u>Coastal</u>											
<u>Appraisal Estimate</u>											
Bulk											
Mech. handled coal	1,500	1,600	1,667	1,733	1,800	1,880	1,960	2,040	2,120	2,200	17,000
Mech. handled cement	1,150	1,250	1,350	1,450	1,550	1,650	1,750	1,850	1,950	2,100	14,900
Mech. handled limestone	60	66	265	265	265	325	385	445	505	565	3,086
Others	45	132	149	164	180	190	200	210	220	230	1,675
<u>Total</u>	<u>2,755</u>	<u>3,048</u>	<u>3,431</u>	<u>3,612</u>	<u>3,795</u>	<u>4,045</u>	<u>4,295</u>	<u>4,545</u>	<u>4,795</u>	<u>5,095</u>	<u>36,661</u>
<u>Actual</u>											
Bulk											
Mech. handled coal	826	844	1,425	1,670	1,421	1,593	1,506	1,572	1,619	1,397	13,047
Mech. handled cement	1,133	1,084	1,304	1,933	1,915	2,238	1,836	1,539	1,200	1,225	14,274
Mech. handled limestone	22	17	12	12	8	8	6	6	6	6	81
Others	167	264	237	412	275	466	458	689	772	680	4,253
<u>Total</u>	<u>2,148</u>	<u>2,209</u>	<u>2,978</u>	<u>4,027</u>	<u>3,619</u>	<u>4,305</u>	<u>3,806</u>	<u>3,806</u>	<u>3,597</u>	<u>3,308</u>	<u>31,655</u>
<u>Total Freight ('000 tons)</u>											
Appraisal estimate	4,120	4,517	5,054	5,389	5,726	6,136	6,548	6,960	7,371	7,832	55,533
Actual	2,773	3,252	4,140	5,161	4,880	5,451	5,081	4,840	4,453	4,489	41,747
<u>GROSS REGISTERED TONNAGE ('000 tons)</u>											
Appraisal estimate	3,760	4,230	4,700	5,010	5,265	5,710	6,090	6,470	6,850	7,270	51,595
Actual	11	12	12	13	13	12	12	10	10	10	115

KORKA
FIRST PORTS PROJECTS
PORT OF BUSAN

Income Account
(Won million)

	1973		1974		1975		1976		1977		1978		1979		1980		1981	
	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Forecast
Traffic ('000 metric tons)	12,166	13,144	13,109	14,145	14,032	14,739	15,177	21,574	16,304	25,668	17,494	27,212	18,769	21,963	20,904	25,590	21,382	30,122
Operating Revenue																		
Light dues	65	67.8	-	65.1	-	70.7	-	-	-	-	-	-	-	-	-	-	-	-
Port dues	230	239.0	300	227.7	322	240.0	408	575	426	846	499	1,239	520	1,775	542	2,029	567	2,327
Tugage	-	122.0	-	179.9	-	216.0	-	228	-	277	-	372	-	458	-	487	-	609
Dockage	110	110.1	650	436.6	624	653.4	604	720	860	133	2,619	1,558	2,685	1,908	326	2,087	2,791	2,608
Service charge	-	-	-	-	-	-	451	-	349	-	297	-	296	-	288	-	288	-
Concession fees (cargo)	-	-	-	-	112	-	112	-	112	-	112	-	112	-	112	-	112	-
Transit shed charges	60	31.6	-	66.1	-	49.6	-	48	-	50	-	71	-	10	-	113	-	141
Open cargo area charges	60	71.9	-	93.0	-	131.9	-	173	-	165	-	356	-	174	-	138	-	173
Revenue from terminal operations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wharfage	-	-	426	435.2	434	700.3	902	1,023	649	1,453	497	1,941	495	2,256	498	2,452	498	3,046
Anchorage	-	-	-	-	50	42.1	-	682	-	1,261	-	1,191	-	1,319	-	1,068	-	1,335
Floating crane	-	29.2	-	31.4	-	40.9	-	42	-	30	-	59	-	43	-	5	-	7
Rent of facilities	-	26.3	20	5.4	50	5.8	625	64	1,425	77	2,925	199	2,325	3,034	1,925	3,130	2,925	6,139
Miscellaneous revenue ^{1/2}	135	47.5	135	46.1	139	77.0	245	168	220	226	215	246	223	819	232	808	243	997
Total	660	769.6	1,531	1,386.5	1,681	2,227.7	3,347	3,723	4,081	5,318	7,184	7,432	7,356	11,821	7,233	14,317	7,434	17,612
Operating Expenses																		
Navigation aids	5	8.6	5	119.5	5	185.5	5	-	5	-	5	-	5	-	5	-	5	-
Maintenance dredging	-	-	-	-	-	-	-	-	70	-	70	-	70	-	70	-	70	-
Port captain office	-	-	-	-	-	-	13	-	13	-	14	-	14	-	14	-	14	-
General maintenance	80	49.4	336	168.0	338	159.5	334	346	385	349	537	346	539	603	561	920	563	1,241
Special services	-	-	82	-	84	-	86	-	88	-	91	-	93	-	95	-	98	-
Miscellaneous dock labor	-	-	-	-	-	-	225	-	230	-	150	-	150	-	150	-	150	-
Bundry dock expense	-	-	-	-	25	-	26	-	27	-	27	-	27	-	27	-	27	-
General and administration	114	104.1	195	100.7	261	156.7	614	163	705	225	785	280	785	468	785	744	785	1,004
Subtotal working costs	199	202.1	618	388.2	713	501.7	1,307	409	1,523	574	1,699	626	1,703	1,091	1,707	1,664	1,712	2,245
Depreciation	410	410.0	410	410	410	432.9	594	425	883	433	1,646	444	1,663	1,746	1,678	2,014	1,734	2,129
Total Operating Expenses	609	612.1	1,028	798.2	1,123	934.6	1,901	834	2,406	1,007	3,345	1,070	3,366	2,837	3,385	3,678	3,450	4,374
Net operating revenue	51	137.5	503	788.3	558	1,293.1	1,446	4,889	1,675	4,311	3,839	6,362	3,990	8,984	3,948	10,639	3,984	13,238
Interest charges	58	91.7	314	243.0	832	293.0	1,508	862	2,023	1,330	2,557	2,384	2,736	3,014	2,601	4,661	2,461	6,396
Exceptional loss (revenue)	-	-	-	-	-	-	-	-	-	3	-	1	-	-	-	-	-	-
Net Income	(7)	65.8	189	545.3	(274)	1,054.1	(62)	2,227	(348)	3,178	1,292	3,977	1,164	5,970	1,347	5,978	1,519	6,842
Exchange loss (profit)	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-	752	-	1,940
Book profit (loss)	(7)	65.8	189	545.3	(274)	1,054.1	(62)	2,227	(348)	3,178	1,292	3,977	1,164	5,946	1,347	5,226	1,519	4,902

^{1/2} Second Ports Project.

^{1/2} Including Cargo demurrage charge.

KORRA
VINNY PORTS PROJECTS
PORT OF SUSAN
Table of Source and Application of Funds
(In million)

	1973		1974		1975		1976		1977		1978		1979		1980		Total 1973-1980	
	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Forecast	Appraisal	Actual
SOURCES																		
Internal Cash Generation																		
Gross operating revenue	605	769.4	1,571	1,586.4	1,689	2,227.7	1,367	3,723.0	4,081	5,518.0	7,186	7,432.0	7,256	11,821	7,333	16,317	7,636	17,612
Less: working costs	197	202.1	614	582.2	713	1,011.7	1,107	402.0	1,323	376.0	1,659	626.0	1,701	1,081	1,707	1,666	1,712	2,245
Cash generated from operations	461	567.3	911	1,204.1	948	1,726.4	2,047	3,314.0	2,558	4,944.0	5,485	6,806.0	5,553	10,730	5,626	12,651	5,722	15,367
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Internal Cash Generation	461	567.3	911	1,204.1	948	1,726.4	2,047	3,314.0	2,558	4,944.0	5,485	6,806.0	5,553	10,730	5,626	12,651	5,722	15,367
Subsidies																		
Government against operations	-	-	-	-	3,474	7,775.0	-	4,733.0	-	7,873.0	-	7,508.0	-	(7,206)	-	12,920	-	-
Government against investments	-	-	1,168	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(653)
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Subsidies	-	-	1,168	-	3,474	7,775.0	-	4,733.0	-	7,873.0	-	7,508.0	-	(7,206)	-	12,920	-	(653)
Loans																		
IBRD 917-RD	200	-	3,770	663.0	7,523	3,230.0	7,140	6,162.0	7,350	7,284.0	3,140	11,867.0	50	3,771	-	-	-	-
IBRD 140-RD	-	-	-	-	-	-	-	-	-	-	-	143.0	-	2,057	-	4,897	-	16,611
SPD	-	-	-	-	-	-	2,975	-	3,375	6,071.0	1,750	1,576.0	-	6,206	-	4,717	-	2,680
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Loans	200	-	3,770	663.0	7,523	3,230.0	10,155	6,162.0	10,725	13,355.0	4,910	13,586.0	50	12,036	-	11,614	-	21,291
GRAND TOTAL SOURCES	661	567.3	3,951	1,869.1	11,967	12,231.0	12,193	14,207.0	13,283	26,170.0	10,395	27,898.0	5,603	13,566	5,626	37,187	5,722	36,003
APPLICATIONS																		
Capital Investments																		
IBRD First Project	200	475.8	3,940	1,626.3	10,923	10,531.5	10,470	13,306.0	10,735	24,594.0	4,733	-	65	6,440	-	-	-	-
IBRD Second Project	-	-	-	-	-	344.5	215	-	575	-	2,998	-	1,000	3,660	1,000	22,685	1,000	4,396
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Investments	200	475.8	3,940	1,626.3	10,923	10,876.0	10,685	13,306.0	11,310	24,594.0	7,731	25,081.0	1,065	10,140	1,000	22,582	1,000	23,002
Debt Service																		
Interest	58	91.7	314	243.0	832	239.0	1,304	662.0	2,071	1,330.0	2,547	2,384.0	2,726	3,259	2,801	4,661	2,485	6,396
Repayments	-	-	-	-	-	-	-	-	-	-	-	-	1,373	2,769	1,819	3,111	1,854	6,623
Total Debt Service	58	91.7	314	243.0	832	239.0	1,304	662.0	2,071	1,330.0	2,547	2,384.0	4,299	6,028	4,620	7,772	4,339	13,019
GRAND TOTAL APPLICATIONS	258	567.3	4,254	1,869.3	11,757	11,115.0	12,143	13,968.0	13,381	25,924.0	10,300	27,475.0	5,364	16,168	5,626	37,354	5,719	36,026
Annual variations in working capital	403	-	(403)	-	210	1,616.0	2	(1,781.0)	(30)	246.0	93	427.0	239	(608)	204	(187)	403	(21)
Working capital brought forward	-	-	403	-	-	-	210	1,616.0	212	(145.0)	162	101.0	257	524	496	(84)	702	(251)
Working capital at end of year	403	-	-	-	210	1,616.0	212	(145.0)	162	101.0	257	524.0	496	(84)	702	(251)	1,105	(272)

KOREA
FIRST PORTS PROJECTS
BUREAU-DISTRICT MARITIME AND PORT AUTHORITY

Balance Sheet
(Won million)

As of December 31,-----	1973	1974		1975		1976		1977		1978		1979		1980		1981	
	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Forecast										
ASSETS																	
Current Assets																	
Cash	403	-	-	110	1,695	112	1,660	62	930	107	1,079	296	2,132	452	1,833	805	2,116
Accounts receivable	-	-	-	-	11	286	58	295	101	303	515	361	14	393	20	437	25
Stores	-	-	-	-	-	100	12	100	1	150	3	150	-	183	-	200	-
Other	-	-	100	-	25	50	23	-	26	5	27	6	28	6	30	7	-
Subtotal Current Assets	<u>403</u>	<u>-</u>	<u>-</u>	<u>210</u>	<u>1,708</u>	<u>523</u>	<u>1,780</u>	<u>482</u>	<u>1,032</u>	<u>586</u>	<u>1,603</u>	<u>834</u>	<u>2,152</u>	<u>1,036</u>	<u>1,859</u>	<u>1,472</u>	<u>2,148</u>
Less: Current Liabilities																	
Accounts payable	-	-	-	-	-	299	1,639	307	407	315	573	323	776	338	1,804	350	2,054
Current loan maturities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	90	12	266	13	524	14	506	15	1,460	16	306	17	336
Subtotal Current Liabilities	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>90</u>	<u>311</u>	<u>1,925</u>	<u>320</u>	<u>931</u>	<u>329</u>	<u>1,079</u>	<u>338</u>	<u>2,236</u>	<u>354</u>	<u>2,110</u>	<u>367</u>	<u>2,420</u>
Total Net Working Capital	<u>403</u>	<u>-</u>	<u>-</u>	<u>210</u>	<u>1,616</u>	<u>212</u>	<u>(145)</u>	<u>162</u>	<u>101</u>	<u>257</u>	<u>524</u>	<u>496</u>	<u>(84)</u>	<u>702</u>	<u>(251)</u>	<u>1,105</u>	<u>(272)</u>
Fixed Assets																	
Gross value - land	2,673	2,673	7,816	2,673	7,916	2,673	8,456	6,313	8,995	9,124	8,995	9,124	17,747	9,124	38,702	9,124	53,290
Gross value - other	10,949	10,949	13,431	10,949	13,676	19,063	13,284	31,149	15,869	58,298	56,408	63,798	80,814	64,298	88,045	66,298	98,349
Accumulated depreciation	742	1,152	-	1,562	433	2,156	425	3,039	1,291	4,685	1,735	6,348	3,926	8,026	5,495	9,764	7,624
Net value - other assets in use	10,207	9,797	13,431	9,387	13,243	16,907	12,859	28,110	12,578	53,613	54,673	57,450	76,868	56,272	82,550	56,534	90,725
Total Net Fixed Assets in Use	<u>12,880</u>	<u>12,470</u>	<u>21,247</u>	<u>12,060</u>	<u>21,159</u>	<u>19,580</u>	<u>21,315</u>	<u>34,423</u>	<u>21,923</u>	<u>62,737</u>	<u>63,668</u>	<u>66,574</u>	<u>94,633</u>	<u>65,396</u>	<u>121,232</u>	<u>65,658</u>	<u>144,015</u>
Works in progress	671	6,861	2,354	18,336	11,294	22,707	33,679	23,181	49,732	4,785	31,898	300	9,186	1,000	10,068	-	13,866
Total Net Fixed Assets	<u>13,551</u>	<u>19,331</u>	<u>23,601</u>	<u>30,396</u>	<u>32,453</u>	<u>42,287</u>	<u>54,994</u>	<u>57,604</u>	<u>71,305</u>	<u>67,522</u>	<u>95,566</u>	<u>67,574</u>	<u>103,821</u>	<u>66,396</u>	<u>131,320</u>	<u>65,658</u>	<u>156,881</u>
Deferred Assets	-	-	-	-	-	-	-	-	71	-	456	-	816	-	18,391	-	26,422
GRAND TOTAL ASSETS	<u>13,934</u>	<u>19,331</u>	<u>23,601</u>	<u>30,806</u>	<u>34,069</u>	<u>42,499</u>	<u>54,849</u>	<u>57,766</u>	<u>71,477</u>	<u>67,779</u>	<u>96,346</u>	<u>67,570</u>	<u>104,553</u>	<u>67,098</u>	<u>149,460</u>	<u>66,763</u>	<u>183,031</u>
LIABILITIES																	
Long-Term Debt																	
IBRD 917-KO	200	3,970	665	11,495	3,895	18,675	10,057	26,025	17,339	29,185	29,206	29,012	32,756	28,543	45,279	28,039	49,259
IBRD 1401-KO	-	-	-	-	-	-	-	-	-	-	143	-	2,200	-	8,789	-	10,811
SPD	-	-	-	-	-	-	-	-	6,071	-	7,645	-	11,305	-	18,934	-	22,274
Other	-	-	-	-	-	2,975	-	6,350	-	8,100	-	6,750	-	5,400	-	4,050	-
Total Long-Term Debt	<u>200</u>	<u>3,970</u>	<u>665</u>	<u>11,495</u>	<u>3,895</u>	<u>21,650</u>	<u>10,057</u>	<u>32,375</u>	<u>23,410</u>	<u>37,285</u>	<u>36,994</u>	<u>35,762</u>	<u>46,261</u>	<u>33,943</u>	<u>73,022</u>	<u>32,089</u>	<u>102,344</u>
Equity Equivalent																	
Capital	13,754	15,172	22,325	19,396	21,238	20,996	30,174	25,886	21,238	29,697	21,238	29,847	21,238	29,847	21,238	29,847	21,238
Subsidies for Investments	-	-	-	-	7,775	-	12,506	-	20,379	-	27,887	-	20,681	-	33,601	-	32,948
Reevaluation of fixed assets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Retained earnings	-	189	611	(85)	1,161	(147)	2,112	(495)	6,450	797	10,427	1,961	16,373	3,308	21,599	4,827	26,501
Govt. subsidies against operating loss	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Equity Equivalent	<u>13,754</u>	<u>15,361</u>	<u>22,936</u>	<u>19,311</u>	<u>30,174</u>	<u>20,849</u>	<u>44,792</u>	<u>25,391</u>	<u>48,067</u>	<u>30,494</u>	<u>59,532</u>	<u>31,808</u>	<u>58,292</u>	<u>33,155</u>	<u>76,438</u>	<u>34,674</u>	<u>80,687</u>
GRAND TOTAL LIABILITIES	<u>13,954</u>	<u>19,331</u>	<u>23,601</u>	<u>30,806</u>	<u>34,069</u>	<u>42,499</u>	<u>54,849</u>	<u>57,766</u>	<u>71,477</u>	<u>67,779</u>	<u>96,346</u>	<u>67,570</u>	<u>104,553</u>	<u>67,098</u>	<u>149,460</u>	<u>66,763</u>	<u>183,031</u>

KORRA
FIRST AND SECOND PORTS PROJECTS
PORT OF BUSAN

Selected Financial Ratios

	1975		1976		1975		1976		1977		1978		1979		1980		1981	
	Appraisal	Actual	Appraisal	Forecast														
Working ratio (%)	30.2	26.3	40.4	24.5	42.4	22.5	39.0	11.0	37.3	10.4	23.6	8.4	23.4	9.2	23.3	11.6	23.0	12.7
Operating ratio (%)	92.2	77.0	67.1	50.3	66.8	42.0	56.7	22.4	59.0	18.1	46.6	14.4	46.4	26.0	46.2	25.7	46.4	24.8
Times interest earned	0.9	1.7	1.6	3.2	0.7	4.4	1.0	4.4	0.8	3.4	1.5	2.7	1.4	3.0	1.5	2.3	1.6	2.1
Debt service coverage	7.4	6.2	2.9	5.0	1.2	7.2	1.3	5.0	1.3	3.7	2.2	2.9	1.3	1.8	1.3	1.6	1.3	1.2
Net fixed assets in use (Won million)		12,680.0	12,470.0	17,064.0	12,265.0	21,203.0	13,820.5	21,237.0	27,002.0	21,444.0	48,580.0	42,620.5	64,656.0	79,132.0	63,985.0	107,944.0	81,327.0	132,634.0
Rate of return on net fixed assets in use (%)		1.2	4.0	4.4	4.5	6.1	4.1	13.6	6.2	21.0	7.9	15.0	6.0	11.4	6.0	9.9	6.1	10.0
Current ratio	N/A	N/A	N/A	N/A	N/A	1.1	2.5	0.9	1.5	1.1	1.8	1.5	2.5	1.0	3.0	0.9	4.0	0.9
Debt to equity ratio		14/86	21/79	28/72	37/63	11/89	51/49	18/82	56/44	33/67	55/45	38/62	53/47	44/56	50/50	49/51	48/52	56/44

FORA
FIRST PORTS PROJECTS

PORT OF MEXICO

Income Account
(von million)

	1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981		
	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Forecast	
Traffic ('000 metric tons)	4,517.0	3,252.0	4,056.0	4,146.0	5,389.0	5,161.0	5,726.0	6,880.0	6,176.0	5,451.0	6,548.0	5,081.0	6,946.0	6,840.0	7,371.0	4,653.0	7,432.0	4,489.0	7,432.0	4,489.0			
Operative Revenue																							
Light dues	2.1	3.7	-	2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Port dues	13.0	13.3	141.0	23.0	150.3	25.0	115.9	24.1	142.6	29.0	165.4	39.0	188.2	62.0	411.0	141.0	436.2	194.0	218.0	194.0	218.0	194.0	
Tugage	-	23.7	-	41.3	-	60.9	-	53.0	-	59.0	-	65.0	-	125.0	-	194.0	-	218.0	-	194.0	-	218.0	218.0
Dockage	8.1	10.5	95.7	54.5	109.8	97.3	122.7	102.8	169.2	133.0	177.0	156.0	186.9	200.0	196.8	526.0	204.6	726.0	204.6	726.0	726.0	726.0	
Revenue from terminal operations	-	-	-	-	-	-	0.1	-	0.1	-	0.1	-	0.1	-	0.1	-	0.1	-	0.1	-	0.1	-	-
Transit shed charges	2.4	1.9	-	2.4	-	3.8	-	4.2	-	8.0	-	3.0	-	-	-	-	-	-	-	-	-	-	-
Open cargo area charges	2.0	3.1	0.5	3.8	0.5	5.4	0.3	12.0	0.5	39.0	0.5	60.0	-	0.5	75.0	0.5	86.0	0.5	115.0	0.5	115.0	115.0	
Service charge	-	-	-	-	-	-	2.5	-	2.5	-	2.5	-	2.5	-	2.5	-	2.5	-	2.5	-	2.5	-	-
Wharfrage	-	-	77.0	47.9	82.2	87.6	87.4	83.8	124.8	111.0	131.1	119.0	141.5	149.9	42.0	159.7	416.0	416.0	159.7	416.0	416.0	416.0	
Anchorage	-	-	-	-	-	1.3	-	19.9	-	39.0	-	45.0	-	31.0	-	-	-	-	-	-	-	-	-
Floating crane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rent of facilities	-	-	-	-	3.1	103.0	15.0	225.0	11.0	250.0	240.0	250.0	378.0	250.0	417.0	250.0	250.0	507.0	250.0	507.0	507.0	507.0	
Miscellaneous revenue	12.6	1.1	12.6	13.2	12.6	1.7	12.6	8.6	12.6	16.0	12.6	66.0	12.6	37.0	12.6	44.0	12.6	60.0	12.6	60.0	60.0	60.0	
Total	40.4	37.3	126.8	193.2	335.4	283.1	644.7	323.4	877.3	445.0	941.2	793.0	982.3	1,105.0	1,023.1	1,127.0	1,065.7	2,284.0	1,065.7	2,284.0	2,284.0	2,284.0	
Operation Expenses																							
Navigation aids	1.3	14.5	1.3	16.8	1.3	25.0	1.3	-	1.3	-	1.3	-	1.3	-	1.3	-	1.3	-	1.3	-	1.3	-	-
Maintenance dredging	-	-	20.0	-	20.0	-	20.0	-	16.0	-	16.0	-	16.0	-	16.0	-	16.0	-	16.0	-	16.0	-	-
Port captain office	-	-	4.0	-	4.0	-	4.0	-	4.0	-	4.0	-	4.0	-	4.0	-	4.0	-	4.0	-	4.0	-	-
General maintenance	15.0	16.6	45.3	54.1	47.4	49.5	84.4	57.0	109.0	82.0	122.4	102.0	132.6	163.0	132.6	156.0	132.6	537.0	132.6	537.0	537.0	537.0	
Special services	-	-	22.5	-	23.5	-	24.5	-	25.0	-	25.5	-	26.0	-	26.5	-	27.0	-	27.0	-	27.0	-	-
Miscellaneous dock labor	-	-	-	-	-	-	4.0	-	4.0	-	4.0	-	4.0	-	4.0	-	4.0	-	4.0	-	4.0	-	-
Sundry dock expense	-	-	1.0	-	1.0	-	1.0	-	1.0	-	1.0	-	1.0	-	1.0	-	1.0	-	1.0	-	1.0	-	-
General and administration	54.1	21.7	49.5	26.3	41.9	27.2	59.0	31.4	59.0	101.0	59.0	101.0	59.0	161.0	59.0	151.0	59.0	530.0	59.0	530.0	530.0	530.0	
Subtotal working costs	88.4	52.8	155.6	97.2	161.1	102.2	200.2	88.8	242.2	183.0	255.4	203.0	265.9	314.0	266.4	207.0	266.9	1,067.0	266.9	1,067.0	1,067.0	1,067.0	
Depreciation	56.0	56.0	56.0	56.0	56.0	93.3	122.2	90.2	175.5	100.0	175.5	100.0	187.5	175.0	199.5	255.0	211.5	308.0	211.5	308.0	308.0	308.0	
Total Operating Expenses	124.4	108.8	211.6	153.2	217.1	195.7	322.4	179.0	417.7	283.0	430.9	303.0	453.4	489.0	465.9	473.0	478.4	1,375.0	478.4	1,375.0	1,375.0	1,375.0	
Net operating revenue	(83.6)	(51.5)	115.2	40.5	138.3	89.4	322.3	144.4	459.6	162.0	510.3	490.0	528.9	606.0	557.5	785.0	587.3	909.0	587.3	909.0	909.0	909.0	
Interest charges	5.2	9.1	47.3	26.3	106.5	13.4	166.1	40.0	184.3	145.0	196.4	239.0	209.4	231.0	198.5	311.0	194.8	325.0	194.8	325.0	325.0	325.0	
Exceptional loss (revenue)	-	-	-	-	-	-	-	-	-	-	-	-	-	2.0	-	35.0	-	52.0	-	52.0	-	-	
Net Income	(88.8)	(60.6)	67.9	14.4	31.8	76.0	156.2	104.4	275.3	17.0	313.9	251.0	328.5	373.0	359.0	439.0	392.5	532.0	392.5	532.0	532.0	532.0	

TABLE 9

KOREA
FIRST PORTS PROJECTS
PORT OF PUSAN

Table of Source and Application of Funds
(Unit: million)

	1973		1974		1975		1976		1977		1978		1979		1980		1981		Total 1973-81	
	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Forecast	Appraisal	Forecast	Appraisal	Forecast
SOURCES																				
Internal Cash Generation																				
Gross operating revenue	40.8	57.3	126.8	193.7	355.4	285.1	644.7	323.4	877.3	445.0	941.2	793.0	982.3	1,105.0	1,023.4	1,747.0	1,061.7	2,284.0	-	-
Working costs	68.4	52.8	155.6	97.2	161.1	102.2	206.2	88.8	242.2	183.0	255.4	203.0	245.9	324.0	266.4	707.0	266.9	1,067.0	-	-
Cash generated from operations	(27.6)	4.5	171.2	96.5	194.3	182.9	444.5	234.6	635.1	262.0	685.8	590.0	736.4	781.0	757.0	-	794.8	1,217.0	-	-
Other	-	-	-	-	-	-	-	-	30.0	-	-	-	-	-	-	-	-	-	-	-
Total Internal Cash Generation	(27.6)	4.5	171.2	96.5	194.3	182.9	444.5	234.6	665.1	262.0	685.8	590.0	736.4	781.0	757.0	1,040.0	798.8	1,217.0	3,607.0	3,192.0
Subsidies																				
Government against operations	-	4.6	326.1	-	481.2	118.0	77.0	339.0	-	771.0	-	314.0	-	375.0	-	155.0	-	(65.0)	-	-
Government against investments	32.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Subsidies	32.8	4.6	326.1	-	481.2	118.0	77.0	339.0	-	771.0	-	314.0	-	375.0	-	155.0	-	(65.0)	917.0	2,077.0
Loans																				
IBRD	-	-	630.0	-	925.0	124.0	886.0	122.0	110.0	2,372.0	210.0	807.0	10.0	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Loans	-	-	630.0	-	925.0	124.0	886.0	122.0	110.0	2,372.0	210.0	807.0	10.0	-	-	-	-	-	2,785.0	3,235.0
GRAND TOTAL SOURCES	3.2	9.1	1,127.3	96.5	1,600.5	424.9	1,401.5	695.6	775.1	3,405.0	895.8	1,511.0	726.4	1,156.0	757.0	1,195.0	798.8	1,132.0	7,289.0	8,464.0
APPLICATIONS																				
Capital Investments																				
IBRD First Project	-	-	1,080.0	70.4	1,494.0	235.3	1,385.0	818.6	170.0	2,988.0	210.0	1,538.0	10.0	-	-	-	-	-	-	-
IBRD Second Project	-	-	-	-	-	-	-	-	-	-	400.0	-	400.0	792.0	400.0	735.0	400.0	692.0	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Investments	-	-	1,080.0	70.4	1,494.0	235.3	1,385.0	818.6	170.0	2,988.0	610.0	1,538.0	510.0	792.0	400.0	735.0	400.0	692.0	3,529.0	2,198.0
Debt Service																				
Interest	3.2	9.1	47.3	26.1	106.5	13.4	166.1	40.0	184.3	145.0	196.4	221.0	200.4	231.0	198.3	311.0	194.8	323.0	-	-
Repayments	-	-	-	-	-	-	-	-	-	-	-	-	21.1	137.0	44.4	137.0	47.8	133.0	-	-
Total Debt Service	3.2	9.1	47.3	26.1	106.5	13.4	166.1	40.0	184.3	145.0	196.4	221.0	221.5	368.0	242.9	448.0	242.6	456.0	1,170.0	1,291.0
GRAND TOTAL APPLICATIONS	3.2	9.1	1,127.3	96.5	1,600.5	424.9	1,331.1	858.6	354.3	3,133.0	806.4	1,779.0	831.3	1,150.0	642.9	1,203.0	642.6	1,150.0	6,699.0	8,489.0
Annual variations in working capital	-	-	-	-	-	176.0	(129.6)	(143.0)	420.8	272.0	89.4	(268.0)	94.9	(4.0)	114.1	(8.0)	156.2	2.0	-	-
Working capital brought forward	-	-	-	-	-	-	176.0	176.0	(129.6)	13.0	291.2	285.0	380.6	17.0	475.3	13.0	589.6	5.0	-	-
Working capital at end of year	-	-	-	-	-	176.0	(129.6)	17.0	291.2	285.0	180.6	17.0	475.3	13.0	589.6	5.0	743.8	7.0	590.0	5.0

KOREA
FIRST PORTS PROJECTS

PORT OF MUMBU

Balance Sheet
(Won million)

	1973		1974		1975		1976		1977		1978		1979		1980		1981	
	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Forecast	Forecast
ASSETS																		
Current Assets																		
Cash					181.0	(166.4)	201.0	249.2	490.0	333.6	87.0	423.3	87.0	532.6	195.0	683.8	147.0	
Accounts receivable					2.0	84.0	11.0	87.0	12.0	96.0	14.0	98.0	15.0	102.0	5.0	106.0	7.0	
Stocks					1.0	20.0	1.0	23.0	3.0	23.0	3.0	23.0	-	23.0	-	23.0	-	
Other					-	3.0	1.0	4.0	-	3.0	-	6.0	-	7.0	-	8.0	-	
Subtotal Current Assets					<u>184.0</u>	<u>(79.4)</u>	<u>214.0</u>	<u>363.2</u>	<u>505.0</u>	<u>435.6</u>	<u>104.0</u>	<u>350.3</u>	<u>102.0</u>	<u>664.6</u>	<u>200.0</u>	<u>820.8</u>	<u>154.0</u>	
Less: Current Liabilities																		
Accounts payable						42.0	141.0	82.0	124.0	84.0	87.0	84.0	80.0	84.0	134.0	64.0	138.0	
Current loan maturities																		
Other					8.0	8.0	60.0	10.0	96.0	11.0	-	11.0	9.0	11.0	61.0	11.0	9.0	
Subtotal Current Liabilities					<u>8.0</u>	<u>50.0</u>	<u>201.0</u>	<u>72.0</u>	<u>220.0</u>	<u>75.0</u>	<u>87.0</u>	<u>75.0</u>	<u>89.0</u>	<u>75.0</u>	<u>193.0</u>	<u>73.0</u>	<u>147.0</u>	
Total Net Working Capital					<u>176.0</u>	<u>(129.4)</u>	<u>13.0</u>	<u>291.2</u>	<u>285.0</u>	<u>360.6</u>	<u>17.0</u>	<u>475.3</u>	<u>13.0</u>	<u>589.6</u>	<u>5.0</u>	<u>743.8</u>	<u>7.0</u>	
Fixed Assets																		
Gross value - land	427.2	427.2	476.4	427.2	469.0	427.2	346.0	427.2	346.0	427.2	346.0	427.2	353.0	427.2	1,002.0	427.2	1,002.0	
Gross value - other	2,248.6	2,248.6	5,938.5	2,248.6	6,035.0	2,248.6	6,044.0	5,172.6	6,070.0	6,938.6	11,683.0	7,348.1	12,195.0	7,748.6	15,640.0	8,148.6	16,302.0	
Accumulated depreciation	112.0	168.0	-	224.0	94.0	346.2	184.0	521.7	284.0	697.2	656.0	884.7	831.0	1,084.2	814.0	1,295.7	1,121.0	
Net value - other assets in use	2,136.6	2,080.6	5,938.5	2,024.6	5,941.0	1,902.4	5,760.0	4,650.9	5,786.0	6,241.4	11,027.0	6,463.9	11,364.0	6,664.4	14,826.0	6,852.9	15,181.0	
Total Net Fixed Assets in Use	<u>2,563.8</u>	<u>2,507.8</u>	<u>6,414.9</u>	<u>2,451.8</u>	<u>6,410.0</u>	<u>2,329.8</u>	<u>6,406.0</u>	<u>5,078.1</u>	<u>6,332.0</u>	<u>6,668.6</u>	<u>11,373.0</u>	<u>6,891.1</u>	<u>11,417.0</u>	<u>7,091.6</u>	<u>13,828.0</u>	<u>7,280.1</u>	<u>16,183.0</u>	
Works in progress	370.0	1,450.0	-	2,945.0	124.0	4,310.0	975.0	1,556.0	3,812.0	400.0	-	400.0	274.0	400.0	53.0	400.0	82.0	
Total Net Fixed Assets	<u>2,933.8</u>	<u>3,957.8</u>	<u>6,414.9</u>	<u>5,396.8</u>	<u>6,534.0</u>	<u>6,639.6</u>	<u>7,381.0</u>	<u>6,634.1</u>	<u>10,144.0</u>	<u>7,068.6</u>	<u>11,373.0</u>	<u>7,291.1</u>	<u>12,191.0</u>	<u>7,491.6</u>	<u>13,881.0</u>	<u>7,680.1</u>	<u>16,265.0</u>	
Deferred Assets								2.0		13.0	-	54.0	-	1,219.0	-	1,673.0		
GRAND TOTAL ASSETS	<u>2,933.8</u>	<u>3,957.8</u>	<u>6,414.9</u>	<u>5,396.8</u>	<u>6,710.0</u>	<u>6,510.0</u>	<u>7,394.0</u>	<u>6,825.3</u>	<u>10,431.0</u>	<u>7,449.2</u>	<u>11,603.0</u>	<u>7,746.6</u>	<u>12,258.0</u>	<u>8,081.2</u>	<u>17,102.0</u>	<u>8,423.9</u>	<u>17,947.0</u>	
LIABILITIES																		
Long-Term Debt																		
Loan 411-20	-	630.0	-	1,533.0	124.0	1,433.0	246.0	2,345.0	2,618.0	2,755.0	3,225.0	2,743.9	3,131.0	2,699.5	4,233.0	2,651.7	4,628.0	
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Long-Term Debt	<u>-</u>	<u>630.0</u>	<u>-</u>	<u>1,533.0</u>	<u>124.0</u>	<u>1,433.0</u>	<u>246.0</u>	<u>2,345.0</u>	<u>2,618.0</u>	<u>2,755.0</u>	<u>3,225.0</u>	<u>2,743.9</u>	<u>3,131.0</u>	<u>2,699.5</u>	<u>4,233.0</u>	<u>2,651.7</u>	<u>4,628.0</u>	
Equity Equivalent																		
Capital	3,022.6	3,259.9	6,489.3	3,741.1	4,386.0	3,818.1	6,586.0	3,818.1	6,388.0	3,818.1	6,388.0	3,818.1	6,388.0	3,818.1	6,388.0	3,818.1	6,388.0	
Government subsidies	-	-	-	-	118.0	-	457.0	-	1,228.0	-	1,542.0	-	1,917.0	-	2,080.0	-	2,013.0	
Revaluation of fixed assets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Retained earnings	(88.8)	67.9	(74.4)	100.7	79.0	256.9	105.0	582.2	197.0	874.1	448.0	1,204.6	822.0	1,563.6	1,261.0	1,956.1	1,792.0	
Total Equity Equivalent	<u>2,933.8</u>	<u>3,327.8</u>	<u>6,414.9</u>	<u>3,841.8</u>	<u>6,586.0</u>	<u>4,075.0</u>	<u>7,148.0</u>	<u>4,380.3</u>	<u>7,813.0</u>	<u>4,692.2</u>	<u>8,378.0</u>	<u>5,022.7</u>	<u>9,127.0</u>	<u>5,381.7</u>	<u>13,652.0</u>	<u>5,770.1</u>	<u>13,319.0</u>	
GRAND TOTAL LIABILITIES	<u>2,933.8</u>	<u>3,957.8</u>	<u>6,414.9</u>	<u>5,396.8</u>	<u>6,710.0</u>	<u>6,510.0</u>	<u>7,394.0</u>	<u>6,825.3</u>	<u>10,431.0</u>	<u>7,449.2</u>	<u>11,603.0</u>	<u>7,746.6</u>	<u>12,258.0</u>	<u>8,081.2</u>	<u>17,102.0</u>	<u>8,423.9</u>	<u>17,947.0</u>	

KORRA
FIRST PORTS PROJECTS
PORT OF HONGKONG

Selected Financial Ratios

	1973		1974		1975		1976		1977		1978		1979		1980		1981	
	Appraisal	Actual	Appraisal	Actual	Appraisal	Forecast												
Working ratio (%)	168.0	92.0	49.0	30.0	45.0	38.0	31.0	27.5	28.0	41.0	27.0	25.5	27.0	29.0	26.0	40.0	23.0	47.0
Operating ratio (%)	305.0	190.0	63.0	79.0	61.0	69.0	50.0	55.0	48.0	64.0	46.0	38.0	46.0	45.0	46.0	33.0	43.0	60.0
Times interest earned	N/A	N/A	2.4	1.6	1.3	6.7	2.0	3.6	2.5	1.1	2.6	2.1	2.6	2.6	2.8	2.5	3.0	2.8
Debt service coverage	N/A	N/A	1.6	3.7	1.8	13.6	2.7	5.9	3.6	1.8	1.5	2.7	3.2	2.1	3.1	2.2	3.3	2.7
Net fixed assets in use (Won million)	2,583.8	2,583.8	2,323.8	4,302.9	2,479.8	6,412.3	2,390.7	6,408.0	3,703.9	6,369.0	5,873.4	8,932.3	6,779.9	11,743.0	6,991.4	13,873.0 _{LA}	7,183.9	16,005.0 _{LA}
Rate of return on net fixed assets in use (%)	N/A	N/A	4.3	0.9	5.6	1.4	13.5	2.3	12.4	2.5	8.6	5.5	7.8	5.2	7.9	5.7	8.1	5.7
Current ratio	N/A	N/A	N/A	N/A	N/A	23.0	N/A	1.1	5.0	2.3	6.1	1.2	7.3	1.1	8.9	1.0	10.9	1.0
Liquid ratio	N/A	N/A	N/A	N/A	N/A	22.8	N/A	1.1	4.7	2.3	5.8	1.1	7.0	1.1	8.6	1.0	10.6	1.0
Debt to equity ratio	0/100	0/100	16/84	0/100	29/71	12/98	37/63	33/97	37/63	23/73	37/63	28/72	33/65	25/75	33/67	25/73	31/69	26/74

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KOREA

SECOND PORT PROJECT

PROJECT COMPLETION REPORT

I. PROJECT BACKGROUND AND SECTORAL SETTING

The Transport Sector

1.01 Korea's export-led industrialization has been among the most successful examples of economic development in recent history. During 1962-78, real GNP grew by 10% p.a. and per capita income more than tripled in real terms. Coupled with industrialization and urbanization, major developments and changes in the transportation sector complemented and supported the transformation of Korea's economy. Passenger traffic tripled between 1964 and 1971 and then tripled again by 1981; freight increased nine times and five times respectively during the same period.

1.02 The Government of Korea's (GOK) basic objective in the past has been to increase transport capacity in line with projected traffic growth and to avoid major bottlenecks. This objective has been largely achieved. Furthermore, the transport system as developed is reasonably balanced, as there is no substantial uneconomic allocation of traffic among the various modes.

1.03 Large investments in transportation infrastructure have been complemented by a considerable effort to improve the efficiency of the transportation system through the establishment and strengthening of institutions to plan, construct, maintain and operate the facilities and services. This is true both in the public sector, with the establishing and strengthening of institutions such as the Korea Maritime and Ports Authority (KMPA), or the Transport Coordination Bureau (TCB) in the Ministry of Transport, and in the private sector by the successful development of many contractors capable of handling a wide range of public works in Korea and abroad.

1.04 The Bank has played an active role in advising and assisting the Korean authorities in pursuing their transport objectives. A summary of investments follows.

	Signing Date	Loan/ Credit	Amount (\$M)
1. Ports I	6/27/73	L-917	80.0
2. Ports II	4/28/77	L-1401	67.0
Subtotal			<u>147.0</u>
3. Railways I	8/15/62	C-25	14.0
4. Railways II	12/08/67	C-110	11.0
5. Railways III	4/14/70	C-183	15.0
		L-669	40.0
6. Railways IV	11/22/72	L-863	40.0
7. Railways V	4/10/75	L-1101	100.0
8. Railways VI	4/10/78	L-1542	120.0
9. Railways VII	5/21/80	L-1863	94.0
Subtotal			<u>434.0</u>
10. Coal & Cement Distribution	4/29/83	L-2267	<u>122.0</u>
11. Grant for Transporta- tion Survey	9/13/65		0.2
12. Highway & Transporta- tion Coordina- tion Surveys	7/24/68	C-S4	3.5
13. Highways I	6/29/71	L-769	54.5
14. Highways II	1/25/74	L-956	47.0
15. Highways III	2/20/76	L-1203	90.0
16. Highways IV	12/22/78	L-1640	143.0
17. Provincial & County Roads	12/30/82	L-2228	125.0
18. Highway Sector Loan	3/22/84	L-2392	230.0
Subtotal			<u>693.2</u>
<u>Total</u>			<u>1,396.2</u>

The Ports Subsector

1.05 Korea's port network comprises 43 commercial ports and 12 industrial ports which in 1982 together handled a total of 160 million tons, of which 109 million tons were foreign trade and 51 million tons were coastal trade. In addition to these ports there are 416 fishing ports and about 1,300 other wharfs without basic facilities. Port traffic, starting from 11 million tons (mt) in 1965, and 70 mt by 1975 has grown rapidly to its 1982 figure. It is

now expected to grow at 8.1% annually through the Fifth Five-Year Plan until 1986, with ocean freight growing at 8% annually, and coastal freight growing at 9.7% annually. These growth rates would increase total tonnage to be handled through the ports over the next five years by close to 50% or up to 232 million tons. The resources allocated in the Fifth Five-Year Plan 1982-86 for commercial, industrial, and fishing port facilities amount to above Won 1,200 billion.

1.06 Of the 55 major ports, Incheon, Busan and Ulsan together handle 50% of total cargo and 73% of general cargo. In 1982 Busan alone handled 68% of foreign trade general cargo. The port of Busan has a natural harbor, further protected by breakwaters, the northern section of which handles commercial shipping, while the southern section handles fishing vessels and other small craft. The entrance channel was deepened from 12 m to 13.5 m (40,000 dwt to 60,000 dwt ships) as part of the Bank-financed First Port Project (Loan 917-KO).

1.07 Berthing facilities consist of about 4,700 m available at four finger piers, and at a central wharf. Oil traffic is handled in the outer harbor, while 95% of the timber imports are unloaded in the stream. There are about 3,000 m of lighterage wharf and 24 ship anchorages with 5 m to 13 m depth. Containers are handled mainly at the new terminal or with ships' own gear at general cargo piers. There is also a privately-owned container crane on the north side of Pier 3 which is used in direct load/unload operations with semi-trailers, because there is very little space for container stacking at that pier. Mechanical equipment for handling general cargo is largely privately owned.

1.08 The berthing facilities were substantially expanded under the First Port Project Loan 917-KO, which was completed in July 1978. The project included: (a) composite pier with 600 m of container ship berths, four gantry cranes, and a grain berth and silos; (b) Pier 7 for bulk coal and minerals; (c) rehabilitation of Piers 1 and 2, which included provision for an international ferry terminal with roll-on/roll-off facilities; and (d) a coastal ferry terminal. A new Government-financed military pier was built nearby in order to free Pier 3 and the central wharf. The second project mainly expanded the composite pier and rehabilitated piers 3 and 4.

Port Organization

1.09 In March 1976, following a 15 month study by consultants financed under Loan 917-KO, Korea Maritime and Ports Authority (KMPA) was established under the MOT for the purpose of administering the construction and operation of Korea's 20 first-class ports. The 23 second-class ports and numerous minor local ports continue to be operated by local governments. KMPA administers the first-class ports through ten District Maritime and Port Authorities (DMPA). Key personnel were appointed in April 1976, and personnel from MOC's Bureau of Harbor Development have since been transferred to KMPA to staff the construction and maintenance functions. The Korea Dredging Corporation has been transferred from MOC to MOT, and harbor dredging at first-class ports is now under the control of KMPA. Construction of "industrial ports," forming

part of industrial complexes, continues under the control of MOC, which is responsible for construction of industrial complexes.

II. PROJECT FORMULATION

2.01 In June, 1973, the Bank agreed to a loan of US\$ 80 million (Loan 917-KO) to finance the First Port Project which was mainly to provide for additional port facilities and technical assistance at the ports of Busan and Mukho. The project was based on a UNDP-financed and Bank supervised Master Plan study for developing the two project ports as well as Korea's other main ports. The study was completed in November 1972 and the project was completed in August 1978.

2.02 In mid-1973, the Government requested Bank assistance in financing and supervising a feasibility study for further development of the port of Busan. Terms of reference for the study were prepared and agreed upon with the Government in November 1973. A joint venture consisting of three American firms was retained on July 16, 1974 to carry out the study. The study was financed under Loan 917-KO and its final report was received in the Bank in March 1976.

2.03 The port development was intended to be consistent with the Government's Fourth Five-Year Plan (1977-81) and also in accordance with the recommendations of the above-mentioned feasibility study. The main objectives of the project thus formulated were: (a) to provide additional port facilities and equipment to handle containerized cargo; (b) to rehabilitate old port facilities so as to increase their operational efficiency; and (c) to provide technical assistance to improve port operations, cargo handling techniques, equipment maintenance, port planning, and accounting.

2.04 Loan negotiations took place in February 1977, Board presentation in April, 1977 and loan effectiveness in July 1977. Total project cost was estimated at about US\$ 112 million equivalent, of which US\$ 70 million in foreign currency. The Bank agreed to provide a loan of US\$ 67 million equivalent to cover 95.7% of the project's foreign exchange cost.

2.05 Engineering consultants acceptable to the Bank were retained in July 1978 to prepare final engineering under terms of reference agreed upon with the Bank. The project was completed in March 1983, about 15 months behind the appraisal schedule. The closing date was extended from December 31, 1982 to December 31, 1983.

III. PROJECT DESCRIPTION, IMPLEMENTATION AND COST

Project Description

3.01 The project consisted of the following:

Civil Engineering Work

- (a) construction of a 603 m deep-water berth ^{1/} for container traffic, and reclamation of an area 335,000 sq m for stacking containers;
- (b) dredging to provide a depth of 12.5 m at LWOST ^{2/} alongside and in front of the above mentioned berth;
- (c) construction of an access road inside the port limits and an 8,000 sq m container freight station for stuffing and unstuffing containers;
- (d) ancillary works, buildings and utilities including paving, drainage, water supply, electrical system, administration and customs buildings, guard house, etc; and
- (e) rehabilitation of Piers No. 3 and 4, the central wharf and a lighter wharf.

Equipment

- (a) procurement of container handling equipment: 4 container gantry cranes, 10 transtainers, 24 tractors, 72 trailers and 10 truck scales; and
- (b) procurement of two tug boats, 3,000 hp capacity each.

Engineering Consultant Services

- (a) for project design; and
- (b) for supervision of civil works construction and procurement of equipment.

Technical Assistance and Training

- (a) for cargo handling including containers;
- (b) for maintenance of port facilities including equipment;
- (c) for port planning; and
- (d) for implementation of commercial accounting systems.

1/ This is an extension to the common-user container berth (Pier No. 5) financed under Loan 917-XO.

2/ Low Water Ordinary Spring Tides. Tidal range is 1.3 m.

Project Implementation

Civil Engineering Works

3.02 The Busan Port Construction Office (BPCO) was responsible for the project, under the overall direction of the Korea Maritime and Port Administration (KMPA), and assisted by consultants for project design and supervision. The appraisal report (March 25, 1977) assumed that the Government was about to appoint consultants for project design and supervision and also that civil works construction would be completed by the end of 1981. However, consultants were appointed only on July 7, 1978 (one year behind schedule), resulting in tender documents being completed only by the end of 1979 and civil works were completed only by the end March 1983, 15 months behind schedule. The main reasons for the lagging schedules were (a) consultants delay in preparing tender documents and (b) delays in completing the technical assistance and training component. As a result of these delays, the Bank agreed to extend the closing date from December 31, 1981 to December 31, 1982 and later to December 31, 1983. The formal completion ceremony for the project civil works was held on March 18, 1983. Due to the importance placed on exports in economic development, the President of Korea was the principal speaker at this ceremony.

3.03 Civil works were divided into four lots, each awarded separately to a different local constructing firm with BPCO was the contracting agency. The lots were:

Lot 1 (Infrastructure of Pier No. 6) included mainly construction of a container berth 603 m long, dredging of 4.1 million cu m of spoil, sandfill reclamation of 4.95 million cu m, construction of a barge quay 52 m long and construction of part of the access road.

Lot 2 (Pier No. 4) included rehabilitation of 1,690 m of existing berths, demolition of four transit sheds and construction of four new ones totalling 13,600 sq m of floor area, construction of seven buildings totalling 2,400 sq m of floor area, installation of lighting systems and utilities including drainage and water supply systems, and rehabilitation and construction of railway track totalling 2,200 m long.

Lot 3 (Pier No. 3 and Central Wharf) included mainly rehabilitation of approximately 1,800 m of existing berths, paving of about 113,000 sq m of roads and open storage areas, construction of four transit sheds and laborer's and operations buildings, reconstruction of railroad and installation of area utilities (drainage, water and electrical systems).

Lot 4 (Completion of Pier No. 6) included mainly construction of two stuffing and unstuffing sheds with about 20,500 sq m of floor area; construction of several operations buildings with approximately 5,500 sq m of floor area including eight guard and scale houses, 10 truck scales and an overhead catwalk; installation of area utilities; relocation and construction of railroad and crane rail totalling about 3,100 m; provision

of 154 kV substation and installation of underground transmission cables; and miscellaneous small buildings totalling about 2,200 sq m of floor area.

3.04 Particulars of the execution of the above-mentioned four lots were as follows:^{3/}

Lot	Preparation of tender documents	Contract award	Completion date	Contract amount ---- (Won million) ----	Actual <u>a/</u> amount
Lot 1	Mar. 16, 1979	Jul. 14, 1979	Mar 31, 1983	26,637.7	28,569.4
Lot 2	Sep. 21, 1979	Dec. 24, 1979	Jun 30, 1981	5,237.5	6,079.1
Lot 3	Dec. 4, 1979	Aug. 13, 1981	Feb 8, 1983 <u>b/</u>	6,708.8	8,131.9
Lot 4	Dec. 29, 1979	Aug. 12, 1981	Mar 26, 1983	18,564.5	20,430.9
			<u>Total</u>	<u>57,148.5</u>	<u>63,211.3</u>

a/ Including change order costs, escalation and value added tax.

b/ By that date the basic contract was completed, however two change orders Nos. 4 and 6 were completed later.

3.05 Pursuant to the Loan Agreement, BPCO, the agency responsible for project execution, was to be assisted by consultants acceptable to the Bank to design the project and supervise its construction. BPCO employed a joint venture consisting of an American firm and a Korean firm on July 7, 1978 to prepare final engineering and tender documents and later to assist in supervising work construction and equipment procurement. All contracts were awarded on the basis of international competitive bidding in accordance with Bank Guidelines for Procurement. Construction encountered certain difficulties as is normally the case during execution of port projects of this type and magnitude, however all problems were adequately resolved in due time without adverse effect on the project's technical standards and the project was successfully implemented. The supervision consultants processed 8,586 requests for inspection and 2,471 requests for approval during civil works construction.

3.06 The main problems encountered during project execution were:

- (a) a general problem, common to both the civil works and equipment, was the floating Won rate. At the start of the project, the conversion rate was Won 484.9 to US\$1.0. In January 1980, the rate was changed

3/ Paras. 3.01 and 3.03 compare work envisaged at appraisal with work actually contracted and para. 3.06(f) discusses the change orders.

to Won 582.9 to US\$1.0 as a floating rate. By the end of 1982, the Bank of Korea selling rate was Won 750.3 to US\$1.0, a change of 54.7%. The average rate for 1983 was Won 781.0 to US\$1.0. This, obviously, made direct conversion of construction costs an accounting problem;

- (b) the requirement for early completion of the container berth access road and its incorporation in Lot No. 1 resulted in some overall delays;
- (c) early dredging problems and lack of equipment caused delays for Lot 1. Government approval of the use of a 9,000 cu m capacity sea going hopper dredger settled these problems;
- (d) an unusually heavy rainy season in 1980 caused extension of the work period. Also there were delays by the Korean National Railroads (KNR) in railroad work which was under their jurisdiction;
- (e) the contractor for Lot 3 lacked adequate equipment in addition to having problems with his subcontractors. The problems were complicated by the contractor's poor scheduling of inspections and lack of experience and proper construction techniques; and
- (f) several changes, most of which were minor, were introduced during construction to ensure the best achievable technical standards and operational efficiencies. Contracts for Lots No. 1, 2, 3 and 4 were subject to 11, 9, 6 and 12 change orders respectively, a total of 38 change orders; the most important were:
 - (i) deletion of the sprinkler systems and installation of smoke detectors at the container freight station;
 - (ii) additional soil borings to determine possible future settlement; and
 - (iii) dredging the turning basin in front of Piers Nos. 2, 3, 4 and 6 and in an anchorage area.

The change orders resulted in a net decrease in contract amounts for Lot No. 1 and Lot No. 2 of Won 4,211.4 million and Won 25.8 million respectively, and a net increase for Lot No. 3 and Lot No. 4 of Won 1,570.8 million and won 2,164.0 respectively; a net decrease of Won 502.4 million for all civil works.

Equipment

3.07 Para. 3.01 above outlined the equipment to be purchased under the project as stated in the Appraisal Report. Procurement of equipment was handled by the Office of Supply, Republic of Korea (OSROK). Specifications were prepared by the same joint venture consultants responsible for civil works and approved by the Government and the Bank. Bids were analyzed by the consultants and BPCO before recommendations for procurement were made. Three main categories of equipment were purchased:

- (a) Four container cranes (two 40.6 t and two 30.5 t capacity), and nine PACECO,^{4/} container transfer cranes (two 40.6 t and seven 30.5 t capacity). Contract included spare parts and training;
- (b) mobile container handling equipment including four forklift trucks, 18 yard tractors, 50 yard trailers, and 20 road trailers; and
- (c) One tug boat 3,200 hp capacity.

3.08 Details of the equipment procurement follows:

Equipment	Contract award	Delivery date	Contract amount	Actual /h Amount (US\$ M)
4 container cranes	Jun 13, 1980	Dec 27, 1982	Won 3,028 <u>a/</u> million	4.624
9 container transfer cranes	Jun 13, 1980	Dec 29, 1982	Won 2,407 <u>b/</u> million	3.813
4 forklift trucks	Dec 2, 1980	May 24, 1981	SKR 1.451 <u>c/</u> million	0.281
18 yard tractors	Dec 2, 1980	June 1, 1981	DM 2.598 <u>d/</u> million	1.106
50 yard trailers	Dec 2, 1980	Various	Won 227.6 <u>e/</u> million	0.335
20 road trailers	Dec 2, 1980	Various	Won 120.6 <u>f/</u> million	0.176
1 tug boat	Apr 18, 1980	Apr 30, 1981	US\$ 1.347 <u>g/</u> million	1.185
<u>Total equivalent</u>			<u>US\$13.049 million</u>	<u>11.520</u>

- a/ US\$5.195 million equivalent based on a rate of exchange of US\$1= Won 582.9.
- b/ US\$4.129 million equivalent based on a rate of exchange of US\$1= Won 582.9.
- c/ US\$334,437 equivalent.
- d/ US\$1.457 million equivalents.
- e/ Payments made in Won (US\$383,183 equivalent).
- f/ Payments made in Won (US\$203,040 equivalent).
- g/ Won 784.9 million equivalent based on a rate of exchange of US\$1=Won 582.9.
- h/ Based on actual rate of exchange on the day of payments.

All above equipment were procured on schedule and are operating satisfactorily. Except for minor administrative issues, there were no major problems with the procurement of equipment. Of interest, were the following:

- (a) the container cranes were ready for use by July 1, 1982, however, since the new container berth was not complete insofar as final electricity and paving, they were idle until completion of all superstructure; and

4/ This type of cranes is being effectively used world-wide.

- (b) commercial conditions of OSROK as spelled out in the tender documents caused problems when the local supplier of the 50 yard trailers requested payment in US dollar instead of in local currency as specified in the tender documents. The supplier finally agreed to accept payment in Won. This however resulted in dollar savings.

Technical Assistance

3.09 The technical assistance and training component included under the project was intended to assist KMPA in four areas of port operations viz: cargo handling, port maintenance, port planning and the implementation of commercial accounting. Later on partial funding for the feasibility study of Busan port Phase III development was also included in this component. The first three areas were mostly handled by the sending of about 50 KMPA employees abroad for training as well as training by the equipment suppliers. The engineering consultants assisted KMPA in selecting employees for placement at ports and institutions of higher learning in such diverse places as the UK, Taiwan, Japan, Singapore and the USA. It marked the first concerted effort to train KMPA employees in more modern and efficient cargo handling techniques and cost effective port operations and maintenance. These fields were not stressed previously in Korea and hence this component can be judged to have had a major impact as it has equipped KMPA with a core of knowledgeable port operations staff on whom it can plan a better future. Similarly, the fourth component, commercial accounting represented even more of a new area for KMPA staff who had so far only been doing administrative type budgets. A joint venture of Korean and foreign accounting and audit consultants were retained by KMPA to help prepare its first few years of commercial type accounting statements and subsequently train KMPA staff to do these themselves. This was probably the major achievement under the technical assistance component, as by 1983, KMPA staff largely prepared their own statements with some assistance from the consultants. However, much more has yet to be accomplished in this area, as discussed in para. 6.02 under institutional development, but it is a commendable start.

3.10 The detailed engineering contract for the Busan third phase development was signed on December 1, 1981 and work started in January 1982. It was completed in December 1983 and recommended that Busan port be expanded further to meet the mid-term (to 1990) container traffic demand. However, due to budgetary constraints, the Government's EPB proposed postponing the project by three (3) years. The Bank did not agree with this and argued that traffic growth could allow no more than a 1 year postponement of the original early 1984 starting date for implementation. Among the reasons behind the EPB's recommendations was the fact that the project is costly (\$300 million) and requires extensive dredging and breakwater construction. Furthermore, continued expansion at Busan would lead to severe inland traffic congestion and land use problems. The Government therefore accepted the study's main findings concerning the need to expand port capacity but has decided to launch a site investigation study in order to determine whether this additional capacity may be better installed elsewhere. This study is expected to be completed by end 1984.

Project Costs, Financing and Disbursement

Project Costs

3.11 The project was estimated at appraisal to cost US\$111.925 million equivalent (Won 54,283 million at a rate of exchange of US\$1.0 = Won 485). The foreign exchange cost was estimated at US\$70.0 million of which US\$67.0 million were to be financed by the Bank Loan and US\$3.0 million by the Government. The actual project cost is US\$ 117.805 million equivalent (Won 81,121 million at an average rate of exchange of US\$1.0 = Won 689). The foreign exchange cost is US\$66.217 million.^{5/} The above cost includes: (a) US\$3.650 million equivalent (Won 2,515 million) value added tax ^{6/} amounting to 10% of local currency payments on civil works contracts; and (b) US\$5.826 million equivalent (Won 4,300 million equivalent) for feasibility study and final engineering for a proposed Busan third port project; this was not included in the project at appraisal.

3.12 Details of the actual project cost as compared to the appraisal estimate are given in Table 1. Following is a summary of the said table.

Total Project Costs

	<u>Won (million)</u>			<u>US\$ (million)</u>		
	<u>Local</u>	<u>Foreign</u>	<u>Total</u>	<u>Local</u>	<u>Foreign</u>	<u>Total</u>
A. <u>Project As Appraised</u>						
- Appraisal estimate	20,334	33,949	54,283	41.925	70.000	111.925
- Actual cost	30,616	43,460	74,076	44.760	63.251	108.011
B. <u>Total Expenditure a/</u>	35,465	45,656	81,121	51.588	66.216	117.805

a/ Including value added tax and feasibility study and final engineering for a proposed third port project.

5/ The balance of US\$782,976.42 of the loan has been cancelled.

6/ The Government started levying this tax after loan signature. This is why it has not been included in the appraisal estimate.

3.13 Several factors contributed to the actual cost in US\$ being 3.5% lower than the appraisal estimate, but 36.5% higher when expressed in Korean Won.^{7/} The main factors were:

- (a) the increase in the value of the US\$ from US\$1 = Won 485 in 1977 to US\$1 = W 783 in 1983 with an average of US\$1 = Won 689 during project implementation.
- (b) changes introduced on civil engineering works during preparation of final engineering as compared to the appraised project (paras. 3.01 and 3.03). These included mainly: (i) reduction in the length of the container berth from 700 m to 603 m so as to fit the available site; (ii) dredging the access channel to 13.5 m instead of 12.5 m; (iii) construction of a barge quay 52 m long; (iv) construction of two stuffing and unstuffing sheds about 20,500 sq m of floor area instead of one shed 8,000 sq m of floor area; (v) construction of eight new transit sheds on Piers No. 3 and 4; (vi) rehabilitation of piers returned by the army to civilian use; and (vii) several change orders during project implementation (para. 3.06f). In particular, rehabilitation of Piers 3 and 4 was estimated to cost Won 3,090 million whereas, as a result of introducing additional works, the actual cost reached Won 14,211 million. All of these changes proved to be justified and contributed to more efficient port operations.
- (c) reduction in the price contingencies from the appraisal estimate of 36.6% of all project costs to an actual of 9.6% of such costs. In fact, procurement of equipment totalling Won 8,025 million was not subject to price escalation.

Project Financing

3.14 The financing plan envisaged during appraisal represented Won 54,283 million (US\$111.925 million equivalent) of which Won 33,949 million (US\$70.0 million equivalent) was in foreign currency. The Bank loan provided for US\$67.0 million equivalent, and the Government undertook to provide the balance of US\$3.0 million equivalent in foreign currency as well as all local currency costs. Actual foreign currency costs were limited to US\$66,217,023.58, and the Government fulfilled its commitment by providing all local currency needed for the project ^{8/} amounting to Won 45,656 million (US\$51.588 million equivalent).

^{7/} The wholesale price index was: 1976 = 100, 1977 = 104.4, 1978 = 116.6, 1979 = 138.4, 1980 = 192.3, 1981 = 235.5, 1982 = 247.6, 1983 = 249.

^{8/} Including value added tax and feasibility study and final engineering for Ports III project.

Disbursements

3.15 Disbursements on the Loan were always behind schedule. Although the Loan Agreement was signed in April 1977 and the Loan became effective in July 1977, disbursements started only in March 1979, two years behind schedule. The main reason for such excessive delay was because the project itself was behind schedule. The appraisal report had assumed that the engineering consultant would have been employed in early 1977 and hence disbursements should have started in FY77 but events did not materialize this way. Table 2 which compares the estimated and the actual disbursement schedules is summarized below:

Cumulative Estimated and Actual Disbursements
US\$(million)

Bank Fiscal Year

	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84
(i) Estimated	0.70	5.70	18.80	36.10	61.80	67.00	67.00	67.00
(ii) Actual	0.00	0.00	0.77	6.48	31.12	47.18	57.76	66.22 <u>/a</u>
% of (ii) to (i)	0.00	0.00	4.09	17.90	50.30	70.00	86.20	98.80

a/ The exact amount is US\$66,217,023.58.

It should be noted that even though slower than appraisal estimates, disbursements were quicker than the standard country profile which suggests a seven year schedule

Reallocation of Loan Proceeds

3.16 At KMPA's request, the Bank loan funds were reallocated on September 30, 1983 so as to utilize the unallocated funds. The following table shows the original and actual allocation of loan proceeds.

Category	Loan Agreement	Reallocation of 9/30/83 (US\$ '000)	Actual as of 8/23/84
1. Civil works	25,000	47,885	47,722
2. Materials & equipment	17,600	11,521	11,520
3. Engineering consulting services for part G of project	4,000	6,094	5,497
4. Technical assistance & training	1,200	1,500	1,478
5. Unallocated	19,200	0	0
<u>Total</u>	<u>67,000</u>	<u>67,000</u>	<u>66,217</u>

Performance of Consultants, Contractors and Equipment Suppliers

3.17 KMPA employed several consultants to: (a) carry out a feasibility study for the project; (b) prepare project design and tender documents; (c) supervise civil works construction and equipment procurement; (d) carry out a feasibility study and detailed engineering for a proposed third port project; and (e) implement the commercial accounting systems. Performance of all consultants were satisfactory. The Contract for detailed engineering for the third port project (para. 3.10) was signed by KMPA and the same consultants who were responsible for the design of the second port project as well as the supervision of its implementation (para. 3.05). Unfortunately, strains developed in the relationship between KMPA and the consultants during the preparation of detailed engineering for the third port project. A reciprocal mistrust between the two parties resulted in KMPA's Construction and Development Office staff becoming reluctant to work with the consultants. They considered that the consultants were too costly, whereas the consultants complained that they were not paid for contractual work done. This matter was subsequently resolved.

3.18 Except for certain problems encountered by the contractor for Lot 3 (para. 3.06 e), the performance of all civil works contractors was satisfactory. All contracts were awarded to Korean firms on the basis of international competitive biddings (ICB). KMPA appreciates the advantages and merits of ICB, but, since the contracting industry in Korea is highly developed, KMPA sees no justification for advertising among foreign firms which have no chance in competition with Korean firms. Nevertheless, KMPA understands the reasons for which the Bank insists on all contracts to be awarded on the basis of ICB.

3.19 Performance of equipment suppliers was satisfactory. All equipment were delivered on time, according to specifications, and are performing without unusual problems. However, shortage of some spare parts resulted occasionally in undue work stoppages.

Fulfillment of the Main Loan Covenants

3.20 Compliance with covenants (Table 8) was generally satisfactory. Since this was a major operation with a new institution (KMPA), there were many major conditions to be met. They were all done to the Bank's satisfaction, except for Article 3.02 which dealt with KMPA autonomy. This has been settled by a mutual compromise (para. 6.02).

IV. TRAFFIC AND PORT OPERATIONS

Traffic

4.01 Busan port traffic (Table 3) exceeded appraisal forecast, in particular as regards container traffic. Port Traffic reached 31.5 million revenue tons in 1983 as compared to the appraisal estimate of 26.7 million revenue tons, an increase of 18%. Of the above traffic, containerized cargo reached 16.18 million revenue tons in 1983 as compared to the appraisal estimate of 5.9 million revenue tons, an increase of 174%. Number of containers reached 617,235 in 1983 as compared to the appraisal estimate of 345,900, an increase of 78%. Traffic data is summarized below:

Traffic (Million Revenue Tons)

	1978 /a		1983	
	Appraisal	Actual	Appraisal	Actual
Ocean in	N.A.	12.9	11.69	12.52
Ocean out	N.A.	9.4	12.70	13.93
Coastal in	N.A.	4.8	4.62	4.98
Coastal out	N.A.	0.1	0.10	0.07
Total in	<u>13.9</u>	<u>17.7</u>	<u>18.80</u>	<u>17.50</u>
Total out	<u>6.7</u>	<u>9.5</u>	<u>7.90</u>	<u>14.00</u>
Grand Total	<u>20.6</u>	<u>27.2</u>	<u>26.70</u>	<u>31.50</u> /b
Of which containerized	3.8	7.89	5.90	16.18

/a First year after Loan Agreement.

/b Of which 2.7 million tons of oil and the rest is of dry bulk and general cargo.

4.02 The above table shows that the actual total traffic for 1978 even exceeded the appraisal forecast traffic for 1983 and the actual containerized cargo traffic for 1978 exceeded the appraisal forecast for 1983 by 34%. Busan port was able to handle this unexpected increase in traffic mainly because of its efficient port operations and high productivity.

4.03 The port operates 24 hours per day. General cargo traffic is handled mainly on Piers No. 1 to 4; average 1978 to 1983 productivity reached 225 tons per gang for a shift of eight hours. This is equivalent to 28 tons per gang hour which is high by comparison with ports even in the most developed countries.

4.04 As regards the new container terminal, pursuant to the Loan Agreement, KMPA created the Busan Container Terminal Operation Company (BCTOC) on September 29, 1978 as an exclusive public-user container terminal. BCTOC is the sole authority responsible for overall control and operation of the terminal, including marshalling, stevedoring, storage, delivery and handling of container freight. Creation of BCTOC was a wise decision, its management and operations are, in general, successful. The main port facilities available to the terminal (Piers 5 and 6) and their capacities are as follows:

- four berths totalling 1,262 m capable of accommodating four 50,000 dwt class container ships;
- land space of 629,854 sq. m of which 359,118 sq. m are for storing containers, with a one time storage capacity of 18,379 twenty - footers;
- eight container cranes (six 30.5 ton capacity and two 40.6 ton capacity) capable of handling 160 to 200 containers per hour;
- three container freight stations totalling 25,616 sq. m for stuffing and unstuffing containers; and
- nine yard transtainers, 12 straddle carriers, one rail transtainer and yard tractors and trailers.

4.05 The container terminal operates 24 hours per day as well as 365 days per year. Its theoretical maximum handling capacity is 720,000 TEU 9/ annually. During 1983, 10/ the terminal handled 501,300 TEU with a berth occupancy rate of 47%, and handled 661,400 TEU in 1984. General cargo piers, mainly Piers No. 3 and 4, handled 382,300 TEU in 1983 and handled 392,900 TEU in 1984. Since the port receives 20 ft., 35 ft. and 40 ft. containers, it was found that the average container reaching or leaving Busan in 1983 is equivalent to TEU 1.414. The following table compares the number of containers (expressed in TEU) handled at the container terminal with those handled on the general cargo piers.

9/ Twenty feet equivalent unit.

10/ Pier 6 started operations only from April 1983.

(TEU Thousand)

Year	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Container terminal	-	-	-	35.2	264.3	285.0	364.3	418.0	501.3	661.4
General cargo piers	260.9	351.0	454.8	471.3	332.2	347.8	379.6	368.7	382.3	392.9
Total Busan Port	<u>260.9</u>	<u>351.0</u>	<u>454.8</u>	<u>506.5</u>	<u>596.5</u>	<u>632.8</u>	<u>743.9</u>	<u>786.7</u>	<u>883.6</u>	<u>1054.3</u>
% Terminal/Busan	-	-	-	6.9%	44.3%	45.0%	48.9%	53.1%	56.7%	62.7

4.06 Since the maximum theoretical container handling capacity of Piers No. 1 to 4 is about 500,000 TEU per year, the total capacity of all existing port facilities that can handle containers at Busan, including the container terminal (Piers No. 5 and 6) is limited to 1,220,000 TEU annually. Future container traffic through Busan port is forecast to be as follows:

Year	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>
TEU million	0.984	1.060	1.166	1.279	1.402	1.538	1.636	1.849

The above table shows that the port, including Piers No. 1 to 4, will reach its maximum theoretical container handling capacity by year 1987.

4.07 During 1983, the new container terminal (Piers No. 5 and 6) which can handle up to 720,000 TEU, handled 501,300 TEU only. BCTOC has not managed to attract some of the other 322,300 TEU handled on the general cargo piers which arrive mainly on mixed cargo ships. This is due to a number of reasons, mainly: (a) it is unsafe, uneconomical and inefficient to handle feeder vessels, with mixed container and general cargo, at a terminal designed exclusively to handle containers by gantry cranes; (b) existing stevedoring and forwarding companies operating at the general cargo piers are well established there and own transportation equipment as well as 30 off-dock container yards, the majority of which are very close to the port area; and (c) since Japanese ports do not operate on weekends, shipping companies schedule their container vessels to arrive in Busan on weekends, thus usually 10 to 12 ships arrive at the same time and could not be handled at the container terminal alone. As a result, 70% of containers handled on the general cargo piers do so on weekends. In any case, since the new container

terminal cannot handle all containers arriving now at Busan port, and since the situation will gradually worsen, it is unwise to completely abolish handling containers on the general cargo piers. However, BCTOC should take all necessary measures to attract the maximum possible number of full container ships to use the new terminal. In addition, the Government should be urged to start constructing new container handling facilities in or near Busan port to cope with the forecast container traffic, taking into consideration that building such facilities would require about four years from the start of its construction.

4.08 Handling containers at the new container terminal proved to be a successful operation. Containers are handled at an average rate of 23 containers per crane per hour and reaching a maximum of 28 containers per crane per hour. Such productivity is high even when compared with container terminals in developed countries. All equipment are operating satisfactorily and their maintenance is good despite occasional shortage in some spare parts. However, maintenance, repair and availability of spare parts should be seriously taken into consideration from now onward because equipment seems to be overutilized and some may need replacement in the near future.

4.09 The three container freight stations which are used mainly for stuffing and unstuffing containers are underutilized. In addition, the stacking area, which has a maximum theoretical one time storage capacity of 18,379 twenty-footers is also underutilized. The average number of containers available at one time is about 5,000 containers which is equivalent to 7,000 TEU, representing 40% storage occupancy. Although this figure is expected to increase in parallel with the container traffic, it is considered now to be low. The main reason for this underutilization is the existing rule giving advantage to the four Korean flag container lines by permitting them to stack free of charge outbound and inbound containers up to 15 and 21 days respectively as compared to 5 and 7 days for the 37 foreign flag container lines calling at Busan. As a consequence, the 30 off-dock yards which were established as backup in Busan still handle increasing numbers of containers. The Government, KMPA and BCTOC should be urged to take all necessary measures that would ensure the full use of the container terminal stacking area up to its maximum capacity.

V. FINANCIAL PERFORMANCE OF BDMPA AND KMPA

5.01 At appraisal time in 1976, there were no qualified accountants in Busan District Maritime and Port Authority (BDMPA), nor any accounting staff familiar with double-entry bookkeeping. Under the then used Government budgetary system there was no meaningful cash balance and accounts receivable entries. Similarly, no record of accounts payable was maintained and no stores accounts were kept as purchases were regarded as current expenditure regardless of the period in which the stores concerned were actually used. Similarly, the adequacy of port tariffs varied from port to port and were generally not cost based. However, under the first and second ports projects major changes were to be made. Consultants financed under Ports I, Ln. 917-KO designed new commercial accounting, costing and management information systems

for KMPA. Under Ports II, the accounting component has been successfully implemented but much remains to be done in terms of implementing the costing system and the design of cost-based tariffs. It is now possible to review the performance of BDMPA and KMPA under standard commercial accounting procedures.

BDMPA Performance.

5.02 Tables 4.1-4.4 compare and detail the actual highly successful BDMPA financial performance vis-a-vis appraisal estimates. The summary table overleaf provides a ready reference to most of the important indicators. BDMPA's performance is even more remarkable when it is realized that the Korean economy suffered a slow-down in growth over 1979-81. BDMPA's overall traffic performance exceeded appraisal forecasts by about 20%. Most of the increase is attributable to container traffic which was about three times higher than forecast at appraisal. To achieve this traffic performance, BDMPA for example in 1982 spent W 5 billion in operating costs while appraisal forecasts were W 6 billion. This discloses a substantial increase in productivity. As tariffs were increased every year, in line with inflation, BDMPA's profitability improved and it achieved a 13.1% rate of return on average net fixed assets in use in 1981 against a 7.8% appraisal forecast and a 7% Loan Agreement objective. It has done even better since then with rates of return of 14% in 1982 and 17% in 1983. This is highly beneficial to the overall port sector as BDMPA's profits allow KMPA to cover some of the losses incurred on other ports, thus decreasing the overall Government subsidy level.

5.03 BDMPA's outstanding performance is expected to continue over the long term due to the favorable combination of continued traffic growth, increased productivity and positive tariff adjustments. Its financial position is sound as the balance sheet shows an excellent 45/55 debt to equity position in 1983. BDMPA is in a position to borrow adequate funds for expansion without severely affecting its debt position. It must be concluded that the investment at Busan was financially sound, is contributing adequate revenues to KMPA and all things considered, should in future continue to be profitable.

KMPA Performance

5.04 KMPA did not exist at appraisal and hence no financial projections were included in the appraisal report. This review will focus on KMPA's actual performance and give some indications of its long term expectations. KMPA has Busan and nine (9) other District Maritime and Port Authorities (DMPA) under its control. KMPA's overall performance is thus more in line with that of the economy as a whole due to Korea's emphasis on export led growth. Tables 5.1-5.4 together with their extensive notes detail KMPA performance from 1979-83 and the summary table highlights the major indicators. In November 1982, the Government and the Bank agreed to target rates of return for KMPA. These were set at 3.5% in 1983, 4.5% in 1984, 5% in 1985 and 7% in 1986. As the summary table shows on pg. 21, the actual performance has been well in excess of targets with an 8% rate of return in 1983.

FINANCIAL PERFORMANCE AND SITUATION OF THE OF THE
BUSAN-DISTRICT MARITIME AND PORT AUTHORITY (BDMPA)

	1980		1981		1982		1983	
	Appr.	Actual	Appr.	Actual	Appr.	Actual	Est.	Actual
Traffic (million revenue tons)	22.9	25.7	24.3	29.8	25.4	29.1	30.8	31.5
Of which: containers	4.6	10.4	5.0	13.5	5.4	14.5	15.6	15.9
	----- (won billion) -----							
<u>Income Statement</u>								
Operating revenue	14.2	14.3	16.6	22.2	19.2	26.3	31.5	34.8
Working expenses	1.9	1.7	2.4	3.5	2.7	4.5	5.2	5.7
Depreciation	4.9	2.0	5.2	2.4	5.9	2.8	3.1	3.5
Net operating revenue	7.4	10.6	9.0	16.3	10.6	19.0	23.2	25.6
Interest charges	4.4	4.7	4.7	5.1	4.6	6.2	6.4	6.2
Foreign exchange losses	-	0.7	-	3.3	-	2.7	0	5.3
Net profit (loss)	3.0	5.2	4.2	7.9	6.0	10.1	16.8	14.1
<u>Source & Application of Funds</u>								
Own cash generation	12.3	12.7	14.3	18.7	16.5	21.8	26.3	29.1
Government contribution to investments	-	15.0	-	0.9	-	28.2	-	17.3
Loan mobilization	9.7	11.6	10.7	16.7	1.2	14.5	8.9	6.8
<u>Total Sources</u>	<u>22.0</u>	<u>39.3</u>	<u>25.0</u>	<u>36.3</u>	<u>17.7</u>	<u>64.5</u>	<u>35.2</u>	<u>53.2</u>
Capital investments	18.1	31.7	14.5	31.5	5.0	48.6	22.9	22.8
Debt service	6.4	7.8	9.2	11.3	9.1	12.5	14.4	12.4
<u>Total Applications</u>	<u>24.5</u>	<u>39.5</u>	<u>23.7</u>	<u>42.8</u>	<u>14.1</u>	<u>61.1</u>	<u>37.3</u>	<u>35.2</u>
Annual variation in working capital	(2.5)	(0.2)	1.8	(6.5)	3.6	3.4	(2.1)	18.0
<u>Balance Sheet</u>								
Net working capital	(0.7)	(0.3)	(0.5)	(6.7)	3.1	(3.3)	(5.4)	14.7
Net fixed assets	124.8	149.4	135.1	155.7	134.2	208.6	231.3	210.4
<u>Total Assets</u>	<u>124.1</u>	<u>149.4</u>	<u>134.6</u>	<u>149.0</u>	<u>137.3</u>	<u>205.3</u>	<u>225.9</u>	<u>225.1</u>
Loan capital	67.7	73.0	71.0	71.4	67.6	91.8	92.8	102.5
Equity equivalent	59.4	76.4	63.6	77.6	69.7	113.5	133.1	122.6
<u>Total Liabilities</u>	<u>124.1</u>	<u>149.4</u>	<u>134.6</u>	<u>149.0</u>	<u>137.3</u>	<u>205.3</u>	<u>225.9</u>	<u>225.1</u>
<u>Ratios</u>								
Rate or return on average net fixed assets in use %	7.7	9.9	7.8	13.1	7.9	14.6	13.1	17.1
Debt/equity	52/48	49/51	53/47	48/52	49/51	44/56	41/59	45/55

ACTUAL AND PROJECTED FINANCIAL PERFORMANCE OF THE
KOREA MARITIME AND PORT ADMINISTRATION (KMPA)

	Actual		Projected		
	1982	1983	1984	1985	1986
<u>Traffic</u> (million revenue tons)	124.5	134.5	141.6	146.4	159.9
<u>Income Statement</u>	(Won billion)				
Operating revenue	62.1	78.6	90.5	111.4	137.5
Working expenses	22.3	24.8	31.7	39.0	48.1
Depreciation	8.0	10.4	12.4	16.1	18.3
<u>Net Operating Revenue</u>	<u>31.6</u>	<u>43.4</u>	<u>46.4</u>	<u>56.3</u>	<u>71.1</u>
Interest charges	6.6	7.6	9.6	10.4	10.5
Foreign exchange losses	3.1	6.3	15.9	20.1	26.8
<u>Net Profits (Losses)</u>	<u>21.9</u>	<u>26.6</u>	<u>20.9</u>	<u>25.8</u>	<u>33.8</u>
<u>Sources and Applications of Funds</u>					
Cash generation	42.5	53.8	58.8	72.4	89.4
Government contribution to investment	66.7	28.7	74.0	73.4	76.2
Loan mobilization	18.1	11.7	16.0	6.7	7.3
<u>Total Sources</u>	<u>127.4</u>	<u>94.2</u>	<u>148.8</u>	<u>152.5</u>	<u>172.9</u>
Capital investments	103.4	74.7	110.7	105.4	107.0
Debt service	13.1	14.9	19.4	22.1	23.7
<u>Total Applications</u>	<u>116.5</u>	<u>89.6</u>	<u>130.1</u>	<u>127.5</u>	<u>130.7</u>
Annual variations in working capital	10.8	4.6	18.7	25.0	42.2
<u>Balance Sheet</u>					
Working capital	(7.3)	(2.7)	16.0	41.0	83.2
Net fixed assets	563.1	685.2	756.3	845.6	934.2
<u>Total Assets</u>	<u>555.8</u>	<u>682.5</u>	<u>772.3</u>	<u>886.6</u>	<u>1,017.4</u>
Long-term liabilities	105.7	116.3	157.3	172.4	193.3
Equity equivalent	450.1	566.2	615.9	714.2	824.1
<u>Total Liabilities</u>	<u>555.8</u>	<u>682.5</u>	<u>772.3</u>	<u>886.6</u>	<u>1,017.4</u>
<u>Ratios</u>					
Average net fixed assets in use	397.6	490.0	692.1	785.9	874.9
Rate of return on average net fixed assets in use (%)	5.1	8.8	6.7	7.2	8.1
Debt to equity	19/81	17/83	20/80	19/91	28/72
Working ratio	36	32	35	35	35

5.05 This performance is largely due to the outstanding contribution of DMPAs at Busan, Ulsan and Pohang as the table below shows.

DISTRICT MARITIME AND PORT AUTHORITIES PROJECTED RATES OF RETURN ON AVERAGE NET FIXED ASSETS IN USE 1982-86

	1982		1983		1984		1985		1986	
	RR/a	NP/a	RR/a	NP/a	RR/a	NP/a	RR/a	NP/a	RR/a	NP/a
Busan	14.8	5.4	17.1	1.2	10.1	2.2	13.3	5.2	17.1	7.7
Incheon	7.5	4.6	8.8	4.3	10.7	3.6	6.1	(0.8)	7.7	0.8
Donghae (Mukho)	1.4	0.1	-0.9	(1.1)	0.4	(0.5)	2.0	0.3	4.0	1.6
Kunsan	-12.2	(3.1)	-10.4	(3.3)	10.3	(3.7)	-9.9	(3.9)	-10.2	(4.3)
Mogpo	-8.3	(1.5)	-6.2	(1.8)	-5.9	(2.2)	-4.6	(2.5)	-5.5	(3.0)
Yeosu	-0.3	(0.1)	0.5	0.1	1.7	0.5	3.1	0.9	4.1	1.3
Masan	-5.8	(0.5)	-2.6	(0.3)	-0.6	(0.1)	2.2	0.3	5.1	1.0
Ulsan	11.7	3.1	11.6	3.7	11.7	4.2	10.5	4.8	12.0	5.4
Pohang	20.3	4.6	23.3	5.5	24.4	6.4	24.5	7.2	25.0	8.3
Jeju	-5.6	(0.9)	-4.6	(1.0)	-4.0	(1.3)	-3.8	(1.7)	-3.8	(2.1)

/a RR = rate of return %; NP = net profit (loss) in billion won.

In terms of return on net fixed assets in use, the most profitable DMPA is Pohang, the activity of which is enhanced by the connecting industrial complex. It is followed by Busan which handles about 26% of Korea's port traffic. Ulsan is third, due to the industrial activity which surrounds it. Incheon follows but should do better considering that it is the last outlet to/from the heavily populated and economically active Seoul area. The utilization of the coal terminal financed under the First Ports Project is expected to improve Donghae's (Mukho) profitability from 1.4% rate of return in 1982 to 4% in 1986. The other 5 DMPAs (Kunsan, Mogpo, Yeosu, Masan, Jeju) handle together only about 12% of the country's port traffic. Yeosu and Masan are expected to achieve a low 4% or 5% rate of return in 1986, the remaining DMPAs will work at an operating deficit.

5.06 In spite of the significant debt service resulting from the substantial borrowing required for financing its investment plan, KMPA is expected to show a net profit over 1984-86. This profit will be mainly generated by the Pohang, Busan and Ulsan DMPAs while the Donghae, Yeosu and Masan DMPAs are expected to break even and the others to suffer small to medium losses. KMPA's overall performance over the 1982-86 period is very commendable. Its net worth would double during this period although fixed assets would only increase by 65%, reflecting a better use of capacity. Finally its debt to equity would stay at a very comfortable 28/72 level, leaving room for substantial additional borrowing. As KMPA's assets will be operated at full capacity by 1985/86 this additional borrowing will be used for financing the new investments needed for meeting future demand for port traffic.

5.07 The analysis shows that the project has led to the successful growth and development of KMPA. Starting as a budgetary unit in the 1970s, KMPA should eventually become a revenue earning entity which will contribute to, rather than burden the Government of Korea financially. It will even be able to contribute funds to its own future capacity expansion investments. This is a long way from when it needed financing even for recurrent expenditures.

VI. INSTITUTIONAL DEVELOPMENT

6.01 In addition to assisting the GOK in attaining its port expansion goals, the second Port Project contributed to the development of all institutions involved in the port subsector. The main beneficiaries were the KMPA and MOT.

KMPA

6.02 The training program has helped to build KMPA's technical capability in areas not previously emphasized in Korea. That this was done at the initial formative stages of KMPA development explains even further the tremendous impact achieved, especially on operations. It should be noted that certain aspects of this institution building component did not meet with the same degree of success. Under the provisions of Section 3.02 of Loan Agreement 917-KO (First Ports Project), KMPA was to be given substantial independence, a wide managerial freedom, and the right to apply commercial budgeting and accounting procedures. However, mainly due to a misunderstanding of the Korean term "chong" in Schedule 5 (Plan of Action) of the same Loan Agreement, the Government established KMPA as an office operating under administrative managerial and financial procedures. To make up for this misunderstanding, the Government and the Bank agreed that Section 3.02 of Loan Agreement 1401-KO (Second Ports Project) would reiterate part of the directives of the previous project. However, the Government has not complied with the provisions of this article for various reasons which also affect the intended full usage of commercial accounting procedures. KMPA's management explained that it was reluctant to fully switch from administrative to commercial budgeting and accounting procedures because relevant legal provisions would prevent it from receiving Government contributions needed for meeting its consolidated operating deficit and financing its investment plan. Instead, starting January 1, 1983, KMPA implemented the commercial budgeting and accounting system in parallel with the existing administrative procedures. This procedure was carried out under the written instructions of the Ministry of Transportation and the commercial accounts were audited in accordance with auditing procedures acceptable to the Bank. Performance under this procedure was reviewed and agreement reached with a Bank mission on August 23, 1984. The terms of this agreement and the minutes of the meeting are included as an attachment to Table 8. Essentially, it stipulates that the parallel accounting methods be used indefinitely and the Bank is now considering the agreement.

MOC and MOT Relations

6.03 MOC is in theory responsible for industrial ports and in the past implemented its program after little or no dialogue with the MOT and KMPA. Under the project, steps have been taken via the establishment of an inter-ministerial committee to ensure that KMPA views have been solicited and considered before major investments are undertaken. This process has however only just begun and the degree of consultation must still be branded as minimal. Extensive efforts will be required in future to improve the institutional setting of the Korean Ports System and to ensure that port investments are properly coordinated.

VII. ECONOMIC RE-EVALUATION

7.01 The ERR at appraisal (17%) was based solely on the expansion in container traffic. It was then estimated that over the period 1976-83 general cargo traffic would grow at 4.43% p.a. and that containerization would increase from 41.5% to 53.2% of all general cargo. Measurable project benefits would be the savings in ship waiting time, the reduction of double handling due to non-use of off-dock container yards and savings in transport costs for Seoul-area bound containers which were handled at Busan rather than at Incheon. The project would also encourage the use of larger, full container ships directly serving Busan rather than offloading Korea bound containers in Japan for transshipment by other vessels. Also the new container terminal would be substantially lower in capital costs than equivalent break bulk facilities and Busan site was the least cost alternative for such a terminal.

7.02 The re-estimated ERR is about 40%. This analysis was made with similar parameters as at appraisal. The higher rate of return was caused by a combination of both higher growth in general cargo volumes and in the percentage containerized. Overall, general cargo traffic during the period 1976-83 (Table 3.4) grew at an annual average rate of 11.28%, almost triple the appraisal expectation. This was due primarily to Korea's highly successful export led development as outbound general cargo traffic grew at 12.43% p.a. over the period and was more than 1.5 times inbound volume in terms of revenue tons. In addition the percentage of general cargo containerized rose rapidly during the period to exceed 80% in 1983. There was therefore more cargo and more of it containerized, hence the higher economic return.

7.03 This was not true for the second benefit stream - the elimination of container yard double handling cost. As discussed in para. 4.07, the offdock container yards are still utilized extensively. The volume of traffic double handled has not grown significantly, but it is estimated that the new con-

tainer yard is underutilized and little savings have been had. Hence, this component was set to zero. The benefits for containers bound for Seoul but handled via Busan are estimated to have materialized but on 30% of total Busan volume rather than about 50% at appraisal. The rate of return at both appraisal and completion excludes investment in studies, technical assistance and training.

VIII. THE ROLE OF THE BANK

8.01 The Bank has played an important role in the preparation and satisfactory completion of a technically sound, economically justified and financially viable project. Also KMPA and BPCG achieved excellent results from the technical assistance and training programs - both leading to improved management and more efficient port operation. However, much remains to be done and the Bank has a continuing role to play in the area of port planning as well as in the preparation and implementation of a third port project to provide additional container handling facilities. KMPA has commented on the Bank's role, as well as on the difficulties encountered and how to deal with them in future. KMPA's main comments were as follows:

- (a) KMPA and BPCO benefited extensively from the technical assistance provided by Bank staff, especially during supervision missions. Timing and duration of supervision missions were adequate.
- (b) Although KMPA understands the reasons why the Bank insisted on International Competitive Bidding, they see no practical results to this procedure since the construction industry in Korea is well developed and does not afford foreign contractors any chance of winning in competitions with local firms.
- (c) KMPA is of the opinion that fees paid to foreign consultants entrusted with feasibility studies and construction supervision were excessive. In particular fees paid for the preparation of final engineering for Pier No. 6 (Second Port Project) were unwarrantedly high since the design was similar to that for Pier No. 5 (First Port Project) and was provided by the same consultants. KMPA also feels that local consulting firms are now competent enough to conduct feasibility studies as well as supervision of construction. As a step in this direction the Government is currently using local firms in a joint venture with foreign specialists to conduct a feasibility study of the optimum location for new container facilities.
- (d) KMPA had no problems with the Bank taking timely decisions and considers that communications and cooperation with the Bank were excellent.

IX. CONCLUSIONS

9.01 The project has been very successful and largely achieved its major objectives of meeting traffic needs and institution building in the KMPA. The investments have resulted in the creation of extensive and ultra-modern container facilities at Busan which will support Korea's vital export drives. The economic and financial returns exceeded expectations and the training components contributed to the development of KMPA. The extensive studies also helped to develop the Korean consulting industry. The project must both be considered as a success in terms of physical execution and be judged as having a major impact in terms of technical assistance.

KOREA
SECOND FORT PROJECT (LOAN 1401-KO)
PROJECT COMPLETION REPORT

Estimated and Actual Project Costs

	Won million equivalent						US\$ million equivalent					
	Estimated /a			Actual /b			Estimated /a			Actual /b		
	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total
Civil works /c	11,389	13,963	25,352	24,927	30,257	55,184	23.480	28.790	52.270	36.031	43.734	79.765
Equipment	1,054	8,536	9,590	-	8,025	8,025	2.170	17.600	19.770	-	11.520	11.520
Engineering services	581	1,940	2,521	1,676	1,833	3,509	1.200	4.000	5.200	2.855	3.123	5.978
Technical assistance and training	150	582	732	118	586	704	0.310	1.200	1.510	0.164	0.886	1.050
Subtotal	<u>13,174</u>	<u>25,021</u>	<u>38,195</u>	<u>26,721</u>	<u>40,701</u>	<u>67,422</u>	<u>27.160</u>	<u>51.590</u>	<u>78.750</u>	<u>39.050</u>	<u>59.263</u>	<u>98.313</u>
Price contingency	5,060	8,928	13,988	2,523	2,759	5,282	10.435	18.410	28.845	3.646	3.988	7.634
Customs duty on equipment	2,100	-	2,100	1,372	-	1,372	4.330	-	4.330	2.064	-	2.064
Total /d	<u>20,334</u>	<u>33,949</u>	<u>54,283</u>	<u>30,616</u>	<u>43,460</u>	<u>74,076</u>	<u>41.925</u>	<u>70.000</u>	<u>111.925</u>	<u>44.760</u>	<u>63.251</u>	<u>108.011</u>
Value added tax on civil works /e	-	-	-	2,745	-	2,745	-	-	-	3.968	-	3.968
Feasibility study - Ports III /f	-	-	-	429	374	803	-	-	-	0.679	0.592	1.271
Final engineering - Ports III /f	-	-	-	1,675	1,822	3,497	-	-	-	2.182	2.373	4.555
Total Project Cost	<u>20,334</u>	<u>33,949</u>	<u>54,283</u>	<u>35,465</u>	<u>45,656</u>	<u>81,121</u>	<u>41.925</u>	<u>70.000</u>	<u>111.925</u>	<u>51.589</u>	<u>66.216/g</u>	<u>117.805</u>

/a Based on a fixed rate of exchange of US\$1.00 = Won 485.

/b Based on actual rate of exchange on the date of payment (average US\$1.00 = Won 689).

/c Including physical contingencies.

/d Total project cost as originally appraised.

/e Introduced by Government starting July 1, 1977, two months after Loan Agreement.

/f Not included in original project but was added when the project description was amended on March 30, 1981.

/g The exact foreign exchange cost is US\$66,217,023.58.

KOREA

SECOND PORT PROJECT (LOAN 1401-KO)

PROJECT COMPLETION REPORT

Schedule of Disbursements
(000' US\$)

Bank fiscal year	Quarter	<u>Appraisal forecast</u>		<u>Actual</u>	
		Quarter	Cummulative	Quarter	Cummulative
1977	4	700	700		
1978	1	750			
	2	750			
	3	1,000			
	4	2,500	5,700		
1979	1	3,200			
	2	3,300			
	3	3,300			
	4	3,300	18,800	800	800
1980	1	3,400		400	1,200
	2	3,400		3,300	4,500
	3	4,500		300	4,800
	4	6,000	36,100	1,700	6,500
1981	1	7,500		3,300	9,800
	2	6,500		3,500	13,300
	3	6,200		7,200	20,500
	4	5,500	61,800	10,600	31,100
1982	1	4,800		3,000	34,100
	2	400	67,000	1,500	35,600
	3			7,600	43,200
	4			4,000	47,200
1983	1			5,500	52,700
	2			3,340	56,040
	3			1,620	57,660
	4			100	57,760
1984	1			374	58,134
	2			7,722	65,856
	3			27	65,883/a
	4			334	66,217

/a The undisbursed amount of US\$782,976.42 has been cancelled.

KOREA
SECOND PORT PROJECT (LOAN 1401-KO)
PROJECT COMPLETION REPORT

Busan Port Traffic - Dry Bulk Cargo /a
('000 Revenue tons)

Year	Appraisal estimate	Inbound				Appraisal estimate	Outbound			
		Total	Grain	Coal	Others/b		Total	Cement	Lumber	Others/c
1976	6,886	7,470	1,099	806	5,565	1,518	3,325	1,169	919	1,237
1977	7,154	8,945	1,296	784	6,865	1,523	4,075	1,690	962	1,423
1978	7,440	9,410	1,189	874	7,347	1,192	2,644	520	785	1,339
1979	7,747	9,207	1,651	1,077	6,479	1,244	2,456	197	618	1,641
1980	8,079	7,278	1,455	1,294	4,529	1,300	2,567	209	353	2,005
1981	8,435	7,986	1,547	1,786	4,653	1,359	2,689	193	367	2,129
1982	8,672	7,725	1,501	1,434	4,790	1,361	2,157	61	217	1,879
1983	8,920	8,494	1,804	1,178	5,512	1,364	2,287	72	105	2,110
Growth rates (%)	3.78	1.85	7.3	5.6	0.0	-1.5	-4.5	-13.4	-12.6	7.9

/a Includes grain, iron, steel and scrap, coal, timber, cement and other dry bulk.

/b Includes cement, lumber, salt, iron material and other ores.

/c Includes grain (up to 1979), iron materials, iron ores and other ores.

Source: KMPA, August 1984

KOREASECOND PORT PROJECT (LOAN 1401-KO)PROJECT COMPLETION REPORTBusan Port Traffic - Liquid Bulk and General Cargo
('000 Revenue tons)

Year	Inbound				Outbound			
	Liquid bulk /a		General cargo /b		Liquid bulk /c		General cargo /d	
	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual
1976	2,532	2,182	3,023	3,400	15	31	5,120	5,141
1977	2,830	2,563	3,178	4,036	10	58	5,327	5,987
1978	3,160	3,020	3,346	5,273	5	21	5,528	6,843
1979	3,524	3,450	3,529	5,613	0	19	5,733	7,206
1980	3,928	2,769	3,725	4,548	0	89	5,942	8,446
1981	4,377	2,692	3,940	5,893	0	99	6,155	10,409
1982	4,861	2,613	4,187	5,970	0	37	6,362	10,603
1983	5,399	2,636	4,457	6,371	0	42	6,572	11,673
Growth rates (%)	11.42	2.74	5.7	9.39	-	4.43	3.63	12.43

/a Includes crude petroleum and other bulk liquids.

/b Includes fertilizer, wood pulp, textiles, machinery and metal products, dry chemicals and other general cargo.

/c Mostly petroleum products.

/d Includes plywood, textiles, metal products and machinery, other general cargo.

Source: KMPA, August 1984

KOREA
SECOND PORT PROJECT (LOAN 1401-KO)
PROJECT COMPLETION REPORT
Busan Port Traffic - Container Cargo
('000 Revenue tons)

Year	1976	1977	1978	1979	1980	1981	1982	1983	Growth rates (%)
<u>Inbound</u>									
<u>No. of Containers ('000)</u>									
Appraisal total	108	112	116	127	138	149	160	173	-
Actual									
Full	77	107	134	157	136	166	180	203	-
Empty	34	39	25	20	38	52	60	59	-
<u>Total</u>	<u>111</u>	<u>146</u>	<u>159</u>	<u>177</u>	<u>174</u>	<u>218</u>	<u>240</u>	<u>262</u>	<u>-</u>
Containerized cargo									
Appraisal	1,323	1,430	1,573	1,765	1,937	2,128	2,345	2,585	10.0
Actual	1,385	1,952	2,590	3,159	2,850	3,790	4,328	4,954	19.9
<u>Outbound</u>									
<u>No. of Containers ('000)</u>									
Appraisal total	108	112	116	127	138	149	160	173	-
Actual									
Full	124	160	180	195	236	282	276	305	-
Empty	3	5	8	30	28	27	36	51	-
<u>Total</u>	<u>127</u>	<u>165</u>	<u>188</u>	<u>225</u>	<u>264</u>	<u>309</u>	<u>312</u>	<u>356</u>	<u>-</u>
Containerized cargo									
Appraisal	2,052	2,131	2,211	2,408	2,614	2,831	3,054	3,286	7.0
Actual	3,812	4,700	5,303	6,084	7,565	9,688	10,200	11,008	16.4
<u>Total Container Cargo</u>									
Appraisal	3,375	3,561	3,784	4,173	4,551	4,959	5,399	5,871	8.23
Actual	5,197	6,653	7,893	9,242	10,414	13,478	14,529	15,962	17.39
<u>% of Total General Cargo Containerized</u>									
Appraisal	41.5	41.9	42.6	45.1	47.1	49.1	51.2	53.2	-
Actual	60.8	66.4	65.2	72.1	80.1	82.7	87.6	88.4	-

Source: KMPA, August 1984

Table 3.4

KOREA

SECOND PORT PROJECT (LOAN 1401-KO)

PROJECT COMPLETION REPORT

Busan Port Traffic Summary
('000 Revenue tons)

Year	1976	1977	1978	1979	1980	1981	1982	1983	Growth rate (%)
<u>Dry Bulk</u>									
Appraisal	8,404	8,677	8,632	8,991	9,379	9,794	10,033	10,284	2.93
Actual	10,795	13,020	12,054	11,663	9,845	10,675	9,882	10,871	0.00
<u>Liquid Bulk</u>									
Appraisal	2,547	2,840	3,165	3,524	3,928	4,377	4,861	5,399	11.33
Actual	2,213	2,621	3,041	3,469	2,858	2,791	2,650	2,678	2.76
<u>General Cargo</u>									
Appraisal	8,143	8,505	8,874	9,262	9,667	10,095	10,549	11,029	4.43
Actual	8,541	10,023	12,116	12,819	12,994	16,302	16,573	18,044	11.28
<u>All Inbound</u>									
Appraisal	12,441	13,162	13,946	14,800	15,732	16,752	17,720	18,776	6.06
Actual	13,070	15,547	17,704	18,271	14,596	16,522	16,311	17,503	4.26
<u>All Outbound</u>									
Appraisal	6,663	6,860	6,725	6,977	7,242	7,514	7,723	7,936	2.53
Actual	8,503	10,120	9,509	9,692	11,104	13,194	12,801	14,004	7.39
<u>All Cargo</u>									
Appraisal	19,104	20,022	20,665	21,777	22,974	24,266	25,443	26,712	4.91
Actual	21,573	25,667	27,213	27,963	25,700	29,716	29,112	31,507	5.56

Source: KMPA, August 1984

KOREA
SECOND PORT PROJECT (LOAN 1401-KO)

PROJECT COMPLETION REPORT

Busan-District Maritime and Ports Authority

Income Account (1973-83)
(Won million)

	1973		1974		1975		1976		1977		1978		1979		1980		1981		1982		1983	
	Actual	Actual	Appr.	Actual	Appr.	Actual	Appr.	Actual	Appr.	Actual	Appr.	Actual	Appr.	Actual	Appr.	Actual	Appr.	Actual	Appr.	Actual	Actual	
Traffic ('000 rev ton)	13,344	14,165	14,032	16,739	15,177	21,574	16,304	25,668	17,494	27,212	18,769	21,963	20,904	25,590	21,382	29,784	25,400	29,784	25,400	29,784	31,308	
Light dues	67.8	65.1	71.0	70.7	-	-	-	-	-	-	-	-	-	-	-	334	-	-	-	361	410	
Port dues	239.0	227.7	240.0	240.0	555	575	672	846	792	1,239	899	1,775	953	2,029	1,121	3,194	1,284	4,637	5,874	5,874	-	
Rental for use of port basin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,137	-	-	-	750	-	
Tugage	122.0	179.9	216.0	216.0	220	228	254	277	300	372	339	459	357	487	419	747	480	1,022	991	991	-	
Dockage	110.3	436.6	653.0	653.4	716	720	993	133	1,155	1,558	1,285	1,908	1,349	2,087	1,557	3,230	1,783	4,076	5,298	5,298	-	
Transit shed charges	51.6	66.1	50.0	49.6	50	48	52	50	71	65	110	69	113	82	111	94	0	0	152	152	-	
Open cargo area charges	75.9	91.0	132.0	131.9	180	173	189	165	211	556	242	178	253	136	295	158	338	49	185	185	-	
Revenue from terminal operations	-	-	-	-	-	-	-	-	3,274	-	7,130	3,000	7,741	5,000	9,106	4,918	10,601	7,677	-	-	-	
Wharfage	-	435.2	700.0	700.3	1,218	1,021	1,474	1,453	1,704	1,941	1,932	2,256	2,029	2,452	2,366	3,791	2,735	5,030	5,741	5,741	-	
Anchorage	-	-	42.0	42.1	674	682	818	1,265	946	1,191	1,052	1,319	1,095	1,068	1,265	1,549	1,435	2,168	2,594	2,594	-	
Floating crane	29.2	31.4	41.0	40.9	50	42	60	30	68	59	77	43	82	5	95	1	109	0	0	0	-	
Rent of facilities	26.3	5.4	6.0	5.8	30	64	30	73	32	199	35	54	35	130	38	2,622	41	0	8,932	8,932	-	
Miscellaneous revenue	47.5	46.1	77.0	77.0	156	168	166	226	189	246	214	719	225	808	264	379	304	592	983	983	-	
Total	769.6	1,586.5	2,228.0	2,227.7	3,849	3,723	4,708	5,518	8,729	7,432	13,270	11,821	14,188	14,317	16,608	22,171	19,204	26,362	31,160	31,160	-	
Operating Expenses																						
Navigation aide	8.6	119.5	186.0	185.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
General maintenance	89.4	168.0	160.0	159.5	224	246	269	349	663	346	929	603	1,363	920	1,693	2,626	1,944	2,871	3,198	3,198	-	
General and administration	104.1	100.7	156.0	156.7	162	163	216	225	399	280	472	488	567	744	658	820	724	1,595	799	799	-	
Subtotal Working Costs	202.1	388.2	502.0	501.7	386	409	485	574	1,062	626	1,401	1,091	1,930	1,664	2,351	3,446	2,668	4,466	3,997	3,997	-	
Depreciation	410.0	410.0	433.0	432.9	443	425	448	433	2,937	444	4,492	1,746	4,849	2,014	5,225	2,431	5,930	2,843	3,504	3,504	-	
Total Operating Expenses	612.1	798.2	935.0	934.6	829	834	933	1,007	4,019	1,070	5,893	2,837	6,779	3,678	7,576	5,377	8,598	7,309	7,501	7,501	-	
Net operating revenue	157.5	788.3	1,293.0	1,293.1	3,020	2,889	3,775	4,511	4,710	6,362	7,377	8,984	7,409	10,639	9,032	16,294	10,606	19,053	23,659	23,659	-	
Interest charges	91.7	243.0	394.0	293.0	832	662	2,056	1,330	3,158	2,384	3,775	3,014	4,363	4,661	4,740	5,102	4,599	6,224	6,227	6,227	-	
Exceptional loss (revenue)	-	-	-	-	-	-	-	3	-	1	-	-	-	-	-	-	-	-	-	-	-	
Net Income	65.8	545.3	899.0	1,054.1	2,188	2,227	1,719	3,178	1,552	3,977	3,602	5,970	3,046	5,978	4,292	11,192	6,047	12,829	17,432	17,432	-	
Exchange loss (profit)	-	-	-	-	-	-	-	-	-	-	-	124	-	732	-	3,273	-	2,718	5,327	5,327	-	
Book profit (loss)	-	-	-	-	-	-	-	-	-	-	-	5,946	-	5,226	4,292	7,919	6,047	10,111	12,105	12,105	-	

Source: KMPA, August 1984.

KOREA
SECOND PORT PROJECT (LOAN 1401-KO)
PROJECT COMPLETION REPORT

Busan-District Maritime and Ports Authority

Balance Sheet (1974-83)
(Won million)

	1974		1975		1976		1977		1978		1979		1980		1981		1982		1983
	Appr.	Actual	Appr.	Actual	Appr.	Actual	Appr.	Actual	Appr.	Actual	Appr.	Actual	Appr.	Actual	Appr.	Actual	Appr.	Actual	Actual
ASSETS																			
Current Assets																			
Cash			-	1,495	-	1,660	-	930	1,400	1,079	3,329	2,132	2,406	1,433	3,383	-	4,533	0	0
Accounts receivable			11	11	18	58	37	101	656	515	674	14	694	20	912	400	930	2,448	1,446
Stores			-	-	11	12	13	-	31	3	43	-	58	-	74	-	82	274	218
Other			-	50	-	-	-	5	-	6	-	6	-	9	-	9	-	13	22
Total Current Assets			11	1,706	29	1,780	50	1,032	2,267	1,603	4,046	2,152	2,558	1,659	4,360	409	5,545	2,735	1,486
Less: Current Liabilities																			
Accounts payable			464	-	1,272	1,659	2,197	407	1,049	573	1,312	774	2,039	1,804	2,492	400	150	0	1,500
Current loan maturities			-	-	-	-	-	-	-	-	-	-	-	-	-	6,635	-	1,283	-
Other			227	90	524	266	1,185	524	1,880	506	1,951	1,460	2,266	306	2,407	63	2,309	0	-
Total Current Liabilities			691	90	1,796	1,925	3,372	931	2,729	1,079	3,263	2,234	4,305	2,110	4,899	7,098	2,468	1,283	1,500
Working Capital			(680)	1,616	(1,767)	(145)	(3,332)	101	(462)	524	783	(84)	(747)	(251)	(530)	(6,689)	1,077	1,452	- 186
Fixed Assets																			
Gross value - land	2,473	7,816	7,916	7,916	7,916	8,456	7,916	8,995	7,916	8,995	7,916	17,747	7,916	38,702	7,916	70,149	7,116	79,816	88,868
Gross value - other	10,949	13,431	13,676	13,676	13,676	13,284	14,161	13,869	93,347	58,408	98,414	80,914	100,613	88,045	146,078	59,105	151,148	65,244	86,855
Accumulated depreciation	1,152	-	433	433	876	425	1,324	1,291	4,201	1,735	8,773	3,926	13,632	5,495	18,847	4,863	34,777	7,810	11,229
Net value - other assets in use	9,797	13,431	13,243	13,243	12,800	12,899	12,837	12,578	91,066	54,673	87,641	76,888	86,991	82,550	127,231	54,242	126,271	57,434	75,628
Total Net Fixed Assets in Use	12,470	21,247	21,139	21,139	20,716	21,315	20,753	21,323	98,982	63,748	95,557	94,633	94,907	121,252	135,147	126,391	134,187	137,250	164,496
Work in progress	6,861	2,354	11,758	11,294	28,675	33,679	60,021	49,732	4,860	31,898	17,001	9,186	29,918	10,068	-	31,257	-	69,311	59,139
Total Net Fixed Assets	19,331	23,601	32,897	32,433	49,391	54,994	80,774	71,108	103,842	95,646	112,558	103,819	124,825	131,320	135,147	155,648	134,187	206,561	223,635
Other assets	-	-	-	-	-	-	-	71	-	456	-	816	-	18,391	-	17	-	17	-
GRAND TOTAL ASSETS	19,331	23,601	32,897	34,069	47,624	54,849	77,442	71,477	103,409	96,546	113,341	104,635	124,078	149,460	134,617	148,976	137,264	208,231	223,603
LIABILITIES																			
Long-Term Debt																			
IBRD 917-KO	3,970	665	3,895	3,895	11,680	10,057	26,176	17,339	32,684	29,206	32,636	32,756	31,752	45,279	30,802	37,186	29,784	33,808	36,992
IBRD 1401-KO	-	-	-	-	-	-	627	-	4,180	143	10,493	2,200	20,204	8,789	28,538	18,009	27,293	34,623	40,653
SFD	-	-	-	-	2,471	-	10,160	6,071	13,838	7,645	13,903	11,305	12,767	18,954	11,630	19,058	10,493	21,365	24,921
Total Long-Term Debt	3,970	665	3,895	3,895	14,151	10,057	36,963	23,410	50,702	36,994	57,032	46,261	64,723	73,022	70,970	71,404	67,570	91,786	102,566
Equity Equivalent																			
Capital /a	15,172	22,325	22,936	21,238	22,936	30,174	22,936	21,238	28,936	21,238	28,936	21,238	23,936	21,238	28,936	62,820	28,936	70,739	32,528
Subsidies for investments /a	-	-	4,507	7,775	7,490	12,306	12,737	20,379	17,413	27,887	17,413	20,681	17,413	13,601	17,413	-	17,413	28,212	28,744
Revaluation of fixed assets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7,373	-	7,373	-
Retained earnings	189	611	899	1,161	3,087	2,112	4,806	6,450	6,350	10,427	9,960	16,373	18,006	21,599	17,298	7,919	23,345	10,111	45,320
Government subsidies against operating loss	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	3,306
Total Equity Equivalent	15,361	22,936	28,432	30,174	31,213	44,792	48,069	48,067	52,707	59,552	56,309	58,292	59,355	76,438	67,647	77,572	69,694	116,435	122,690
GRAND TOTAL LIABILITIES	19,331	23,601	32,237	34,069	47,624	54,849	77,442	71,477	103,409	96,546	113,341	104,635	124,078	149,460	134,617	148,976	137,264	208,231	223,603

/a Headquarter's current account starting in 1981.

Source: KMPA, August 1984.

KOREA
SECOND PORT PROJECT (LOAN 1401-KO)
PROJECT COMPLETION REPORT

Busan-District Maritime and Port Authority
Sources and Applications of Funds (1973-83)
(Won million)

	1973	1974	1975		1976		1977		1978		1979		1980		1981		1982		1983
	Actual	Actual	Appr.	Actual	Appr.	Actual	Appr.	Actual	Appr.	Actual	Appr.	Actual	Appr.	Actual	Appr.	Actual	Appr.	Actual	Actual
SOURCES																			
Internal Cash Generation																			
Gross operating revenue	769.6	1,586.5	2,228	2,227.7	3,849.0	3,723.0	4,708.0	5,518.0	6,729.0	7,432.0	13,270.0	11,821	14,188.0	14,317	16,608.0	22,171	19,204.0	26,362	34,813
Less: working costs	202.1	382.2	502	501.7	384.0	409.0	485.0	574.0	1,062.0	626.0	1,401.0	1,091	1,930.0	1,664	2,351.0	1,446	2,688.0	2,706	3,694
Cash generated from operations	567.5	1,024.3	1,726	1,726.0	3,465.0	3,314.0	4,223.0	4,944.0	7,667.0	6,806.0	11,869.0	10,730	12,258.0	12,653	14,257.0	18,725	16,516.0	23,656	29,119
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,933	-
Total Internal Cash Generation	567.5	1,024.3	1,726	1,726.0	3,465.0	3,314.0	4,223.0	4,944.0	7,667.0	6,806.0	11,869.0	10,730	12,258.0	12,653	14,257.0	18,725	16,516.0	26,611	29,119
Government Contribution																			
For operations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17,265
For investments	-	-	4,507	7,775.0	2,981.0	4,731.0	5,247.0	7,873.0	4,676.0	7,508.0	-	11,802	-	23,424	-	7,373	-	28,212	73,611
Minor payments made to headquarters	-	-	-	-	-	-	-	-	-	-	-	19,291	-	8,472	-	6,438	-	0	0
Total Contribution	-	-	4,507	7,775.0	2,981.0	4,731.0	5,247.0	7,873.0	4,676.0	7,508.0	0	(7,489)	-	14,992	-	735	-	28,212	90,876
Loans																			
IBRD 917-KO	-	665.0	3,229	3,230.0	7,785.0	6,162.0	15,123.0	7,282.0	10,451.0	11,867.0	7,086.0	6,441	-	6,897	-	0	-	0	0
IBRD 1401-KO	-	-	-	-	-	-	-	-	-	143.0	-	-	9,711.0	10,737.0	16,652	1,160.0	14,497	6,855	0
SFD	-	-	-	-	2,431.0	-	7,729.0	6,071.0	3,678.0	1,574.0	61.0	3,660	-	4,717	-	-	-	0	0
Total Loans	-	665.0	3,229	3,230.0	10,216.0	6,162.0	22,852.0	13,353.0	14,129.0	13,384.0	7,151.0	10,101	9,711.0	11,614	10,737.0	16,652	1,160.0	14,497	6,855
GRAND TOTAL SOURCES	567.5	1,869.3	9,462	12,731.0	16,662.0	14,207.0	32,322.0	26,170.0	26,472.0	27,898.0	19,020.0	13,342	21,969.0	39,259	24,994.0	26,112	17,676.0	69,320	126,850
APPLICATIONS																			
Capital Investments																			
IBRD first project	-	-	9,403	10,531.5	16,917.0	15,306.0	30,380.0	24,594.0	11,610.0	-	582.0	6,441	-	6,897	-	-	-	0	0
IBRD second project	-	-	-	-	-	-	956.0	-	7,394.0	-	11,132.0	-	16,631.0	24,757	14,820.0	19,941	4,000.0	42,768	112,847
Other	-	-	345	344.5	-	-	485.0	-	970.0	-	485.0	3,460	485.0	-	727.0	11,513	970.0	5,906	-
Total Investments	475.8	1,626.3	9,748	10,876.0	16,917.0	15,306.0	31,820.0	24,594.0	20,034.0	25,091.0	12,199.0	10,101	17,116.0	31,654	15,547.0	21,434	4,970.0	48,674	112,847
Debt Service																			
Interest	91.7	243.0	394	239.0	832.0	662.0	2,036.0	1,330.0	3,158.0	2,384.0	3,775.0	3,014	4,363.0	4,461	4,740.0	5,102	4,555.0	6,224	6,227
Repayments	-	-	-	-	-	-	-	-	390.0	-	821.0	835	2,020.0	3,111	4,490.0	6,194	4,560.0	6,281	6,194
Total Debt Service	91.7	243.0	394	239.0	832.0	662.0	2,036.0	1,330.0	3,548.0	2,384.0	4,596.0	3,849	6,383.0	7,572	9,230.0	11,296	9,119.0	12,505	12,421
GRAND TOTAL APPLICATIONS	557.5	1,869.3	10,142	11,115.0	17,749.0	15,968.0	33,857.0	25,924.0	23,582.0	27,475.0	16,795.0	13,950	23,499.0	39,426	24,777.0	42,731	14,089.0	61,179	125,268
Annual variations in working capital	-	-	-	1,616.0	(1,087.0)	(1,761.0)	(1,565.0)	246.0	2,890.0	423.0	2,225.0	(608)	(1,530.0)	(167)	217.0	(6,438)	3,607.0	8,141	1,582
Working capital brought forward	-	-	-	(680.0)	1,616.0	1,767.0	(145.0)	(1,332.0)	101.0	(442.0)	101.0	(442.0)	524	783.0	(84)	(747.0)	(251)	(530.0)	(6,689)
Working capital at end of year	-	-	(680)	1,616.0	(1,767.0)	(145.0)	(1,332.0)	101.0	(442.0)	524.0	783.0	(84)	(747.0)	(251)	(530.0)	(6,689)	3,077.0	1,452	3,034

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KORFA
SECOND PORT PROJECT (LOAN 1401-KO)
PROJECT COMPLETION REPORT
Busan-District Maritime and Port Authority
Selected Financial Ratios, 1976-83

	1976		1977		1978		1979		1980		1981		1982		1983
	Appr.	Actual	Appr.	Actual	Appr.	Actual	Actual								
Working ratio (%)	10.0	11.0	10.0	10.0	12.0	8.0	10.5	9.2	13.6	11.6	14.0	16.0	14.0	16.9	15.0
Operating ratio (%)	21.5	22.0	20.0	18.0	46.0	4.0	44.0	24.0	48.0	25.7	46.0	26.5	45.0	27.7	25.8
Times interest earned	3.6	4.4	1.8	3.4	1.5	2.7	1.9	3.0	1.7	2.3	1.9	3.2	2.3	3.1	3.8
Debt service coverage	4.1	5.0	3.0	3.7	2.1	2.9	2.6	2.9	1.9	1.6	1.5	1.5	1.8	2.1	1.9
Net fixed assets in use (won million)	20,937	21,237	20,734	21,444	59,867	42,620	97,269	79,151	95,232	107,943	115,027	122,822	134,667	130,621	164,480
Rate of return on net fixed assets in use (%)	14.4	13.6	18.2	21.0	7.8	15.0	7.6	11.4	7.7	9.9	7.8	13.1	7.9	14.6	17.1
Current ratio	n.a.	0.9	n.a.	1.1	1.1	1.5	1.6	0.9	1.2	0.9	1.3	0.1	2.2	2.1	1.1
Debt to equity ratio	30/70	18/82	48/52	33/67	49/51	38/62	50/50	44/56	52/48	49/51	53/47	48/52	49/51	44/56	45/55

KOREASECOND PORT PROJECT (LOAN 1401-KO)PROJECT COMPLETION REPORTKorea Maritime and Port AdministrationIncome Statement (1979-83)

(Million won)

	1979	1980	1981	1982	1983
Traffic (million revenue tons)	90.8	94.1	105.4	108.5	118.3
<u>Operating Revenue</u>					
Revenue from port facilities	20,402	22,768	34,992	47,713	59,773
Revenue from equipment	1,381	1,434	1,857	2,434	2,443
Rentals	2,857	5,202	6,377	7,740	9,390
Others	2,247	2,337	4,290	4,613	7,067
<u>Total</u>	<u>26,887</u>	<u>31,741</u>	<u>47,516</u>	<u>62,500</u>	<u>78,673</u>
<u>Cost and Expenses</u>					
Employee services	4,408	6,332	7,854	8,524	9,680
Repairs and maintenance	8,280	9,360	13,159	12,312	11,783
Depreciation	4,844	6,863	7,936	9,618	10,436
General administrative expenses	3,756	3,779	4,681	4,223	3,370
<u>Total</u>	<u>21,288</u>	<u>26,334</u>	<u>33,630</u>	<u>34,677</u>	<u>35,269</u>
<u>Net Operating Income</u>	<u>5,599</u>	<u>5,407</u>	<u>13,886</u>	<u>27,823</u>	<u>43,404</u>
<u>Other Income</u>					
Foreign exchange gain	1,646	-	-	-	-
Miscellaneous	41	564	39	83	234
<u>Total</u>	<u>1,687</u>	<u>564</u>	<u>39</u>	<u>83</u>	<u>234</u>
<u>Other Expenses</u>					
Interest expense	3,492	4,244	5,836	6,722	7,653
Foreign exchange losses	-	18,154	1,498	1,154	6,275
Subsidies for shipping companies	1,035	1,616	2,798	2,381	2,133
School operating expenses	162	248	511	740	717
Others	17	29	289	34	208
<u>Total</u>	<u>4,706</u>	<u>24,291</u>	<u>10,932</u>	<u>11,031</u>	<u>16,786</u>
<u>Normal Income</u>	<u>2,580</u>	<u>(18,320)</u>	<u>2,993</u>	<u>16,875</u>	<u>26,652</u>
<u>Special Gain (Loss)</u>					
Gain on disposal of properties	26	-	-	1	-
Loss on disposal of properties	(114)	(710)	(271)	(547)	(964)
<u>Net Income</u>	<u>2,492</u>	<u>(19,030)</u>	<u>2,722</u>	<u>16,329</u>	<u>25,688</u>

KOREA
SECOND PORT PROJECT (LOAN 1401-KO)
PROJECT COMPLETION REPORT
Korea Maritime and Port Administration
Balance Sheet (1979-83)
(Million won)

	1979	1980	1981	1982	1983
Assets					
<u>Current Assets</u>					
Accounts receivable, less allowance for doubtful accounts of W 117 (1979), W 118 (1980), W 158 (1981), W 348 (1982) and W 340 (1983)	434	488	933	3,664	4,715
Inventories	1,381	1,700	1,770	1,865	2,784
Other current assets	4	6	29	30	74
<u>Total Current Assets</u>	<u>1,819</u>	<u>2,194</u>	<u>2,732</u>	<u>5,559</u>	<u>7,573</u>
Investments and other assets	278	317	318	318	317
<u>Properties</u>					
Land	72,210	127,485	141,036	153,326	172,695
Buildings	9,855	19,448	28,713	35,667	48,743
Structures	111,961	164,647	202,801	261,984	326,454
Machinery and equipment	13,825	13,826	15,772	21,048	21,275
Vessels	5,322	7,793	10,452	12,395	13,603
Construction in progress and others	26,511	67,163	92,350	137,174	151,029
<u>Total</u>	<u>239,684</u>	<u>400,362</u>	<u>491,124</u>	<u>621,594</u>	<u>733,799</u>
Less accumulated depreciation	(4,842)	(6,860)	(14,821)	(24,512)	(33,623)
<u>Net Properties</u>	<u>234,842</u>	<u>393,502</u>	<u>476,303</u>	<u>597,082</u>	<u>700,176</u>
<u>TOTAL ASSETS</u>	<u>236,939</u>	<u>396,013</u>	<u>479,353</u>	<u>620,959</u>	<u>708,066</u>
<u>Liabilities and Equity</u>					
<u>Current Liabilities</u>					
Accounts payable	2,059	7,258	12,209	14,253	11,765
Current maturities of long-term debt	2,345	6,588	7,091	7,718	8,971
<u>Total Current Liabilities</u>	<u>4,404</u>	<u>13,846</u>	<u>19,300</u>	<u>21,971</u>	<u>20,736</u>
Long-term debt	46,757	67,597	80,989	94,278	107,353
<u>Total Liabilities</u>	<u>51,161</u>	<u>81,443</u>	<u>100,289</u>	<u>116,249</u>	<u>128,089</u>
Equity	185,778	314,570	379,064	486,710	579,977
<u>TOTAL LIABILITIES AND EQUITY</u>	<u>236,939</u>	<u>396,013</u>	<u>479,353</u>	<u>620,959</u>	<u>708,066</u>

KOREA

SECOND PORT PROJECT (LOAN 1401-KO)

PROJECT COMPLETION REPORT

Korea Maritime and Port Administration

Sources and Applications of Funds (1979-83)
(Million won)

	1979	1980	1981	1982	1983
<u>Sources of Funds</u>					
<u>Financial Transactions Involving Inflow of Working Capital</u>					
Operations					
Net income	2,492	(19,030)	2,722	16,329	25,688
Add charges not affecting working capital					
Depreciation	4,844	6,863	7,937	9,618	10,436
Foreign exchange losses (gain)	(1,646)	18,154	1,498	1,154	6,275
Loss on disposal of properties	88	710	271	546	964
<u>Total</u>	<u>5,778</u>	<u>6,697</u>	<u>12,428</u>	<u>27,647</u>	<u>43,363</u>
Increase in long-term debt	12,967	9,275	18,984	19,854	12,843
Increase in equity:					
Contribution surplus	25,037	47,257	41,670	60,867	27,784
<u>Total Financial Transactions Involving Inflow of Working Capital</u>	<u>43,782</u>	<u>63,229</u>	<u>73,082</u>	<u>108,368</u>	<u>83,992</u>
<u>Financial Transactions Not Involving Inflow of Working Capital</u>					
Increase in long-term debt	-	-	-	-	2,928
Increase in revaluation surplus	-	67,787	-	-	-
Increase in equity-contribution surplus	2,651	32,829	20,260	30,626	40,740
Increase in equity-retained earnings	-	-	-	-	2,536
<u>Total Financial Transactions Not Involving Inflow of Working Capital</u>	<u>2,651</u>	<u>100,616</u>	<u>20,260</u>	<u>30,626</u>	<u>45,934</u>
<u>TOTAL SOURCES OF FUNDS</u>	<u>46,433</u>	<u>163,845</u>	<u>93,342</u>	<u>138,994</u>	<u>129,926</u>

	1979	1980	1981	1982	1983
<u>Applications of Funds</u>					
<u>Financial Transactions Involving Outlay of Working Capital</u>					
Increase in investments and other assets	76	39	1	-	-
Increase in properties	42,663	65,618	70,748	100,317	71,488
Decrease in long-term debt	2,345	6,588	7,091	7,710	8,971
Decrease in contribution surplus	56	51	159	176	284
<u>Total Financial Transactions Involving Outlay of Working Capital</u>	<u>45,140</u>	<u>72,296</u>	<u>77,999</u>	<u>108,212</u>	<u>80,743</u>
<u>Financial Transactions Not Involving Outlay of Working Capital</u>					
Increase in properties	2,651	100,616	20,260	30,626	43,006
Decrease in equity - retained earnings	-	-	-	-	2,928
<u>Total Financial Transactions Not Involving Outlay of Working Capital</u>	<u>2,651</u>	<u>100,616</u>	<u>20,260</u>	<u>30,626</u>	<u>45,934</u>
<u>TOTAL APPLICATIONS OF FUNDS</u>	<u>47,791</u>	<u>172,912</u>	<u>98,259</u>	<u>138,838</u>	<u>126,677</u>
Increase (decrease) in working capital	(1,358)	(9,067)	(4,917)	156	3,249
<u>Total</u>	<u>46,433</u>	<u>163,845</u>	<u>93,342</u>	<u>138,994</u>	<u>129,926</u>
<u>Details by Components of Increase (Decrease) in Working Capital</u>					
<u>Increase (decrease) in current assets</u>					
Accounts receivable	(488)	54	445	2,730	1,051
Inventories	126	320	69	95	919
Other current assets	5	1	23	1	44
<u>Decrease (increase) in current liabilities</u>					
Accounts payable	270	(5,198)	(4,952)	(2,043)	2,488
Current maturities of long-term debt	(1,271)	(4,244)	(502)	(627)	(1,253)
<u>Increase (Decrease) in Working Capital</u>	<u>(1,358)</u>	<u>(9,067)</u>	<u>(4,917)</u>	<u>156</u>	<u>3,249</u>

KOREA
SECOND PORT PROJECT (LOAN 1401-KO)
PROJECT COMPLETION REPORT'

Notes to Financial Statements

Detailed Long-Term Debt, 1979-83

	Annual interest rate (%)	US\$'000 equivalent					Won million equivalent ^{/a}				
		1979	1980	1981	1982	1983	1979	1980	1981	1982	1983
International Bank for Reconstruction and Development (IBRD)											
1st due through 1998	7.25	58,251	57,663	55,393	52,993	50,418	31,589	41,593	40,396	38,454	40,209
2nd due through 1994	8.50	4,535	13,324	30,606	46,121	50,976	2,238	8,331	20,153	32,393	40,653
3rd due through 1998	Floating	-	-	-	-	59	-	-	-	-	47
Subtotal		62,786	70,957	85,999	99,114	101,453	33,827	49,924	60,549	70,847	80,909
Asian Development Bank (ADB)											
1st due through 1998	7.25	6,730	6,436	6,120	5,779	5,413	3,682	4,545	4,270	4,075	4,318
2nd due through 2004	8.10	-	7,472	2,043	214	13,477	-	131	1,465	5,710	10,661
Subtotal		6,730	6,650	8,163	13,251	19,190	3,682	4,676	5,735	9,785	14,979
Saudi Fund for Development (SFD)											
Due through 1994	4.00	23,310	28,716	31,009	28,619	26,239	11,593	19,585	21,796	21,364	20,436
Total		92,826	106,324	125,171	140,984	146,882	49,102	74,185	88,080	101,996	116,324
Less: Current maturities		4,834	9,948	10,091	10,282	11,249	2,345	65,888	7,092	7,718	8,971
Long-Term Portion		87,992	96,375	115,080	130,702	135,633	46,757	67,597	80,988	94,278	107,353

/a An indirect conversion of foreign currencies, based on US\$ equivalents.

Detailed Equity Account of KMPA, 1979-83
(Won million)

	1979	1980	1981	1982	1983
<u>Changes in Equity Account</u>					
Balance at beginning of year	155,654	185,778	314,570	379,064	486,710
Net income for the year	2,492	(19,030)	2,722	16,329	25,688
Contribution surplus increments - net of transfers to other government agencies	2,595	32,778	20,102	30,450	40,186
Revaluation surplus	-	67,787	-	-	-
Cash contribution	25,037	47,257	41,670	60,867	27,785
<u>Balance at End of Year</u>	<u>185,778</u>	<u>314,570</u>	<u>379,064</u>	<u>486,710</u>	<u>579,977</u>
<u>Components of Equity at End of Year</u>					
Initial capital : net assets as at December 31, 1978	155,654	155,654	155,654	155,654	155,654
Revaluation surplus : property revaluation increments	-	67,787	67,787	67,787	67,787
Contribution surplus : property contributions subsequent to January 1, 1979, net of transfers to other government agencies	2,595	35,373	55,475	85,925	126,111
Cash contributions subsequent to January 1, 1979	25,037	72,294	113,964	174,831	202,616
Accumulated retained earnings subsequent to January 1, 1979	2,492	(16,538)	(13,816)	2,513	27,809
<u>Total</u>	<u>185,778</u>	<u>314,570</u>	<u>379,064</u>	<u>486,710</u>	<u>579,977</u>

Summary of Significant Accounting Policies

1. The Korea Maritime and Port Administration (KMPA) was established on March 13, 1976, as a Korean government agency controlled by the Ministry of Transportation. Actual title to real property vests in the Government of the Republic of Korea. By statute, KMPA has the right of use or disposition of all property originally assigned or later acquired.

2. The significant accounting policies followed by the KMPA in the preparation of its financial statements are summarized as follows:

- (a) Allowance for Doubtful Accounts. The KMPA provides for estimated losses on receivables doubtful of collection based on collection experience and review of status of outstanding receivables.
- (b) Inventories. Inventories include vehicles and furniture and office equipment. To comply with governmental regulations, the KMPA excludes vehicles and furniture and office equipment from property account and includes them in inventory account. Accordingly, no depreciation is accounted for them. Under financial accounting standards in Korea, such fixed assets items are to be classified as a property account and depreciation should be made over the estimated useful lives of the assets.
- (c) Property and Depreciation. Property is stated at cost or appraised values. A revaluation is made every five years to comply with government regulations. The latest revaluation was made on January 1, 1980.

The bases used by the KMPA to revalue its property are summarized as follows:

Land, buildings and vessels: Standard price for local tax purposes as set by the Korean government.

Structures, machinery and equipment: Current replacement cost.

Major renewals and betterments are capitalized; expenditures for repairs and maintenance are charged to expense as incurred. Interest incurred on loans used to finance construction projects are charged to expense as incurred.

Depreciation is computed using the straight-line method over the estimated useful lives of the related assets as shown below:

Buildings	15-60 years
Structures	6-40
Machinery and equipment	10-15
Vessels	5-18

- (d) Pension and Severance Plans. All full-time government employees of the KMPA and certain nongovernment employees are covered under a contributory pension and severance plan administered by the Ministry of General Affairs of the Republic of Korea. Since no contribution is made by the KMPA to the Government Pension Fund, no accounting transaction is recognized for such pension and severance plans.
- (e) Foreign Currency Transactions. The KMPA maintains its accounts in Korean Won. Transactions in foreign currencies are recorded in Korean Won based on the prevailing rates of exchange at the dates of transactions.

Accounts with balances denominated in foreign currencies are recorded and reported in the financial statements at the exchange rates prevailing at balance sheet date.

Translation gains and losses (both realized and unrealized) on foreign currency denominated assets and liabilities are reflected in income determination currently.

3. Property.

- (a) Revaluation. As described in (c) above, the property accounts include revaluation adjustments. Financial accounting standards in Korea require that property accounts be stated at cost or appraised value as determined by the Korea Appraisal Board as provided under the Assets Revaluation Law of Korea. To comply with governmental regulation, however, the KMPA revalues its property by itself every five years. These revaluations are applied to all property items administered by the KMPA, exclusive of construction in progress. The latest revaluation was made as of January 1, 1980.

The results of the latest revaluation were as follows (in Won million):

Description of property	Net book value before revaluation	Revalued amounts	Revaluation surplus
Land	72,210	121,490	49,280
Buildings	9,108	14,412	5,304
Structures	108,678	120,893	12,215
Machinery and equipment	13,305	13,806	501
Vessels	5,030	5,517	487
<u>Total</u>	<u>208,330</u>	<u>276,117</u>	<u>67,787</u>

- (b) Interest Costs During Construction Period. The KMPA does not capitalize the eligible portion of interest cost recognized on borrowings which financed the construction of property. Financial accounting standards in Korea, however, require that interest cost during the construction period on long-term borrowings used for the construction of property is to be capitalized as part of the cost of the assets. Total interest cost incurred during the years of 1979, 1980, 1981 and 1982 amounts to W 3,492 million, W 4,243 million, W 5,836 million and W 6,723 million, respectively.

Table 6.1

KOREA

SECOND PORT PROJECT (LOAN 1401-KO)

PROJECT COMPLETION REPORT

BDMPA Revenue Center Cost Report
(Won million)

	1982			1983		
	Revenue	Cost	Profit	Revenue	Cost	Profit
<u>Port Facility Revenue</u>						
Dockage	4,076	1,330	2,746	5,350	2,152	3,198
Anchorage	2,168	708	1,460	2,679	1,065	1,614
Wharfage	4,774	1,554	3,220	5,759	930	4,829
Light dues	381	121	260	411	71	340
Port dues	4,637	1,511	3,126	5,890	2,494	3,396
Other dues	308	104	204	356	50	306
Subtotal	<u>16,344</u>	<u>5,328</u>	<u>11,016</u>	<u>20,445</u>	<u>6,762</u>	<u>13,683</u>
<u>Equipment Revenue</u>						
Tuggage	1,021	328	693	997	444	553
Ship cranae	-	-	-	-	-	-
Subtotal	<u>1,021</u>	<u>328</u>	<u>693</u>	<u>997</u>	<u>444</u>	<u>553</u>
<u>Rental Revenue</u>						
Container terminal rental	4,523	1,451	3,072	6,193	997	5,196
Grain terminal rental	1,571	466	1,105	1,550	248	1,302
Ore terminal rental	631	164	467	458	86	372
Coal terminal rental	278	86	192	363	56	307
Coal loading equipment rental	-	-	-	-	-	-
Multipurpose crane rental	-	-	-	-	-	-
Subtotal	<u>7,003</u>	<u>2,167</u>	<u>4,836</u>	<u>8,564</u>	<u>1,387</u>	<u>7,177</u>
<u>Other Revenue</u>						
Ship inspection fee	4	-	4	3	42	(39)
Public surface charge	750	242	508	737	105	632
Land rental	937	302	635	1,177	169	1008
International passenger terminal rental	24	9	15	27	51	(24)
Domestic passenger terminal	-	-	-	-	-	-
Government property rental	260	86	174	2,646	209	2,437
Others	521	172	349	217	29	188
Subtotal	<u>2,496</u>	<u>811</u>	<u>1,685</u>	<u>4,807</u>	<u>605</u>	<u>4,202</u>
<u>Total</u>	<u>26,864</u>	<u>8,634</u>	<u>18,230</u>	<u>34,813</u>	<u>9,198</u>	<u>25,615</u>

Source: KMPA, August 1984.

KOREASECOND PORT PROJECT (LOAN 1401-KO)PROJECT COMPLETION REPORTKMPA Revenue Center Cost Report
(Won million)

	1982			1983		
	Revenue	Cost	Profit	Revenue	Cost	Profit
<u>Port Facility Revenue</u>						
Dockage	14,944	7,603	7,341	19,955	9,305	10,650
Anchorage	5,925	2,591	3,334	6,813	2,762	4,051
Wharfage	15,246	7,565	7,681	18,788	6,250	12,538
Light dues	939	475	464	1,033	629	404
Port dues	10,351	8,781	1,570	12,828	9,802	3,026
Other dues	308	134	174	356	77	279
Subtotal	<u>47,713</u>	<u>27,149</u>	<u>20,564</u>	<u>59,773</u>	<u>28,825</u>	<u>30,948</u>
<u>Equipment Revenue</u>						
Tuggage	2,434	1,836	598	2,443	1,887	556
Ship crange	-	-	-	-	-	-
Subtotal	<u>2,434</u>	<u>1,836</u>	<u>598</u>	<u>2,443</u>	<u>1,887</u>	<u>556</u>
<u>Rental Revenue</u>						
Container terminal rental	4,523	1,894	2,629	6,193	1,471	4,722
Grain terminal rental	1,571	620	951	1,550	367	1,183
Ore terminal rental	631	226	405	458	121	337
Coal terminal rental	278	113	165	363	84	279
Coal loading equipment rental	601	530	71	617	522	95
Multipurpose crane rental	136	93	43	209	124	85
Subtotal	<u>7,740</u>	<u>3,476</u>	<u>4,264</u>	<u>9,390</u>	<u>2,689</u>	<u>6,701</u>
<u>Other Revenue</u>						
Ship inspection fee	18	64	(46)	19	157	(138)
Public surface charge	2,147	924	1,223	2,094	550	1,544
Land rental	1,308	543	765	1,567	353	1,214
International passenger terminal rental	24	11	13	27	53	(26)
Domestic passenger terminal	73	167	(94)	80	126	(46)
Government property rental	260	112	148	2,646	412	2,234
Others	783	395	388	634	217	417
Subtotal	<u>4,613</u>	<u>2,216</u>	<u>2,397</u>	<u>7,067</u>	<u>1,868</u>	<u>5,199</u>
<u>Total</u>	<u>62,500</u>	<u>34,677</u>	<u>27,823</u>	<u>78,673</u>	<u>35,269</u>	<u>43,404</u>

Source: KMPA, August 1984.

Table 7.1

KOREA
 SECOND PORT PROJECT (LOAN 1401-KO)
 PROJECT COMPLETION REPORT
 Economic Costs and Benefits
 (1976 Won million)

Year	Economic Cost	Economic Benefits			Total
		Ship Waiting Time / ₁	Container Yard Cost Estimated / ₂	Transport Cost on Incheon Containers / ₃	
1979	3035				
1980	5553				
1981	5848				
1982	10339				
1983	711	2197	0	3231	5428
1984		4326	0	3524	7850
1985		9478	0	3880	13358
1986		22693	0	4270	26963
1987		24260	0	4680	28940
1988		24353	0	5131	29484
1989		24353	0	5387	29740
1990		24353	0	5658	30011
1991		24353	0	5940	30293
1992		24353	0	6237	30590
1993		24353	0	6548	30901
1994		24353	0	6876	31229
1995		24353	0	7220	31573
1996		24353	0	7580	31933
1997		24353	0	7960	32313
1998		24353	0	8358	32711
1999		24353	0	8776	33129
2000		24353	0	9215	33568

ERR = 40.42 %

/₁: Taken at US\$ 3,500.

/₂: Due to continued use of off-dock container yards, this benefit stream was negligible.

/₃: Additional cost of transport on Seoul containers if routed via Incheon. Taken at US\$ 12.20 per container on 30% of all Busan containers.

Source: KMPA and Bank staff.

August 1984

KOREA

 SECOND PORT PROJECT (LOAN 1401-KO)

 PROJECT COMPLETION REPORT

Operational Parameters Assumed for Economic Evaluation

 (for container berths and containers handled at general
 cargo berths)

	Existing break bulk berths	Existing containers berths	Proposed containers berths
Berths (number)	3	2	2
Cranes per berth (number)	2	2	2
Average crane productivity per hour (TEUs)	15	23	23
Average working hours per day (hours)	18	18	18
Berth operating days per year (days)	360	360	360
Average shipment size (TEUs) /_1	200	400	400
Maximum berth utilization (%)	95	50	50
Maximum annual capacity per berth ('000 TEUs)	185	149	149
Ship arrivals (scheduled/random)	Random	Scheduled	Scheduled
Average daily ship cost in port (Won'000/day)	2500	4000	4000
Unloading/loading cost (Won'000/TEU)	14.00	8.50	8.50
Cargo value (import CIF, export FOB) (Won'000/TEU)	3200	3200	3200

/_1: Assume an average container shipload of 400 TEU with 10 tons per TEU and 20% empties (actually 12.5 ton/TEU).

Source: KMPA and Bank staff.

August 1984

KOREA
SECOND PORT PROJECT (LOAN 1401-K0)
PROJECT COMPLETION REPORT
Container Handling Without and With Proposed Container Berths

	1980	1981	1982	1983	1984	1985	1986	1987	1988
A. TRAFFIC DEMAND ('000 TEUs) /_a	632	743	786	883	963	1060	1166	1279	1402
B. WITHOUT PROJECT									
<u>Existing Break Bulk Berths</u>									
1. Berths (number)	3	3	3	3	3	3	/_b 3	/_b 3	/_b 3
2. Traffic (TEUs '000)	313	370	389	438	476	524	577	630	693
3. Average load per ship (TEUs)	200	200	200	200	200	200	200	200	200
4. Annual ship arrivals (number)	1565	1850	1945	2190	2380	2620	2885	3150	3465
5. Berth occupancy (%)	54	63	67	75	82	90	(95)	(95)	(95)
6. Annual ship berth time (days)	580	685	720	811	881	970	1069	1167	1283
7. Annual ship waiting time (days)	87	185	187	479	908	1950	4509	4923	5416
<u>Existing Container Berths</u>									
1. Berths (number)	2	2	2	2	2	2	/_b 2	/_b 2	/_b 2
2. Traffic (TEUs '000)	319	373	397	445	487	536	589	649	709
3. Average load per ship (TEUs)	400	400	400	400	400	400	400	400	400
4. Annual ship arrivals (number)	798	933	993	1113	1218	1340	1473	1623	1773
5. Berth occupancy (%)	54	63	67	75	82	90	(95)	(95)	(95)
6. Annual ship berth time (days)	385	450	479	537	588	647	711	784	856
7. Annual ship waiting time (days)	58	122	163	312	600	1295	3087	3402	3716
C. WITH PROJECT									
<u>Existing Break Bulk Berths</u>									
1. Berths (number)	3	3	3	3	3	3	3	3	3
2. Traffic (TEUs '000)	313	370	389	289	315	348	384	418	460
3. Average load per ship (TEUs)	200	200	200	200	200	200	200	200	200
4. Annual ship arrivals (number)	1565	1850	1945	1445	1575	1740	1920	2050	2300
5. Berth occupancy (%)	54	63	67	50	54	60	66	72	79
6. Annual ship berth time (days)	580	685	720	535	583	644	711	774	852
7. Annual ship waiting time (days)	87	185	187	64	87	148	220	379	1056
<u>Existing Container Berths</u>									
1. Berths (number)	2	2	2	2	2	2	2	2	2
2. Traffic (TEUs '000)	319	373	397	298	324	356	391	431	471
3. Average load per ship (TEUs)	400	400	400	400	400	400	400	400	400
4. Annual ship arrivals (number)	798	933	993	745	810	890	978	1078	1178
5. Berth occupancy (%)	54	63	67	50	54	60	66	72	79
6. Annual ship berth time (days)	385	450	479	360	391	430	472	521	569
7. Annual ship waiting time (days)	58	122	163	11	16	26	47	88	176
<u>Proposed Container Berths</u>									
1. Berths (number)				2	2	2	2	2	2
2. Traffic (TEUs '000)				296	324	356	391	430	471
3. Average load per ship (TEUs)				400	400	400	400	400	400
4. Annual ship arrivals (number)				740	810	890	978	1075	1178
5. Berth occupancy (%)				50	54	60	66	72	79
6. Annual ship berth time (days)				357	391	430	472	519	569
7. Annual ship waiting time (days)				11	16	26	47	88	176

/_a: From Consultant's report.

/_b: Traffic would exceed the practical capacity of these berths. For the purpose of economic evaluation it was assumed that ways will be found, e.g., through lightering, to move traffic through the port with waiting times not exceeding those corresponding to 95% berth occupancy.

Source: KMPA and Bank staff.

August 1984

KOREA

SECOND PORT PROJECT (LOAN 1401-KO)

PROJECT COMPLETION REPORT

Compliance with Loan Conditions

Action required	Action taken
<u>Section 3.02</u>	
<p>(a) The Borrower shall, not later than January 1, 1979 or such other date as shall be agreed with the Bank, take all such action as shall be necessary to vest KMPA with autonomous powers including, <u>inter alia</u>, the powers (i) to incur debt, (ii) to fix the emoluments of its staff, (iii) to prepare and submit to MOT and EPB its proposed budgets in a commercial form, (iv) to have reasonable flexibility in adjusting approved operating budgets to meet cost changes arising out of unexpected fluctuations in port traffic, (v) to open and maintain an account with the Bank of Korea for revenue receipts and payments of obligations, and (vi) to maintain its records in accordance with commercial accounting procedures.</p>	<p>Partially complied with. This topic has been subject to extensive debate as the Government has proven reluctant to give autonomy to KMPA. A compromise was proposed at a meeting in August 1984 (see Attachment) and the Bank is considering it favorably.</p>
<p>(b) The Borrower shall, not later than April 1, 1978 or such other date as shall be agreed with the Bank, submit to the Bank, for review, its proposals to meet the Borrower's obligations under paragraph (a) of this Section.</p>	
<u>Section 3.04</u>	
<p>(a) In order to assist KMPA in the preparation of plans and specifications for the Project, the supervision of civil works and the erection and installation of equipment under the Project and (b) for the purpose of Part F of the Project, the Borrower shall cause KMPA to employ consultants whose qualifications, experience and terms and conditions of employment shall be satisfactory to the Bank.</p>	<p>Complied with, but there were some initial delays.</p>
<u>Section 3.06</u>	
<p>(a) The Borrower shall (i) not later than October 31, 1977 or such other date as shall be agreed with the Bank, submit to the Bank for review the detailed engineering of the road connecting the Busan port to the Busan-Seoul expressway and the Namhae expressway; and (ii) not later than December 31, 1979 or such other date as shall be agreed with the Bank, complete the construction of such road.</p>	<p>Complied with.</p>
<p>(b) The Borrower shall (i) undertake and submit to the Bank for review, not later than June 30, 1978 or such other date as shall be agreed with the Bank, a study, under terms of reference which shall have been approved by the Bank, of citywide transport and land use in Busan over the period 1978-83 which shall identify the best medium-term solution to the city's traffic congestion and assess its feasibility; and (ii) implement the recommendations of such study by July 31, 1979 or such other date as shall be agreed with the Bank.</p>	<p>Complied with.</p>

Action required

Action taken

Section 3.07

(a) Not later than July 1, 1977 or such other date as shall be agreed with the Bank, furnish to the Bank for its comments its present procedures governing cargo movement within the customs areas of all first-class ports.

Complied with.

(b) By July 1, 1978 or such other date as shall be agreed with the Bank, adopt and implement improved procedures acceptable to the Borrower, the Bank and KMPA.

Complied with.

(c) Thereafter submit to the Bank for review any proposed modifications to such procedures.

Section 3.08

The Borrower shall take all action required on its part to allow mainline container shipping companies to serve directly the ports of Busan and Incheon.

Complied with.

Section 4.01

(b) In order to assist KMPA in preparing financial statements in accordance with commercial accounting practices, and in implementing the new accounting, costing and management information systems designed by the consultants employed for the purpose of the First Port Project, the Borrower shall cause KMPA to employ adequately qualified and experienced accountants.

Complied with.

Action required

Action taken

Section 4.02

The Borrower shall cause KMPA to: (i) have its accounts and financial statements (balance sheets, statements of income and expenses and related statements), including BDMPA's accounts, for each fiscal year from 1979 audited, in accordance with appropriate auditing principles consistently applied, by independent auditors acceptable to the Bank; (ii) furnish to the Bank as soon as available, but in any case not later than six months after the end of each such year, (A) certified copies of its financial statements for such year as so audited and (B) the report of such audit by said auditors, of such scope and in such detail as the Bank shall reasonably requested; and (iii) furnish to the Bank such other information concerning the accounts and financial statements of KMPA and the audit thereof as the Bank shall from time to time reasonably request.

Complied with, but only from 1983 because the implementation of commercial accounting systems had been delayed.

Section 4.03

The Borrower shall cause KMPA to establish, no later than January 1, 1979 or such other date as shall be agreed with the Bank, and thereafter maintain in the Busan port a cost-based tariff system satisfactory to the Borrower and the Bank.

Partially complied with. Implementation of the costing component is still at the preliminary stages.

Section 4.04

Except as the Bank shall otherwise agree, the Borrower shall cause KMPA to establish and maintain port tariffs which shall yield total revenues at least equal to the aggregate amount of operating, maintenance, loan interest and depreciation costs of (a) the ports of Incheon, Mugho, Yeosu and Pohang, respectively by January 1, 1979 and (b) each of the other major ports (with the exception of Busan), as defined by agreement between the Borrower and the Bank, by a date acceptable to the Bank.

Complied with. Tariffs have been increased frequently (approximately once yearly) and in real terms.

Action required

Action taken

Section 4.05

The Borrower shall cause KMPA to (a) undertake and complete by April 1, 1978 or such other date as shall be agreed with the Bank a study to: (i) recommend measures aimed at encouraging greater use of container facilities at the Incheon port; and (ii) review the level of container charges at the ports of Incheon and Busan in comparison with the levels of such charges in competing foreign ports; and (b) establish by May 1, 1978 or such other date as shall be agreed with the Bank, a uniform tariff for each 20 ft equivalent container unit handled in the Busan port, on the basis of the study referred to in (a) above.

(i) Partly complied with.
(ii) Complied with.

Section 4.06

Not later than July 1, 1978 or such other date as shall be agreed with the Bank, the Borrower shall cause KMPA to set and collect from each TOC appointed by KMPA in the Busan port charges at a level sufficient for KMPA to (a) recover the port's costs of servicing and maintaining the pier and equipment used by such TOC, (b) make adequate provision for depreciation and (c) fulfill its obligations under Section 4.07 (b) of this Agreement.

Partly complied with.

Section 4.07

Except as the Bank shall otherwise agree, the Borrower shall cause KMPA to:

(a) take all necessary steps (including but not limited to adjustments in its port tariffs and charges) to enable KMPA to earn, in fiscal year 1979 and thereafter, an annual rate of return on its net fixed assets in operation which shall be agreed upon between the Borrower, the Bank and KMPA; and

Complied with, but after extensive delays as agreement was not reached until November 1982. KMPA rates of return set at 4.5% in 1983, 4.5% in 1984, 5% in 1985 and 7% in 1986. Operating results show that these rates will be exceeded.

(b) take all necessary steps (including but not limited to adjustments in the Busan port tariffs and charges) to enable KMPA to earn, in fiscal year 1978 and thereafter, an annual rate of return of not less than 7% on its net fixed assets in operation.

Complied with. Actual rate of return achieved is much higher (15% in 1983).

Action required

Action taken

Section 4.08

Except as the Bank shall otherwise agree, the Borrower shall not authorize KMPA to incur any debt on behalf of BDMPA unless BDMPA's net revenues for any twelve consecutive months within the fifteen months next preceding such incurrence shall be at least 1.5 times the maximum debt service requirement for any succeeding fiscal year on all debt, including the debt to be incurred.

Complied with. Debt service ratio was greater than 1.5 in most years.

Section 4.09

Except as the Borrower and the Bank shall otherwise agree, the Borrower shall not authorize KMPA to make investments on the Busan port (other than those required under the Project and the First Port Project and those related to normal replacement of worn-out or obsolescent assets) in excess of \$1,500,000 per annum after 1978 and until completion of the Project.

Complied with.

Section 4.10

The Borrower shall cause KMPA to prepare, and not later than January 1, 1982 or such other date as shall be agreed with the Bank, to adopt a realistic schedule of depreciation of KMPA's assets for financial and cost accounting purposes.

Complied with.

Section 5.02

The Borrower shall take all such action as shall be required to cause (a) MOC to (i) consult with MOT and KMPA on the need for port facilities forming part of industrial complexes and (ii) make available feasibility studies and designs of Industrial Ports to MOT and KMPA for comments prior to their submission to EPB; (b) MOT and KMPA to advise EPB on the technical soundness and the economic and financial justification of MOC's Industrial Port development proposals; and (c) EPB to take MOT's and KMPA's views into consideration before approving MOC's port investment budget.

Partly complied with. Inter-ministerial coordination is practiced marginally and needs to be strengthened.

Action required

Action taken

Section 5.06

The Borrower shall cause KMPA to appoint, not later than March 31, 1978 or such other date as shall be agreed with the Bank, under terms and conditions satisfactory to the Bank, separate TOCs to be responsible for container handling and grain handling operations at the Busan port.

Complied with, after some delays.

Section 5.07

Except as the Bank shall otherwise agree, the Borrower shall cause KMPA to appoint, under terms and conditions satisfactory to the Bank, a single TOC to be responsible for breakbulk cargo handling operations at each pier, or other designated area, of (a) the ports of Busan, Mugho and Incheon, respectively, by March 31, 1979 and (b) each of the other first-class ports by a date acceptable to the Bank. For this purpose, KMPA shall submit to the Bank, for its approval, a standard form of contract applicable to all TOCs.

Complied with.

Section 5.08

By July 1, 1982 or such other date as shall be agreed with the Borrower and the Bank, depending on the degree of experience acquired by KMPA's staff in supervising the TOCs' cargo-handling operations referred to in Sections 5.05, 5.06 and 5.07 of this Agreement, the Borrower shall cause KMPA to take over the responsibility for all such operations.

Not complied with; it is debatable if this should be done in view of how the TOCs are operating.

Section 5.09

The Borrower shall cause KMPA to operate 24 hours a day Busan port's container wharf, including the container freight station included in Part C of the Project.

Complied with.



KOREA MARITIME AND PORT ADMINISTRATION

263. Yeunji-dong, Jongro-ku,

SEOUL, KOREA

Minutes of the meeting of August 23, 1984 at the Ministry of Finance.

1. A meeting was held to discuss KMPA'S legal status and impact of this status on its finances.
2. The meeting was attended by Mr. P. Levy for World Bank, Mr. R.Y. UHM for MOF and Mr. H.C. Kwon for KMPA.
3. Mr. Levy pointed out that Section 3.03(a) of Loan Agreement 2267-KO repeated and superseded the provisions of Section 3.02 of Loan Agreement 1401-KO dated April 28, 1977.

Under the latter agreement, the provisions of Section 3.02 were to be applied by JAN. 1, 1979.

At negotiations of the Coal and Cement Distribution Project dated March 1983, the Government stated that it has been understood that to comply literally with the agreed provision, KMPA should be set under Commercial Budgeting and Accounting Law, and that it felt that this could not be done prior to 1986.

4. KMPA explained that the main reason for this postponement is that its submission to the Law would prevent it from receiving government contributions even for carrying out its non-revenue generating obligations as Section 3 of the Law stipulates "expenditures are only allowed within the limit of revenues".

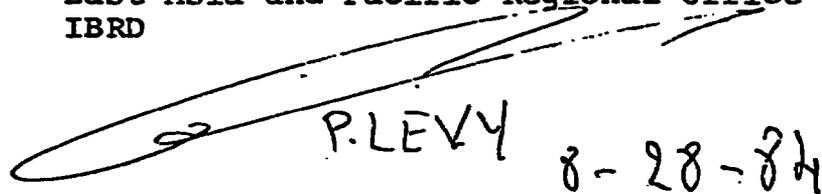
Under present projections, KMPA estimates that it will need Government financial assistance into the nineties to finance its non-revenue generating administrative obligations, investments in second class ports, and operation and capital expenditures of first class ports. KMPA stated, however, that it wishes to comply with Section 3.03(a) of Loan Agreement 2267-KO to the greatest possible extent.

5. To this effect, KMPA proposes that
 - A. The parallel implementation of KMPA'S commercial budgeting and accounting system started in 1983 would become permanent under formal instructions of MOT.
 - B. The presentation of commercial budgets would be initialed by MOT to ensure conformity with the administrative budgets.
 - C. The commercial accounts would be audited in compliance with Section 4.02(g) of Loan Agreement (2267-KO).
 - D. The instructions referred above(A) will be issued by MOT prior to JAN. 1, 1985. Measures A to D would comply with provision(ii) and (V) of Section 3.03(a).
6. In addition, KMPA explained that it considers complying partly with the other provisions of the same section such as:
 - (a) it can borrow from other Government agencies,
 - (b) it has powers to adjust its approved budget to meet cost changes subject to EPB approval; and
 - (c) it maintains a sub-account with the Bank of Korea for revenue and payment.
7. Mr. Levy answered that he welcomes the Government and KMPA'S willingness to implement the above agreed actions and that he would recommend that the Bank agrees with Government/KMPA'S proposals and explanations although they reflect partly the intentions of the Loan Agreement to transform KMPA into an autonomous entity with large managerial and financial freedom.

1984. 8. 28.

Mr. P. Levy

Transportation Division
Project Department
East Asia and Pacific Regional Office
IBRD


P. LEVY 8-28-84

Mr. R. Y. Uhm

Director
Government Loan Management Division
MOF



Mr. H. C. Kwon

Director
Finance Division
KMPA



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248423 WORLDBANK
KMPA K26528

MR. YUKINORI WATANABE
DIRECTOR
OPERATIONS EVALUATION DEP.
WORLD BANK
4 JULY 85

RE YOUR LETTER DATED APR. 26, 1985 REGARDING PROJECT PERFORMANCE
AUDIT REPORT (LOANS 917 AND 1401-KO)

WE HAVE THE FOLLOWING COMMENTS ON YOUR ABOVE MENTIONED REPORT, AND
WOULD REQUEST TO REFLECT THESE COMMENTS IN THE FINAL AUDIT REPORT:

- (1) &DUE TO LONG TIME TAKEN FOR BANK REVIEW AND MAIL DELIVERY&
IS MORE PROPER THAN &DUE TO KMPA'S LACK OF EXPERIENCE&
(REFER TO LINE 5, PAGE 5, 1ST PROJECT COMPLETION REPORT)
- (2) DEEP WATER BERTH IS 603M, NOT 700M. (LINE 2, PAGE 5,
2ND PROJECT)
- (3) BECAUSE OF THE SAME REASON IN ITEM (1), DELETION OF THE
SENTENCE &THE MAIN REASONS FOR - - - - CONSULTANTS.& IS
RECOMMENDED (LINE 12, PAGE 6, DITTO)
- (4) MODIFICATON OF CARGO VOLUME, 1984 IS NEEDED. CONTAINER IN
CONTAINER TERMINAL IS 661.4, GENERAL PIERS 392.9, TOTAL BUSAN
PORT 1,054.3, AND TERMINAL/BUSAN 62.7

BEST REGARDS. LEE, JAE BOCK. DIRECTOR GENERAL, PORT CONSTRUCTION
AND DEVELOPMENT BUREAU. K.M.P.A

Changes to reflect the
Government's comments have
been made on pages 29, 65,
66, 76 and 77.

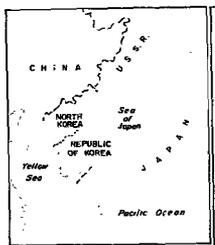
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ALT RTD FROM:OEDM

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The boundaries shown on this map do not imply endorsement or acceptance by the World Bank and its affiliates.

Yellow Sea

KOREA TRANSPORTATION NETWORK WORK

- EXISTING NATIONAL HIGHWAYS**
- EXPRESSWAY (60 KM LANE/TOLL)
 - NATIONAL HIGHWAYS (PAVED)
 - NATIONAL HIGHWAYS (UNPAVED)
- PROJECT HIGHWAYS**
- FEASIBILITY STUDY AND ENGINEERING
 - CONSTRUCTION AND IMPROVEMENT
 - PAVING
 - CONSTRUCTION AND IMPROVEMENT
 - PAVING
- RAILWAYS**
- AIRPORTS (INTERNATIONAL)
 - PROVINCIAL CAPITALS
 - PORTS
 - INTERNATIONAL BOUNDARIES

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KILOMETERS

