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REPORT AND RECOMMENDATION
OF THE
PRESIDENT OF THE
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
TO THE
EXECUTIVE DIRECTORS
ON A
PROPOSED LOAN
TO THE
REPUBLIC OF KOREA
FOR
HIGHER TECHNICAL EDUCATION

January 30, 1980

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CURRENCY EQUIVALENT

Until January 11, 1980
Won 485 = US\$1.00
Won 1,000 = US\$2.062
Won 1 million = US\$2,062

From January 12, 1980
Won 580 = US\$1.00
Won 1,000 = US\$1.724
Won 1 million = US\$1,724

GLOSSARY

CEB - College Education Bureau
EFB - Educational Facilities Bureau
EPB - Economic Planning Board
IEB - Industrial Education Bureau
KMEB - Korea Management Education Board
MOE - Ministry of Education
MOST - Ministry of Science and Technology
OSROK - Office of Supply, Republic of Korea
SNU - Seoul National University
TERI - Technical Education Research Institute

GOVERNMENT OF KOREA

Fiscal Year

January 1 - December 31

KOREA

HIGHER TECHNICAL EDUCATION LOAN

Loan and Project Summary

Borrower: The Republic of Korea

Amount: \$100 million equivalent

Terms: 17 years, including 4 years of grace, with interest at 8.25% p.a.

Program

Description: The basic aim of the program is to improve the quality and content of higher technical education in Korea, so that it can contribute effectively to the country's technological needs in the eighties. The sector program to be financed under the loan covers three aspects of higher education, viz. engineering education, management education and technician training. The program will create a flexible system of supplying technical skills, remove the principal constraints on quality improvement and reduce the investment gap in private higher technical education. Policies to be implemented include establishment of systematic manpower monitoring; adoption of flexible enrollment control; introduction of accreditation to set and maintain quality standards; adoption of adequate incentives to improve the supply and quality of teaching staff; and improved financing of private institutions. The overall program, of which a part would be financed under the proposed loan, would comprise about 10 national programs for organization, curricula and staff development, and about 55 subprojects for development of physical facilities at specific institutions. A deliberate effort has been made in formulating the program to rely as much as possible on the Borrower as regards both procedures and management. Accordingly, an intermediary institution, the Ministry of Education, would appraise, approve and supervise subprojects in accordance with methodology and criteria agreed by the Bank. The basic justification of the proposed loan is the benefit provided to the Korean economy through an enhanced supply of qualified engineers, technicians and managers. The proposed loan entails some risks, with regard to staff recruitment, implementation procedures and brain drain. Incentives and monitoring programs would be used to reduce these risks.

<u>Program Cost:</u>	----- (\$ million) -----		
	<u>Local</u>	<u>Foreign</u>	<u>Total</u>
Engineering education	110	140	250
Management education	50	25	75
Technician training	90	100	190
<u>Total Base Cost /a</u>	<u>250</u>	<u>265</u>	<u>515</u>
Contingencies	85	100	185
<u>Total</u>	<u>335</u>	<u>365</u>	<u>700</u>

/a Includes staff development for all institutions, public and private.

Financing Plan: The proposed loan of \$100 million would cover 14% of the total estimated investment program for higher technical education of \$700 million (or 27.4% of the total foreign exchange component of \$365 million). The Government would finance 60% of the investment program, and the remaining 26% would be from private sources.

Estimated Disbursement
from Bank Loan:

<u>Bank FY</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
Annual	16	37	29	18
Cumulative	16	53	82	100

Staff Appraisal Report: No. 2723-KO, dated January 11, 1980.

REPORT AND RECOMMENDATION OF THE PRESIDENT
OF THE INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
TO THE EXECUTIVE DIRECTORS ON A PROPOSED LOAN
TO THE REPUBLIC OF KOREA FOR HIGHER TECHNICAL
EDUCATION

1. I submit the following report and recommendation on a proposed loan to the Republic of Korea for the equivalent of \$100 million to help finance higher technical education. The loan would have a term of 17 years, including 4 years of grace, with interest of 8.25% per annum.

PART I - THE ECONOMY

2. The latest Economic Report entitled "Korea: Rapid Growth and Search for New Perspectives" was distributed under cover of SECM79-390, dated May 24, 1979. The Country Data Sheets are attached as Annex 1.

Recent Developments

3. During 1977 and 1978, the growth of GNP in real terms outstripped the target of 9.5% p.a. postulated in the Fourth Five Year Plan (1977-81). As a result of a rapid increase in domestic demand, the rate of increase of real GNP accelerated from 10.3% in 1977 to 11.6% in 1978. For the first time in many years, the increase in domestic demand for manufactured goods exceeded the increase in manufactured exports. This increase in domestic demand, fueled by substantial increases in private construction and equipment investment, resulted in capacity shortages for some essential items, and a speculative investment mood. For the first time, a shortage of certain types of skilled labor became a matter of greater concern than unemployment, which declined substantially during 1978. For the third year in a row, there was a substantial increase in real wages in the manufacturing sector, which was in excess of the increase in labor productivity. There was also an increase in the rate of inflation; during 1978, the wholesale prices increased by about 12% as compared to 9% in 1977, and consumer prices increased by about 14%, compared to a 10% increase in 1977.

4. Exports continued to grow according to the Fourth Plan targets, but after increasing by 43% in 1976 and 26% in 1977, the real growth of goods and services slowed to 18% in 1978. On the other hand, as a result of a substantial increase in the demand for imported capital goods, total imports increased more rapidly than exports, resulting in a sizeable trade deficit. However, overseas construction activity continued to expand rapidly during 1978, increasing from \$3.5 billion in 1977 to \$8.1 billion in 1978. Although the receipts from these contracts resulted in a substantial surplus in the invisible account, a current account deficit of about \$1 billion emerged as compared with the surplus of about \$12 million

in 1977. However, in view of the need to promote allocative efficiency and to counter domestic inflationary pressures, the Government initiated in 1978 a far-reaching program of import liberalization. Korea's access to international capital markets improved considerably enabling the repayment, ahead of schedule, of large amounts of short-term loans incurred on hard terms during 1974/75 when the economy faced the twin shocks of rapidly rising prices of its major imports, particularly petroleum and foodgrains, as well as the international recession.

Major Trends and Economic Policy for 1979

5. Economic policy for 1979 was formulated on the premise that inflation and rapid increases in wages were weakening the international competitiveness of Korean exports which could jeopardize sustained rapid economic growth. Hence, the major emphasis was on stabilization. The stabilization program has four major components. First, the tight monetary and fiscal policy designed to reduce excess liquidity in the economy. Secondly, measures designed to correct structural imbalances caused by inflation. These include the adjustment of investment priorities in favor of the industries producing necessities for domestic consumption, the encouragement of non-grain production in agriculture, investment to modernize the marketing and distribution network, and greater investment in public transportation. Thirdly, measures specifically designed to create greater competition in the economy, including the deregulation of prices on a large number of commodities, the removal of barriers to entry of new firms in some industries, and accelerated import liberalization. In addition, a set of measures designed to assist the poorest segments of the population who had been hardest hit by price increases were introduced which include the expansion of public work programs, the exemption from the payment of tuition by children of low-income families and some direct cash payments. Although the effects on the economy of this last set of measures are not anti-inflationary, the Government considered them necessary for reasons of equity.

6. While the stabilization program has had considerable success in containing domestically generated inflation, it has been overwhelmed by the increase in import prices, particularly of oil. During the first eight months of 1979, wholesale food prices increased by 6% and wholesale consumer goods prices by 9%, but the price of raw materials, which are mainly imported, increased by 34% and the price of capital goods by 12%. The Government has boldly combined its stabilization efforts with a reduction of price controls and removed most of the suppressed inflation which had been built up. Most government-administered prices were increased to realistic levels, including transport rates, coal prices, petroleum product prices and those of a range of industrial products. Consequently, wholesale prices are expected to increase by around 25% and consumer prices by about 22% in 1979, which would be more than double the targeted figures.

7. As was to be expected, the Government's stabilization policies have had some impact on output and employment. But exogenous factors such as a weakening of the world economy and an increase in protectionism in the developed countries have exacerbated the problems resulting from a weakening

of Korea's export competitiveness. While the momentum of economic growth in 1978 continued into 1979, a substantial increase in inventories in the early part of the year was a symptom of the impending slackening of economic growth. Furthermore, there has been a deterioration in its terms of trade in the current year due to higher import prices. However, the pragmatic and effective measures the Government has taken appear to be paying off. The upsurge in imports seems to be decelerating, resulting in no small measure from the Government's energy conservation measures which are proving to be effective. Exports, on the other hand, are proving to be rather more buoyant in the latter part of the year and it is expected that export value will be close to the target of \$15.5 billion. As a result of the substantial increase in the value of imports, it is expected that the trade deficit would be of the order of \$4 billion. However, as a result of a surplus of about \$1 billion in invisible trade, the current account deficit would be about \$3 billion, representing about 6% of GNP. The financing of this should be manageable.

Longer-Term Prospects

8. There appears to be a consensus that Korea should continue to pursue the high growth path, that greater stress should be placed on social development and that there was a need to effect greater financial liberalization and to free the private sector from the reins of Government control. The maintenance of a high growth rate is essential if Korea is to achieve the objectives of greater equity, of ensuring that the fruits of rapid development are available to the mass of the people. However, at the new threshold at which the Korean economy has arrived, there is a need to redirect efforts towards reconciling growth with equity. In order to achieve a better rural/urban balance, the Government has reiterated its support of the rural development programs, the generation of off-farm employment opportunities and of programs to improve agricultural productivity. For interpersonal equity, more resources would have to be devoted to the educational sector with increased emphasis on improving the lower income group's access to the system. As indicated earlier, to help the poor, the Government has moved to strengthen programs focussed directly on the target groups and away from the former reliance on general subsidies, whose effects tend to be relatively diffused.

9. Since the early sixties, Korea's pace of urbanization has been one of the highest among the developing countries. In the early phases of its growth process, Korea economized on social and urban development expenditures, particularly in transportation and housing. With the rapid growth of household incomes and the concentration of population in the major urban centers, the demand for urban services is rising rapidly. The Government is, therefore, giving greater emphasis to programs for providing increasing housing, particularly for the low-income groups, and for dealing with the problems of urban transportation. The Bank hopes to play a role in support of these programs.

10. A further dimension to the problem of harmonizing growth with reasonable price stability and equity is the need to review the whole nexus of policies connected with credit, the interest rate structure, subsidies, resource mobilization, capital market development and financial liberalization. These aspects are being reviewed by the Bank's financial sector mission, which has just returned from the field.

11. Although the assassination of President Park could be construed as the end of an era, the demonstrated dynamism and resilience of the Korean economy, the diligence of its labor force, the efficiency of its economic managers and entrepreneurs, and the massive investment in the last two years, all combine to suggest that Korea will be able to tackle its emerging problems and sustain its rapid growth in the eighties notwithstanding the change in leadership. The rapidly increasing and skilled labor force, the potential to raise productivity by adopting new and advanced technology and the shift of labor from traditional sectors where productivity is low to the modern sectors where productivity is high provide the sources of growth in the eighties. Furthermore, although the international economic environment is somewhat unfavorable, Korea continues to exploit the opportunities to expand trade and other forms of economic activities wherever these could be found and is seeking to complement its external activities by undertaking improvements in housing, mass transportation, education and health services, which some Korean economists refer to as "the second engine of growth."

External Capital Requirements

12. Despite the strong possibility that the growth rate of GNP will be slower than was originally forecast for 1979 and 1980, the external capital requirements during the period will be markedly higher than originally expected. Amortization requirements are estimated to be about \$1.5 billion in 1979 and \$1.7 billion in 1980. Allowing for the augmentation of its foreign exchange reserves (about \$1 billion annually), the gross requirements of external capital will be about \$5.5 billion in 1979 and \$5.7 billion in 1980, assuming that current account deficits of about \$3 billion will be incurred in each of the years. Taking into account committed but undisbursed medium and long-term loans, new commitments of about \$5-6 billion would be required in each of the years.

13. While Korea is extending its use of commercial financing from the traditional suppliers and private bank credits to Euro-dollar syndicated loans and bond issues in the Euro-bond and Asian bond market and is expected to derive an increasing proportion of its total requirements from such sources, the magnitude of these external capital requirements is such that it will have to continue to rely on considerable capital inflows from official sources, including Eximbanks. It should, however, be emphasized that the higher anticipated levels of external capital inflow (relative to the Fourth Plan targets) are a consequence of its higher investment rates rather than a shortfall in the domestic savings rate. Thus, about 90% of Korea's investment will continue to be financed from domestic savings. The ratio of foreign savings to GNP is expected to decline in the eighties, following the restructuring and readjustment planned for the next three years. Servicing of

the debt should not pose difficulties given the present debt service ratio and the continuing emphasis on export growth, provided that the proportion of external debt incurred on shorter term and at high interest rates is not excessive. The projected ratio of debt service payments to total export earnings is expected to remain in the range of 12-15% up to the mid-eighties, and to decline steadily thereafter.

14. On January 12, 1980, the Government announced the following measures: the devaluation of the Won from 485 to 580 Won to the US\$, an upward adjustment of the one year time deposit interest rate from 18.6% to 24% and of the prime interest rate from 18.5% to 24.5%. The impact of these measures on Korea's current and prospective economic situation will be evaluated by an economic mission which is scheduled for February/March 1980.

PART II - BANK GROUP OPERATIONS

15. As of October 31, 1979, Korea had received 45 Bank Loans (including one Third Window Loan) and 8 IDA Credits, totalling \$2,526.4 million in loans and \$106.8 million in credits (taking into account cancellations and the refinancing of one IDA Credit in a subsequent Bank Loan). As of that date, \$900.8 million of the total Bank lending remained undisbursed on effective Loans and Credits, mostly from commitments in the past two years. Annex II contains a summary statement of Bank Loans, IDA Credits, and IFC Investments as of that date and notes on the execution of ongoing projects. As indicated in the notes, progress on project implementation is generally satisfactory.

16. In recent years, the thrust of the Bank Group's lending operations in Korea had been directed towards assisting the Government's efforts: (a) to secure the external resources required to supplement domestic savings in sustaining a high GNP growth rate by following a policy of rapid export-oriented industrialization; (b) to avoid the emergence of infrastructure bottlenecks; and (c) to complement industrial development with agricultural and rural development schemes aimed at bringing about a better dispersal of the fruits of growth through raising incomes and improving the quality of life in the rural areas.

17. A substantial part of Bank financing has been directed towards the vital industrial sector through lending to Korea's three major development banks. The Korea Development Finance Corporation has received \$320.0 million, the Korea Development Bank \$252.5 million and the Small and Medium Industry Bank \$145 million in Bank loans for relending to private industry. The primary beneficiaries of these loans have not been the development banks, but the industrial enterprises, ranging from large ventures to small ones, which have been provided with financing through the financial intermediaries. This has resulted not only in the overall development of the industrial sector, but has also contributed to the achievement of institutional improvements and of the Government's objective of decentralizing industry. The loan of \$80 million for a Heavy Machinery Project was intended to assist in achieving the structural shift to more skill-intensive industries, which is necessary to ensure the long-term viability of Korea's export strategy. A recently approved loan of \$29 million by the Bank would stimulate and support the development of technological capabilities in the Korean electronics industry.

18. As Korea's economy continued to grow and the pace of industrialization has quickened, there has had to be a parallel expansion of transport facilities. The Bank Group, through its association with the Government's efforts to modernize and expand the transport sector dating back to 1962, has played an important role in these developments. Some \$340 million has been provided for six railway projects designed to increase the railroad's capacity and improve its operations; four loans totalling \$334.5 million have been made for highway construction and paving of high priority sections of the national network and for a countrywide maintenance organization; and two loans amounting to \$147 million have been provided for the expansion of port facilities at Busan, the premier port, and Mugho, primarily for improving coal handling facilities.

19. Korea's paucity of natural resources and dependence on the manufacturing segment of its economy have resulted in the adoption of a strategy based on maximizing the advantages of a skilled and hardworking labor force. The Bank Group has been involved in helping to meet the requirements for appropriately trained workers and certain categories of skilled manpower through its lending for four education projects, which have pursued the broad objectives of technical manpower development either through the expansion of relevant subsectors or through specific quality improvements. Together, these projects have catered to a wide range of manpower training needs within agriculture, fisheries, industry and services.

20. Korea's record of achievement in modernizing its agricultural sector, although less spectacular than the gains made in the industrial sphere, is nevertheless commendable. The past fifteen years have seen agricultural output grow at about 4% per annum, which has resulted in the country's becoming near self-sufficient in its staple food, rice, and made possible a steady and perceptible improvement in the living standards of the 40% of Korea's population who live in the countryside and rely primarily on agrarian pursuits for their livelihood. The Bank has lent \$325.5 million for the improvement of irrigation facilities, land and seed development and the provision of agricultural credit to farmers and processors of agricultural products. In addition, \$155 million has been provided for two rural infrastructure projects in support of the Government's rural development program, initiated in 1971, to improve the quality of life and the standard of living in the rural areas. Recently a \$125 million loan was provided by the Bank to help meet the growing demand for municipal, industrial and irrigation water in the Han Basin southeast of the capital city, Seoul; reduce flood damage; and generate electricity to augment and provide peaking capacity for Korea's power system.

21. The Bank's first essay into the field of regional development in Korea, through the project approved in January 1975 (Loan 1070-KO), has proved successful. The project was designed to support the Government's policy by financing high priority investments in the poor, primarily agricultural, southwest region. A loan of \$65 million for a second project for the development of the region was approved by the Executive Directors on September 11, 1979.

22. Excluding one project that was cancelled subsequently, IFC had, by October 31, 1979, entered into 24 commitments, totalling \$67.2 million (net of participations and cancellations). Korea's industrial development programs have required large capital expenditures in the private sector, a situation which has enabled a substantially enhanced IFC presence in the past few years.

23. A primary objective of the Bank's future lending to Korea is to provide assistance in sustaining the growth momentum and in addressing the emerging issues which the Korean economy is facing. The maturity of many of the Korean institutions suggests that it would be appropriate to adopt a sector lending approach in some areas, as is being done under the proposed loan. The basic issue is whether Korea can deepen and diversify its industrial structure to the extent necessary to ensure the attainment of its export targets. Lending to industry will be diversified by the provision of a loan to the Citizens National Bank in support of the small enterprises as well as a loan for a second machinery project, which will provide financial and technical assistance to small- and medium-scale machinery industries. It will also be necessary to introduce RD&E programs which are better adapted to the technological needs of industrial development. In addition to the loan for the Electronics Technology Project which was approved on March 22, 1979, a loan for the technological development of technology-intensive industries is envisaged in the lending program.

24. Korea's industrialization program, which calls for entering into more complex fields of manufacturing than hitherto, will require increasingly high levels of technical competence on the part of its labor force. The proposed loan will contribute to the modernization and improvement of the system of higher technical education so as to increase its flexibility and responsiveness to the changing requirements of the economy.

25. Another strand in the lending strategy is increased support of the Government's efforts to spread the fruits of growth even more equitably by the diversification and expansion of the output of the agricultural sector and through nationwide development programs. Projects are envisaged for land/water resource development, for agricultural credit, marketing and processing, for low-income housing, and for the further development of rural infrastructure and facilities in selected provincial areas, which would enhance incomes and quality of life in the lesser developed regions of the country and would have a significant impact on the problem of migration to the major metropolitan areas.

26. The further development of the industrial and agricultural sectors and the anticipated growth of exports will require concurrent infrastructural development. Although the transport sector will be given less emphasis than in the past, the investments required are large and, thus, there is considerable support for this sector in the proposed lending program. Greater emphasis will be given to urban transportation, in view of the emerging problems of urban congestion, particularly in the main metropolitan areas.

27. The share of the Bank Group in Korea's total external debt disbursed and outstanding at the end of 1978 was about 10%, and its share of debt service was of the order of 6% at that time. These ratios are expected to increase to around 13% and 7%, respectively, by the mid-eighties.

PART III - HIGHER TECHNICAL EDUCATION IN KOREA

Industrial Development Strategy

28. Korea's industrial expansion has largely been based on the growth of light labor-intensive manufactures using imported technologies and a ready supply of efficient cheap labor. However, competition from developing countries, with lower wage levels than those now prevailing in Korea, and protectionist restrictions in industrialized countries necessitate an industrial reorientation toward more skill-intensive manufactures, if Korea is to maintain a comparative advantage in international trade.

29. The Government's economic growth targets reflect its shift in development strategy toward heavier industries with a higher technological content. GNP is expected to rise on average by 10% per year (in real terms) through 1991, with the overall manufacturing share increasing from 30% to 45%. Manufacturing output of the newer, heavy and chemical industries would increase by 15% (in real terms) per year, rising from 50% to 65% of total manufacturing output by 1991, while that of light industry would decline from 50% to 35% over the same period. Exports would grow at around 15% (in real terms) per year with general machinery exports increasing from 15% to 50% of the total exports and a corresponding decline in export of textiles, clothing and footwear industries from nearly 50% to 20% by the late 1980s.

30. The successful implementation of this industrial strategy will require replacement of the present wholly imported technology with locally generated and adapted technologies through increased product and process engineering capacity. Expenditures on research and development (R&D) will need to be increased so that appropriate foreign advanced technologies can be selected and the know-how acquired by and distributed to firms. By 1991, the Government expects to raise R&D expenditure to 2.5% of GNP (from 0.7% in 1977), 60% of which will be for industry. Policies have been introduced to make industry rather than Government responsible for technology transfer and development through fiscal incentives to increase industry's engineering capability and tax incentives for importing advanced technologies. Most firms lack the financial and technical capabilities to provide the design, testing and planning expertise required to select appropriate and economical technologies. Assistance in these activities needs to be given through specialized research institutes, engineering universities and junior technical colleges.

Implications for Higher Technical Manpower

31. At present there is a limited supply of high quality professional, technical manpower, and industry reports a long lead time for higher technical manpower entering employment to become productive. Improvements in the quality of existing skills will thus be needed to meet the practical requirements of the skill-intensive industries. A broadened range of technical and managerial skills will also be needed to effect the planned changes in industrial orientation. The development (or adaptation) and application of new technologies will require new engineering skills in research, design and production. New management skills in finance, marketing and organizational methods are also required to raise industrial productivity.

32. Finally, to effect the planned structural changes in industry, higher technical manpower will need to constitute a larger share of industrial employment than at present. Government projections of net demand for

university-trained engineers from 1977-91 show an additional requirement of about 165,000 (over the 1977 stock of 40,000); additional demand for engineering technicians from junior technical colleges is estimated at 135,000 (with a present stock of 12,000). The projection of net demand for university-trained managers amounts to 240,000 for 1977-91.

33. Thus, there is a current scarcity of, and large-scale future needs for, higher technical manpower. In response to those shortages the Government undertook a massive expansion of enrollment intakes (by 116% for engineers, 260% for managers and 82% for technicians between 1977 and 1979). However, these large enrollment increases, made without the benefit of manpower forecasts, are likely to exceed demand and would, without adjustments, lead to oversupplies of engineers and particularly technicians by the mid-1980s. Efforts must be made to monitor continuously changes in demand by type of higher technical manpower in order to allow for timely adjustments in supply.

Major Issues

34. Despite the general strengths of Korean higher education, substantial changes are needed in higher technical education to meet industrial requirements in the 1980s. First, shortages and surpluses of technical manpower are bound to result from the rigidity of the present enrollment control system and the lack of systematic manpower forecasts. Second, the quality of higher technical training relates poorly to present industrial needs and will become increasingly inadequate in the future. Concerted efforts are needed to increase teacher supply, equip laboratories and develop more relevant teaching programs. Third, higher technical education has been underfinanced over the past decade. The investment gap is most acute among private institutions, which enroll about 75% of the students in higher technical education, and whose financial resources are largely limited to student fees. Major investments are required if higher technical education is to support the planned technological transformation in the 1980s.

Lack of Flexibility

35. Korea needs to develop a flexible system for supplying higher technical manpower to meet the rapidly changing technology and skill requirements of its industry in the 1980s. Shortages and oversupplies occur because of the inflexibility of the present system of enrollment control and the lack of a permanent capacity for manpower projections. The size and composition of higher technical education is controlled by a quota system through which the number of entering students is determined centrally by the MOE for each institution and department. This quota system was intended to match supply with demand and also to ensure minimum quality standards of the selected students but does not permit the transfer of students between departments and across fields. The EPB, MOST and MOE have been responsible for manpower projections in Korea. However, manpower analysis has not been systematic. Manpower planning is also made difficult by the long lead time between entrance to university/college and entry to the labor force. In addition, students have to decide on their area of specialization upon entering university/college, long before labor market demands are known.

A permanent analytical capability is needed with appropriate methodologies for planning the size and composition of higher technical education.

Quality Problems

36. The quality of higher technical training is inadequate for the technological changes sought in industrial development. Low quality is manifest in three areas: teaching programs, the supply of teachers and equipment.

(a) Teaching Programs. Teaching programs in higher technical education are characterized by early specialization, lack of practical content and poorly developed graduate programs. The structure of curricula for higher technical education fails to achieve a suitable balance between specialization in a specific field and basic skills. The early specialization stems largely from the Government's quota system which admits students to each institution by department. With inadequate basic skills, graduates are not well prepared to adapt to different industry-specific needs. This is particularly detrimental to industrial technicians who are often called upon to perform a broad range of tasks. Teaching programs also do not provide enough practical applications of theory. Basic skills training will need to be strengthened and a broader range of options taught. Coordination between training institutions and industry must be increased to assure the relevance of teaching content.

(b) The Supply of Teachers. The acute shortage of teaching staff which is expected to increase from 500 to 2,500 in engineering and from 200 to 1,000 in management between 1979 and 1982, adversely affects the quality and type of instruction given. These shortages are reflected in large class sizes and are particularly serious in engineering, with a staff:student ratio of 1:44, and management, with an overall staff:student ratio of 1:69. Staff shortages are caused mainly by supply constraints and unattractive incentives for entering the teaching profession. Most graduates prefer industrial employment which pays considerably higher salaries than teaching. The pay differentials reflect industry's strong demand for highly qualified manpower and its relatively elastic wage structure, while the Government bases teachers' salaries in public institutions (closely matched by private institutions) on the regular civil service schedule. Further, few institutions can attract faculty through opportunities for professional development, research or industrial consultancies. Not only are teaching staff in short supply, their qualifications need improvement. Staff lacking appropriate qualifications and industrial experience tend to rely extensively on lecture/demonstration techniques since they are ill-prepared to guide students into industrially relevant experiments and research.

(c) Equipment. Laboratory equipment and materials, which are indispensable for the effective training of engineers and technologists, are in short supply. Expenditures on equipment have increased lately, but they have not kept pace with increases in enrollments. The shortage of equipment compounds staff difficulties in providing practical instruction. Graduates

are, accordingly, deficient in performing practical jobs which leads, in employment, to inefficient design and ineffective quality control.

Investment Gap in Private Education

37. Higher education in Korea has been underfinanced. Historically, the Ministry of Education has allocated only about 6% of its budget for higher education, the lowest figure among Asian countries. This low percentage is mainly explained by the fact that about three-fourths of the higher education institutions are private and receive little, if any, funds from the Government. Student fees, regulated by the Government, provide about 85% of the total revenue of private colleges and universities. Large class sizes and low investment in equipment yield low recurrent costs per student averaging \$400 in private engineering colleges, only two-thirds the level in public institutions.

38. Major investments are required if higher technical education is to support the technological transformation planned for the 1980s. Total investments of about \$830 million are needed for the period 1979-83 in equipment, facilities and software to raise the standard of higher technical education to acceptable levels. About 40% of this investment, or \$315 million, would be required for national programs and investment in public institutions. Based on projected investments, it is expected that the Ministry of Education would be able to finance these costs for public institutions. However, 60% of the financial burden for quality improvement would fall on private institutions. These would probably be able to raise only roughly 25%, or about \$130 million of the required investment, leaving a gap of approximately \$400 million.

39. Measures to increase investment by private institutions include raising student fees and introducing student loans, increased public subsidy and the use of tax exemptions on industrial donations. These measures would help narrow, though not eliminate, the investment gap. In view of this shortage of resources, which is expected to continue, Government strategies should: (a) concentrate available resources in a limited number of institutions in order to produce a minimum number of well-qualified graduates; (b) introduce a comprehensive system of accreditation so as, over the long run, to establish, gradually improve and equalize standards throughout the country; (c) increase public assistance for private institutions; (d) introduce incentives, such as tax exemptions, to encourage contributions by industry; and (e) permit private institutions to raise the level of student fees.

PART IV - THE SECTOR PROGRAM ON HIGHER TECHNICAL EDUCATION

40. The proposed program was identified on the basis of a Bank survey of higher technical education in July 1977. Four Korean study teams, covering manpower, engineering education, management education and technician training, prepared the loan proposals. The interim reports of the four study teams provided a basis for Bank preappraisal in November 1978. The final reports of the study teams were incorporated into a loan request. These reports formed the basis for the Bank's appraisal, carried out by a mission that visited Korea in April 1979. A Staff Appraisal Report (No. 2723-KO, dated January 11, 1980) is being distributed separately. Supplementary

data are provided in Annex III. Negotiations were held in Washington from December 12 to 17, 1979, with the delegation led by Mr. J.H. Hwang, Director General, Economic Planning Board.

41. The loan would provide \$100 million to assist in the financing of a program that would raise the numbers and quality of higher technical manpower to the levels needed in the 1980s. It would provide support chiefly for developing staff, teaching programs and laboratory facilities in the following fields: Engineering Education (gr. 13-19) - \$60 million; Management Education (gr. 13-19) - \$4 million; and Technician Training (gr. 13-14) - \$36 million. The proposed program is recommended for Bank financing because it supports the Government's industrial development strategy, addresses the major issues in higher technical education and it is well organized and financed to achieve its goals.

Strategy

42. The proposed program directly addresses the major issues in higher technical education. It would assist in the creation of a more flexible system of supplying technical skills, ease the principal constraints on quality improvement and help reduce the investment gap in the subsector. A central aim of the program is to reduce the periods of manpower shortages and surpluses while retaining selection criteria to ensure that students admitted are best suited to benefit from the courses taken. This objective would be sought by establishing a permanent capacity for manpower analysis; replacement of the centrally controlled quota system with a more flexible system of enrollment control; deferment of early student specialization and use of retraining programs to ease the transition of surplus manpower. A major emphasis of the program would be to bring the quality of higher technical training up to the standards needed for industrial development in the 1980s. This would be accomplished by establishing accreditation agencies to set and enforce appropriate training standards; adapting the content of existing teaching programs to meet industrial requirements; increasing the supply and quality of teaching staff and providing more laboratory equipment for teaching purposes.

Program Content

43. Adjusting Manpower Supply and Demand. A manpower monitoring system would be established to help regulate the supply of higher technical manpower in accordance with demand. Initially, the system would be built up under the existing, but dormant, Committee for Manpower Development and Promotion in the EPB. In a second phase, to be completed by the end of 1981, a permanent manpower planning institution would be established either under the EPB or MOE. The proposed program would include financing for expert services to assist in establishing the manpower monitoring system. During negotiations, assurances were obtained that the Government will evaluate, before June 30, 1980, its existing Committee for Manpower Development and Promotion and ensure that it performs, not later than December 31, 1981, the functions of a manpower monitoring system satisfactory to the Bank. (Section 3.06 of the draft Loan Agreement).

44. The achievement of a more flexible manpower supply system for the 1980s also requires replacement of the rigid and centralized quota system which controls admission of students by institution, department and field of study. The new system would be decentralized (i.e., available student places would be determined by each institution in accordance with overall guidelines), be based on qualitative criteria and permit transfer of students between departments and across fields in response to labor shortages or surpluses. During negotiations, assurances were obtained that the Government, by December 31, 1980, will submit to the Bank, for its review and comments, proposals for a flexible system for allocating students in higher technical education which will facilitate adjustment of supply of higher technical manpower in accordance with changes in labor market demand, and will implement such proposals, before December 31, 1981. (Section 3.07 of the draft Loan Agreement).

45. Until a more flexible system is achieved on the basis of continuous monitoring of manpower demand and improved supply adjustments, the Government has adopted a moderate policy on further expansion of enrollments. In view of the sharp increases introduced over the past two years, any further major expansion of intake in technical fields is likely to worsen the employment prospects of graduates. Uncontrolled expansion would exacerbate already serious staff shortages, would make it difficult to reorient training towards practical skills and would increase the projected surpluses of graduates. To avert supply imbalances in the 1980s and further strains on teaching quality, the Government has agreed to proceed cautiously in raising admission quotas for engineers and technicians until such time as manpower information and improved quality suggest a need for further expansion. The Government and Bank will discuss in the first quarter of each year until 1984 the annual levels of admission for engineers and technician training.

46. Quality Control. The Government will establish an accreditation system for assessing the quality and relevance of education and establishing appropriate training standards. Two accreditation agencies have been established and a third, for engineering education, is planned. These agencies will be responsible for assessing the quality of existing training institutions, setting minimum professional standards for training (in terms of staff, curriculum and facilities), proposing remedial measures to correct quality deficiencies and, ultimately, for extending accreditation to institutions through the MOE. The accreditation function will be carried out through the use of external examiners. In addition, the institutions will carry out ad hoc studies on particular issues (e.g., cost analysis) and help develop relevant training programs. Their scope of responsibility will cover private as well as public institutions. During negotiations, assurances were obtained that the Government will establish a third agency by January 1, 1981 and thereafter maintain the three accreditation agencies with terms of reference acceptable to the Bank (Section 3.08 of the draft Loan Agreement).

47. Curriculum Development. A major objective of the program is to strengthen the analytical and practical skills of higher technical manpower through improved teaching programs. The content of existing programs will be changed and new curricula introduced. These new teaching programs will be

prepared by selected colleges/universities with assistance from the respective accreditation agencies. Management education will be modernized using teaching materials and techniques relevant to Korea. Course content will be standardized with assistance from the management accreditation agency. Case studies will be developed based on Korean examples and new specializations developed based on the use of modern quantitative techniques. The Graduate School of Seoul National University will sponsor most of this curriculum development through support of case-writing and case-teaching seminars for 60 teaching staff annually between 1980-84. The technician-training curriculum will also be made more flexible through adoption of a modular approach allowing for two types of training. The first type will be designed to prepare technicians for employment in small and medium-sized industries and will provide a broad range of basic skills; the second type of training will prepare students for employment in large industries and will cover fewer skill areas but in greater depth. The proposed program will provide specialist services as needed to assist the agencies involved in curriculum development for the higher technical education.

48. Increasing the Supply of Staff. The main requirement for improvements in the quality of higher technical education is to eliminate shortages and increase the supply of well-qualified teaching staff. Under the program the supply of teaching staff will be increased from about 4,000 to 12,000. This would achieve a more reasonable student:staff ratio than at present and enable students to receive more individual guidance and practical instruction in laboratories. The expansion of teaching staff will be achieved by increasing output from postgraduate engineering and management programs, enlarging overseas fellowship schemes and instituting special postgraduate programs to produce teachers. In addition, Korean engineers working abroad will be recruited to teach postgraduate engineering courses, and part-time staff recruited from industry. Incentives will be adopted to attract students into graduate schools and staff into teaching. The loan would finance the expansion of graduate programs (facilities and equipment), overseas fellowships, expert services and costs of recruitment of staff from overseas. Similar scholarship schemes had been successful in the past and experience with recruitment of staff from overseas had been favorable. The feasibility of recruiting significant members of part-time staff from industry, however, has not yet been tested. Altogether these programs would meet about 90% of the total requirement of 8,500 by 1986.

49. The feasibility of expanding domestic graduate school programs depends on the recruitment of additional professors, and of students to enter graduate schools and, eventually, teaching. Korea has had difficulty recently in both areas of recruitment. The Government has, therefore, prepared a program to attract more students into graduate schools and into teaching. This program features a substantial increase in the salaries of teachers (about 35% between 1978 and 1979), scholarships (an increase from 20% to 50% of the students who would be covered in regular programs and 100% in special programs), and elimination of two out of the mandatory three years of military service to those entering teaching. However, these incentives, while important, may not be sufficient to ensure the full level of staff and student recruitment needed. During negotiations, assurances were obtained that the Government will take all necessary steps to introduce incentives for recruit-

ment and retention of teaching staff as are necessary to achieve targeted staff:student ratios by December 31, 1986 (Section 3.09 of the draft Loan Agreement). Additional measures are planned to increase teaching staff, including overseas fellowship programs which would train about 330 staff at PhD level within the next five years. In the interim, recruitment of Koreans employed abroad and adjunct professors from industry would supply postgraduate teaching staff in engineering. Special incentives, including travel and housing benefits, would be introduced to attract about 150 qualified Koreans working abroad to assist, in particular, with the special postgraduate faculty training programs. This special program would supply about 1,400 teachers. Another 300 engineers would be recruited each year from industry for teaching on a part-time contract basis (for a minimum of three years). A special law passed in 1979 enables the regular appointment of persons from industry or commerce as visiting teachers.

50. Improvement of Staff Qualifications. The qualifications of existing staff will be improved under the program and larger proportions of staff than now will hold advanced degrees by 1986. Upgrading of staff will be accomplished by strengthening and expanding local graduate programs; providing overseas fellowships to present staff; creating faculty exchange programs with industry; and providing workshops and seminars to familiarize teachers with local industrial/commercial practice. These three training programs will be organized by the Ministry of Education to assist in staff development. In engineering, selected universities will receive funds for additional equipment, operating costs and research support according to the number of doctoral candidates they accept under this program. Nondegree courses will be provided mainly through foreign fellowships. About 1,020 engineering doctorate holders will receive one year overseas research fellowships; about 100 management education staff will undertake foreign research or study assignments lasting three months to a year; and about 250 technician training staff will receive professional training abroad concentrated on increasing their practical experience. Technical personnel can quickly become obsolete unless their education is continually renewed. Continuing education for practical engineering at the site of industry and university is important and will be supported under the program. Workshops and seminars will also, therefore, be a feature of the staff upgrading program: in engineering, 500 staff will attend seminars on professional subjects in management education, an annual Management Professors' Program will provide local training in modern pedagogy (2 months long) for 50 professors; in addition, 60 management staff will attend workshops on casewriting and workshops on the introduction of new teaching materials. About 2,400 technician staff will attend workshops at Chungnam University to receive training in industrial trends and pedagogy. Joint programs with industry organized annually for 250 engineering staff will include a short period of employment, executing of industry related projects and special studies of industrial firms.

51. Equipment and Teaching Materials. One of the major impediments to practical education is the acute shortage of laboratory equipment and teaching materials, averaging only about 20% of the MOE standard. Additional investment in teaching equipment is an essential requirement in the reorientation of instruction toward problem solving and practical

applications. The program aims at increasing equipment provisions from an average of 20% of the MOE standard to about 70% overall in engineering and technician fields, or from \$500 per student to about \$2,000 per student. Full attainment of the MOE standard would require unrealistically high investments in the near term and would need to be deferred to the latter part of the 1980s. Priority in the allocation of equipment funds would be given to:

- (a) selected fields, such as electronics, industrial, mechanical, electrical, and chemical engineering, in which 100% of the MOE requirement would be reached;
- (b) basic laboratory facilities in which teaching concentration would be increased;
- (c) special graduate school programs for training teaching staff; and
- (d) institutions that consolidate resources and share large equipment items.

The proposed investment in equipment would enable laboratory work to be increased in engineering from about 10% to 30% of available time and in technician training from 20% to about 40%.

Management and Implementation

52. The overall sector program, of which a part would be financed under the proposed loan, would be composed of about 10 national programs and 55 subprojects for particular institutions. National programs will include mainly software, curricula and staff development as well as creation of a manpower monitoring system and accreditation agencies. Subprojects will include assistance for hardware (buildings and equipment) at specific colleges or universities.

53. A deliberate effort has been made in formulating the program to rely as much as possible on the the Borrower as regards both procedures and allocation of funds. An intermediary institution, the Ministry of Education, will assume responsibility for the identification, preparation, appraisal, approval and supervision of subprojects. Individual colleges or universities will prepare and submit loan applications to the MOE for financial assistance. These loan applications will be appraised and approved by the MOE in accordance with methodology and criteria agreed by the Bank.

54. The Government has devised an effective organization plan and a feasible staffing plan for implementing the program. The organization plan for implementing the proposed project relies on existing line agencies in the MOE, builds on their strengths and includes appropriate checks and balances. The Education Facilities Bureau (EFB) would be responsible for overall project coordination and execution of the physical aspects. The College Education Bureau (CEB) would manage the educational aspects of engineering and management education and the Industrial Education Bureau (IEB) that of technician training. Two existing committees, the Deliberation Committee in the MOE and the Interministerial Planning and Management

Committee under the EFB, would review subproject documents and settle unresolved questions on approval of subjects. The Government has taken steps to ensure that the implementation agencies would have sufficient staff to manage the sector loan project. The key agency, EFB, doubled its staff in 1979 to 125 and would have 150 staff by 1980. The MOE has also arranged for outside technical assistance groups to assist in subproject preparation and appraisal.

55. The Government has designed and tested procedures appropriate for the implementation of the program. These procedures cover the generation, appraisal, approval, supervision and monitoring of subproject activities. Subprojects will be formulated during the course of implementation based on loan applications submitted by individual universities and colleges. Some colleges/universities would not have the technical competence to prepare acceptable applications and would be able to seek assistance from the technical assistance group in the MOE. The three MOE bureaus will initially screen subloan applications and appoint a task force on an ad hoc basis for appraisal. The task force will review the application, make a field visit and submit an appraisal report to the Deliberation Committee in the MOE. Any subproject requiring more than \$2.5 million from the proceeds of the proposed loan would be submitted to the Bank for prior approval (Section 3.05 of the draft Loan Agreement). The Bank will make a random ex post review of smaller subprojects during supervision visits. After any prior Bank review the Deliberation Committee will submit the application to the Vice Minister of Education who, if it involved issues or other ministries, would consult the Planning and Management Committee of EFB. The Minister of Education will give final approval of all subprojects. These procedures have already been tested and found acceptable on five subprojects. These test cases confirm the capacity of the MOE to carry out the program. The EFB will supervise implementation of the national programs and subprojects in collaboration with the IEB and CEB, and will be responsible for continuously monitoring the progress of each subcomponent. The EFB will submit quarterly progress reports to the Vice Minister and the Bank. A panel of experts for each subcomponent will make annual evaluation of project achievements. These reports will form the basis for comprehensive annual project and policy reviews with the Bank.

56. General guidelines and criteria have been established to promote the achievement of loan objectives. Eligibility criteria have been developed which would channel loan funds to existing institutions which have five-year development plans. The MOE will approve subprojects based on a set of guidelines formulated to assure a balanced investment program. These guidelines cover the share of loan funds allocated for postgraduate education, participation by private institutions, regional distribution, size of subprojects and number of subprojects by field. Priority would be given to the expansion of graduate programs and staff development. The guidelines will help ensure sufficient concentration for individual subprojects to have an impact on quality improvements and, to the extent that suitable applications permit, a reasonable geographic spread of project benefits throughout the country. The MOE will evaluate and approve subprojects according to their relevance to project objectives, feasibility of implementation and efficiency in the use of resources. These criteria and guidelines would need to be

interpreted flexibly and could be modified in the light of experience by mutual agreement during implementation. During negotiations, assurances were obtained that the Government will allocate loan funds in accordance with agreed guidelines and criteria (Section 3.05 of the draft Loan Agreement and a related Supplemental Letter). Although the number of subprojects to be approved under the project can only be estimated at this stage, a tentative schedule has been drawn up for the proposed program that allows implementation procedures to benefit from initial experience in processing the first few subprojects. Five subprojects have been prepared, appraised and approved after Bank review so that implementation may begin in early 1980. An additional 50 subproject applications have been submitted by institutions to the MOE. Because of similarities among groups of applications, the MOE expects to be able to appraise most of the applications by the end of 1980. Implementation of the remaining subprojects would begin in 1981 with completion by the end of 1983.

Program Costs

57. Program costs are defined as the total investment program in higher technical education for 1979-83, of which the proposed loan would finance a part. Based on the exchange rate of Won 485 to the US\$ that prevailed prior to January 12, 1980 when the Won was devalued to 580 to the US\$, total program costs are estimated at \$700 million, including contingencies of \$185 million. Physical contingencies are estimated at 10% and price contingencies at 24% of base cost. Unit costs of capital investment per student place have been estimated as \$3,400 for engineering education, \$1,200 for management education and \$4,300 for technicians training. Instructional equipment and professional services are exempt from taxes. The costs of technical assistance were based on averages of \$5,400 per man-month for specialist services and \$1,300 per man-month for fellowships.

58. The Government would finance 60% of the investment program, private sources would meet 26%, and the proposed Bank loan of \$100 million equivalent would represent 14%. The loan allocation would be: \$60 million for engineering education, \$4 million for management education and \$36 million for technician training. The total foreign exchange component is estimated at \$365 million (53% of the total project cost) of which the proposed Bank loan would represent 27%. The additional recurrent expenditures generated by the public investment program, estimated at about 1% of MOE budget, are within the financial capability of the Government. Incremental recurrent expenditures for private institutions, estimated to average \$40 million per annum or about 13% of their 1978 annual expenditures in the next five years, would have to be met mainly by raising tuition fees.

59. The Government's investment program is economical, feasible and within the financial capacity of the MOE. However, an investment gap exists in private education. The Government will finance software for private institutions on a grant basis and onlend the proposed loan funds to eligible private institutions on the same terms and conditions as the Bank loan; the Government will bear the foreign exchange risk. In addition, assurances were obtained during negotiations that the Government will (a) undertake a study before June 30, 1980 to determine the financial requirements of private

institutions providing technical education; (b) submit its main conclusions and recommendations to the Bank; (c) discuss with the Bank the practical measures needed to be taken to effect the required improvements of the system of private higher technical education with a view to beginning by January 1, 1981 the implementation of a three-year program aimed at providing private institutions with required resources; (d) until such time as such three-year program is implemented, set aside funds annually to subsidize the borrowing of eligible private institutions from commercial banks for quality improvement (representing the difference between the interest rate charged by the commercial banks and the interest rate applicable under the proposed Bank loan); (e) ensure that these loans will have maturities of 10 to 12 years; and (f) allow private institutions to borrow from the National Investment Fund which provides concessional financing for specified developmental activities. (Section 4.04 of the draft Loan Agreement and a related Supplemental Letter).

Procurement

60. Teaching equipment costing about \$80 million and averaging about \$30,000 per contract would be distributed among approximately 50 institutions, 60% of which would be private. Where the aggregate cost of goods in an invitation to bid exceeds \$500,000, the goods would be procured through international competitive bidding in accordance with Bank Guidelines. It is estimated that about 75% of the goods (in terms of value) would be procured in such manner. Items would be selected from the MOE standard equipment lists which are acceptable to the Bank. Private institutions would procure their equipment on the basis of three price quotations or may use the Government procurement agency, the Office of Supply, Republic of Korea (OSROK). Procurement for public institutions would be through OSROK based on standard government procedures which allow the participation of international suppliers and awards to be made only to the lowest evaluated bid. Contract awards would not be subject to prior Bank review. However, the Bank would review, ex-post, bid evaluation and contract awards in the field, on a selective basis, to ensure that sound procurement practices have been followed. This selective review would cover about 150 larger contracts and 40% of the total value of contracts.

Disbursements

61. Disbursements under the proposed loan would be made for:
- (a) 100% of the foreign exchange cost of imported equipment, 100% of the ex-factory cost of locally manufactured equipment, and 65% of the cost of imported equipment procured locally; and
 - (b) 100% of the cost of specialists' services, overseas fellowships, and studies.

In view of the large number of local contracts (under \$200,000 equivalent) anticipated under the project, the Bank is reviewing an arrangement whereby it would appoint a local bank of good standing, with a wide local network of branches or correspondents, and which is authorized to deal in foreign

exchange, as the Bank's agent for processing withdrawal applications against such project expenditures as the Bank may from time to time designate. The agent would periodically send to the Bank the withdrawal applications it has processed, for approval and disbursement by the Bank. The supporting documents together with the duplicate withdrawal applications would be retained by the agent for inspection by the Bank. The agent's external auditors will be required to periodically audit the agent's processing of the withdrawal applications. The agent would not be permitted to engage in prefinancing activities inconsistent with its agency functions. If no local bank is willing to accept such conditions of appointment, withdrawal applications would be submitted without use of the agent, under statements of expenditure. Withdrawal applications for expenditures not designated for processing by the application-processing agent, and in any case all applications relative to contracts subject to prior review by the Bank, will be submitted to the Bank for processing.

Benefits and Risks

62. The program would help eliminate major constraints on the development of higher technical education by increasing the supply of teachers, equipment and finance. Establishment of a manpower monitoring system and improvements in management of enrollments would enable the supply of higher technical skills to be better synchronized with demand and help avoid cycles of scarcity and oversupply. The proposed loan would make a major impact on improving the skills and qualifications of graduates especially in design and quality control, making them more relevant to those needed by the increasingly complex industries. It would also be beneficial in terms of the contribution it would make to strengthening the institutions and procedures of the subsector. The approach to be followed under the project would enhance the institutional capacity of the MOE to appraise and supervise subprojects which, in turn, would be of benefit in implementing other education programs.

63. The basic justification of the loan is that it would benefit industry through increased productivity brought about by a supply of better trained and higher quality manpower to help ensure a cost-effective diffusion and application of modern technology. The wage bill accounts for a significant proportion of unit cost in high technology industries. A continuous supply of qualified technical manpower would help reduce unit costs of production. Improved training under the project would enable graduates to be more immediately productive on the job, thus helping to reduce costs of in-service training.

64. The proposed loan entails some degree of risks in terms of staff recruitment and implementation procedures. Inadequate incentives may make it difficult to eliminate completely the present acute shortage of teaching staff difficulties in recruiting teaching staff, and there is a possibility that some technologists to be trained under the project may leave Korea for employment abroad. However, the recruitment of teaching staff would be monitored intensively, and the Government's industrialization program should afford adequate incentives for trained manpower to remain in Korea. On balance, the risks have been reduced to acceptable levels by the experience and competence of the Borrower, its familiarity with program content, and its commitment to the program's objectives.

PART V - LEGAL INSTRUMENTS AND AUTHORITY

65. The draft Loan Agreement between the Republic of Korea and the Bank, and the Report of the Committee provided for in Article III, Section 4 (iii) of the Articles of Agreement of the Bank are being distributed to the Executive Directors separately. The special conditions of the loan are listed in Section III of Annex III.

66. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Bank.

PART VI - RECOMMENDATION

67. I recommend that the Executive Directors approve the proposed loan.

Robert S. McNamara
President

Attachments
January 30, 1980

KOREA REPUBLIC OF - SOCIAL INDICATORS DATA SHEET

LAND AREA (THOUSAND SQ. KM.)	KOREA REPUBLIC OF			REFERENCE GROUPS (ADJUSTED AVERAGES - MOST RECENT ESTIMATE) / ^a		
				SAME GEOGRAPHIC REGION / ^c	SAME INCOME GROUP / ^d	NEXT HIGHER INCOME GROUP / ^e
	1960 / ^b	1970 / ^b	MOST RECENT ESTIMATE / ^b			
TOTAL	98.5					
AGRICULTURAL	22.6					
GNP PER CAPITA (US\$)	120.0	300.0	820.0	450.6	926.1	1748.5
ENERGY CONSUMPTION PER CAPITA (KILOGRAMS OF COAL EQUIVALENT)	258.0	815.0	1020.0	371.1	737.7	1646.7
POPULATION AND VITAL STATISTICS						
POPULATION, MID-YEAR (MILLIONS)	24.7	31.4	36.0	.	.	.
URBAN POPULATION (PERCENT OF TOTAL)	27.9	41.2	49.0	27.4	49.0	51.2
POPULATION PROJECTIONS						
POPULATION IN YEAR 2000 (MILLIONS)			49.0	.	.	.
STATIONARY POPULATION (MILLIONS)			64.0	.	.	.
YEAR STATIONARY POPULATION IS REACHED			2065	.	.	.
POPULATION DENSITY						
PER SQ. KM.	251.0	319.0	365.0	154.8	44.6	28.2
PER SQ. KM. AGRICULTURAL LAND	1154.0	1371.0	1593.0	566.7	140.7	100.5
POPULATION AGE STRUCTURE (PERCENT)						
0-14 YRS.	42.9	41.0	37.0	41.3	41.3	35.4
15-64 YRS.	53.8	55.7	60.0	54.9	55.3	56.3
65 YRS. AND ABOVE	3.3	3.3	3.0	3.3	3.5	5.1
POPULATION GROWTH RATE (PERCENT)						
TOTAL	1.9	2.4	2.0	2.4	2.4	1.7
URBAN	5.9	6.4	5.4	4.3	4.5	3.0
CRUDE BIRTH RATE (PER THOUSAND)	41.0	30.0	24.0	30.2	31.1	27.5
CRUDE DEATH RATE (PER THOUSAND)	13.0	10.0	8.0	8.3	9.2	9.1
GROSS REPRODUCTION RATE	3.1/ ^f	2.6	1.4	2.1	2.2	1.8
FAMILY PLANNING						
ACCEPTORS, ANNUAL (THOUSANDS)	..	672.0	686.0	.	.	..
USERS (PERCENT OF MARRIED WOMEN)	..	42.0	43.9	34.1	34.7	..
FOOD AND NUTRITION						
INDEX OF FOOD PRODUCTION						
PER CAPITA (1969-71=100)	80.8	99.0	117.0	106.2	104.4	102.0
PER CAPITA SUPPLY OF						
CALORIES (PERCENT OF REQUIREMENTS)	85.0	114.0	112.0	104.1	105.0	120.8
PROTEINS (GRAMS PER DAY)	53.0	65.0	75.7	57.4	64.4	80.9
OF WHICH ANIMAL AND PULSE	13.0/ ^g	19.0	16.3	16.9	23.5	31.3
CHILD (AGES 1-4) MORTALITY RATE	13.0	8.0	5.0	4.8	8.6	5.1
HEALTH						
LIFE EXPECTANCY AT BIRTH (YEARS)	54.0	59.0	63.0	61.1	60.2	65.6
INFANT MORTALITY RATE (PER THOUSAND)	62.0	43.0	37.0	46.6	46.7	45.5
ACCESS TO SAFE WATER (PERCENT OF POPULATION)						
TOTAL	..	58.0	62.0	21.9	60.8	69.4
URBAN	..	84.0	80.0	46.2	75.7	85.1
RURAL	..	38.0	36.0	12.8	40.0	43.0
ACCESS TO EXCRETA DISPOSAL (PERCENT OF POPULATION)						
TOTAL	..	25.0	61.0	28.4	46.0	70.1
URBAN	..	59.0	68.0	65.0	46.0	88.3
RURAL	..	..	50.0	14.7	22.5	33.2
POPULATION PER PHYSICIAN						
POPULATION PER NURSING PERSON	3000.0	2110.0	1677.0	3790.5	2262.4	1343.2
POPULATION PER HOSPITAL BED	3220.0/ ^h	2170.0/ ^h	517.0	1107.4	1195.4	765.0
TOTAL	2510.0	1900.0	1430.0	613.3	453.4	197.6
URBAN	..	..	340.0	203.6	253.1	260.2
RURAL	..	..	..	1110.3	2732.4	1055.0
ADMISSIONS PER HOSPITAL BED	..	14.9	..	23.9	22.1	17.3
HOUSING						
AVERAGE SIZE OF HOUSEHOLD						
TOTAL	5.6	5.3	5.1	5.2	5.3	4.7
URBAN	5.4	5.0	4.9	..	5.2	4.4
RURAL	5.6	5.5	5.3	..	5.4	5.1
AVERAGE NUMBER OF PERSONS PER ROOM						
TOTAL	2.5	2.3	..	..	1.9	1.1
URBAN	2.8	2.7	..	..	1.6	1.2
RURAL	2.4	2.2	..	..	2.5	1.2
ACCESS TO ELECTRICITY (PERCENT OF DWELLINGS)						
TOTAL	28.0	49.9	..	..	50.0	66.0
URBAN	67.3	92.4	..	..	71.7	85.1
RURAL	12.0	29.9	64.9	..	17.3	..

KOREA REPUBLIC OF - SOCIAL INDICATORS DATA SHEET

	KOREA REPUBLIC OF			REFERENCE GROUPS (ADJUSTED AVERAGES - MOST RECENT ESTIMATE) ^{/a}			
	1960 ^{/b}	MOST RECENT		SAME GEOGRAPHIC REGION ^{/c}	SAME INCOME GROUP ^{/d}	NEXT HIGHER INCOME GROUP ^{/e}	
		1970 ^{/b}	ESTIMATE ^{/b}				
EDUCATION							
ADJUSTED ENROLLMENT RATIOS							
PRIMARY:	TOTAL	94.0	105.0	109.0	97.9	102.5	101.7
	MALE	99.0	106.0	109.0	98.7	108.6	110.0
	FEMALE	89.0	105.0	109.0	97.4	97.1	92.8
SECONDARY:	TOTAL	27.0	43.0	63.0	42.2	33.5	51.2
	MALE	38.0	52.0	71.0	46.7	38.4	56.4
	FEMALE	14.0	34.0	54.0	40.9	30.7	43.7
VOCATIONAL ENROL. (% OF SECONDARY)		14.0	16.0	16.0	12.5	11.5	18.3
PUPIL-TEACHER RATIO							
PRIMARY		58.0	57.0	49.0	32.5	35.8	27.1
SECONDARY		34.0	37.0	38.0	25.8	22.9	25.3
ADULT LITERACY RATE (PERCENT)							
		70.6	78.0	91.0	84.1	64.0	86.1
CONSUMPTION							
PASSENGER CARS PER THOUSAND POPULATION		0.4	2.0	2.7	6.1	13.5	53.4
RADIO RECEIVERS PER THOUSAND POPULATION		32.0	126.0	144.0	84.4	122.7	225.9
TV RECEIVERS PER THOUSAND POPULATION		0.3	13.0	48.0	22.4	38.3	102.6
NEWSPAPER ("DAILY GENERAL INTEREST") CIRCULATION PER THOUSAND POPULATION		69.0	138.0	173.0	24.2	40.0	78.5
CINEMA ANNUAL ATTENDANCE PER CAPITA		4.0	5.0	2.2	3.6	3.7	3.6
LABOR FORCE							
TOTAL LABOR FORCE (THOUSANDS)		7500.0	10200.0	13061.0	.	.	.
FEMALE (PERCENT)		25.8	32.7	32.8	36.7	25.0	24.5
AGRICULTURE (PERCENT)		66.4	51.0	44.6	54.6	43.5	28.9
INDUSTRY (PERCENT)		9.3	20.1	33.0	16.3	21.5	30.6
PARTICIPATION RATE (PERCENT)							
TOTAL		33.4	35.0	36.6	40.7	33.5	33.8
MALE		49.5	46.8	48.8	49.9	48.0	51.3
FEMALE		17.2	23.0	24.2	31.0	16.8	16.3
ECONOMIC DEPENDENCY RATIO							
		1.5	1.4	1.1	1.1	1.4	1.3
INCOME DISTRIBUTION							
PERCENT OF PRIVATE INCOME RECEIVED BY							
HIGHEST 5 PERCENT OF HOUSEHOLDS		15.1/ ^{/i}	17.1	16.1	14.9	20.8	..
HIGHEST 20 PERCENT OF HOUSEHOLDS		42.3/ ^{/i}	44.5	45.3	46.8	52.1	57.6
LOWEST 20 PERCENT OF HOUSEHOLDS		5.7/ ^{/i}	7.1	5.7	6.2	3.9	3.4
LOWEST 40 PERCENT OF HOUSEHOLDS		19.0/ ^{/i}	17.7	16.9	16.8	12.6	11.0
POVERTY TARGET GROUPS							
ESTIMATED ABSOLUTE POVERTY INCOME LEVEL (US\$ PER CAPITA)							
URBAN		..	..	220.0	193.1	270.0	..
RURAL		..	..	..	128.7	183.3	..
ESTIMATED RELATIVE POVERTY INCOME LEVEL (US\$ PER CAPITA)							
URBAN		..	..	194.0	136.8	282.5	550.0
RURAL		..	..	..	96.8	248.9	403.4
ESTIMATED POPULATION BELOW ABSOLUTE POVERTY INCOME LEVEL (PERCENT)							
URBAN		..	..	9.0	32.0	20.5	..
RURAL		..	..	..	52.5	35.3	..

.. Not available
 . Not applicable.

NOTES

^{/a} The adjusted group averages for each indicator are population-weighted geometric means, excluding the extreme values of the indicator and the most populated country in each group. Coverage of countries among the indicators depends on availability of data and is not uniform.

^{/b} Unless otherwise noted, data for 1960 refer to any year between 1959 and 1961; for 1970, between 1969 and 1971; and for Most Recent Estimate, between 1974 and 1977.

^{/c} East Asia & Pacific; ^{/d} Intermediate Middle Income (\$551-1135 per capita, 1976); ^{/e} Upper Middle Income (\$1136-\$2500 per capita, 1976); ^{/f} 1950-55; ^{/g} 1962; ^{/h} Registered, not all practising in the country; ^{/i} 1965.

May, 1979

DEFINITIONS OF SOCIAL INDICATORS

Note: The adjusted group averages for each indicator are population-weighted geometric means, excluding the extreme values of the indicator and the most populated country in each group. Coverage of countries among the indicators depends on availability of data and is not uniform. Due to lack of data, group averages for Capital Surplus Oil Exporters and indicators of access to water and excreta disposal, housing, income distribution and poverty are simple population-weighted geometric means without the exclusion of extreme values.

LAND AREA (thousand sq. km)

Total - Total surface area comprising land area and inland waters.
Agricultural - Most recent estimate of agricultural area used temporarily or permanently for crops, pastures, market and kitchen gardens or to lie fallow.

GNP PER CAPITA (US\$) - GNP per capita estimates at current market prices, calculated by same conversion method as World Bank Atlas (1975-77 basis); 1960, 1970, and 1977 data.

ENERGY CONSUMPTION PER CAPITA - Annual consumption of commercial energy (coal and lignite, petroleum, natural gas and hydro-, nuclear and geothermal electricity) in kilograms of coal equivalent per capita.

POPULATION AND VITAL STATISTICS

Total population, mid-year (millions) - As of July 1; if not available, average of two end-year estimates; 1960, 1970, and 1977 data.

Urban population (percent of total) - Ratio of urban to total population; different definitions of urban areas may affect comparability of data among countries.

Population density

Per sq. km. - Mid-year population per square kilometer (100 hectares) of total area.

Per sq. km. agriculture land - Computed as above for agricultural land only.

Population age structure (percent) - Children (0-14 years), working-age (15-64 years), and retired (65 years and over) as percentages of mid-year population.

Population growth rate (percent) - total, and urban - Compound annual growth rates of total and urban mid-year populations for 1950-60, 1960-70, and 1970-75.

Crude birth rate (per thousand) - Annual live births per thousand of mid-year population; ten-year arithmetic averages ending in 1960 and 1970 and five-year average ending in 1975 for most recent estimate.

Crude death rate (per thousand) - Annual deaths per thousand of mid-year population; ten-year arithmetic averages ending in 1960 and 1970 and five-year average ending in 1975 for most recent estimate.

Gross reproduction rate - Average number of daughters a woman will bear in her normal reproductive period if she experiences present age-specific fertility rates; usually five-year averages ending in 1960, 1970, and 1975.

Family planning - acceptors, annual (thousands) - Annual number of acceptors of birth-control devices under auspices of national family planning program.

Family planning - users (percent of married women) - Percentage of married women of child-bearing age (15-44 years) who use birth-control devices to all married women in same age group.

FOOD AND NUTRITION

Index of food production per capita (1970=100) - Index number of per capita annual production of all food commodities.

Per capita supply of calories (percent of requirements) - Computed from energy equivalent of net food supplies available in country per capita per day. Available supplies comprise domestic production, imports less exports, and changes in stock. Net supplies exclude animal feed, seeds, quantities used in food processing, and losses in distribution. Requirements were estimated by FAO based on physiological needs for normal activity and health considering environmental temperature, body weights, age and sex distributions of population, and allowing 10 percent for waste at household level.

Per capita supply of protein (grams per day) - Protein content of per capita net supply of food per day. Net supply of food is defined as above. Requirements for all countries established by USDA provide for a minimum allowance of 60 grams of total protein per day and 20 grams of animal and pulse protein, of which 10 grams should be animal protein. These standards are lower than those of 75 grams of total protein and 23 grams of animal protein as an average for the world, proposed by FAO in the Third World Food Survey.

Per capita protein supply from animal and pulse - Protein supply of food derived from animals and pulses in grams per day.

Child (ages 1-4) mortality rate (per thousand) - Annual deaths per thousand in age group 1-4 years, to children in this age group.

HEALTH

Life expectancy at birth (years) - Average number of years of life remaining at birth; usually five-year averages ending in 1960, 1970, and 1975.

Infant mortality rate (per thousand) - Annual deaths of infants under one year of age per thousand live births.

Access to safe water (percent of population) - total, urban, and rural

Number of people (total, urban, and rural) with reasonable access to safe water supply (includes treated surface waters or untreated but uncontaminated water such as that from protected boreholes, springs, and sanitary wells) as percentages of their respective populations. In an urban area a public fountain or standpost located not more than 200 meters from a house may be considered as being within reasonable access of that house. In rural areas reasonable access would imply that the housewife or members of the household do not have to spend a disproportionate part of the day in fetching the family's water needs.

Access to excreta disposal (percent of population) - total, urban, and rural - Number of people (total, urban, and rural) served by excreta disposal as percentages of their respective populations. Excreta disposal may include the collection and disposal, with or without treatment, of human excreta and waste-water by water-borne systems or the use of pit privies and similar installations.

Population per physician - Population divided by number of practicing physicians qualified from a medical school at university level.

Population per nursing person - Population divided by number of practicing male and female graduate nurses, practical nurses, and assistant nurses.

Population per hospital bed - total, urban, and rural - Population (total, urban, and rural) divided by their respective number of hospital beds available in public and private general and specialized hospital and rehabilitation centers. Hospitals are establishments permanently staffed by at least one physician. Establishments providing principally custodial care are not included. Rural hospitals, however, include health and medical centers not permanently staffed by a physician (but by a medical assistant, nurse, midwife, etc.) which offer in-patient accommodation and provide a limited range of medical facilities.

Admissions per hospital bed - Total number of admissions to or discharges from hospitals divided by the number of beds.

HOUSING

Average size of household (persons per household) - total, urban, and rural - A household consists of a group of individuals who share living quarters and their main meals. A boarder or lodger may or may not be included in the household for statistical purposes. Statistical definitions of household vary.

Average number of persons per room - total, urban, and rural - Average number of persons per room in all, urban, and rural occupied conventional dwellings, respectively. Dwellings exclude non-permanent structures and unoccupied parts.

Access to electricity (percent of dwellings) - total, urban, and rural - Conventional dwellings with electricity in living quarters as percentage of total, urban, and rural dwellings respectively.

EDUCATIONAdjusted enrollment ratios

Primary school - total, and female - Total and female enrollment of all ages at the primary level as percentages of respectively primary school-age populations; normally includes children aged 6-11 years but adjusted for different lengths of primary education; for countries with universal education enrollment may exceed 100 percent since some pupils are below or above the official school age.

Secondary school - total, and female - Computed as above; secondary education requires at least four years of approved primary instruction; provides general vocational, or teacher training instructions for pupils usually of 12 to 17 years of age; correspondence courses are generally excluded.

Vocational enrollment (percent of secondary) - Vocational institutions include technical, industrial, or other programs which operate independently or as departments of secondary institutions.

Pupil-teacher ratio - primary, and secondary - Total students enrolled in primary and secondary levels divided by numbers of teachers in the corresponding levels.

Adult literacy rate (percent) - Literate adults (able to read and write) as a percentage of total adult population aged 15 years and over.

CONSUMPTION

Passenger cars (per thousand population) - Passenger cars comprise motor cars seating less than eight persons; excludes ambulances, hearses and military vehicles.

Radio receivers (per thousand population) - All types of receivers for radio broadcasts to general public per thousand of population; excludes unlicensed receivers in countries and in years when registration of radio sets was in effect; data for recent years may not be comparable since most countries abolished licensing.

TV receivers (per thousand population) - TV receivers for broadcast to general public per thousand population; excludes unlicensed TV receivers in countries and in years when registration of TV sets was in effect.

Newspaper circulation (per thousand population) - Shows the average circulation of "daily general interest newspaper", defined as a periodical publication devoted primarily to recording general news. It is considered to be "daily" if it appears at least four times a week.

Cinema annual attendance per capita per year - Based on the number of tickets sold during the year, including admissions to drive-in cinemas and mobile units.

EMPLOYMENT

Total labor force (thousands) - Economically active persons, including armed forces and unemployed but excluding housewives, students, etc. Definitions in various countries are not comparable.

Female (percent) - Female labor force as percentage of total labor force.

Agriculture (percent) - Labor force in farming, forestry, hunting and fishing as percentage of total labor force.

Industry (percent) - Labor force in mining, construction, manufacturing and electricity, water and gas as percentage of total labor force.

Participation rate (percent) - total, male, and female - Total, male, and female labor force as percentages of their respective populations.

These are ILO's adjusted participation rates reflecting age-sex structure of the population, and long time trend.

Economic dependency ratio - Ratio of population under 15 and 65 and over to the labor force in age group of 15-64 years.

INCOME DISTRIBUTION

Percentage of private income (both in cash and kind) received by richest 5 percent, richest 20 percent, poorest 20 percent, and poorest 40 percent of households.

POVERTY TARGET GROUPS

Estimated absolute poverty income level (US\$ per capita) - urban and rural - Absolute poverty income level is that income level below which a minimal nutritionally adequate diet plus essential non-food requirements is not affordable.

Estimated relative poverty income level (US\$ per capita) - urban and rural - Relative poverty income level is that income level less than one-third per capita personal income of the country.

Estimated population below poverty income level (percent) - urban and rural - Percent of population (urban and rural) who are either "absolute poor" or "relative poor" whichever is greater.

BALANCE OF PAYMENTS AND EXTERNAL ASSISTANCE
(\$ million at current prices)

	Actual										Projected	
	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
A. Summary of Balance of Payments												
1. Exports (incl. NFS)	998	1,221	1,478	2,075	3,962	5,125	5,679	9,111	12,328	15,940	18,942	21,512
2. Imports (incl. NFS)	1,880	2,064	2,490	2,577	4,368	7,209	7,464	9,493	12,329	17,264	22,321	25,267
3. Resource balance	-882	-843	-1,012	-502	-406	-2,084	-1,785	-382	-1	-1,324	-3,379	-3,755
4. Net factor service income												
(1) Net interest payments	2	-29	-91	-138	-166	-229	-399	-411	-479	-702	-790	-997
of which interest on public MLT loans	-47	-68	-89	-120	-150	-201	-290	-345	-437	-653	-1,065	-1,374
(2) Direct investment income	-6	-8	-	-2	1	-8	-5	-37	-63	-80	-65	-46
(3) Workers' remittances (net) /a	-	-	-	-	-	-	-	-	-	-	-	-
(4) Other factor service income (net)	91	77	84	101	72	74	76	167	332	549	787	916
5. Current transfers (net)	246	180	171	170	190	224	226	349	223	472	500	600
6. Balance on current account	-549	-623	-848	-371	-309	-2,023	-1,887	-314	12	-1,085	-2,947	-3,282
7. Private direct investment	16	65	43	74	137	104	53	76	104	101	110	125
8. Official capital grants	150	131	84	87	61	64	-	-	-	-	-	-
Public M & LT Loans												
9. Disbursements	660	414	625	735	757	1,155	1,687	1,701	2,212	3,919	4,965	5,275
10. Amortization	109	205	215	289	334	391	368	494	720	1,142	1,500	1,700
11. Net disbursements	551	209	410	446	423	764	1,319	1,207	1,492	2,777	3,465	3,575
Other M & LT Loans												
12. Disbursements	17	78	33	49	71	174	85	115	46	-	-	-
13. Amortization	3	8	10	10	15	23	28	105	71	97	75	72
14. Net disbursements	14	70	23	39	56	151	57	10	-25	-97	-75	-72
15. Use of IMF resources /b	-	-10	-8	-10	-	132	130	97	-25	-2	-	-
16. Short-term capital transactions	57	122	135	-19	82	-45	680	357	21	-1,171	400	500
17. Capital transactions NEI /c	-78	71	112	-87	-110	868	141	-14	-233	108	70	154
18. Change in reserves (- = increase) /d	-161	-35	49	-159	-340	-15	-493	-1,419	-1,346	-631	-1,023	-1,000
19. Foreign exchange reserves /e (end of period)	549	584	535	694	1,034	1,049	1,542	2,961	4,307	4,938	5,961	6,961
B. Grant and Loan Commitments												
1. Official grant	150	131	84	87	61	64	-	-	-	-	-	-
2. Total public M & LT loans	753	475	689	813	1,073	1,972	1,304	3,613	3,304	5,014		
(1) IBRD	65	40	85	73	150	85	382.5	372	335	659		
(2) IDA	15	15	7	26	20	-	-	-	-	-		
(3) Other multilateral /f	25	20	81	68	46	89	101.5	114	135	50		
(4) Governments /g	102	161	255	479	383	477	360	917	406	1,190		
Of which centrally planned economics	-	-	-	-	-	-	-	-	-	-		
(5) Suppliers	374	134	248	94	223	486	232	689	1,144	1,027		
(6) Financial institutions	144	104	13	73	240	737	193	1,448	1,216	1,966		
(7) Bonds	-	-	-	-	-	19	-	60	68	122		
(8) Public loans NEI /h	28	1	-	-	11	79	34	-	-	-		
3. Other M & LT loans /i	100	26	67	74	213	120	138	97	16	-		
Debt and Debt Services												
Public debt outstanding & disbursed (end of period)				2,691	3,199	3,982	5,277	6,659	8,472	11,992		
Interest on public debt				120	150	201	290	389	437	653		
Repayments on public debt				289	334	391	368	504	717	1,142		
Total public debt service				409	484	592	658	893	1,154	1,795		
Other debt service (net)				23	33	54	60	103	125	140		
Total debt service (net)				432	517	646	718	996	1,279	1,935		
Burden on Export Earnings (%)												
Public debt service				19.7	12.2	11.6	11.6	9.8	9.2	11.3		
Total debt service				20.8	13.1	12.6	12.6	10.9	10.2	12.1		
TDS + Direct Invest. Inc.				20.7	13.1	12.4	12.6	11.3	10.7	12.6		
Average Terms on Public Debt												
Interest as % prior year DO&D				5.3	5.6	6.3	7.6	8.2	7.3	7.7		
Amortization as % prior year DO&D				12.9	12.4	12.2	9.2	10.9	11.9	13.5		
IBRD debt outstanding & disbursed				94.7	139.8	223.8	403.5	659.0	835.1	1,123.2		
IBRD as % public debt O&D				3.5	4.4	5.6	7.7	9.9	9.9	9.4		
IBRD as % public debt service				1.7	2.5	3.3	4.9	5.7	6.7	6.4		
IDA debt outstanding & disbursed				47.1	58.5	78.3	92.7	102.4	111.1	114.4		
IDA as % public debt O&D				1.8	1.8	2.0	1.8	1.5	1.3	1.0		
IDA as % public debt service				0.1	0.1	0.1	0.1	0.1	0.1	0.1		
External Debt (Disbursed Only) Outstanding December 31, 1978												
				Amount		%						
1. IBRD				1,123.2		9.4						
2. Bank Group /j				1,237.5		10.3						
3. Other multilateral				400.9		3.3						
4. Government				3,353.9		28.0						
Of which centrally planned economics				-		-						
5. Suppliers				3,711.5		31.0						
6. Financial institutions				3,021.4		25.2						
7. Bonds				266.2		2.2						
8. Other public debt n.e.i.				-		-						
9. Total public debt				11,991.6		100.0						
10. Other MLT debt				461.2								
11. Total public and other MLT debt (disbursed)				12,452.8								
12. Total public and other MLT debt (incl. undisbursed)				19,080.7								
C. Memorandum Items												
1. Grant element of total commitments	25.2	25.8	30.5	37.2	25.2	27.7	10.6	11.1	8.0	7.4		
2. Average interest (%)	5.1	5.1	5.2	4.8	6.1	8.0	7.9	8.0	8.2	8.8		
3. Average maturity (years)	14.1	17.9	19.0	23.6	18.3	11.6	13.0	13.0	11.4	14.4		

/a Included in other factor service income.

/b Net of "drawings" and "repayment by purchase" (IFS).

/c Includes borrowings by the banking system.

/d Excludes net use of IMF resources which are shown separately.

/e "International Reserves" (IFS).

/f ADB.

/g Includes bilateral ODA, Eximbanks, official export credits, including US CCC Credits.

/h Other guaranteed private loans.

/i Private loans.

/j Excludes IFC.

KOREATHE STATUS OF BANK GROUP OPERATIONS IN THE REPUBLIC OF KOREAA. Statement of Bank Loans and IDA Credits (as of October 31, 1979)

Loan or Credit Number	Calendar Year	Borrower	Purpose	Amount (\$ million) (less cancellations)			
				Bank	TW	IDA	Undisbursed
Fourteen Loans and eight credits fully disbursed				641.4		106.8	
906	1973	Republic of Korea	Education II	23.0			2.4
917	1973	Republic of Korea	Ports I	80.0			1.6
942	1973	Republic of Korea	Seeds Production	7.0			0.2
953	1974	Republic of Korea	Tourism	25.0			0.5
994	1974	AFDC	Agriculture	13.0			1.2
1070	1975	Republic of Korea	Secondary Cities-Gwangju	15.0			3.5
1096	1975	Republic of Korea	Education III	22.5			5.4
1101	1975	Republic of Korea	Railways V	100.0			3.2
1175	1975	SMIB I	Dev. Fin. Co.	30.0			0.1
1193	1976	Republic of Korea	Second Integrated Dairy Development	15.0			1.1
1203	1976	Republic of Korea	Highways III	90.0			17.6
1216 & 1218-T	1976	Republic of Korea	Rural Infra- structure I	20.0	40.0		0.2
1319	1976	ADC	Irrigation	29.0			25.8
1328	1976	Republic of Korea	Agricultural Credit	20.0			2.3
1338	1976	KDB II	Dev. Finance Co.	82.5			3.3
1364	1977	ADC	Irrigation	95.0			77.7
1401	1977	Republic of Korea	Ports II	67.0			62.7
1461	1977	KDFC VI	Dev. Finance Co.	70.0			3.2
1466	1977	Republic of Korea	Heavy Machinery	80.0			29.2
1474	1977	Republic of Korea	Vocational Training	23.0			18.5
1503	1978	ADC - Ogseo Stage I	Agricul/Irrigation	36.0			36.0
1507	1978	SMIB II	Dev. Finance Co.	55.0			3.0
1530	1978	Republic of Korea	Rural Infrastructure II	95.0			64.7
1542	1978	Republic of Korea	Railway VI	120.0			62.4
1574	1978	KDB III	DFC	110.0			60.3
1635	1978	KDFC VII	Dev. Finance Co.	100.0			58.1
1640	1978	Republic of Korea	Highways IV	143.0			142.8
1666	1979	Republic of Korea	Chungju Multipurpose	125.0			125.0
1676	1979	Republic of Korea	Electronics Technology	29.0			28.9
1749	1979	SMIB III	Dev. Finance Co.	60.0			59.5
1758 /a	1979	Second Gwangju Regional Cities		65.0			65.0
Total				2,486.4	40.0	106.8	965.8
of which has been repaid				99.9	-	1.5	
Total now outstanding				2,386.5	40.0	105.3	
Amount sold				8.5			
of which has been repaid				3.9			
				4.6	-	-	
Total now held by Bank and IDA (prior to exchange adjustment)				2,381.9	40.0	105.3	
Total undisbursed				965.4	0.4		965.8

/a Not yet effective.

B. Statement of IFC Investments (as of October 31, 1979)

Fiscal Year	Obligor	Type of Business	Amount (\$ million)		
			Loan	Equity	Total
1968	KDFC	Development Financing	-	0.7	0.7
1969	Honam Silk Co.	Textiles	1.4	0.3	1.7
1970	Atlas Paper	Pulp and paper	4.5	0.5	5.0/a
1971	Korea Investment Finance Corp.	Capital Market Development	-	0.6	0.6
1974	KDFC	Development Financing	-	0.4	0.4
1974	Korea Investment Finance Corp.	Capital Market Development	-	0.3	0.3
1975	Gold Star & Co., Ltd.	Electronic Products	16.0	1.3	17.3
1975	Korea Securities Finance Corp.	Capital Market Development	5.0	0.6	5.6
1975	Tong Yang Nylon Company, Ltd.	Synthetic Fibers	6.9	2.1	9.0
1975	Hae Un Dae Develop- ment Company, Ltd.	Tourism	2.8	0.7	3.5
1976	Korea Investment Finance Corp.	Capital Market Development	-	0.4	0.4
1976	Chungju Paper Mfg. Co.	Paper	5.0	0.5	5.5
1976	Korea Zinc Co., Ltd.	Zinc	15.0	4.0	19.0
1976	KDFC	Development Financing	17.8	-	17.8
1976	Gold Star & Co., Ltd.	Electronic Products	10.0	0.4	10.4
1977	Gold Star & Co., Ltd.	Electronic Products		0.2	0.2
1977	KDFC	Development Financing		0.3	0.3
1977	Korea Securities Finance Corp.	Capital Market	-	0.5	0.5
1977	Korea Development Leasing Corp.	Capital Market	15.0	0.4	15.4
1978	KDFC	Development Financing	-	1.1	1.1
1979	Gold Star & Co., Ltd	Electronic Products	-	1.7	1.7
1979	KIFC	Capital Market	-	0.6	0.6
1979	Korea Development Leasing Corp.		-	0.2	0.2
1979	Gold Star		-	1.5	1.5
Total gross commitment			99.4	19.3	118.7
less cancellations, terminations, repayments and sales			49.4	2.1	51.5
Total commitments now held by IFC			50.0	17.2	67.2
Total undisbursed			-	-	-

/a Canceled at the request of the Company.

PROJECTS IN EXECUTION /1

Agricultural Sector

Loan No. 942 Seeds Project; \$7.0 Million Loan of November 16, 1973;
Effective Date: April 24, 1974; Closing Date: December 31,
1979

Progress of implementation is satisfactory and physical implementation is almost completed. The contractor for the last cereal plant civil works declared bankruptcy, but other contractors have now completed the work. Disbursements, as of October 31, 1979, were over 97% of the loan, and have now been completed. It is planned that all plants will operate on a pilot basis in 1979 reaching, on average, 75% of capacity in 1980.

Loan No. 994 Integrated Agricultural Products Processing Project;
\$13.0 Million Loan of June 7, 1974; Effective Date:
March 19, 1975; Closing Date: June 30, 1980

This project provides long-term funds to the Agriculture and Fisheries Development Corporation (AFDC) for onlending to subborrowers in the private sector for the purpose of integrating on-farm production of fruits and vegetables with modern, hygienic processing facilities, using land that was idle or underutilized. The vegetables and fruits involved are mainly asparagus, shitake (oak mushroom), spinach, mushroom, strawberry and peach. Implementation of the project was delayed by about 18 months owing to lack of loan demand for some of the processing facilities included in the project. However, the project is now progressing satisfactorily since September 1977 when the Bank approved AFDC's proposal to widen the project's scope to meet changed investor demand. Under the revised scope, AFDC will finance processing and cold storage of fish, meat, fruits and vegetables, and also fruit juice extraction and concentration and vegetable drying, for which the loan demand is strong. Subloan applications and approvals have increased significantly, and AFDC expects to disburse all the project funds before the Closing Date. Disbursements as of October 31, 1979 were about 91% of the loan.

/1 These notes are designed to inform the Executive Directors regarding the progress of projects in execution, and in particular to report any problems which are being encountered, and the action being taken to remedy them. They should be read in this sense, and with the understanding that they do not purport to present a balanced evaluation of strengths and weaknesses in project execution.

Loan No. 1193 Second Integrated Dairy Development Project;
\$15.0 Million Loan of June 4, 1976; Effective Date:
November 11, 1976; Closing Date: December 31, 1982

The project consists of further development of 400 existing dairy farms which participated in the first project; the development of 450 new dairy farms; expansion of existing dairy processing facilities, construction of a new processing plant; and technical assistance for both farm development and processing. The effective date was delayed for nearly a year but the implementation has progressed rapidly and the project may be completed ahead of schedule. The project will benefit 41% more farmers and supply 8% more cows than was originally estimated. Technical support to the farmers has been strengthened but more has to be done to improve pasture quality and establish a feed regime which would ensure the development of a low-cost dairy industry in Korea. The expansion of processing facilities is progressing steadily and it is anticipated that the actual capacity will be significantly above the original estimate. KDBC's financial condition improved during the last two years. The general prospects are for a gradually improving trend. As of October 31, 1979, disbursements were about 93% of the loan amount.

Loan No. 1216 Rural Infrastructure Project; \$60.0 Million Loan of which
Loan No. 1218T \$40.0 Million Third Window of March 19, 1976; Effective Date:
June 4, 1976; Closing Date: June 30, 1980

Project implementation is proceeding very well. The Fuelwood, Roads and Bridges, Water Supply and Rural Electrification components were completed by the end of 1977. The Minor Irrigation and Upland Reclamation components will be completed by the Closing Date. Project monitoring and reporting continue to be satisfactory, the Hydrologic Services Study has been completed and the evaluation study has produced useful results. As of October 31, 1979, disbursements were 99% of the total loan amount.

Loan No. 1319 Miho Watershed Area Development Project; 29.0 Million
Loan of August 5, 1976; Effective Date: October 21, 1976;
Closing Date: December 31, 1982

This project, located in the central region of Korea, is being financed under the first Bank loan for area development in Korea. A project office has been established, and construction work is progressing on the first of five major civil work contracts. A second contract was awarded in July 1979. Altogether, the five contracts will involve construction of 8 large and 19 small earthfill dams, 284 km of main and secondary canals and land development for irrigating 12,700 ha. The project, which will require five years to complete, also involves construction of 80 km of river channel improvement and 150 km of village access roads, as well as feasibility studies for a second stage project in the Miho Watershed. The project is currently two years behind schedule due to major shortfalls in local budget allocations. As of October 31, 1979, disbursements were over 11% of the loan amount.

Loan No. 1328 Second Agricultural Credit Project; \$20.0 Million Loan of October 12, 1976; Effective Date: March 10, 1977
Closing Date: June 30, 1981

The project is a continuation and expansion of the agricultural program financed under the First Agricultural Credit Project (Credit 335-K0). It provides funds to the National Agricultural Cooperative Federation (NACF) for medium and long-term loans to farmers, through selected Gun (county) cooperatives of NACF, for investments in apple orchard development, silkworm rearing houses, sprinkler irrigation for orchards, greenhouses for vegetable production, and on-farm fruit storage. The loan became effective on March 10, 1977 and lending to subborrowers commenced in the following month. Project implementation continues to progress satisfactorily and total lending is on schedule. As of October 31, 1979, disbursements were about 89% of the loan amount.

Loan No. 1364 Yong San Gang Irrigation Project Stage II; \$95.0 Million Loan of February 11, 1977; Effective Date: April 22, 1977;
Closing Date: December 31, 1984

The project will provide irrigation and land development on 20,700 ha in the lower reaches of the Yong San River. Project works include an estuary dam, sea dike, pumping stations, irrigation canals, reclamation of 5,500 ha of tidal lands, conversion of 3,250 ha of uplands for irrigation of paddy, land consolidation of 3,200 ha, and irrigation of 1,050 ha of uplands. Construction of the access roads and a portion of the estuary dam has been completed. The main contract for estuary dam construction was awarded in December 1977, in line with the appraisal schedule and construction is progressing well; however, the irrigation subprojects are behind schedule due to shortfalls in local budget allocations. As of October 31, 1979 disbursements were over 18% of the loan amount.

Loan No. 1503 Ogseo Area Development Project - Stage I; \$36.0 Million Loan of January 4, 1978; Effective Date: March 29, 1978;
Closing Date: June 30, 1983

The project will benefit some 23,000 farm families by providing new irrigation on 7,100 ha, improved irrigation and drainage on 3,700 ha and a more assured water supply on an additional 1,500 ha. Project work consists of nine pumping stations, 190 km of main and secondary canals and land development including 5,800 ha of land consolidation, 2,500 ha of improved drainage (of which 1,500 ha would also be consolidated), 2,200 ha of tertiary irrigation and conversion of 1,800 ha of upland and forest to paddy land. Construction will be carried out under seven civil works contracts and three were awarded, about 12 months behind schedule due to shortfalls in local budget allocations.

Loan No. 1530 Rural Infrastructure Project II; \$95.0 Million Loan of
March 13, 1978; Effective Date: June 8, 1978;
Closing Date: June 30, 1983

The project includes about 43 minor irrigation, 8,300 river training and 7,400 water supply subprojects as well as a rural telephone program. The 1978 program for river training, water supply and rural telephones was completed on schedule and the 1979 program has progressed well. Design work on the minor irrigation component is proceeding satisfactorily and contracts have been awarded for 16 subprojects. The total area of the irrigation subprojects has been finalized at 9,235 ha. As of October 31, 1979, disbursements were about 32% of the loan amount.

Loan No. 1666 Chungju Multipurpose Project; \$125.0 Million Loan of
March 29, 1979; Effective Date: July 11, 1979;
Closing Date: June 30, 1985

The project would help meet the growing demand for municipal, industrial and irrigating water in the Han Basin for about 20 years following its completion in 1984, and would substantially reduce flood damage, generate an average of 770 million kilowatt hours annually and provide 460 MW of peaking capacity for Korea's power system. The principal features of the project are a 90 m high concrete dam across the South Han River, a power plant containing four 115 MW generating units, and associated transmission facilities; a reregulating dam about 20 km downstream of the main dam; relocation of about 100 km of roads and 10 km of railway, protective works in the reservoir area including the raising of an existing embankment of a cement plant and other miscellaneous works; implementation of a resettlement program for some 9,300 families affected by the project; and consulting services.

Industrial Sector

Loan No. 1175 Medium Industry Bank (MIB); \$30.0 Million Loan of
November 26, 1975; Effective Date: January 28, 1976;
Closing Date: March 31, 1980

The project provides funds to MIB to make subloans to small and medium-sized manufacturing enterprises. The project is progressing satisfactorily. Disbursements of the loan are about complete.

Loan No. 1338 Second Korea Development Bank Project; \$82.5 Million
Loan, of which \$7.5 Million for the Korea Industrial
Leasing Company, of December 23, 1976; Effective Date:
March 21, 1977; Closing Date: December 31, 1980

The project provides \$75.0 million to be used by KDB to make subloans and investments to finance direct imports for industrial subprojects during the period 1977-78; the remainder of the loan, \$7.5 million, was relent by KDB to its wholly-owned subsidiary KILC, to acquire machinery, equipment, facilities and other property to be leased to investment enterprises. Commitment of funds is progressing as expected; as of October 31, 1979, disbursements were 96% of the total loan amount.

Loan No. 1461 Sixth Korea Development Finance Corporation Project;
\$70.0 Million Loan of June 30, 1977; Effective Date:
September 15, 1977; Closing Date: December 31, 1981

The loan was made to help cover the foreign exchange requirements of industrial subprojects to be financed by KDFC subloans in 1977-78. KDFC's performance has been very satisfactory. As of October 31, 1979, disbursements were 96% of the total loan amount.

Loan No. 1466 Heavy Machinery Project; \$80.0 Million Loan of
June 30, 1977; Effective Date: December 1, 1977;
Closing Date: December 31, 1980

Project cost has increased to \$396 million; \$141 million above the appraisal estimate of \$255 million. This is due to increases in scope to enhance the company's ability to manufacture nuclear power plant; devaluation of the U.S. dollar; and local inflation. The company is preparing a detailed financing plan to cover the cost overrun which will be submitted to the Bank for review shortly. The market prospects for the project have been affected by the licensing of other power plant manufacturers in Korea thereby leading to the possibility of under-utilization of the project facilities. This has been brought strongly to the Government's attention. As of October 31, 1979, disbursements were about 64% of the total loan amount.

Loan No. 1507 Second Medium Industry Bank Project; \$55.0 Million Loan
of January 4, 1978; Effective Date: March 10, 1978;
Closing Date: December 31, 1982

The project provides \$55.0 million to be used by MIB to help cover the foreign exchange requirements of industrial subprojects over four years. A portion of the loan - \$20.0 million - was earmarked to assist small-scale, labor-intensive subprojects creating employment at a gross capital cost per job not greater than \$6,000 or enterprises whose fixed assets are not greater than \$250,000. As of October 31, 1979, disbursements were about 95% of the loan amount.

Loan No. 1574 Third Korea Development Bank Project; \$110 Million Loan
of June 21, 1978; Effective Date: September 14, 1978;
Closing Date: December 31, 1982

The loan would be used to help cover the foreign exchange requirements of subprojects to be financed by KDB; apart from direct imports, the loan would be utilized by KDB to finance the foreign exchange component of domestically produced capital goods. An amount of up to \$10.0 million of the proceeds of the proposed loan would be made available to KDB's subsidiary, the Korea Industrial Leasing Corporation Ltd. (KILC), by way of subloans in order to finance small- and medium-sized leasing projects. Overall progress is satisfactory. As of October 31, 1979, disbursements were over 45% of the loan amount.

Loan No. 1635 Seventh Korea Development Finance Corporation Project;
\$100.0 Million Loan of December 7, 1978; Effective Date:
February 6, 1979 Closing Date: June 30, 1983

The loan was made to cover the foreign exchange requirements of subprojects to be financed by KDFC over the years 1979 and 1980. In order to support relatively labor-intensive enterprises, a component of \$20 million would be earmarked for financing specifically: (a) enterprises with fixed assets not exceeding \$750,000; or (b) projects generating employment at a fixed investment cost per job not greater than \$12,500. Also, in order to finance small- and medium-sized leasing projects, an amount of up to \$10.0 million of the proceeds of the proposed loan was made available to the Korea Development Leasing Corporation (KDLC), a leasing company affiliated to KDFC, by way of subloans. As of October 31, 1979, about 42% of the loan had been disbursed.

Loan No. 1676 Electronics Technology Project; \$29.0 Million Loan of
March 29, 1979; Effective Date: June 28, 1979; Closing Date:
December 31, 1983

After initial delays in finalizing specifications and bidding documents for engineering, support and research equipment, the project is progressing satisfactorily. Bids have been invited for a major proportion of the equipment. Key personnel appointments required to strengthen management capabilities at the Korea Institute of Electronics Technology (KIET) have been made.

Loan No. 1749 Third Small and Medium Industry Bank Project; \$60 Million
Loan of July 23, 1979; Effective Date: September 26, 1979,
Closing Date: December 31, 1983.

Apart from direct imports, the proceeds of the loan would be utilized by SMIB to finance the foreign exchange components of domestically produced capital goods (estimated at 60%). To ensure that a reasonable proportion of the loan is directed towards small, labor-intensive projects, an amount of \$25 million of the proceeds of the loan will be earmarked to finance: (a) enterprises with fixed assets not exceeding \$300,000; or (b) projects generating employment at a fixed investment cost per job not greater than \$8,500. The loan would assist SMIB in its efforts to support the Government's policy of increasing the regional dispersal of employment opportunities and of deepening the industrial structure, and also to continue SMIB support of projects which would complement large-scale manufacturing enterprises.

Education Sector

Loan No. 906 Second Education Project; \$23.0 Million Loan and
Credit No. 394 \$20.0 Million Credit of June 13, 1973; Effective Date:
September 10, 1973; Closing Date: December 31, 1979

The project includes assistance for re-equipping 85 educational institutions at secondary and university levels. The Loan/Credit funds are mainly used to finance equipment. The Government is financing related civil

works. Project execution remains about two years behind schedule due to initial delays and some project changes. The project is now making satisfactory progress. About 88% of the equipment has been contracted, and 60% delivered; furniture procurement has been completed; civil works were all completed by the end of December 1978; and the fellowship program is well under way. As of October 31, 1979, disbursements were completed under the Credit and reached about 90% of the total loan amount, which is expected to be fully disbursed by the Closing Date.

Loan No. 1096 Third Education Project; \$22.5 Million Loan of March 31, 1975;
Effective Date: June 6, 1975; Closing Date: June 30, 1980

The project includes assistance for extension and equipping of nine institutions (technical, agricultural and fisheries) under the Ministry of Education (MOE) and seven vocational training institutes (VTIs) under the Administrator of Labor Affairs (ALA). Project implementation has improved for the MOE part of the project and is about six months behind schedule compared with being about one year behind schedule in early 1978. Implementation of the ALA part is satisfactory. Training operations have commenced in five VTIs. Project completion is expected before the Closing Date of June 30, 1980 for both parts of the project. Estimated total project cost now is expected to be below, but close to the appraisal estimates. As of October 31, 1979, disbursements were 76% of the total loan and were close to the original forecasts.

Loan No. 1474 Vocational Training Project; \$23.0 Million Loan of
July 22, 1977; Effective Date: October 25, 1977;
Closing Date: June 30, 1982

The project includes the establishment of eight new Vocational Training Institutes (VTIs), equipment for a National Central Vocational Training Institute (NCVTI) and technical assistance, part of which is being provided by UNDP and the Federal Republic of Germany. The implementation schedule has been revised and is about five months behind the original schedule. Two civil works contracts were awarded in November 1978. Equipment procurement has commenced for two VTIs and the NCVTI with about \$5.0 million purchased. Disbursement should improve significantly. Technical assistance from UNDP and Germany is satisfactory. The project is facing a moderate financial problem, mainly caused by the sharp increase in constructing costs, about 140% over the original estimate of unit building costs. The Government's attention has been drawn to the importance of adequate budgetary provisions. As of October 31, 1979, disbursement was about 20% of the total loan.

Tourism Sector

Loan No. 953 Kyongju Tourism Project; \$25.0 Million Loan of
January 4, 1974; Effective Date: May 6, 1974;
Closing Date: December 31, 1979

The project forms part of the first phase of the planned development of the Bomun Lake resort near Kyongju. It provides for a multipurpose dam; an irrigation system for about 1,200 ha; improvement and expansion of

the water supply and sewerage and solid waste disposal systems for the city of Kyongju and the resort area; installation of electrical supply and telecommunication facilities for the resort area; the construction and/or realignment of about 57 km of roads, infrastructure, including storm water drainage, environmental sanitation, community facilities, and a golf course; and a school for training hotel personnel. The first two hotels with 600 rooms were completed and opened for operations on April 1, 1978. Negotiations with other private investors are under way for two more hotels and also for apartments and restaurants in the Bomun resort area. The total amount of the loan is expected to be disbursed by the Closing Date.

Regional Development

Loan No. 1070 Secondary Cities Regional Project; \$15.0 Million
Loan of January 15, 1975; Effective Date: August 18,
1975; Closing Date: September 30, 1980

Implementation of the Secondary Cities Regional Project is proceeding satisfactorily. Three housing sites, two access roads, a city market fishery harbor infrastructure and building complex and associated electrical works have been completed. Installation of refrigeration and ice handling equipment at the fishery complex has experienced some delays; the fishery complex is now expected to be fully operational by early 1980. Construction of houses at all three sites has been completed and the sites are fully occupied. After the initial delays, mainly in fulfilling conditions of effectiveness and establishing the Gwangju Regional Development Unit, the project has moved extremely well. As of October 31, 1979, disbursement was about 77% of the loan amount.

Transportation Sector

Loan No. 917 Ports Project; \$80.0 Million Loan of June 27, 1973;
Effective Date: September 18, 1973; Closing Date:
June 30, 1980

Civil works and provision of equipment financed under the First Port Project are practically completed. The final estimated cost is \$143 million including \$101 million foreign exchange. The excess foreign exchange requirement over the \$80 million provided by the Bank loan is being provided by a Saudi Fund for Development loan of \$35 million to the Korean Government; this loan was based upon the revised foreign exchange requirements of \$115 million arrived at following the first large increase in the price of petroleum products. The balance of the latter loan will be spent on additional civil works. The project is practically completed.

Loan No. 1101 Fifth Railway Project; \$100.0 Million Loan of April 10,
1975; Effective Date: July 15, 1975; Closing Date:
December 31, 1981

The project will help the Korean National Railroad (KNR) continue as a major carrier of freight and passengers by providing for: the upgrading,

modernization and expansion of track, rolling stock, motive power, and other equipment; the improvement of the efficiency of operation; and the strengthening of its financial position. The main components of the project are: an increase in station and line capacity and improvements in signaling; acquisition of rolling stock, diesel and electric locomotives, spare parts and repair facilities; track renewal and improvement; bridge strengthening; completion of electrification of 71 km of industrial lines; and other miscellaneous items. Contracts, financed by the loan, have been signed for procurement of passenger and freight cars, wheel sets, spares for locomotives, rail, bridge girders and track maintenance machinery, amounting to about \$96.4 million equivalent. About 97% of the loan proceeds had been disbursed by October 31, 1979.

Loan No. 1203 Third Highway Project; \$90.0 Million Loan of
February 20, 1976; Effective Date: May 17, 1976;
Closing Date: December 31, 1981

The loan provides funds to help finance: (a) the construction, chiefly on new alignments, including paving, of about 195 km of four national highways, including supervision of the work by consultants; (b) paving and improvement, chiefly on present alignments, of nine national highways totaling about 600 km, including supervision of the work by consultants; and (c) feasibility studies by consultants of about 1,200 km of national and provincial roads, to be followed by detailed engineering. All contracts for construction and paving were completed by June 1979. Feasibility studies by consultants started in January 1978, and are now proceeding satisfactorily. As of October 31, 1979, disbursements were over 80% of the total loan. The Saudi Fund for Development is providing a loan of \$35 million to assist in financing the project.

Loan No. 1401 Second Ports Project; \$67.0 Million Loan of
April 28, 1977; Effective Date: July 27, 1977;
Closing Date: December 31, 1982

The project consists of: (a) a 700 m extension of container berths being financed under the First Ports Project and a 335,000 sq m expansion of the container stacking area provided under that project, with ancillary works; rehabilitation of piers 3 and 4, the central wharf, and lighter wharf No. 5; (b) procurement of container cranes, mobile container handling equipment, and tugboats; (c) engineering consultant services and (d) technical assistance and training. The first contract has just been let following delay in appointing the consultants for final engineering. Estimated costs have increased to \$167 million (\$95 foreign exchange) compared with the appraisal estimate of \$112 (\$70 foreign exchange). KMPA expects to introduce commercial accounting from January 1, 1982. Traffic and especially containerized general cargo traffic continues to increase at Busan.

Loan No. 1542 Sixth Railway Project; \$120.0 Million Loan of April 10, 1978; Effective Date: August 3, 1978; Closing Date: June 30, 1982

The project would provide KNR with the capacity required to meet forecast traffic, and reduce operating and maintenance costs. It includes continued double tracking and electrification of lines, extension of yards and terminals, continued installation of centralized traffic control, track and rail renewal, separation of road and rail at crossings, installation of a permanent way workshop, procurement of diesel locomotives, passenger cars and freight cars, provision of a new passenger car workshop, installation of additional telecommunication and power facilities and provision of technical assistance to KNR. The loan will also finance transport sector studies. Bids have been received for about 96% of the Bank-financed items. Consultants have been selected to carry out feasibility studies of major investment items for 1980 and 1981. As of October 31, 1979, disbursements were 48% of the total loan.

Loan No. 1640 Fourth Highway Project; \$143.0 Million Loan of December 7, 1978; Effective Date: March 14, 1979; Closing Date: December 31, 1982

The project consists of: (a) construction and improvement, including paving and supervision by consultants, of 36 sections of national roads totaling about 950 km; (b) construction and improvement, including paving and supervision by consultants, of 10 sections of provincial roads totaling about 280 km; (c) procurement of additional road maintenance equipment for maintaining national roads; (d) a study by consultants of the institutions involved in the planning, design, maintenance, construction, administration and financing of provincial and county (gun) roads, and the preparation of a program for improving the organization and functions of such institutions, upgrading provincial and gun road maintenance and the future development of the gun road system, to be followed by detailed engineering of about 2,000 km of gun roads; and (e) provision of fellowships for training staff of the Ministry of Construction. Construction of one road was started in April 1979, and bids on the remaining roads were received, and contracts awarded August 1979. A contract for the study was signed, and work started, in September 1979.

KOREA

HIGHER TECHNICAL EDUCATION LOAN

Supplementary Data Sheet

Section I - Timetable of Key Events

- (a) Completion of feasibility study: February 1979
- (b) Departure of preappraisal mission: October 1978
- (c) Departure of appraisal mission: March 1979
- (d) Agency which prepared the project: Ministry of Education
- (e) Negotiations completed: December 17, 1979
- (f) Planned date of effectiveness: June 1980

Section II - Special Bank Implementation Action

None

Section III - Special Conditions

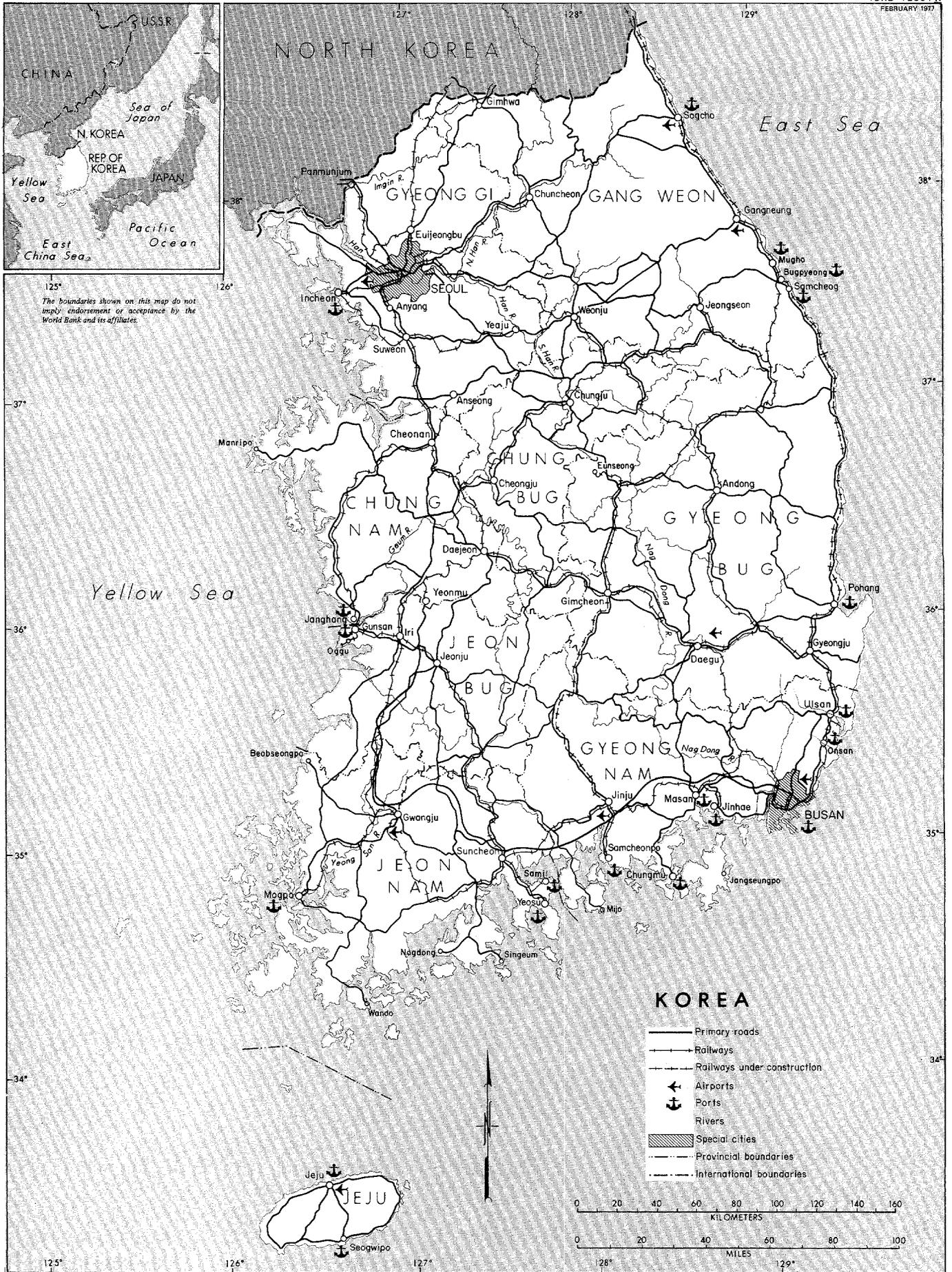
The following conditions are incorporated in the Loan and Guarantee Agreements:

- (a) The Government will ensure that a manpower monitoring system satisfactory to the Bank will be functioning by December 31, 1981 (para. 43);
- (b) The Government will develop, by December 31, 1981, in consultation with the Bank, and thereafter maintain a more flexible system for allocation of students in higher technical education (para. 44);
- (c) The Government will establish by January 1, 1981 a third accreditation agency (for engineering education) and thereafter maintain three accreditation agencies with terms of reference acceptable to the Bank (para. 46);
- (d) The Government will introduce such incentives for recruitment and retention of teaching staff as are necessary to achieve targeted staff: student ratios by 1986 (para. 49);

- (e) All subproject applications with requests for Bank financing exceeding \$2.5 million equivalent would be sent to the Bank for prior review (para. 55);
- (f) The Government will allocate loan funds in accordance with agreed guidelines and criteria (para. 56); and
- (g) The Government will adopt a number of measures to enhance its assistance to private institutions. (para. 59).



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



KOREA

- Primary roads
- Railways
- - - Railways under construction
- ✈ Airports
- ⚓ Ports
- Rivers
- ▨ Special cities
- - - Provincial boundaries
- - - International boundaries

