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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  
THE AGRICULTURAL DEVELOPMENT CORPORATION  
WITH THE GUARANTEE  
OF  
THE REPUBLIC OF KOREA  
FOR  
THE MIHO WATERSHED AREA DEVELOPMENT PROJECT

July 14, 1976

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Currency Unit	=	Won
Won 485	=	US\$1.00
Won 1,000	=	US\$2.06
Won 1,000,000	=	US\$2,061.86

Fiscal Year = January 1 - December 31

ABBREVIATIONS

- ADC - Agricultural Development Corporation
- FLIA - Farm Land Improvement Association
- MAF - Ministry of Agriculture and Fisheries
- NACF - National Agricultural Cooperative Federation
- ORD - Office of Rural Development
- OWD - Office of Watershed Development

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

REPORT AND RECOMMENDATION OF THE PRESIDENT  
TO THE EXECUTIVE DIRECTORS ON A PROPOSED LOAN  
TO THE AGRICULTURAL DEVELOPMENT CORPORATION  
FOR THE MIHO WATERSHED AREA DEVELOPMENT PROJECT

1. I submit the following report and recommendation on a proposed loan to the Agricultural Development Corporation (ADC), with the guarantee of the Republic of Korea, for the equivalent of \$29.0 million to help finance the Miho Watershed Area Development project in the Central Region of Korea. The loan would have a term of 22 years, including five years of grace, with interest at 8.9 percent per annum.

PART I - THE ECONOMY <sup>1/</sup>

Background

2. The latest Economic Report ("Current Economic Position and Prospects of the Republic of Korea") was distributed under cover of SecM75-437 dated June 9, 1975. A Basic Economic Mission is currently in the field. The Country Data Sheets are attached as Annex I.

3. Korea's economic performance over the last decade was outstanding. It entered the sixties with one of the lowest income levels in the world; it had little experience of participation in international trade; and it lacked natural resources. Despite these unpromising beginnings, Korea embarked on a course of export-oriented industrial growth that has led to its recognition as one of the most successful examples of development. Its rich endowment of human resources, including skilled labor and entrepreneurial talent, a social environment which is conducive to rapid economic change, and a national dedication to economic growth, all contributed to Korea's impressive record.

4. Around 1960, the Korean economy was still heavily dependent on agriculture and tended to grow at 3-4 percent per year. Since then, however, the economy has been transformed and the growth of real GNP accelerated to around 10 percent per year. Exports of manufactures increased from \$65 million in 1964 to over \$4 billion in 1974. The manufacturing sector grew from 12 to 31 percent of GNP during this period while the share of agriculture in GNP declined from over 40 percent to 22 percent, despite an annual growth rate of 3 to 4 percent in value added in agriculture. The rate of population increase declined from 2.6 percent per year between the censuses of 1960 and 1966 to an estimated 1.7 percent in 1973/74. Consequently, real per capita income more than doubled in the last decade and is estimated at \$472 in 1974.

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<sup>1/</sup> Paragraphs 3-24 are identical to those contained in the corresponding section of the President's Report (No. P-1767) on the Rural Infrastructure Project (1216-KO and 1218T-KO) which was approved on March 9, 1976.

5. The growth of incomes has been sustained by a significant increase in the proportion of resources allocated to investment. Expenditures on fixed capital formation were below 11 percent of GNP in the years up to 1962, but have been around 24 percent of GNP in recent years. National savings rose from very low levels of around 6 percent of GNP in the early 1960's to around 15 percent of GNP in 1970-72, both government and private savings having increased very substantially. This indicates that large capital inflows (which averaged about 9 percent of GNP during 1970-71, roughly the same level as in the early 1960's), did not weaken efforts to mobilize resources domestically. However, Korea entered upon a period of rapid growth with a very low level of domestic savings and, therefore, the Government pursued a policy of relatively heavy dependence on external capital in the interest of a rapid acceleration of investment and growth. Moreover, since exports during 1964-74 were rising at an average rate of nearly 47 percent (in current prices), the burden of additional external debt was not excessive and the debt service ratio stood at around 13 percent in 1974.

6. Korea's performance in attempting to achieve a balanced distribution of the benefits of growth is also creditable. Available data for 1964 and 1970 indicate that the distribution of income in Korea is among the most equitable in the developing world and that the overall size distribution of income changed little during this period. However, as a consequence of the rapid growth in manufacturing and a shift of terms of trade against farmers, income of urban wage-earning households tended to increase faster than that of rural households and was twice as high in 1968. Since 1968 the Government has succeeded in raising the relative price of farm outputs, increasing labor productivity in agriculture through subsidized supply of inputs, and improving the opportunities for off-farm employment principally as part of the Saemaoul (New Community) movement begun in 1971. These measures have almost eliminated the differential between average household incomes in urban and rural sectors.

#### Recent Developments and the Adjustment Process

7. In the 1970's, the Korean economic situation has been subject to sudden and sharp changes (see Economic Reports distributed under cover of R74-42 dated March 4, 1974 and SecM75-437 dated June 9, 1975). Following a period of rapid growth the Government undertook a stabilization program during 1970-72 as a result of which real investment did not increase and the growth of real GNP slowed to 8 percent per year. In 1973, international demand grew rapidly and Korea took full advantage of its opportunities. As a result, there was an unprecedented boom: real GNP grew by 16.5 percent and export volume by 57 percent; national savings rose to 22 percent of GNP, and foreign savings financed only about 15 percent of total investment.

8. The transition from the boom of 1973 to today's difficulties reflects the impact of the twin shocks of the rise in food, oil and other import prices and the recession in the industrial countries. The Korean economy was particularly vulnerable to both of these because of its heavy dependence on imported energy, raw materials and foodstuffs, and on exports to the developed countries.

9. From the last quarter of 1973 to the middle of 1974, the prices of imports rose very rapidly. The immediate impact of the oil price increase alone was to raise the import bill by more than twice the entire current account deficit in 1973. The payments required to maintain the 1973 volume of oil imports rose from \$277 million to over \$1 billion; the increase was equivalent to 19 percent of total imports and over 6 percent of GNP at their 1973 levels. The higher prices of foodgrains added another \$300 million to the import bill. Furthermore, the average unit value of imports other than petroleum and foodgrains rose by 45 percent during 1974, while the unit value of Korea's exports rose by only 27 percent in that year. The impact of the adverse shifts in the international terms of trade was aggravated during 1974 by the sudden recession in industrialized countries which affected the demand for Korea's exports. The United States and Japan, which took 70 percent of Korea's exports in 1973, suffered a decline of about 2 percent in real GNP in 1974. As a result, Korea's export volume, which had grown by 57 percent in 1973 (and by over 29 percent in each of the preceding 5 years), grew by only 9 percent in 1974. The volume of exports to Japan actually declined by about 6 percent.

10. The slackening of export demand and the adverse price movements had a variety of effects on the economy. First, as a direct consequence of the 18 percent deterioration in the international terms of trade, Korea suffered a real income loss of the order of 4 percent of GNP in 1974. <sup>1/</sup> Adjusting for this terms of trade effect, real gross national income rose by only 4.2 percent in 1974, following increases of 6.7 percent and 15.2 percent in the previous two years. Second, the rise in import prices accelerated domestic inflation. The rate of increase of wholesale prices rose to 42 percent in 1974 from an average of 7 percent in the previous four years. Two-thirds of the increase in prices was the result of increases in the landed cost of imported commodities. In an effort to prevent the emergence of untoward distortions, the Government allowed import price increases to be fully reflected in domestic prices (with the exception of basic foodstuffs and fertilizers). Domestic prices of petroleum products rose nearly 300 percent from August 1973 to December 1974. These were also reflected in the prices paid by consumers for electric power and transportation. In general the burden of adjustment to higher import prices was borne directly by consumers. Consequently, wholesale prices rose by 42 percent in 1974 and at an annual rate of nearly 30 percent in the first half of 1975. In the second half of the year, however, the index increased by only about 5 percent as domestic prices completed the process of adjustment to international inflation, and the program of monetary restraint instituted by the Government began to take effect. Third, the current account deficit on the balance of payments grew from \$309 million in 1973 to \$2.04 billion in 1974 and net foreign exchange reserves dropped from \$1.1 billion to \$0.3 billion during 1974. About half of this external deficit was due to the terms of trade loss, the balance being primarily due to the recession in the economies of Korea's trading partners. Finally, part of the adjustment was made by a sharp slackening in the pace of domestic economic activity. The annual rate of growth of GNP slowed from 16.5 percent in 1973 to 13.8 percent in the first half of 1974

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<sup>1/</sup> At 1970 prices and exchange rates.

and 4.3 percent in the second half. Import volume grew by only 4 percent in 1974, compared with an average increase of 16 percent per year in the previous 5 years. Industrial production (seasonally corrected) fluctuated sharply from month to month but showed very little gain after the first quarter of 1974. Employment rose by only 3.4 percent and was able to absorb only three quarters of the increase in the labor force in the year.

11. The slowdown in domestic production would have been greater but for various government measures to sustain employment. In December 1974 the currency was devalued by 17.5 percent to W 485 per US\$. Special credits were extended through the banking system to enable industry to finance accumulation of inventories, and the Government purchased excess inventories of finished goods from industries particularly hard hit by the fall in export demand. Subsidized credit was extended to small firms and exporters to ease their financial situation. The purpose of these ameliorative policies (which characterized the second half of 1974 and the first quarter of 1975) was two-fold. One was to sustain employment levels, thereby easing the adjustment of the economy to the permanent and sizeable loss of real incomes resulting from the terms of trade movement. The second objective was to prevent too precipitate a decline in investment and production levels of export industries in response to a temporary recession in export markets. In support of Korea's long-term goals, it was held desirable to maintain a minimal economic momentum and to remain poised to take rapid advantage of the anticipated recovery in export demand. This policy was, of course, predicated on the belief that the world recession would be relatively shallow and shortlived, a belief that was shared at the time by many economists and policy makers throughout the world.

12. Contrary to expectations, the recession in industrialized countries continued well into 1975, with the GNP of OECD countries having fallen by an estimated 2 percent in 1975. Despite the unfavorable demand conditions, Korea's export volume is estimated to have expanded by about 21 percent in 1975. However, as a result of reduced demand and increased international competition, particularly for iron and steel and clothing exports, Korea's export prices declined by about 7 percent and its terms of trade deteriorated by about 11 percent in 1975. This, together with rising payments on freight and interest obligations, has been principally responsible for a continued large deficit in the balance of payments (estimated at \$1.9 billion in 1975 compared with \$2.04 billion in 1974).

13. Korea has suffered heavy balance of payments losses in 1974 and 1975 due to an exceptional combination of adverse events. The average loss in the two years on account of terms of trade movements alone is estimated at about 7 percent of GNP (at 1970 prices and exchange rates). Any attempt to adjust to such a large foreign exchange loss without incurring sizeable balance of payments deficits would undoubtedly lead to large-scale unemployment and a loss of growth momentum, which would have severe adverse consequences for Korea's long-term economic development. The essence of Korean policy, therefore, has been to smooth the process of adjustment, while at the same time attempting to ensure that there is a steady movement toward long-term improvement in the balance of payments. Toward this end, the Korean

Government has intensified measures by which it had already begun, earlier in the decade, to tackle longer term structural problems in its balance of payments and the need to increase the availability of resources for investment.

14. The severity of Korea's balance of payments problems in 1974 drew attention to the sensitivity of a trade-oriented economy to the economic fluctuations of its trading partners. Because Korea is poorly endowed with natural resources and its principal comparative advantage is a skilled and energetic labor force, a relatively high degree of trade orientation is unavoidable; however, the Government has made and is making strenuous efforts to reduce Korea's vulnerability to international fluctuations by diversifying the commodity composition of and markets for exports as well as reducing import dependence.

15. In recent years Korea has made considerable progress in diversifying exports. In 1971 and 1972, 75 percent of Korea's exports went to the United States and Japan. This proportion dropped to 57 percent in the first nine months of 1975. In the same period, the share of exports to Europe nearly doubled from 9 percent to 16 percent, and the share of other countries (excluding the United States, Europe and Japan) has increased from 16 percent to 27 percent. Commodity exports to oil exporting countries have increased very rapidly from a small base, and amounted to \$120 million in the first nine months of 1975. Similarly, the commodity concentration of exports has declined significantly; four major categories of exports (textiles, clothing, plywood and miscellaneous manufactures) accounted for 60 percent of exports in 1970 but only 48 percent in the first nine months of 1975. During this period there was a particularly rapid growth of exports of iron and steel, electronics, electrical machinery and appliances and ships. During the last year, Korea has also been highly successful in winning construction contracts in the Middle East. The development of new exports and the upgrading of the quality and design of traditional exports are the major means by which Korea hopes to diversify its exports and to further reduce its dependence on markets in Japan and the United States.

16. These developments suggest that Korea will be able to sustain a rate of growth of exports that is relatively rapid compared to other countries, although not as high as it was prior to 1974. Global projections indicate that the volume of manufactured exports by developing countries is likely to grow about 12-15 percent per year for the rest of this decade. Considering that 90 percent of Korea's exports now consist of manufactured goods, that its links with the Japanese and U.S. economies remain strong, that successful efforts are being made to penetrate new markets (especially in Europe and the Middle East) and that some progress has already been made in diversifying the industrial structure, the long-term prospects for Korea's exports are markedly better than for developing countries as a whole. Provided measures continue to be taken to maintain price competitiveness, which has been somewhat eroded by the relatively high rates of inflation in Korea in the past two years, Korean exports may be expected to grow at 20-25 percent per year in terms of current prices (allowing for international price inflation of 5-6 percent per year).

17. The potential for strengthening the balance of payments on the import side is not great. Of total imports in 1974, 29 percent consisted of raw materials for exports and a further 27 percent was capital goods, categories in which substantial import savings are unlikely to be compatible with maintaining international competitiveness of export industries. More than half of the remaining 44 percent of imports consisted of petroleum and foodgrains. The scope for restraining petroleum imports (16 percent of the total) is very limited; because domestic energy sources are limited to low quality coal, firewood and limited hydroelectric power, petroleum supplies about half of Korea's energy needs and is utilized almost entirely for essential industrial and transportation purposes. The number of private automobiles is relatively small and home heating needs are met by coal and wood. Despite these constraints, the rate of growth of petroleum consumption has been severely curtailed - from 1.8 times GNP growth in 1968-73 to about the same rate as GNP growth in the following two years.

18. In order to reduce dependence on imported foodgrains, there has been an energetic effort to increase agricultural productivity. In 1972-73 imports of grain accounted for about 30 percent of grain consumption and about 11 percent of total imports. Since then, the rate of growth of value added in agriculture has nearly doubled (from about 3.5 percent to about 6 percent per year). In part this was the result of good weather conditions, but it was also in response to improved inputs and the assurance of high grain prices. The proportion of land under high yielding varieties of rice has increased from 16 percent in 1972 to 37 percent in 1975. Despite the very severe topographical limitations (nearly 3/4 of the land area is too mountainous to cultivate), there is a growing promise that Korea will be able to achieve self-sufficiency in its staple foodgrains - rice and barley. As a result it is anticipated that, in the future, imports of foodgrains will amount to only about 5 percent of total imports and will consist mainly of wheat, which cannot be grown in sufficient quantity because of Korea's climate and topography.

#### Medium-Term Prospects and Program

19. The goal of Korea's economic policy in 1976 and the succeeding years is the achievement of the maximum rate of growth consistent with the maintenance of internal financial stability and a sound balance of payments. The potential for improvement in the balance of payments was foreshadowed by Korea's performance in the second half of 1975. While the full year deficit is estimated at \$1.9 billion, the deficit in the first half of 1975 was \$1.7 billion. The striking recovery in the second half was the result both of export recovery and import restraint. During the first five months of 1975, exports were 10 percent lower and imports 22 percent higher (in current prices) than in the corresponding period in 1974. Since then, monthly exports have risen steadily and imports were held below their 1974 levels, so that the increase in values for the year as a whole is expected to have been 12 percent for exports and 2 percent for imports. Allowing for changes in the unit value of imports and exports, import volume is estimated to have declined by 3 percent in 1975 and export volume to have grown by 21 percent. Since the Government had to increase grain imports to replenish food supplies and as



imports of other goods for domestic use amounted to less than 20 percent of total imports and reductions could, therefore, not be quantitatively significant, it was necessary to restrain the import of petroleum, capital goods and raw materials for the production of export goods. As the restraint in the import of raw materials was partially compensated for by the draw-down of inventory levels and the decrease in the volume of capital goods imports, if repeated in 1976, could adversely affect the expansion of capacity to produce commodities for export in future years, the same degree of import restraint cannot be sustained in 1976, when provision will have to be made for the rising volume of production and trade.

20. In the long-term, however, it is the firm intention of the Korean Government to achieve a significant reduction in the size of the balance of payments current account deficit both in absolute terms and, a fortiori, as a proportion of GNP. The Government's aim is to reduce the deficit from the peak of 12 percent of GNP in 1974 to 7.6 percent in 1976, and to lower it further to about 1-2 percent of GNP by 1980. This strengthening of the balance of payments will facilitate an improvement in the maturity structure of external borrowing and reduce reliance on short-term credits.

21. Before the recent international developments, Korea appeared to be set on an economic course which could have led to its maintaining a rate of growth of GNP of over 10 percent annually. However, these developments have led Korea to lower its sights, modifying the expected rate of growth of the economy to around 8 percent. In 1975, the growth of GNP is estimated to have been about 7.4 percent compared to an average rate of around 10 percent in the previous decade. The rate of fixed investment is being sustained at about 23 percent of GNP in 1976 but will have to increase during the Fourth Plan period (1977-81) to permit achievement even of the reduced target GNP growth rate. The great bulk of investment resources will continue to go into the manufacturing sector and immediately associated infrastructure requirements, with export growth being one of the principal criteria in selecting investment projects. In this context, the Korean authorities have recognized that efforts to deepen the industrial structure must proceed selectively and investments must be geared to expand capacity in industries which are skill-intensive, reflecting the country's international comparative advantage. This recognition has led to significant modification of the long-term investment plans which had been prepared in 1973 - specifically, a postponement of planned rates of expansion of petrochemical and steel production capacity and a shift of priorities towards electronics and machinery, which are relatively labor intensive and have shorter gestation periods. The development of the machinery industry is also seen as providing the basis for greater import substitution in the coming years.

22. In order to curtail aggregate demand in the effort to reduce inflationary and import pressures, the Government proposes to continue to restrain monetary expansion in 1976 and to monitor carefully the prices of 100 key consumer commodities. The increase in wholesale prices is expected to be restrained to about 10 percent by the end of 1976, assuming that the increase in import prices will be of the order of 5 percent during the year.

23. Success in restraining inflation is expected to have a significant favorable effect on the mobilization of private savings. In the exceptional boom year of 1973, private savings reached 17.6 percent of GNP but, predictably, declined to about 15 percent in 1975 in response to the slowdown in the growth of incomes and the high rate of inflation. Adjusting for the terms of trade loss, gross national income rose by 4.2 percent in 1974 and 3.2 percent in 1975; in 1976, no adverse movement in the terms of trade is anticipated and incomes are projected to rise by about 7 percent (at 1970 prices). The Korean Government is taking measures designed to channel the higher private savings likely to be generated by these developments to an increasing extent into the financial system and, thereby, into more effective use for productive investments. In addition to restoring a positive real rate of return on financial forms of savings (through a reduction in the rate of inflation and, if required, necessary corrective modification of the interest rate structure), the Government is taking steps to increase the supply of government and corporate securities to the public and to provide more attractive schemes for savings mobilization by commercial banks. Among the measures designed to mop up private purchasing power is the use of six-month certificates, instead of cash, in payment for one-third of the rice procured by the Grain Management Fund this crop year - amounting to about W 60 billion (\$124 million), and carrying an interest rate of 18 percent per annum.

24. The measures to increase the mobilization of private savings are being supported by fiscal actions to increase government savings. The subsidization of farmers and urban consumers through the Grain Management Fund and the Fertilizer Fund has placed a growing strain on Government finances since 1974. In 1975, the borrowing from the Central Bank on the two accounts is estimated at about W 350 billion (nearly 4 percent of GNP). The Government is conscious of the importance of reducing this financial burden and is taking the necessary remedial steps to slow down stock accumulation and to adjust prices so as to eliminate the operating deficits. The selling price of fertilizers was raised by 79 percent in December 1975, an increase which is expected to eliminate the operating deficit of the Fertilizer Fund. Furthermore, the Government intends to set prices paid for the procurement and sale of grain by the GMF at levels which will enable the elimination of the operating deficit in respect of wheat in 1976 and rice in 1977, leaving only a small deficit resulting from the subsidy on barley, sales of which are primarily for the lower income groups. The overall operating deficit of the GMF is to be totally eliminated in 1978, although the deficit on barley sales may continue; however, the GMF will be permitted to continue to incur cash deficits for the accumulation of grain inventories as needed.

25. In addition to these measures to eliminate progressively the deficits in the extra-budgetary accounts, strong measures have been taken to maintain budgetary savings performance despite increased expenditures on defense and government salaries. In response to the perceived need to improve Korea's defense capability following the events in Indochina and related developments, expenditures on defense have increased from 4.3 percent to 5.1 percent of GNP in 1975 and are budgeted to increase further to 6.4 percent of GNP in 1976; and to improve the salary levels

of government officials, expenditures on salaries and pensions are budgeted to increase by 43 percent in 1975 and 61 percent in 1976. Against the anticipated increase of W 595 billion in expenditure on these two items in 1975 and 1976, budget revenues are expected to increase by W 903 billion. In part, the increase in revenues is the result of inflation in nominal incomes, but a significant proportion, W 214 billion, is to be contributed by the defense surtax imposed in July 1975. <sup>1/</sup> The increased revenue mobilization and the strong restraint on other current expenditures (which are not permitted to increase at all), will result in the budgetary current surplus being maintained at over 3 percent of GNP.

26. This combination of measures to strengthen the balance of payments and to improve the mobilization and effective utilization of domestic resources should help Korea to emerge successfully from its present economic difficulties. The continued high levels of balance of payments deficits in 1974 and 1975 were, at least partly, due to the need to sustain Korea's export growth which, as we have noted, is a key determinant of its economic performance. Investment requirements are dictated by the need to expand export volume, diversify the commodity composition of exports and increase the domestic value-added component of exports. Although Korea continues to look to exports for its growth momentum and to narrow the balance of payments deficit, it is at the same time attempting to replace imports with domestic production, particularly in the foodgrain and machinery sectors, to the extent possible. This will further increase investment requirements in the short run. To sustain investment levels in the face of severe balance of payments problems and uncertainties about the rate of recovery of international demand doubtless involves an element of risk. However, the risk does not appear to be unduly large, especially in the light of Korea's past export performance and demonstrated flexibility in economic policy making; and there is a significant payoff to this strategy in maintaining the momentum of growth, which might be difficult to restore if more severe contractionary policies were undertaken. Finding the means to finance the external deficits will continue to be Korea's most urgent economic challenge. The servicing of the sizeable foreign borrowing required should not pose serious difficulties for Korea given the present debt service ratio and the prospects for continued export growth, provided, however, that external debt is incurred on as reasonable terms as possible and in particular that the proportion of debt incurred on short- and medium-terms and at high interest rates is not excessive. Assuming that capital inflows will be forthcoming on reasonable terms, the debt service ratio will rise from 13 percent in 1975 to about 16 percent in 1977 (due to heavy medium-term borrowing in 1974 and 1975) and then decline to under 15 percent in 1980.

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<sup>1/</sup> The defense surtax is a temporary levy, until 1980, aimed at securing financial resources required for increased national defense expenditures without reducing public expenditures on development. The levy is primarily a surtax on a number of existing taxes.

PART II - BANK GROUP OPERATIONS

27. As of May 31, 1976, Korea had received 26 Bank Loans (including one Third Window Loan) and 8 IDA Credits, amounting in total to \$1,108.8 million in loans and \$107.0 million in credits (taking into account cancellations and the refinancing of one IDA Credit in a subsequent Bank loan).

28. A substantial part of Bank financing has been for the transport sector - \$219.7 million for railways, \$191.5 million for highways and \$80 million for ports. \$130.5 million has been lent for agriculture projects. The Korea Development Finance Corporation (KDFC) has received \$150 million, the Korea Development Bank (KDB) \$60 million, and the Medium Industry Bank (MIB) \$30 million in Bank loans for relending to private industry. A total of \$80.3 million has been provided for three education projects; \$25.0 million for a tourism project; \$15.0 million for a secondary cities project; and \$60.0 million for a Rural Infrastructure Project. In addition, two Program Loans amounting to \$175.0 million have also been granted to Korea.

29. As of May 31, 1976, about \$628 million of the total Bank lending remained undisbursed on effective Loans and Credits, mostly from commitments in the past eighteen months. 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.

30. Excluding one project that was subsequently cancelled, IFC had by May 31, 1976, entered into twelve commitments totalling \$45.1 million (net of participations and cancellations). Two additional investments were approved by the IFC Board in June 1976 (\$19 million for a zinc smelting project and \$10.4 million for an electronics products project). Under advanced consideration is a further investment in electrical and electronic products; under preliminary consideration are projects in cement distribution, special steels, petrochemicals, construction materials and in leasing.

31. Korea's ambitious industrial development programs require large capital expenditures and further loans to the three major development banks are planned to meet this need. This will enable the continuation of assistance to a wide spectrum of industries, including small- and medium-sized enterprises. With the closer relationship established as a result of recent promotional efforts, we expect IFC's activities also to continue expanding rapidly. IFC would seek projects that would: (a) result in foreign exchange revenues or savings; (b) contribute to modernize or deepen the industrial structure; and (c) increase value added in manufacturing.

32. The emphasis which the Government places on agricultural and rural development will be reflected in the program for FY77. In addition to the proposed project, the second stage of the Yong San Gang irrigation project and a second agricultural credit project have been appraised.

33. 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 relatively less emphasis than in the past, the investments required are large, and thus there is considerable support for this sector in the proposed program.

34. The share of the Bank Group in Korea's total external debt (disbursed) outstanding at the end of 1975 was about 8.5 percent, and the share of debt service was of the order of 3.0 percent at that time. These ratios are expected to increase somewhat by the end of the present decade.

### PART III - THE AGRICULTURAL SECTOR

35. The extraordinary expansion of Korea's export-oriented manufacturing sector in recent years has, to a certain extent, obscured the tangible and impressive, albeit less spectacular, gains made by the country's agricultural sector; over the 1962-74 period its output increased by about 3.5 percent per annum (a rate comparable with that attained by Thailand, Indonesia and the Philippines). Korea's agricultural exports (including those of the fisheries sub-sector) rose from about \$70 million equivalent in 1967 to approximately \$423 million in 1974 and are estimated to have risen to over \$600 million in 1975. Further, despite the steady increase in industrial wages, rising agricultural productivity and increased farmgate prices have contributed towards the achievement of near-parity in the earnings of urban and rural households. These achievements are all the more commendable in view of the fact that, because of Korea's geo-physical features, only about a quarter of its total land area of about 10 million hectares is cultivable.

36. The average farm size in Korea is about 0.9 ha, of which 0.5 ha is paddy land, while upland crops, such as barley, maize, soybeans, fruit, vegetables, tobacco, mulberries (for silkworm production) and other cash crops are cultivated on the remaining extent. Nearly two-thirds of farm households have less than 1 ha of cropland but only 4 percent of farm households are landless largely as a result of the Farmland Reform Law of 1950 which imposed a ceiling of 3 ha of cultivated land per household.

37. Rice and barley are the major crops, accounting for two-thirds of the total crop area. Due to climatic constraints, double cropping of rice is not possible in Korea but a rice-barley rotation is practiced in the southern regions and now occurs on about half of the total paddy land. Rice yields in Korea are higher than those in South and Southeast Asia, reflecting a high level of input use and good management. High-yielding varieties of rice were introduced in 1971 and are now grown on about 30 percent of the paddy area. Government plans call for an increase in the areas under such varieties to 70 percent by 1980. The main constraints on national foodgrain production, in addition to the severely limited total area suitable for cultivation, are water control (irrigation and drainage), varietal improvement (mainly of barley) and, to a lesser extent, agricultural credit.

38. The growth of agricultural output, which has been impressive as compared with other East Asian countries especially when the country's geographical features referred to in paragraph 35 above are taken into account, has nevertheless not kept pace with domestic requirements. This has caused the Government to be increasingly concerned with the need to raise agricultural productivity and to devote additional resources to the development of the agriculture sector. More than three times the resources budgeted for agriculture in the previous Five Year Plan (1967-71) are included in the current Plan (1972-76).

39. The highest priority is being given to expanding foodgrain production to achieve self-sufficiency to the extent possible. While it is realized that self-sufficiency in wheat and corn will not be possible, efforts are being made to increase the production of rice, barley and soybeans to meet domestic requirements. This will have to be achieved mainly through higher yields on presently cultivated land since future expansion is limited to about 200,000 ha of marginal uplands and to tidelands that can be economically reclaimed. Rice yields are already high, but could be increased through irrigation coupled with the wider use of high yielding varieties. Areas devoted to winter cereals on ricelands can also be increased where the construction of improved irrigation and drainage works would permit the timely planting and harvesting of the rice crop. On the uplands, some increase in barley production should be possible through the wider use of higher yielding and early maturing varieties. The other major strand of the Government's agricultural development strategy is the expansion of the output of fruits, vegetables, mushrooms, tobacco, mulberry and livestock to increase farm incomes and to utilize labor more fully.

40. The Bank Group's lending for the agricultural sector in Korea has been aimed at assisting in the achievement of these objectives. Of the \$130.5 million lent, to date, for agricultural projects, \$93 million was provided for the Pyongtaek Kumgang (Loan 600-KO) and Yong San Gang (Loan 795-KO-Credit/283-KO) Projects, which are expected to provide irrigation for over 60,000 ha; \$10.5 million has been made available for an Agricultural Credit Project (Credit 335-KO) which supported a three year lending program for the provision of medium- and long-term credit to Korean farmers through the National Agricultural Cooperative Federation (NACF) - which is the country's main purveyor of agricultural credit - to develop orchards, sericulture, mushroom production and to encourage the breeding of poultry and swine; a \$7.0 million Loan (942-KO) has been made for a Seeds Project which is helping to develop higher yielding varieties of cereal crops, oil seeds and potatoes for multiplication and distribution to farmers; \$13 million has been lent for the Integrated Agricultural Products Processing Project (Loan 994-KO) aimed at combining the on-farm production of commercial crops on land that was idle or under-utilized with efficient and hygienic processing facilities. A \$7 million Credit (234-KO) has helped finance a livestock project the main components of which are the establishment of small- and medium-size dairy farms by providing long-term loans to dairy farmers, the construction and operation of dairy products processing plants and the provision of management and technical services related to these activities. In addition, a \$20.0 million Bank Loan and a \$40.0 million

Third Window Loan (1216-KO & 1218T-KO) are helping finance a Rural Infrastructure Project involving the construction of minor irrigation facilities, roads and bridges, water supply systems, the provision of rural electrification, the development of fuelwood plantations, and upland reclamation. A short description of these Projects and their current status is given in Annex II.

41. The proposed Miho Area Development Watershed project reflects the belief that the further expansion of irrigation facilities will continue to play an important role in the expansion of foodgrain production and crop diversification which, as stated in paragraph 39 above, are the Government's major policy objectives insofar as the agriculture sector is concerned. The basic concept of the proposed project is to implement an integrated package of irrigation and land improvement works in a specific area. Past investments in irrigation have been largely concentrated on large-scale developments involving major dams and canal systems in the coastal plains. In line with its rural development policies, the Government is now placing more emphasis on land and water development in the interior regions of Korea. Two approaches are being followed. One is a nationwide program of minor irrigation projects and upland reclamation as part of the Saemaeul Movement (these activities are being supported under the Rural Infrastructure Project mentioned above). The second approach, typified by the proposed project, is area specific and involves the execution of larger and more complex project components than would be appropriate for implementation under the Saemaeul Movement. The Miho watershed was selected as being broadly typical of the interior regions of Korea in terms of topography, present land use, and potential for further development. Large-scale projects, area development, and minor irrigation - all have a place in the Government's strategy for increasing agricultural production and farm incomes.

42. The concept of comprehensive development of selected areas was introduced to Korea by two UNDP-assisted projects for which FAO was the executing agency. UNDP/FAO specialists and government counterpart staff evolved procedures for resource inventories and project formulation and, in addition, implemented several small watershed projects. As a follow-up to these recommendations, the Office of Watershed Development (OWD) in the Agricultural Development Corporation (ADC), the implementing agency for the Pyongtaek Kumgang and Yong San Gang Irrigation Projects, carried out a feasibility study. The appraisal of the proposed project provided an opportunity to assess the comprehensive approach to area development in the context of detailed project proposals and has confirmed the value of detailed resource inventories as a basis for area development plans. Such inventories have particular relevance to Korea where, except for the coastal plains, the land is broken up into many different types of land use and land capability. Thus, within a watershed or any other selected area, development planning has to take into account many small blocks of land and numerous small rivers and streams.

PART IV - THE PROJECT

43. A report entitled "Miho Watershed Area Development Project" (No. 1130a-KO, dated July 8, 1976) is being distributed separately. A Loan and Project Summary is attached as Annex III. Negotiations were held in Washington from June 17 to 22, 1976 with a Korean delegation led by Mr. H. K. Kang, Economic Counsellor at the Embassy of the Republic of Korea in Washington.

44. The proposed project aims at increasing agricultural production and farm incomes on about 12,665 ha. It would provide irrigation over some 8,315 ha of land where crop production is presently dependent on rainfall. Various forms of land development would be carried out in the irrigated area to enable the cultivation of paddy and cash crops and the development of orchards. Land development on some 4,350 ha outside the areas to be irrigated by works constructed as part of the project would include land consolidation on presently irrigated land and the development of uncultivated uplands for rainfed crops. The main components of the proposed project are summarized below:

- (a) construction of dams and canals to irrigate 8,315 ha;
- (b) conversion of 2,045 ha of cultivated upland to irrigated paddy fields in areas commanded by the above canals;
- (c) land consolidation, including construction of ditches, drains and farm roads together with land levelling and boundary realignment, on 4,600 ha (3,150 ha on presently irrigated land and 1,450 ha in areas to be irrigated by the project);
- (d) development of 495 ha for irrigation of upland crops, and 550 ha for orchards within the area to be irrigated;
- (e) upland reclamation, primarily bench-terracing, of 1,200 ha of presently uncultivated land;
- (f) improvement of about 80 km of river channels to increase their flood discharge capacity;
- (g) construction of about 150 km of village access roads;
- (h) aerial photography, surveys, and mapping for the design of project works; and
- (i) provision of technical assistance, procurement of vehicles, and a feasibility study for a second-stage project in the Miho Watershed.



The Project Area

45. The gross project area covers about 77,000 ha in the northern half of the Miho river basin and is located about 90 km southeast of Seoul (see attached map). It encompasses parts of three counties in the Chungcheong Bug province. Jincheon, the largest town in the project area with a population of 20,000, is the chief commercial and marketing center. It is connected to the provincial capital of Cheongju 30 km to the south by an all-weather road. Cheongju itself lies 15 km east of the Seoul-Busan expressway. The topography of the area with its intricate pattern of hills and valleys is typical of the central region of Korea. Over one-half of the land is too steep for cultivation. Most of the suitable uplands and all of the lowland areas in the valleys are cultivated. The project area has 180-190 frost-free days. Annual precipitation averages about 1,100 mm with two-thirds occurring during the rainy season (May through September). Even in the summer, rainfall is unreliable, especially during the critical rice transplanting period (June). In addition, droughts occur sometimes in August and September. Irrigation is therefore required to obtain optimum yields from high-yielding varieties of rice.

46. The present land use in the project area is as follows:

	Area	
	(ha)	(%)
Forest	42,500	55
Cultivated Lowland	15,200	20
Cultivated Upland	13,600	18
Eroded Land	1,100	1
Other /a	<u>4,600</u>	<u>6</u>
	<u>77,000</u>	<u>100</u>

/a Includes towns, villages, roads, lakes and rivers.

About 80 percent of the forest land is considered as well-stocked (a generally complete cover of mature trees), and 20 percent consists of brush, small trees and native grass. Eroded lands are usually found at higher elevations on steep slopes with shallow soils. The potential for opening up new land for cultivation is limited to about 1,900 ha. The cultivated lowlands consist almost entirely of rice paddies, while the cultivated uplands are in the form of terraces on sloping lands extending upwards from the edge of the paddies.

47. Rice occupies virtually all of the 15,200 ha of lowland in the summer and barley is planted on about 10 percent of the area in the winter. On the 13,600 ha of uplands, a variety of vegetables, soybeans and tobacco are grown in the summer, with barley being cultivated on about 40 percent of the area in the winter.

48. Despite the relatively high yields and intensive land use in the project area, there is a considerable potential for further increases in agricultural production through irrigation and land development. Rice farmers throughout Korea have shown their ability to take full advantage of irrigation and drainage facilities. The provision of a timely and reliable water supply would increase yields and also have the effect of reducing peak labor demand since crop calendars would no longer be governed by rainfall. Better timing of the rice crop would also lead to an increase in the area planted to barley. In the irrigated area, land consolidation should result in higher yields through better water control, lower labor requirements as a result of easier access and conditions more suited to mechanical land preparation, and an increased area under barley due to better drainage. Conversion of uplands to paddy cultivation would be possible in areas which can be supplied with irrigation water. There is also the possibility of converting forest lands to crop production and orchards.

#### Detailed Features of the Project

49. Dams and Canals. The project would provide irrigation facilities for an area of 8,315 ha, of which 7,115 ha would be served by four independent irrigation units, each with its own dam and canal system, and the remaining 1,200 ha by 22 small dams and weirs. For the areas served by the four irrigation units, about 130 km of main canals and 140 km of laterals would be constructed. A number of tunnels, culverts and other structures would be needed because of irregular topography along the canal alignments. The areas to be irrigated are generally narrow strips of land along the river valleys, seldom more than 500 m wide and, consequently, the main canals and laterals would serve much smaller blocks of land than is normally the case in large irrigation systems. Therefore, the on-farm distribution systems would be built by farmers, except for some large blocks totalling 1,450 ha where land consolidation would be carried out.

50. Land Development. This component of the proposed project would consist of several elements:

- (a) Conversion of Uplands to Paddy. In areas to be irrigated by the project works, 2,045 ha of cultivated uplands would be converted to paddy cultivation. The areas to be developed have slopes up to 15 percent and they would be converted into a series of horizontal benches with widths ranging from 5 to 10 m depending on the slopes. Uplands to be converted would be carefully selected to ensure that soils are suited to paddy cultivation and to avoid disturbing the production of high-value crops.
- (b) Land Consolidation. This work would be carried out on 1,450 ha of the paddy land in the areas to be irrigated by the project works and on 3,150 ha of the paddy land which is

already irrigated in the project area. Land consolidation consists of replacing the existing uneven pattern of small irregular plots with larger levelled plots in a rectangular grid of ditches, farm roads and drains.

- (c) Furrow Irrigation. An area of 495 ha of uplands, of which 410 ha is presently cultivated, would be developed for furrow irrigation. In these areas the soils are too shallow to be benched for paddy cultivation.
- (d) Orchard Development. There are about 550 ha of uncultivated land with fairly steep slopes in small plots close to the proposed canal alignments. The access provided by the canal roads and the availability of water would provide a strong incentive for development of these lands as orchards. The land would be cleared and graded as part of the project, but orchard establishment would be left to the farmers.
- (e) Upland Reclamation. Most of the cultivable land in the watershed is already being farmed, but detailed surveys have revealed numerous small areas of uncultivated land totalling about 1,800 ha, which could be developed for crop production. About 1,200 ha of the uncultivated land would be developed for the production of rainfed upland crops, including barley, soybeans, fruits and vegetables. Surveys indicate that bench-terracing would be appropriate in the project area since the soils are generally deep and of medium fertility. This would be confirmed as planning and design proceeds. As the existing ADC standards for the design and construction of upland reclamation are not suitable, agreement has been reached that appropriate standards (similar to those agreed upon for the Rural Infrastructure Project) would be employed throughout the implementation of this component. (Section 3.04 of the draft Loan Agreement).

51. Channel Improvement. Sections of river channels with a total length of about 80 km would be improved to prevent flooding of cultivated land bordering the rivers. Floods occur several times during the rainy season and damage rice and other crops. Channels would be deepened and in some cases straightened. Materials excavated from the rivers would be used to construct about 100 km of flood embankments, or levees, about 2 to 3 m high, to protect low-lying areas.

52. Village Access Roads. About 150 km of 4-5 m wide gravel surfaced roads would be constructed in the project area to provide access for equipment and vehicles to areas where irrigation and land development would be carried out. These roads would also serve as part of the county road system linking the village to existing national or provincial highways.

53. Surveys and Mapping. Aerial photography of the project area to a scale of 1:15,000 was carried out in 1972. This was used for the resource inventory forming a basis for the feasibility report. Photography to a scale of 1:8,000 is required to prepare maps for land acquisition and for detailed designs. Dam-sites and areas scheduled for land development, reservoirs, and canal alignments would be mapped. The maps would be prepared by photogrammetry, but ground surveys would be carried out in areas where land development is planned to attain the necessary precision in ground surface elevations. Contractors would be employed for aerial photography, photogrammetry and ground control surveys. ADC surveyors would undertake supplementary ground surveys.

54. Feasibility Study for Stage II. The total area of the Miho Watershed is approximately 187,000 ha of which 77,000 ha constitutes the gross area for the proposed project. The feasibility study for a second-stage project in the remaining 110,000 ha of the Miho watershed would be carried out by ADC. Primary responsibility within ADC would be assigned to the Office of Watershed Development, whose capacity to carry out such a study was demonstrated in the preparation of the proposed project. Assurances were obtained that ADC would employ suitable consultants to assist the OWD (Section 3.05 of the draft Loan Agreement).

#### Project Cost and Financing

55. The total project cost is estimated at \$75.0 million, with a foreign exchange component of \$29.0 million (39 percent) which would be met from the proceeds of the proposed Bank loan. Physical contingencies of 15 percent have been applied to the base cost estimates for civil works, while provision of about 35 percent of the base cost estimates has been made to cover expected price increases over the project implementation period. The foreign exchange component has been estimated on the assumption that all civil works contracts would be won by local contractors. Local expenditures, representing the estimated balance of project costs, would be met through annual Government budgetary allocations to ADC. Detailed cost estimates are given in Annex III.

#### Procurement

56. Contracts for civil works construction and for the supply of cement and reinforcing steel would be awarded on the basis of international competitive bidding in accordance with Bank Group Guidelines. ADC's policy is to supply contractors with the cement and steel to be incorporated in the works. These materials would be procured in bulk on behalf of ADC by the Office of Supply, Republic of Korea. A preferential margin of 15 percent of the c.i.f. cost of competing imports or the customs duty, whichever is lower, would be extended to local manufacturers in the evaluation of bids. The total value of all civil works contracts (exclusive of price contingencies) would be about \$33 million. Civil works would be packaged together by areas to form about five contracts with an average value of about \$6 million. Cement (\$2.0 million) and reinforcing steel (\$2.5 million) would be procured under contracts of about \$0.5 million each in order to

keep the supply of materials in line with requirements. Aerial photography and mapping services (\$0.5 million) and vehicles (\$80,000) would be procured through normal government procurement procedures. There are sufficient suppliers of such services and vehicles to ensure adequate competition.

### Disbursements

57. Disbursements would be made at the rate of 100 percent against the foreign exchange cost of directly imported equipment and materials, and 65 percent of expenditures for equipment and materials manufactured locally. For consultants' services, disbursements would equal 65 percent of local costs or 100 percent of foreign expenditures. Disbursements for civil works would be at 40 percent of total expenditures against certified monthly contractors' progress payments. The disbursement schedule is given in Annex III.

### Organization and Management

58. The Agricultural Development Corporation (ADC), a semi-autonomous agency operating under the Ministry of Agriculture and Fisheries (MAF), would be responsible for project implementation. Responsibility for designs, procurement and construction supervision would rest with ADC's Office of Watershed Development (OWD), which carried out the project feasibility study. Some of OWD's key personnel gained experience in the design and execution of irrigation and land development works through their participation in the UNDP upland development and watershed projects. Additional staff would however be needed, and assurances were obtained that ADC would assign to OWD the technical and administrative staff needed to implement the project (Section 3.02 of the draft Loan Agreement). ADC would employ consultants on periodic short-term assignments to assist OWD in the final designs of the dams and canals (Section 3.03 of the draft Loan Agreement).

59. Agricultural services in the project area are well organized and would provide adequate support to farmers in realizing project benefits. The Ministry of Agriculture and Fisheries' Office of Rural Development (ORD) is the agency with primary responsibility for agricultural research, extension and training. The experimental and demonstration results of research are well documented and extension pamphlets and posters are adequate for current extension needs. The four counties included in the project area have sufficient extension workers for the purposes of the project.

60. Responsibility for operation and maintenance (O&M) of existing irrigation projects in Korea rests with the Farm Land Improvement Associations (FLIAs). Three FLIAs, presently operating 5,700 ha in the project area, would be responsible for the additional areas to be developed by the project. The FLIAs would operate and maintain the irrigation systems, schedule water deliveries, allocate and collect project charges, provide extension service and enter into cooperative arrangements with other agencies, such as the National Agricultural Cooperative Federation (NACF) and ORD, for various kinds of assistance to the farmers. Several small irrigation systems, which would be constructed in isolated areas, would be operated by Water User Groups or Hung Nong Gaes. ADC would establish these groups, which may in time become big enough to form FLIAs, or join with existing FLIAs. The

standard of O&M on existing irrigation systems in the project area is generally quite satisfactory. The cost of adequate O&M (in early-1976 prices) would average about Won 27,650/ha (\$57/ha).

61. Almost all supplies of inputs and credit originating from Government sources are supplied through the cooperative system, which also handles marketing of a number of crops. Some 90 percent of project area farmers are members of district cooperatives. These primary cooperatives are successively grouped into county agricultural cooperative federations, and ultimately NACF. NACF anticipates no difficulties in providing the farmers participating in the proposed project with their requirements of seeds and fertilizer. At full development some 8,800 farmers would require an estimated Won 1,100 million (\$2.3 million) production credit annually. Assurances were obtained during negotiations that the Government would make the necessary arrangements to ensure that adequate credit is provided to farmers to finance their requirements of farm inputs and hired labor (Section 3.03 of the draft Guarantee Agreement).

#### Cost Recovery

62. In areas irrigated by the project, farmers would pay the full cost of O&M through a water charge imposed and collected by the FLIA, as well as an annual charge to repay 30 percent of the capital cost of the irrigation facilities (about \$3,800/ha on average excluding the farmers' labor used to construct the on-farm network) over 35 years, including five years of grace, with interest at 3.5 percent (Section 3.02 of the draft Guarantee Agreement). Farmers also pay a production tax of 6 percent on all foodgrain production above 1.4 ton/farm on the ricelands, and 6 percent of the gross value of crop production above Won 85,000/ha on the uplands. Using a discount rate of 10 percent and a period of 35 years, the water charges and production taxes would together yield a cost recovery index of 36 percent. At full project development on a 1.5 ha farm, incremental O&M charges, capital repayments, and direct taxes due to the irrigation facilities would total Won 100,000 annually, or 18 percent of incremental income (Won 562,000/year). The beneficiaries of the upland reclamation sub-project would repay 30 percent of the capital cost at 9 percent interest, with repayment over eight years (Section 3.04 of the draft Guarantee Agreement). This implies a cost recovery index of 41 percent. No difficulties are expected in the collection of the project charges referred to above since past experience on a country-wide basis shows that defaults did not exceed 2 percent of annual assessments.

#### Environmental Effects

63. Experience in Korea has shown that the development of irrigation has no adverse effects on the environment. On the benefit side, drainage would be improved under the project, and the reservoirs would reduce the frequency of floods and damage to cultivable land.

Project Benefits and Risks

64. Implementation of the project would lead to changes in land use, a more intensive cropping pattern, and higher yields. It would increase rice production by 23,000 tons and barley production by about 9,000 tons. Income on a 0.5 ha farm benefiting from the project would increase from \$870 to \$1,220 at full development. For 1.5 ha and 2.5 ha farms the respective increases in incomes would be from \$1,650 to \$3,040 and from \$2,480 to \$4,620.

65. The proposed project would benefit directly some 10,400 farm families or approximately 63,000 persons, about half the rural population of the project area. It has been estimated that about a third of the beneficiaries currently have per capita incomes below the poverty level of around \$165. The incomes of this group will increase on average by about 50 percent as a result of the project, taking about half the farmers in this group above the poverty line. The project will also result in narrowing the gap between the incomes of the farmers in the area generally and the national average per capita income. A further 60,000 people would benefit indirectly from the village access roads and channel improvement components. By increasing annual cropping intensity and the net cultivable area, the project would create a demand for an additional 496,000 man-days of farm labor per year, or about 2,100 man-years. The proposed villages access roads would facilitate the moving, and reduce transport costs, of farm inputs and produce, allow villagers to enter the market economy more fully, and enable children from more isolated areas to attend school. The project would support the Government's policies to increase foodgrain production, and consequently rural incomes.

66. At full agricultural development the project would result in rice import savings of Won 3,500 million (\$7 million) annually at the projected world market price, c.i.f. Incheon/Busan. After deducting the incremental cost of imported fertilizers, chemicals, fuel and other farm inputs, annual net foreign exchange savings would amount to about Won 2,500 million (\$5 million).

67. The project's overall economic rate of return would be 15 percent using a 35-year evaluation period with full project benefits being attained in 1991. The project's rate of return shows little sensitivity to variations in the cost estimates or in assumption made concerning the timing of agricultural benefits. Somewhat higher sensitivity is shown to reduction in the level of benefits, emphasizing the importance of the timely availability of adequate credit and new farm inputs, but in no case is the rate of return for the entire project expected to fall below 12 percent.

68. Project risks are no greater than can normally be expected with operations of this type.

PART V - LEGAL INSTRUMENTS AND AUTHORITY

69. The draft Loan Agreement between the Bank and the Agricultural Development Corporation, the draft Guarantee Agreement between the Republic of Korea and the Bank, the report of the Committee provided for in Article III, Section 4 (iii) of the Articles of Agreement of the Bank and the text of a draft resolution approving the proposed loan are being distributed to the Executive Director separately. The Loan and Guarantee Agreements follow the pattern of Bank agreements for loans of this kind. The special features of this project are referred to in paragraphs 49 through 62 of this report.

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

PART VI - RECOMMENDATION

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

Robert S. McNamara  
President

Attachments

July 14, 1976



TABLE 3A  
KOREA, REP. OF - SOCIAL INDICATORS DATA SHEET

LAND AREA (THOU KM <sup>2</sup> )	KOREA, REP. OF			REFERENCE COUNTRIES (1970)			
	TOTAL	1960	1970	MOST RECENT ESTIMATE	THAILAND	TURKEY	JAPAN **
TOTAL	98.5						
ARABLE	..						
GNP PER CAPITA (US\$)		110.0	270.0	400.0	210.0	450.0	2570.0
<b>POPULATION AND VITAL STATISTICS</b>							
POPULATION (MID-YR, MILLION)		25.0	31.4	32.9	36.3	35.2	104.3
POPULATION DENSITY PER SQUARE KM.		250.0	319.0	334.0	71.0	45.0	280.0
PER SQUARE KM. ARABLE LAND		..	749.0	..	..	140.0	..
<b>VITAL STATISTICS</b>							
CRUDE BIRTH RATE PER THOUSAND		40.0 /a	28.0	27.3	43.0	38.0 /a	19.0
CRUDE DEATH RATE PER THOUSAND		11.0 /a	8.0	7.8	10.0	13.0 /a	7.0
INFANT MORTALITY RATE (/THOU)		..	..	..	80.0	145.0	13.1
LIFE EXPECTANCY AT BIRTH (YRS)		56.0	65.0	..	59.0	55.0 /b	72.0
GROSS REPRODUCTION RATE		3.1 /b	2.6	2.4	3.2	2.6 /a,b	1.0
<b>POPULATION GROWTH RATE (%)</b>							
TOTAL		2.8	2.4	2.2	3.1	2.5	1.0
URBAN		5.9 /c	6.0	..	5.0	4.5	2.5
<b>URBAN POPULATION (% OF TOTAL)</b>							
		28.0	41.0	..	13.0	39.0	72.0
<b>AGE STRUCTURE (PERCENT)</b>							
0 TO 14 YEARS		44.0	42.1	39.9	45.0	41.8	24.0
15 TO 64 YEARS		53.0	54.0	56.7	52.0	53.9	68.9
65 YEARS AND OVER		3.0	3.3	3.4	3.0	4.3	7.1
<b>AGE DEPENDENCY RATIO</b>							
ECONOMIC DEPENDENCY RATIO		0.9	0.8	0.8	0.9	0.9 /c	0.5
<b>FAMILY PLANNING-ACCEPTORS (CUMULATIVE, THOU)</b>							
USERS (% OF MARRIED WOMEN)		..	..	..	550.0	484.0 /d	..
		..	..	..	10.0	9.2	..
<b>EMPLOYMENT</b>							
TOTAL LABOR FORCE (THOUSAND)		7500.0	10400.0	12100.0	16700.0	14500.0 /e	53300.0
LABOR FORCE IN AGRICULTURE (%)		66.0	50.5	50.6	79.0	67.0	19.0
UNEMPLOYED (% OF LABOR FORCE)		9.0	5.0 /a	4.5	..	4.0 /f	1.2
<b>INCOME DISTRIBUTION</b>							
<b>% OF PRIVATE INCOME REC'D BY-</b>							
HIGHEST 5% OF POPULATION		17.0 /a	20.1	18.1 /a	..	32.8 /g	14.2 /a
HIGHEST 20% OF POPULATION		42.0 /a	47.1	43.4 /a	..	60.6 /g	37.6 /a
LOWEST 20% OF POPULATION		7.0 /a	6.1	7.2 /a	..	2.4 /g	8.8 /a
LOWEST 40% OF POPULATION		20.0 /a	16.2	18.7 /a	..	9.4 /g	22.3 /a
<b>DISTRIBUTION OF LAND OWNERSHIP</b>							
% OWNED BY TOP 10% OF OWNERS		27.0	28.0	..	..	53.0	..
% OWNED BY SMALLEST 10% OWNERS		3.0	2.0	..	..	0.9	..
<b>HEALTH AND NUTRITION</b>							
POPULATION PER PHYSICIAN		3300.0	2210.0 /b	1870.0	7970.0 /a	2220.0	880.0
POPULATION PER NURSING PERSON		3220.0	1760.0 /b	1360.0	2270.0 /a	1880.0	240.0
POPULATION PER HOSPITAL BED		2600.0	1970.0	1850.0	850.0	490.0	80.0
<b>PER CAPITA SUPPLY OF -</b>							
CALORIES (% OF REQUIREMENTS)		85.0	102.0	107.0	105.0	113.0	106.0
PROTEIN (GRAMS PER DAY)		53.0	65.0	68.0	52.0	78.0	76.0
-OF WHICH ANIMAL AND PULSE		13.0 /a	19.0	..	17.0 /b	22.0 /a	45.0
<b>DEATH RATE (/THOU) AGES 1-4</b>							
		..	..	..	..	15.0 /b	1.0
<b>EDUCATION</b>							
<b>ADJUSTED ENROLLMENT RATIO</b>							
PRIMARY SCHOOL		96.0	104.0	98.0	80.0	111.0	100.0
SECONDARY SCHOOL		27.0	41.0	..	13.0	28.0	90.0
<b>YEARS OF SCHOOLING PROVIDED (FIRST AND SECOND LEVEL)</b>							
VOCATIONAL ENROLLMENT (% OF SECONDARY)		12.0	12.0	12.0	12.0	11.0	12.0
ADULT LITERACY RATE (%)		14.0	15.0	16.0	14.0 /c	14.0	20.0
		..	..	92.0 /c	..	55.0 /d	99.0
<b>HOUSING</b>							
PERSONS PER ROOM (AVERAGE)		2.3	2.7	..	..	1.9	1.0
OCCUPIED DWELLINGS WITHOUT PIPED WATER (%)		98.0 /g	80.0 /c	..	..	64.0	5.0
ACCESS TO ELECTRICITY (% OF ALL DWELLINGS)		28.0	50.0	80.0	..	41.0	..
RURAL DWELLINGS CONNECTED TO ELECTRICITY (%)		12.0	30.0	40.0	..	18.0	..
<b>CONSUMPTION</b>							
RADIO RECEIVERS (PER THOU POP)		30.0	126.0	127.0	78.0	87.0	551.0
PASSENGER CARS (PER THOU POP)		0.4	2.0	2.0	5.0	4.0	85.0
ELECTRICITY (KWH/YR PER CAP)		71.0	309.0	392.0	120.0	244.0	3446.0
NEWSPRINT (KG/YR PER CAP)		1.8	2.4	2.3	1.0	0.7	18.9

SEE NOTES AND DEFINITIONS ON REVERSE

## NOTES

Unless otherwise noted, data for 1960 refer to any year between 1959 and 1961, for 1970 between 1968 and 1970, and for Most Recent Estimate between 1971 and 1973.

\* Japan has been selected as an objective country due to the similarity of the present Korean economic structure to that of Japan in the mid-fifties (with the same principle resource base, i.e., efficient, industrious, cheap labor and heavy reliance on imported raw materials). Moreover, agriculture, transport, and other sectors of the economy have similar characteristics. Korea also has a pattern of industrial development which is not very different from the one Japan pursued with great success in the sixties.

KOREA REP. OF	1960	/a	1962, /b	1950-55, /c	1955-60, /d	Ratio of population under 15 and 65 and over to total labor force; /e	Wage and salary income of urban households, 1964; /f	Registered, not all practicing in the country; /g	Water piped inside.			
	1970	/a	Registered; /b	Registered, not all practicing in the country, /c	Water piped inside.							
	MOST RECENT ESTIMATE - /a rural and urban households; /b Registered, not all practicing in the country; /c 10 years old and over.											
THAILAND	1970	/a	Including midwives, /b	1964-66, /c	Public schools, which includes technical education at the post-secondary level.							
TURKEY	1970	/a	Excludes 17 eastern provinces, /b	1965-67; /c	Ratio of population under 15 and 65 and over to labor force age 15 years old and over; /d	1964 - June 1974, 86 percent being RUDs; /e	15 years and over, excludes unemployed; /f	Registered only; /g	Disposable income of households, /h	Including assistant nurses and midwives; /i	1964-66, /j	Persons six years old and over who tell the census takers that they can read and write.
JAPAN	1970	/a	Households.									

R7, March 24, 1976

## DEFINITIONS OF SOCIAL INDICATORS

Land Area (thou km<sup>2</sup>)

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

GNP per capita (US\$) - GNP per capita estimates at market prices, calculated by same conversion method as World Bank Atlas (1972-74 basis).

## Population and vital statistics

Population (mid-yr. million) - As of July first; if not available, average of two end-year estimates.

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

Population density - per square km of arable land - Computed as above for arable land only.

## Vital statistics

Crude birth rate per thousand - Annual live births per thousand of mid-year population; usually five-year averages ending in 1960, 1970 and 1975 for developing countries.

Crude death rate per thousand - Annual deaths per thousand of mid-year population; usually five-year averages ending in 1960, 1970 and 1975 for developing countries.

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

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

Gross reproduction rate - Average number of live 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 for developing countries.

Population growth rate (%) - total - Compound annual growth rates of mid-year population for 1950-60, 1960-70, and 1960 to most recent year.

Population growth rate (%) - urban - Computed like growth rate of total population; different definitions of urban areas may affect comparability of data among countries.

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

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

Age dependency ratio - Ratio of population under 15 and 65 and over to those of ages 15 through 64.

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

Family planning - acceptors (cumulative, thou) - Cumulative number of acceptors of birth control devices under auspices of national family planning program since inception.

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

## Employment

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

Labor force in agriculture (%) - Agricultural labor force (in farming, forestry, hunting and fishing) as percentage of total labor force.

Unemployed (% of labor force) - Unemployed are usually defined as persons who are able and willing to take a job, out of a job on a given day, remained out of a job, and seeking work for a specified minimum period not exceeding one week; may not be comparable between countries due to different definitions of unemployed and source of data, e.g., employment office statistics, sample surveys, compulsory unemployment insurance.

Income distribution - Percentage of private income (both in cash and kind) received by richest 5%, richest 20%, poorest 20%, and poorest 40% of population.

Distribution of land ownership - Percentages of land owned by wealthiest 10% and poorest 10% of land owners.

## Health and Nutrition

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, "trained" or "certified" nurses, and auxiliary personnel with training or experience.

Population per hospital bed - Population divided by number of hospital beds available in public and private general and specialized hospital and rehabilitation centers; excludes nursing homes and establishments for custodial and preventive care.

Per capita supply of calories (% 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% 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 Economic Research Services 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.

Death rate (/thou) ages 1-4 - Annual deaths per thousand in age group 1-4 years, to children in this age group; suggested as an indicator of malnutrition.

## Education

Adjusted enrollment ratio - primary school - Enrollment of all ages as percentage of primary school-age population; includes children aged 6-11 years but adjusted for different lengths of primary education, for countries with universal education, enrollment may exceed 100% since some pupils are below or above the official school age.

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

Years of schooling provided (first and second levels) - Total years of schooling; at secondary level, vocational instruction may be partially or completely excluded.

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

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

## Housing

Persons per room (average) - Average number of persons per room in occupied conventional dwellings in urban areas; dwellings exclude non-permanent structures and unoccupied parts.

Occupied dwellings without piped water (%) - Occupied conventional dwellings in urban and rural areas without inside or outside piped water facilities as percentage of all occupied dwellings.

Access to electricity (% of all dwellings) - Conventional dwellings with electricity in living quarters as percent of total dwellings in urban and rural areas.

Rural dwellings connected to electricity (%) - Computed as above for rural dwellings only.

## Consumption

Radio receivers (per thou pop) - 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.

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

Electricity (kwh/yr per cap) - Annual consumption of industrial, commercial, public and private electricity in kilowatt hours per capita; generally based on production data, without allowance for losses in grids but allowing for imports and exports of electricity.

Newsprint (kg/yr per cap) - Per capita annual consumption in kilograms estimated from domestic production plus net imports of newsprint.

ECONOMIC DEVELOPMENT DATA  
(Amounts in millions of U.S. Dollars)

	Actual		Projected			1972-	1974-	1975-	1980-	1974	1975	1980	1985		
	1972	1973	1974	1975	1976	1974	1975	1980	1985						
<b>NATIONAL ACCOUNTS</b>															
	1973 Prices and Exchange Rate					Average Annual Growth Rates				As Percent of GDY					
Gross Domestic Product	10,646	12,415	13,474	14,471	15,484	21,018	12.5	7.4	7.8	8.7	105.7	109.5	106.3		
Gains from Terms of Trade (+)	116	-	-664	-1,254	-1,254	-1,254	-	-	-	-	-5.2	-9.5	-6.3		
Gross Domestic Income	10,762	12,415	12,810	13,217	14,230	19,764	9.1	3.2	8.4	8.7	100.0	100.0	100.0		
Import (including NFS)	3,435	4,367	4,634	4,573	4,868	7,342	16.2	-1.3	9.9	9.0	36.2	34.6	37.2		
Exports " (import capacity)	2,771	3,961	3,306	3,640	4,132	7,126	9.2	4.1	15.7	12.0	25.8	26.0	36.1		
Resource Gap	-664	-406	-1,328	-1,133	-736	-216	41.1	-14.7	-	-	-10.4	-8.6	-1.1		
Consumption Expenditures	9,017	9,598	10,780	11,434	12,118	16,540	9.3	6.1	7.6	7.3	34.2	86.5	83.7		
Investment " (incl. stocks)	2,212	3,230	4,185	4,113	3,566	6,100	37.8	-1.7	8.3	12.2	32.7	31.1	30.9		
<sup>1/</sup> Domestic Savings	1,629	2,817	2,694	3,037	3,366	4,477	28.8	12.7	12.7	12.5	21.0	23.0	22.7		
<sup>2/</sup> National Savings	1,772	2,914	2,721	2,970	3,044	4,261	23.6	9.2	12.3	13.0	21.2	22.5	21.6		
<b>MERCHANDISE TRADE</b>															
	Annual Data at Current Prices					Average Annual Growth Rates				As Percent of Total					
<b>Imports</b>															
Capital Goods	762	1,157	1,849	1,837	2,054	2,900	57.0	-0.7	9.6	16.1	27.0	25.9	20.7		
Intermediate Goods (excl. fuels)	1,118	2,110	2,943	2,968	3,391	6,492	63.5	0.9	16.9	18.8	43.0	41.8	46.4		
Fuels and Related Materials	230	312	1,150	1,395	1,700	2,700	150.0	21.3	14.1	15.5	16.8	19.7	19.3		
of which, Petroleum	221	277	1,109	1,340	1,605	2,680	150.0	20.8	14.9	15.5	16.2	18.9	19.2		
Consumption Goods	412	661	910	900	956	1,900	48.5	-1.1	16.1	14.2	13.3	12.7	13.6		
Total Merch. Imports (cif)	2,522	4,240	6,852	7,100	8,100	13,992	63.0	3.6	14.5	17.1	100.0	100.0	100.0		
<b>Exports</b>															
Primary products (excl. fuels)	269	327	422	501	567	1,341	25.0	18.7	21.8	19.8	9.4	9.9	10.0		
Fuels and related materials	-	-	-	-	-	-	-	-	-	-	-	-	-		
of which, Petroleum <sup>3/</sup>	18	35	108	115	120	175	160.0	6.5	8.7	7.0	2.4	2.3	1.3		
Manufactured Goods	1,399	2,909	3,983	4,448	5,663	11,891	68.0	11.6	21.4	24.3	38.3	87.8	88.7		
Total Merch. Exports (fob)	1,676	3,271	4,515	5,064	6,350	13,407	64.0	12.2	21.2	19.8	100.0	100.0	100.0		
Tourism and Border Trade	-	-	-	-	-	-	-	-	-	-	-	-	-		
<b>Merchandise Trade Indices</b>															
	Average 1973 = 100					Average Annual Growth Rates				As Percent of Total					
Export Price Index	79	100	127	118	124	150	27	-7	5	7	-	-	-		
Import Price Index	75	100	156	164	171	208	44	5	5	7	-	-	-		
Terms of Trade Index	106	100	81	72	72	72	-13	-11	-	-	-	-	-		
Exports Volume Index	64	100	109	112	158	277	30	21	16	11	-	-	-		
<b>VALUE ADDED BY SECTOR</b>															
	Annual Data at 1973 Prices and Exchange Rates					Average Annual Growth Rates				As Percent of Total					
Agriculture	3,201	3,500	3,620	3,837	3,952	4,633	6	6	4	2	29	29	23		
Manufacturing and Mining	2,140	2,883	3,311	3,708	4,152	6,194	24	12	11	13	27	28	30		
Other Sectors	4,368	4,975	5,549	5,715	6,166	9,560	13	3	11	8	44	44	47		
Total	9,709	11,358	12,480	13,260	14,250	20,387	13	7	9	9	100	100	100		
<b>PUBLIC FINANCE</b>															
(Central Government)															
Current Receipts	1,701	1,530	1,862	2,199 <sup>5/</sup>	2,551 <sup>6/</sup>	3,870	5	18	12	10	15	17	19		
Current Expenditures	1,359	1,193	1,406	1,704 <sup>5/</sup>	2,062 <sup>6/</sup>	2,503	2	21	8	9	11	13	13		
Budgetary Savings	342	337	456	495	489	1,367	15	9	30	12	4	4	7		
Other Public Sector	-	-	-	-	-	-	-	-	-	-	-	-	-		
Public Sector Investment	522	443	593	728	746	1,888	7	23	21	10	5	6	10		
<b>CURRENT EXPENDITURE DETAILS</b>															
	Actual					DETAIL ON PUBLIC SECTOR				US\$ Million At 1973 P and ER					
(As % Total Current Expend.)	1972	1973	1974	1975	1976	EXPENDITURE PROGRAM <sup>7/</sup>		1974		1975		1976		% of Total 1974-76	
Education	18.6	19.3	17.8	17.5	18.0	Agriculture		121	187	209	10.9		24.6		
Other Social Services	9.1	10.4	9.6	8.8	5.0	Industry and Mining		41	82	73	9.3		6.6		
Agriculture	2.4	2.4	2.0	1.8	1.9	Power		55	44	33	6.6		6.6		
Other Economic Services	3.6	3.5	2.3	2.1	2.0	Transport and Communication		138	146	172	22.2		22.2		
Defense	33.9	35.2	41.2	43.0	47.0	Other		171	197	175	26.4		26.4		
Administration	13.9	13.8	12.1	11.5	9.8	Total expenditure		593	728	746	100.0		100.0		
Transfers to local governments	15.1	16.2	14.2	14.6	16.1										
Other	3.4	1.2	0.8	0.7	0.2										
Total Current Expenditures	100.0	100.0	100.0	100.0	100.0										
<b>SELECTED INDICATORS</b>															
	1960-	1965-	1970-	1975-		<b>FINANCING</b>				As Percent of GDY					
Average ICOR	1965	1970	1975	1980		Public Sector Savings	456	495	489	70.3					
Import Elasticity	2.7	2.3	2.6	3.2		Domestic Borrowing	58	38	41	6.8					
Marginal Domestic Savings Rate	0.8	2.6	1.1	1.3		Foreign Borrowing	79	195	216	22.9					
Marginal National Savings Rate	11.3	11.3	16.6	22.0		Total Financing	593	728	746	100.0					
	17.9	21.7	18.8	30.0											
<b>LABOR FORCE AND OUTPUT PER WORKER</b>															
	Total Employment					Value Added Per Worker (1973 - Prices & Exc. Rates)									
	In Millions		% of Total		1972-74	In U.S. Dollars		Percent of Avg.		1972-74					
	1972	1974	1972	1974	Growth Rate	1972	1974	1972	1974	Growth Rate					
Agriculture	5.3	5.6	50.6	48.2	2.8	604	646	60	60	3.4					
Manufacturing and Mining	1.5	2.1	14.2	17.8	18.3	1,189	1,577	110	147	15.1					
Other Sector	3.7	3.9	35.2	34.0	2.7	1,181	1,423	129	132	9.8					
Total	10.6	11.6	100.0	100.0	4.6	916	1,076	100	100	8.4					

- 1/ Includes government, corporate and private non-corporate savings.  
2/ Includes domestic savings, net factor incomes from abroad and transfers from abroad.  
3/ Bunkering (manufactures).  
4/ Includes trade, banking, ownership of dwellings, public administration, other services.  
5/ Revised Budget  
6/ Budget  
7/ General Budget and Economic Development Special Account.

**BALANCE OF PAYMENTS, EXTERNAL ASSISTANCE AND DEBT**  
(amounts in millions of U.S. dollars at current prices)

Avg. Annual  
Growth Rate  
1975-1980

	Actual				Projected							
	1971	1972	1973	1974	1975	1976	1977	1978	1979		1980	
<b>SUMMARY BALANCE OF PAYMENTS</b>												
Exports (incl. NFS)	1,478	2,078	3,961	5,157	5,641	7,066	8,507	10,286	12,344	14,823	21.4	
Imports (incl. NFS)	2,489	2,576	4,367	7,229	7,500	8,324	9,730	11,357	13,190	15,432	15.5	
Resource Balance (X-M)	-1,011	-501	-406	-2,072	-1,859	-1,258	-1,224	-1,071	-845	-609	-	
Interest (net)	-91	-106	-123	-141	-265	-407	-528	-613	-691	-755	23.3	
Other Factor Income (net)	29	19	26	-49	-24	-196	-40	150	190	175	-	
Workers Remittance	54	47	4	-	-	-	-	-	-	-	-	
Current Transfers (net)	171	170	190	222	210	154	200	225	250	275	5.5	
Balance on Current Account	-848	-371	-309	-2,040	-1,938	-1,707	-1,592	-1,309	-1,096	-914	-	
Private Direct Investment (net)	41	74	137	104	42	135	203	220	240	260	44.0	
Official Capital Grants	-	-	-	-	-	-	-	-	-	-	-	
Public M&LT Loans <sup>1/</sup>												
Disbursements	639	784	759	1,085	1,491	1,766	1,942	2,043	2,226	2,379	9.8	
-Repayments	250	247	276	360	411	574	711	854	877	902	17.0	
Net Disbursements	389	537	483	725	1,080	1,192	1,231	1,189	1,349	1,477	6.4	
Other M&LT Loans												
Disbursements	33	49	71	168	82	94	124	152	168	181	17.1	
-Repayments	10	10	15	23	32	39	59	75	96	113	28.8	
Net Disbursements	23	39	53	145	50	55	65	77	72	68	6.4	
Capital Transactions, n.e.i.	312	-91	84	306								
Change in Net Reserves	-83	188	448	-760								
<b>GRANT AND LOAN COMMITMENTS</b>												
Official Grants & Grantlike	-	-	-	-								
Public M&LT Loans <sup>1/</sup>												
IBRD	85	73	150	85								
IDA	7	26	20	-								
ADB	81	68	46	89								
Other Multilateral	-	-	-	-								
Governments	305	505	381	418								
Suppliers	242	86	236	441								
Financial Institutions	12	80	205	787								
Bonds	-	-	-	19								
Public Loans, n.e.i.	-	-	-	-								
Total Public M&LT Loans	732	839	1,038	1,840								
<b>DEBT AND DEBT SERVICE <sup>1/</sup></b>												
Public Debt Out. & Disbursed								1,786	2,228	2,770	3,314	4,031
Interest on Public Debt								64	93	104	140	196
Repayments on Public Debt								211	250	247	276	360
Total Public Debt Service								275	342	351	415	556
Other Debt Service (net)								11	22	23	31	54
Total Debt Service (net)								286	364	374	446	610
<b>Burden on Export and NFS Earnings (%)</b>												
Public Debt Service								22.5	23.1	16.9	10.5	10.8
Total Debt Service								23.4	24.6	18.0	11.3	11.8
TDS+Direct Investment Inc.								24.2	25.6	20.0	12.7	13.7
<b>Average Terms of Public Debt</b>												
Interest as % Prior Year DO&D								4.3	5.2	4.7	5.1	5.9
Amort. as % Prior Year DO&D								14.3	14.0	11.1	10.0	10.9
IBRD Debt Out. & Disbursed								9.6	40.2	94.7	139.8	223.8
" as % Public Debt O&D								0.6	1.8	3.4	4.2	5.6
" as % Public Debt Service								0.3	0.7	1.9	3.0	3.5
IDA Debt Out. & Disbursed								26.7	39.8	47.1	58.5	78.3
" as % Public Debt O&D								1.5	1.8	1.7	1.8	1.9
" as % Public Debt Service								0.1	0.1	0.1	0.1	0.1
<b>EXTERNAL DEBT</b>												
	Actual Debt Outstanding on Dec. 31, 74 <sup>1/</sup>											
	Disbursed Only				Percent							
IBRD	223.8				5.6							
IDA	78.3				1.9							
ADB	113.0				2.8							
Governments	1,697.3				42.1							
Suppliers	1,250.6				31.0							
Financial Institutions	648.5				16.1							
Bonds	19.0				0.5							
Total Public M&LT Debt	4,030.6				100.0							
Other M&LT Debts <sup>2/</sup>	396.0											
Short-term Debt <sup>2/</sup>	971.0											

<sup>1/</sup> SOURCE: IBRD, loans of maturity one year and above, including commercial bank borrowing

<sup>2/</sup> SOURCE: Korean authorities

... not available separately but included in total

KOREA

THE STATUS OF BANK GROUP OPERATIONS IN THE REPUBLIC OF KOREA

A. Statement of Bank Loans and IDA Credits (as of May 31, 1976)

Loan or Credit Number	Year	Borrower	Purpose	US\$ Million		
				Amount (less cancellations)		
			Bank	IDA	Undisbursed	
Ten loans and credits fully disbursed			153.8	65.1		
600	1969	ADC	Irrigation	45.0		1.7
151	1969	Republic of Korea	Education		14.8	0.8
669	1970	Republic of Korea	Railways	40.0		0.6
234	1971	Republic of Korea	Livestock		7.0	0.1
769	1971	Republic of Korea	Highways	54.5		1.2
795	1972	ADC	Irrigation	33.0		21.4
863	1972	Republic of Korea	Railways	40.0		2.3
905	1973	KDFC	Dev. Fin. Co.	40.0		2.3
906 & 394	1973	Republic of Korea	Education II	23.0	20.0	40.5
917	1973	Republic of Korea	Ports	80.0		63.4
941	1973	Republic of Korea	Seeds Production	7.0		6.3
953	1974	Republic of Korea	Tourism	25.0		20.8
956	1974	Republic of Korea	Highways II	47.0		5.9
994	1974	AFDC	Agriculture	13.0		12.6
1070	1975	Republic of Korea	Secondary Cities	15.0		14.7
1095	1975	KDB	Dev. Fin. Co.	60.0		37.0
1096	1975	Republic of Korea	Third Education	22.5		22.5
1101	1975	Republic of Korea	Fifth Railway	100.0		74.9
1145	1975	KDFC	Dev. Fin. Co.	55.0		44.3
1175	1975	MIB	Dev. Fin. Co.	30.0		29.8
1203	1976	Republic of Korea	Third Highway	90.0		90.0
1216 & 1218-T	1976	Republic of Korea	Rural Infra- structure	60.0		60.0
1219	1976	Republic of Korea	Program Loan II	<u>75.0</u>		<u>75.0</u>
Total			1,108.8	106.9	628.1	
of which has been repaid			<u>25.0</u>	<u>.6</u>		
Total now outstanding			1,083.8	106.3		
Amount sold			2.0			
of which has been repaid			<u>1.0</u>	<u>1.0</u>		
Total now held by Bank and IDA (prior to exchange adjustment)			<u>1,082.8</u>	<u>106.3</u>		
Total undisbursed			<u>609.8</u>	<u>18.3</u>	<u>628.1</u>	

B. Statement of IFC Investments (as of May 31, 1976)

Fiscal Year	Obligor	Type of Business	Amount in US\$ Million		
			Loan	Equity	Total
1968	KDFC	Development Financing	-	0.7	0.7
1969	Honan Silk Co.	Textiles	1.4	0.3	1.7
1970	Atlas Paper	Pulp and paper	4.5	0.5	5.0 <sup>/1</sup>
1971	Korea Investment Finance Corp.	Capital Market Development	-	0.7	0.7
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	2.7	0.7	3.4
1976	Korea Investment Finance Corp.	Capital Market Development	-	0.4	0.4
1976	Chongju Paper Mfg. Co.	Paper	5.0	0.5	5.5
1976	KDFC	Development Financing	<u>17.8</u>	<u>-</u>	<u>17.8</u>
	Total gross commitment		59.3	8.5	67.8
	less cancellations, terminations, repayments and sales		<u>21.9</u>	<u>0.8</u>	<u>22.7</u>
	Total commitments now held by IFC		<u>37.4</u>	<u>7.7</u>	<u>45.1</u>
	Total undisbursed		<u>16.7</u>	<u>0.5</u>	<u>17.2</u>

<sup>/1</sup> Cancelled at the request of the Company.

PROJECTS IN EXECUTION<sup>1/</sup>

Loan No. 600      Pyongtaek Kungang Irrigation Project; US\$45.0 Million  
Loan of May 23, 1969; Effective Date: May 25, 1970;  
Closing Date: December 31, 1976

The Project includes irrigation for about 31,000 ha, (4,000 ha less than expected at appraisal), improvement of drainage and roads, consolidation of paddy fields, benching of upland and tidal land reclamation. Construction was delayed by a reorganization of the executing agency and a delay in hiring consultants. The major project components (two sea dikes, the main distribution system and pumping plants) were largely completed by the end of 1974. Contracts for nearly all of the remaining work have been awarded. Cost considerations have led to the exclusion of about 4,000 ha of land from the project. Costs have risen from US\$90 million at appraisal to about US\$130 million largely because of the increased costs of right-of-way, engineering, administration and land consolidation. Preliminary estimates indicate increases in the price of rice will partially offset the effects of higher costs and reduced irrigable area. The economic rate of return is now estimated to be about 10 percent, compared with the appraisal estimate of 14 percent. The implementing agency (ADC) has reviewed ways of economizing on the remaining work which should lead to some marginal cost savings. About 95 percent of the loan has been disbursed. Construction has been virtually completed.

Credit No. 151      First Education Project; US\$14.8 Million Credit of  
June 4, 1969; Effective Date: May 25, 1970;  
Closing Date: September 30, 1976

The Project comprises: (a) the expansion and equipping of 27 technical, commercial and agricultural schools, 5 post-secondary higher schools and 4 university teacher training departments; and (b) 26 man-years of technical assistance and 20 man-years of overseas fellowships to support the development of agricultural and technical education. All civil works, equipment and furniture procurement, technical assistance and fellowships included in the Project have been completed. The Credit is expected to be fully disbursed by the Closing Date. The total project cost is estimated to remain about 3 percent below the appraisal estimate.

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<sup>1/</sup> 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. 669      Third Railway Project; US\$40.0 Million Loan, US\$15.0  
Credit No. 183      Million Credit of May 14, 1970; Effective Date:  
September 11, 1970; Closing Date: December 31, 1976

The bulk of the Loan and Credit was earmarked for the purchase of freight cars, diesel locomotives, and telecommunications and track maintenance equipment. Progress is generally satisfactory except for delays in the procurement of some micro-wave equipment which had to be retendered, and delivery is now expected in October 1976. The Closing Date has been extended by a year to December 31, 1976 to provide adequate time for the completion of procurement.

Credit No. 234      Integrated Dairy Beef Development Project; US\$7.0  
Million Credit of February 11, 1971; Effective Date:  
August 24, 1971; Closing Date: March 31, 1977

The development of about 700 small and medium-sized dairy farms by providing long-term loans and the construction and operation of two dairy products processing plants were the principal components of the Project which also includes the provision of management and technical services. To date, about 580 farmers have participated and farm loans of about US\$4.5 million equivalent have been approved. About 4,900 head of cattle have been purchased and two dairy plants have been constructed and are in operation. The proceeds of the Credit are almost fully disbursed.

Loan No. 769      First Highway Project; US\$54.5 Million Loan of June 29,  
1971; Effective Date: December 7, 1971; Closing Date:  
December 31, 1976

The construction of approximately 370 km of national highways between Jeonju and Busan was satisfactorily completed in December 1973, at a final cost of about five percent above the appraisal estimate. Feasibility studies and detailed engineering have been completed for 1,400 km and 900 km of national highways, respectively. A study of road maintenance and the establishment of a pilot maintenance organization formed the basis of the creation of a country-wide Highway Maintenance Organization which is being carried out under the Second Highway Project. The Closing Date has been extended by 13 months to permit completion of procurement of highway maintenance equipment, and staff training.

Loan No. 795      Yong San Gang Irrigation Project; US\$33.0 Million Loan  
Credit No. 283      and US\$15.0 Million Credit of February 2, 1972; Effective  
Date: September 15, 1972; Closing Date: September 30, 1977

The Project aims at transforming an area with the highest drought frequency in Korea into one with reliable irrigation and crop diversification. Also, there will be increased production of high value crops such as fruits and winter vegetables. Design work is proceeding satisfactorily and the



work on four dams will be finished by August 1976; however, three major contracts for construction of canals and land consolidation were awarded only recently, and completion of all work will take about three more years. The delay was caused mainly by increased costs due largely to price escalation and design modification. The cost increases will be partially compensated for by benefits attributable to the enlargement of the area to be irrigated by about 1,400 ha; and the Agricultural Development Corporation (ADC) plans to reduce costs by constructing only canals, roads and drainage systems for contour furrow irrigation on all lands exceeding 2 percent slope. Also the Bank has begun monitoring construction costs on each of the ten civil works contracts on a monthly basis.

Credit No. 335      Agricultural Credit Project; US\$10.5 Million Credit of September 29, 1972; Effective Date: May 24, 1973; Closing Date: September 1, 1976

The Credit supports a three-year lending program to small farmers to develop orchards, sericulture and mushroom production and to encourage the breeding of poultry and swine. It also finances an organizational and accounting study of the National Agricultural Cooperative Federation (NACF) and the strengthening of its training facilities. The Project is progressing satisfactorily and was completed ahead of the Closing Date. The Credit has been fully disbursed.

Loan No. 863      Fourth Railway Project; US\$40.0 Million Loan of November 22, 1972; Effective Date: February 26, 1973; Closing Date: December 31, 1976

The main elements of the Project are: electrification of lines in the Seoul suburban area; purchase of electric railcars and locomotives; the completion of electrification of 350 km of line running from Seoul to the northeastern part of Korea; track and bridge renewal; provision of yard facilities; acquisition of passenger and freight cars; and improvement of facilities for the maintenance and repair of motive power and rolling stock. No major problems have been encountered; most of the loan proceeds have been committed, and nearly 95 percent already disbursed.

Loan No. 905      Fourth KDFC Project; US\$40.0 Million Loan of June 13, 1973; Effective Date: September 10, 1973; Closing Date: December 31, 1977

The Project is progressing satisfactorily.

Loan No. 906      Second Education Project; US\$23.0 Million Loan and  
Credit No. 394      US\$20.0 million Credit of June 13, 1973; Effective Date: September 10, 1973; Closing Date: December 31, 1977

The Project provides equipment for and extensions to the buildings of 18 technical and 14 agricultural high schools; ten higher schools/junior colleges for industrial, agricultural, fishery and nursing training; colleges

of agriculture, engineering and natural sciences in nine universities and a merchant marine college; and ten junior teacher colleges and 12 colleges of education. It also includes pre-investment studies on health and management education. Implementation has improved significantly in the last year. All equipment lists have been prepared and reviewed. Progress on civil works is satisfactory and ahead of schedule. Equipment procurement is somewhat behind schedule, but has improved significantly in the last semester. A staff development plan has been approved. Total project cost is estimated at US\$75.8 million, about 8 percent above appraisal estimates. Covenant requirements under the Development Credit Agreement are being met. Project completion is expected to be on schedule.

Loan No. 917      Ports Project; US\$80.0 Million Loan of June 27, 1973;  
Effective Date: September 18, 1973; Closing Date:  
June 30, 1979

The Project includes the provision of container and bulk cargo facilities and equipment at Busan and coal piers and handling equipment at Busan and Mukho. The Project is progressing satisfactorily. Preparation of contract documents for all nine civil works contracts has been completed and five have been awarded. Two of the five equipment contracts have also been awarded. Three of the civil works contracts are on schedule while two are slightly behind schedule; all are expected to be completed on time. The Government signed a Loan Agreement, on March 8, 1976, with the Saudi Fund for Development, which will provide US\$35 million equivalent for this Project.

Loan No. 942      Seeds Project; US\$7.0 Million Loan of November 16, 1973;  
Effective Date: April 24, 1974; Closing Date: December  
31, 1978

The Project consists of: (a) the installation of five field crop seed processing and storage facilities; (b) farm machinery for seed production; (c) procurement of seasonal seed inventories through the operation of a revolving fund; (d) seed testing laboratories and equipment; (e) crop research (financed in part by USAID); (f) feasibility studies for irrigation and area development; and (g) technical assistance. The necessary legislative and administrative action for revising the Seed Law and establishing an "Office for Seed Production and Distribution" has been taken. Project implementation is proceeding satisfactorily. Preliminary estimates suggest that Project costs would be somewhat higher than envisaged at appraisal; the estimates are being revised. Disbursement has been somewhat slower than expected at appraisal but is expected to improve soon.

Loan No. 953      Kyongju Tourism Project; US\$25.0 Million Loan of January 4, 1974; Effective Date: May 6, 1974; Closing Date: December 31, 1978

The Project forms part of the first phase of the planned development of the Bomun Lake resort near Kyongju. It provides for a multi-purpose 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 kms of roads, infrastructure including storm water drainage, environmental sanitation, community facilities, and a golf course; a school for training hotel personnel; and a feasibility study for the development of tourism on Cheju Island. Final design for almost all Project components is complete and several contracts have been awarded. Considerable efforts are being made by the newly established Kyongju Tourism Agency to promote hotel investors interest in the resort area. Disbursement is over 15 percent of the total loan and is expected to accelerate in the months ahead.

Loan No. 956      Second Highway Project; US\$47.0 Million Loan of January 25, 1974; Effective Date: April 4, 1974; Closing Date: December 31, 1977

The Project, which forms part of the Government's 1972-76 road construction and paving program, consists of the construction (chiefly on new alignments) of about 130 kms and paving (largely on existing alignments) of approximately 635 kms of national highways, feasibility studies by consultants of about 1,000 kms of national and provincial roads, followed by detailed engineering where justified; and the procurement of highway maintenance and workshop equipment for the extension of a new highway maintenance program from a pilot province to the remainder of the country. All construction and paving was satisfactorily completed by December 1975. Procurement of equipment is in progress and expected to be completed shortly. Feasibility studies started in August 1975 and are scheduled to be completed in August 1976, to be followed by detailed engineering. The total cost of the project is expected to exceed the appraisal estimates by less than 10 percent. Disbursement is over 80 percent of the total loan.

Loan No. 994      Intégrated Agricultural Products Processing Project; US\$13.0 Million Loan of June 7, 1974; Effective Date: March 19, 1975; Closing Date: June 30, 1979

The Project aims at integrating the on-farm production of commercial crops for export with efficient hygienic processing facilities using land that is presently idle or under-utilized. It comprises: (i) on-farm development of asparagus, oak mushrooms and mushrooms; (ii) construction of and improvements to facilities to process asparagus, oak mushrooms, mushrooms and fruits, and (iii) technical assistance including training of staff, services of consultants etc.

As the current investor demand for the project processing facilities is less than projected, implementation of the Project as a whole is likely to be delayed.

Loan No. 1070      Secondary Cities Regional Project; US\$15.0 Million  
Loan of January 15, 1975; Effective Date: August 18,  
1975; Closing Date: March 31, 1979

The principal aims of the Project are the establishment of an organizational framework for regional investment, planning and development and the improvement of working and living conditions in the secondary cities of the less developed Gwangju region. The main elements of the Project are: (i) housing sites and services in the cities of Yeosu, Mogpo and Gwangju (370,384 m<sup>2</sup>); (ii) a fishery harbor complex with industrial processing zone (215,385 m<sup>2</sup>) in Yeosu; (iii) a city market in Suncheon City (33,160 m<sup>2</sup>); and (iv) access roads in Yeosu and Mogpo (6.61 km). It also provides technical assistance to strengthen regional planning and development, to improve the utilization of existing water supply systems in the four cities, to assist the management and operation of the fishery complex and to carry out feasibility studies of project proposals identified under the UNDP-financed Phase II Regional Study. Project implementation is roughly a year behind the appraisal schedule largely because of delays in establishing the Gwangju Regional Development Unit. However, progress has been improving and is considered satisfactory.

Loan No. 1095      Korea Development Bank Project; US\$60.0 Million Loan of  
of March 31, 1975; Effective Date: June 17, 1975;  
Closing Date: June 30, 1979

The Project provides funds to KDB which will be used to make sub-loans to finance direct imports for industrial sub-projects during the period mid-1975 to mid-1977. Disbursement is already about 40 percent of the total Loan.

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

The principal aims of the Project are to assist in supplying needed skills and to establish a framework for evaluating performance and improving the educational system. The Project consists of: (a) construction and equipment of a new technical high school; (b) equipment and extension of buildings for three agricultural junior colleges; (c) equipment and enlargement of buildings for a fisheries college, three fisheries high schools, and equipment for one merchant marine junior college; (d) construction and equipment of seven new vocational training institutes; and

(e) financing of engineering and technical services required for the preparation of future education projects. Execution of the project implementation is expected to be on schedule. Site layouts and sketch plans for all Ministry of Education (MOE) project schools have been approved. Most sites have been acquired. A consultant architect for Office of Labor Affairs (OLA) project items is being appointed and sketch plans are presently being reviewed. Progress in equipment procurement is satisfactory. No cost overrun is anticipated at this time. Disbursement is expected to start on schedule. Both MOE and OLA project units are functioning satisfactorily.

Loan No. 1101      Fifth Railway Project; US\$100.0 Million Loan of April 10, 1975; Effective Date: July 15, 1975; Closing Date: December 31, 1978

The Project will help the Korean National Railroad (KNR) continue as a major carrier of freight and passengers by helping in: the upgrading, modernization and expansion of track, rolling stock, motive power, and other equipment; the improvement of the efficiency of operation; and its financial recovery. The main components of the Project are: an increase in station and line capacity and improvements in signalling; 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, rail, bridge girders and spares for coaches and track maintenance machinery, amounting to about US\$57.6 million equivalent. Electrification of industrial lines and the Seoul Suburban system has been virtually completed. A quarter of the loan proceeds has been disbursed.

Loan No. 1145      Fifth Korea Development Finance Corporation Project; US\$55.0 Million Loan of July 23, 1975; Effective Date: September 5, 1975; Closing Date: June 30, 1980

The Loan will cover about half the KDFC's foreign exchange requirements through the end of 1977. It will be used to finance direct imports of machinery and equipment, and the foreign exchange component of domestically produced capital goods and of civil works. Disbursements are proceeding on schedule.

Loan No. 1175      Medium Industry Bank (MIB); US\$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 sub-loans to small and medium-sized manufacturing enterprises over the next two years. The Project is progressing satisfactorily.

Loan No. 1193      Second Integrated Dairy Development Project; <sup>1/</sup>US\$15.0 Million  
Loan of June 4, 1976; Closing Date: December 31, 1982

The project consists of: (a) the establishment of about 450 new dairy farms; (b) the continuation of the development begun as part of the First Integrated Dairy Beef Project on about 400 dairy farms; (c) the expansion of existing processing plants, the diversification of their production, the establishment of two milk centers and fifty small milk cooling units and the construction of a frozen milk products plant at Yeongnam; (d) and the expansion of technical services for both farm development and milk processing.

Loan No. 1203      Third Highway Project; US\$90.0 Million Loan of February 3,  
1976; Effective Date: May 17, 1976; Closing Date:  
December 31, 1979

The Loan provides funds to help finance: (i) the construction, chiefly on new alignment, including paving, of about 195 km of four national highways, including supervision of the work by consultants; (ii) paving and improvement chiefly on present alignments, of nine national highways totaling about 600 km, including supervision of the work by consultants; and (iii) feasibility studies by consultants of about 1,200 km of national and provincial roads, to be followed by detailed engineering. Bids have been called for all construction and paving contracts.

Loan No. 1216      Rural Infrastructure Project; US\$60.0 Million Loan of which  
Loan No. 1218T      US\$40.0 Million Third Window; Effective Date: June 4, 1976;  
Closing Date: June 30, 1979

The Project consists of: (a) the construction of 66 minor irrigation sub-projects which will provide irrigation facilities for tracts of land ranging from 50 to 700 ha in size; (b) upland reclamation of roughly 4,500 ha involving some 35 projects; (c) the development of about 11,000 blocks of fuelwood plantations over an area of approximately 127,000 ha; (d) the construction of a total of 850 km of village roads and 200 bridges; (e) the construction of simple water supply systems for some 2,000 villages; (f) the electrification of about 300,000 rural households through a program involving some 2,700 sub-projects; and (g) the improvement of hydrological services. Project implementation has commenced and a recent review mission reports that progress is very satisfactory.

Loan No. 1219      Second Program Loan; US\$75.0 Million Loan of  
March 3, 1976; Effective Date: June 9, 1976;  
Closing Date: May 1, 1977

The principal aim of the Loan is to help meet the foreign exchange requirements for the import into the Republic of Korea, by the private sector, of essential capital and intermediate goods.

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1/ Loan signed on June 4, 1976; not yet effective.

KOREA

MIHO AREA WATERSHED DEVELOPMENT PROJECT

LOAN AND PROJECT SUMMARY

- Borrower: The Republic of Korea
- Amount: \$29.0 million equivalent
- Terms: 22 years, including five years of grace, with interest at 8.9 percent per annum
- Project Description: The proposed project would increase agricultural production and farm incomes on about 12,665 ha and would benefit directly some 10,400 farm families. The main components of the proposed project are:
- (a) construction of dams and canals to irrigate 8,315 ha;
  - (b) conversion of 2,045 ha of cultivated upland to irrigate paddy fields in areas commanded by the above canals;
  - (c) land consolidation, including construction of ditches, drains and farm roads together with land levelling and boundary realignment on 4,600 ha (3,150 ha on presently irrigated land and 1,450 ha in areas to be irrigated by the project);
  - (d) development of 495 ha for irrigation of upland crops, and 550 ha for orchards within the area to be irrigated;
  - (e) upland reclamation, primarily bench-terracing of 1,200 ha of presently uncultivated land;
  - (f) improvement of about 80 km of river channels to increase their flood discharge capacity;
  - (g) construction of about 150 km of village access roads;
  - (h) aerial photography, surveys, and mapping for the design of project works; and

- (i) provision of technical assistance, procurement of vehicles, and a feasibility study for a second-stage project in the Miho Watershed.

Estimated Cost:

	<u>Local</u>	<u>For-</u> <u>eign</u>	<u>Total</u>	<u>Local</u>	<u>For-</u> <u>eign</u>	<u>Total</u>	<u>Foreign</u> <u>Exchange</u>	<u>% of</u> <u>Base Cost</u>
	----- (Won B)	-----	-----	----- (US\$ M)	-----	-----	(%)	(%)
Dams and Canals	5.2	4.3	9.5	10.8	8.8	19.6	45	45
Land Development	2.8	2.3	5.1	5.9	4.6	10.5	45	24
Channel Improvement	0.4	0.3	0.7	0.8	0.6	1.4	45	3
Village Access Roads	0.4	0.3	0.7	0.8	0.7	1.5	45	4
Mapping, Consultants & Vehicles	0.1	0.4	0.5	0.2	0.8	1.0	80	2
Feasibility Studies	0.3	0.2	0.5	0.5	0.5	1.0	50	2
Right-of-Way	2.3	0	2.3	4.8	0	4.8	0	11
Engineering & Admin.	<u>1.6</u>	<u>0.3</u>	<u>1.9</u>	<u>3.3</u>	<u>0.6</u>	<u>3.9</u>	<u>15</u>	<u>9</u>
Base Cost Estimate	13.1	8.1	21.2	27.1	16.6	43.7	38	100
Physical Contingencies	1.4	0.9	2.3	2.9	1.8	4.7	38	11
Expected Price Increases	<u>7.8</u>	<u>5.1</u>	<u>12.9</u>	<u>16.0</u>	<u>10.6</u>	<u>26.6</u>	<u>40</u>	<u>61</u>
Total Project Cost	<u>22.3</u>	<u>14.1</u>	<u>36.4</u>	<u>46.0</u>	<u>29.0</u>	<u>75.0</u>	<u>39</u>	<u>172</u>

Financing Plan:

The proposed Bank loan of \$29.0 million would finance the full foreign exchange requirement of the project. Local expenditures, representing the estimated balance of project costs, would be met through annual Government budgetary allocations to ADC.

Estimated  
Disbursement:

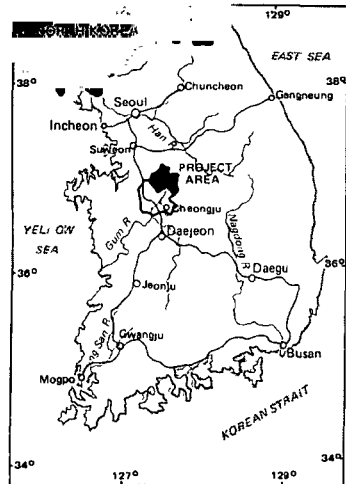
<u>Bank Fiscal Year</u>	<u>in \$'000 equivalent</u>	
	<u>Annual</u>	<u>Cumulative</u>
1977	100	100
1978	1,100	1,200
1979	5,800	7,000
1980	9,000	16,000
1981	7,600	23,600
1982	5,400	29,000



- Procurement: Contracts for civil works construction and for the supply of cement and reinforcing steel would be awarded on the basis of international competitive bidding in accordance with Bank Group Guidelines. These materials would be procured in bulk on behalf of ADC by the Office of Supply, Republic of Korea. Civil works would be packaged together by areas to form about five contracts with an average value of about \$6 million. Aerial photography and mapping services (\$0.5 million) and vehicles (\$80,000) would be procured through normal government procurement procedures.
- Consultants: The Agricultural Development Corporation will employ consultants on periodic short-term assignments to assist the Office of Watershed Development in the final designs of the dams and the canals.
- Rate of Return: The project's overall economic rate of return is 15 percent.
- Appraisal Report: No. 1130a-K0, dated July 8, 1976.



# KOREA MIHO WATERSHED AREA DEVELOPMENT PROJECT



- IRRIGATED AREA (EXISTING)
- PROPOSED IRRIGATION AREA
- UPLAND RECLAMATIONS
- EXISTING DAM
- NEW DAMS
- PROPOSED IRRIGATION CANALS
- TOWNS
- ROADS
- RAILWAYS
- RIVERS AND RESERVOIRS
- SUB WATERSHED BOUNDARIES
- WATERSHED BOUNDARY
- COUNTY (GUN) BOUNDARIES

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

