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Vol. 2

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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
INTERNATIONAL DEVELOPMENT ASSOCIATION

CURRENT ECONOMIC POSITION

AND PROSPECTS

OF THE

REPUBLIC OF KOREA

(in three volumes)

VOLUME II

THE SECTORS

(Agriculture, Mining, Manufacturing,
Power and Transportation)

March 10, 1969

East Asia and Pacific Department

CURRENCY EQUIVALENTS

U. S. \$1. 00	Won 280
Won 1. 000	U. S. \$3. 57
Won 1, 000, 000	U. S. \$3, 571

This report is based on the findings of an Economic Mission which visited the Republic of Korea in October-November 1968. The Mission was composed of the following members:

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SUMMARY AND CONCLUSIONS

A. Agriculture

1. Agricultural production (including forestry and fisheries) had grown quite satisfactorily at an average rate of 5 percent during 1962-66. In 1967, however, a serious drought caused a 6 percent decline in output. In 1968 the situation did not improve because the drought extended into the early months of the year and the fall rice crop was adversely affected by rainy weather. Due mainly to the Government's decision to keep grain prices low to urban consumers and the crop failures, net foodgrain imports more than doubled in 1967 and increased further in 1968 to over 1.2 million tons. The foodgrain gap widened from 6 percent of total foodgrain supply in 1966 to 17 percent in 1968.
2. Output growth in 1968 in livestock, forestry and fisheries has shown good results. Livestock production, accounting now for 8 percent of gross value added in the broad agricultural sector, has increased substantially, as a result of rising urban demand and Government promotion. Forestry production has also increased considerably in the last three years. The Government has undertaken ambitious reforestation, forest protection, and flood control programs. Fisheries, an important foreign exchange earner, has in recent years grown at a steady rate of 11 percent per annum after the expansion of the fleet and the introduction of improved equipment and techniques.
3. For some years essential agricultural development programs have been slowing down. This is in contrast to the other major sectors of the economy, which have been growing at high speed and exceeded their respective Plan targets. In agriculture proper, nearly all essential development programs, including land consolidation and reclamation, irrigation, seed improvement and the use of fertilizer, lime and pesticides have remained behind schedule in varying degrees. Short-term agricultural credit has increased significantly, but there is an acute shortage of medium- and long-term credit for purposes other than irrigation.
4. Recognizing the lagging of the agricultural sector and the widening of the gap between urban and rural incomes, the Government has determined to step up agricultural development in many directions. A first step was undertaken to raise the price of rice to increase farmers' income and to offer incentive for increasing rice production. It is also hoped that this price increase will also reduce rice consumption. Surface irrigation will continue to be improved and expanded; work has also begun on tubewell irrigation. Seed improvement, livestock raising, cash crop production, sericulture, etc., will particularly be encouraged. Total investment in the broad agriculture sector is planned to increase more rapidly than investments in other sectors. In order to realize these objectives, the Mission feels it is important to improve the various Government agencies' ability in project preparation and evaluation and the coordination of efforts among these agencies.

B. Manufacturing

5. Manufacturing has been the center of Korea's economic boom. Output growth accelerated from an annual rate of 12 percent during 1962-64 to 28 percent in 1968. The sector now contributes about 23 percent to GNP as compared to only 16 percent in 1962-64. The phenomenal growth in manufacturing has been stimulated by the rapid expansion of exports and, lately, by growing domestic demand. It has been sustained by large-scale private investments and Government promotion which in particular lent support to export and key import substitution industries.
6. As a whole, producer goods industries have been expanding more rapidly than consumer goods industries, although the latter still contribute about 70 percent to the sector's gross value added. Textile (including clothing and footwear) continues to be the largest industry, followed by the food processing, beverages, and tobacco industries. In producer goods industry, production of cement, electrical machinery and appliances, electronics, chemicals and petrochemicals showed the fastest growth. The notable lagging segment is non-electrical machinery. Its output remained almost stagnant in recent years, despite the overall upsurge in capital formation. To some extent, the development of the machinery industry has been hampered by the ample availability of imported machinery with relatively low tariffs and easy credit terms. In line with the recommendations of the 1967 Bank Mission, the Government has initiated in 1968 a special promotion program for domestic machinery industry.
7. There have been significant changes in industrial structure in recent years. The average size of establishments has been increased, especially in producer goods industries. About one-half of gross value added in manufacturing in 1966 was produced in enterprises with over 200 employees, as compared to only one-third in 1960. There has obviously also been a general trend towards more capital-intensive production, with more capital equipment and power used per worker. All these changes have contributed to the increase of labor productivity in manufacturing (63 percent between 1962 and 1967). On the other hand, average real wages, which declined during 1962-64 because of inflation, have only since 1966 begun to rise again, but at a lower rate than labor productivity. Generally, low labor costs have given Korean industries a distinct comparative advantage over its most important foreign competitors in the region, particularly Japan, Hong Kong and Singapore.
8. Apparently the Government is planning not only to continue to promote export industries but also to enter in an advanced stage of import substitution by the establishment of a large petrochemical complex and an integrated iron and steel plant. It is likely that the high costs of production in both these large-scale modern industries - particularly the iron and steel plant - in the Korean context will place other industries using their inputs at a rather disadvantageous position which may hamper exports. In view of this fact and the large sum of foreign exchange cost involved, it may be more beneficial to postpone the establishment of the integrated iron and steel plant and develop instead the machinery industry which is in general more labor and skill intensive and needs less capital and foreign exchange.

C. Economic Infrastructure

9. The rapid economic growth has raised substantially the demand for power and transportation. In power, peak demand increased by 35 percent in 1968. The power gap, aggravated by the droughts in 1967 and 1968, is largely over, thanks to the Government's crash program in expanding generation facilities. It is expected that further expansion will eliminate power shortage entirely by the end of 1969. But more efforts are required to expand the transmission and distribution system accordingly.

10. The average annual growth rate of transportation services accelerated from 14 percent during 1962-64 to 20 percent in 1968. In spite of this, transportation continues to be a bottleneck. In order to enlarge facilities, the Government considerably stepped up transportation investments. Railroad investments were first emphasized, but lately an ambitious highway construction program has been undertaken, and at the same time the port development plan has also been expanded.

11. The core of the crash highway program is the construction of a 1,600 km four-lane toll expressway system by 1976, with 635 km ready by 1971. The rapid implementation of the highway program is very impressive, but apparently it has also been putting considerable strains on the financing and engineering capabilities of the economy. Careful consideration should therefore be given to the relative priorities, appropriate routes, design standards and stages of construction taking into account present and future traffic.

12. Considerable efforts have been made in diverting fuel and cement transportation from the congested railroad to coastal shipping, by the rapid building up of the shipping fleet. As a result, coastal cargo traffic increased sharply in 1966 and 1967. The expansion of Inchon and Ulsan harbors and improvement of the Pusan harbor are all well under way. But the planned construction of a number of minor harbors simultaneously may not be entirely warranted by the existing and expected traffic, beside stretching the country's resources.

I

THE AGRICULTURAL SECTOR

A. Growth of Output

1. Korean agricultural production (including forestry and fisheries) had grown along a quite satisfactorily rising trend of over 5 percent per annum during 1962-66, but is still susceptible to annual fluctuations due to varying weather conditions. In 1967, serious drought in the south-western part of the country reduced agricultural harvests and caused a 6 percent decline in the output of the whole agricultural sector. The drought extended into the early months of 1968, which together with the rainy weather during the fall harvest were the major causes of the further decline in cereal production. The 11 percent decrease of rice output was particularly striking. Performance in fisheries, however, continued to be good. The overall production of the agricultural sector in 1968 was only slightly better than the low level of 1967.

Table 1

Growth of Agricultural Output
(Annual rate of increase of gross
value added at 1965 market prices)

	<u>1962-64</u>	<u>1965-66</u>	<u>1967</u>	<u>1968^{a/}</u>
<u>Overall</u>	<u>5.4</u>	<u>4.9</u>	<u>-6.0</u>	<u>0.3</u>
Agriculture proper ^{b/}	<u>4.9</u>	<u>5.1</u>	<u>-8.2</u>)
Livestock	<u>1.5</u>	<u>-2.2</u>	<u>-3.1</u>) -0.2
Forestry	<u>17.0</u>	<u>8.9</u>	<u>12.3</u>)
Fisheries	<u>12.7</u>	<u>8.1</u>	<u>10.9</u>	<u>10.7</u>

^{a/} Preliminary estimates

^{b/} Includes agricultural growing, farmers' side job and other agricultural services.

Source: Bank of Korea, National Accounts

2. In gross value added terms, output of agriculture proper, mainly crop cultivation, accounts for slightly over four-fifths. Rice is the major crop, its cultivation occupies almost 40 percent of the total cultivated area and its production in quantity 60 percent of total grain production. Barley is the second largest crop, cultivated on an area slightly smaller than that of rice. The yield of rice has been fluctuating around an average of 300 kilos per Tanbo (or 3 metric tons per hectare) in the 1960's, depending on the weather. While there is no noticeable trend of increase in yield, the level is fairly high compared with other rice-producing countries except Japan^{1/}. Land area planted under "paddy field

^{1/} Average yields between 1962 and 1966 were about 3.2 metric tons per hectare in Korea, 3.3 in Taiwan (first crop) and 4.0 in Japan.

rice" has shown a steady rising trend; it increased by 9.4 percent within ten years. Land area planted under upland rice expanded sharply since 1964, increasing more than 7 times in the past decade. Area under barley cultivation increased only slightly in recent years, but its yield per hectare showed a noticeable upward trend in the last two years.

3. In contrast to rice, other cereals' yield per hectare showed a trend of appreciable increase, but their planted area fluctuated, perhaps because of adjustments made by the farmer to meet changing weather conditions and the desirability of planting the two major crops. More rapid and consistent growth in output was registered in fruits, vegetables, cocoon, and other special cash crops to meet rising demand from domestic consumption, processing industries, and from abroad.

4. Mainly due to the drought, foodgrain imports have expanded at an alarming rate in the last two years. Net foodgrain imports more than doubled in 1967 and increased further in 1968 to more than 1.2 million tons, of which about one-half was financed under PL-480 arrangements, and the rest by short-term credits and by Korean foreign exchange, each about one-quarter. The gap in foodgrains widened from 6 percent of total foodgrain supply in 1966 to over 15 percent in 1968.

5. Livestock production, accounting for about 8 percent of gross value added in the whole agricultural sectors has increased substantially since 1965. Output of meat products has increased due mainly to expanded pork and poultry production. Milk and egg production have also been expanding rapidly though from a very low base. While the number of draft cattle, goats and pigs has been steady or declined slightly, the number of poultry has grown rapidly. The growth in the number of poultry has been facilitated by an expanding feed industry. The Government is now conducting a large program to upgrade the quality of beef and dairy herds through extensive cattle imports and fattening programs.

6. Although over two-thirds of the total land area is covered by "forests", forestry and logging contribute only about 5 percent to the gross value added of the broad agricultural sector, because of generally poor wood quality and inaccessibility of forest land. Forestry production has increased considerably in the last three years. A substantial amount of forest wood has been used as fuel wood which has caused denudation and led to soil erosion. To remedy this unsatisfactory situation the Government has undertaken ambitious forest protection, reforestation and flood control programs. In 1967, 448 thousand hectares were reforested which exceeded the Plan target and more than doubled the 1966 accomplishment. The more modest 1968 target of 173 thousand hectares is also expected to be achieved.

7. Although fishery contributes less than 4.5 percent to agricultural gross value added, it earns the country an appreciable amount of foreign exchange. Exports of "fish and fish preparations" account for almost 8.5 percent of Korea's total commodity exports. In recent years, real

output from fisheries has grown at a steady rate of 11 percent per annum due to large investments made in the expansion of the fleet and the introduction of improved equipment and techniques. During 1962-68, while the tonnage of the non-powered vessels remained more or less the same, the tonnage of powered vessels increased by over 85 percent. At the same time, significant efforts have been made to modernize and equip older vessels and to build up a distant water fleet consisting of longlining and trawling vessels of over 100 tons.

8. In 1968, gross value added in fisheries increased again by 10.7 percent although deep-sea catches had in the first eight months of the year fallen below last year's level. Part of the fleet of the Government-owned Korea Marine Industry Development Corporation, proven to be uneconomical and in liquidation, was out of operation early in the year while put up for sale into private hands. Moreover, time-consuming movements and readjustments in the fleet fishing in Indonesian waters in the first year of operation under the Korean-Indonesian fishery treaty have caused production losses. Furthermore, catches in the Samoa area declined due to a migration change of albacore away from the Korean fishing base on the islands. During the rest of 1968, deep-sea catches, however, picked up considerably. In addition, coastal fish catches and aquaculture production increased noticeably throughout the entire year.

B. Development Performance

9. In agriculture, since weather affects output considerably, it is difficult to judge development performance merely by changes in output. A more meaningful way is to look at the application of agricultural inputs and the development of land. In this regard, recent progress has been rather discouraging; vital development programs are significantly behind targets. This causes concern particularly because overall economic growth as well as growth in all other major production sectors have exceeded their respective targets.

10. Progress in land development has been generally disappointing. in the last two years or so. Reclamation of upland areas through bench terracing, related soil conservation and water control measures performed better in 1968 than in 1967, but during the first two years of the Second Five-Year Plan only 14 percent of the Plan target of 200 thousand hectares have been reclaimed. Causes of this poor performance include the high cost of projects and the shortage of finance, the lack of concerted and coordinated efforts on the part of Central and Provincial Governments, the lack of coordination of work plans of the Office of Forestry and the Union of Land Improvement Associations (ULIA), the short supply of skilled technicians and the unwillingness of some farmers, especially absentee owners, to convert their land in accordance with watershed development plans. Moreover, terracing has often been of poor quality as terracing conducted on the lower foot hills has been washed out due to the lack of reforestation and effective water and erosion control^{1/} in the higher areas.

^{1/} The area under newly accomplished erosion control declined steadily from 182 thousand hectares in 1963 to 33 thousand hectares in 1967.

11. Tidal reclamation has been proceeding at an even slower pace. The Government has recently decided to de-emphasize this program because of the relatively high construction costs, the long gestation period necessary for leaching reclaimed land and the more economical alternative of developing fish culture in tidal basins.

12. Performance in land consolidation in 1968 declined sharply and during the first two years of the Second Plan period only 18 percent of the five-year target will have been attained. Apparently there is no lack of enthusiasm for land consolidation as farm applications for land consolidation to the ULIA have exceeded the Agency's capacity to undertake such programs.

13. Official statistics show that about three-fifths of the paddy land is fully irrigated but this is an overstatement as so-called irrigated areas are reported to have water shortages in prolonged dry spells. The performance in developing new irrigation projects in 1968 was slightly better than in 1967, but during the first two years of the Second Plan period only 23 percent of the five-year target of 140,000 hectares were irrigated by new projects. Performance in repairing and improving existing irrigation facilities has been more satisfactory, approximating the Plan target for the two-year period.

14. In an effort to alleviate rapidly the effects of water shortage in the southwestern provinces in 1967 and 1968, the Government initiated a crash program of shallow well drilling involving the development of about one thousand wells. The project was undertaken without much prior investigation of the potential water capacity. It is necessary to make a thorough study of these factors before proceeding further with a ground water development program.

15. Fertilizer consumption has been steadily increasing and has over the last several years met about 80 percent of the annual targets. Consumption per unit of cultivated land is still low, being only 52 percent of that in Japan and 68 percent in Taiwan.^{1/} The cost of fertilizer in 1968 in terms of rice was higher in Korea than in Japan but lower than in Taiwan.^{2/} The recent rice price increase will lower the cost of fertilizer in relation to rice and should encourage more fertilizer consumption.

^{1/} Consumption of commercial nitrogenous, phosphate and potash per hectare of land under permanent crops in 1966-67 was 184.6 kgs in Korea, 353.6 in Japan and 270.0 in Taiwan. See FAO, Production Yearbook, 1967.

^{2/} The dollar price ratio between rice (per bag of 54 kilograms) and fertilizer (per bag of 45 kilograms of ammonia sulphate) was 3.06 before the recent 17 percent increase in the rice price, and 3.59 after that; it was 5.52 in Japan (1967) and 1.88 in Taiwan (1965).

Table 2

Progress in Land Development

(in thousand hectares)

	<u>1965</u>	<u>1966</u>		<u>1967</u>		<u>1968</u>		<u>Original Second Five- Year Plan (1967-71) Target</u>
	<u>A</u>	<u>T</u>	<u>A</u>	<u>T</u>	<u>A</u>	<u>T</u>	<u>A</u>	
Upland Reclamation	36.7	50.0	22.3	40.0	10.0	30.0	17.9	200
Tidal Land Reclamation	1.1	4.0	-	4.0	-	?	-	20
Land Consolidation	13.5	20.0	19.9	40.0	20.0	40.0	15.2	200
New Irrigation Projects	18.6	38.9	24.6	37.0	13.0	21.5	15.2	140
Repair and Improvement of Existing Irrigation Facilities	23.0	25.0	19.3	50.0	34.2	21.0	29.8	121

Source: Ministry of Agriculture and Forestry (MAF)

Note: T -- Target
A -- Achievement

Table 3

Utilization of Agricultural Inputs

	1962		1963		1964		1965	
	<u>T</u>	<u>A</u>	<u>T</u>	<u>A</u>	<u>T</u>	<u>A</u>	<u>T</u>	<u>A</u>
Fertilizer ('000 metric tons of nutrient)		60		307		364	486	393
Lime (metric tons)	100	90	100	100	300	299	500	450
Pesticides ('000 metric tons)	7.3	7.4	17.9	18.7	16.8	23.4	29.7	12.7
Seeds ('000 metric tons)	22.6	19.9	37.2	21.6	30.5	25.7	38.9	33.6
Implements (number owned at end of year)		844.7		862.6		951.9		979.2
Extension officers (number of extension officers under CRDC/)		3,713				4,808		6,551
	1966		1967		1968		Original Second Five-Year Plan Target	
	<u>T</u>	<u>A</u>	<u>T</u>	<u>A</u>	<u>T</u>	<u>A</u>		
Fertilizer ('000 nutrient tons)	533	423	607	486	634	507		686
Lime (metric tons)	500	175	180	109	175	163 ^{a/}		400
Pesticides ('000 metric tons)	35.5	12.5	38.6	10.0	24.4	4.4 ^{b/}		
Seeds ('000 metric tons)	42.2	33.3	39.7	29.9	52.9			
Implements (number owned at end of year)		1,010.2		994.3				
Extension officers (number of extension officers under ORDC/)		6,540		6,345				

^{a/} As of September 15, 1968.

^{b/} As of August 31, 1968.

^{c/} Office of Rural Development

Source: MAF

Note: T - Target; A - Achievement

16. Annual lime application has been less than a quarter of technically optimum requirements due to transport bottlenecks and lack of Government encouragement and farmers' acceptance. The present estimates of the liming requirements are based on optimum technical requirements and "average" costs of extraction, transportation and distribution. Since the present source of agricultural lime is concentrated largely in one area, transport costs vary considerably. It would seem that possibilities of using closer sources of limestone utilizing local crushers might prove more economic than the current practice of transporting lime which does not require crushing over long distances. Moreover, since most of the liming benefits will come from crops other than paddy, the economics of liming would have to be reviewed in the light of recent changes in the relative price of rice and barley.^{1/} Whether an individual farmer applies lime will in the specific case depend on the cost of the lime delivered at his field and the benefits he expects to derive from its use. Average costs and average benefits have very little meaning to the farmer.

17. Since rice borer and rice blast diseases continue to reduce rice production, the decline in the pesticide consumption remains a problem. The major reasons for the low consumption of pesticides appear to be the high cost of pesticides and equipment.

18. There is scope for improvement in seed processing as the quality of improved seeds has often been uneven which has hindered more rapid distribution. In the implementation of the program, it seems unrealistic to assume that the number of seed varieties can be sharply reduced and that multiplication and processing can be done on a much more centralized basis with one seed center for each province, in view of the diversity of ecological conditions in Korea.

19. The size of the present Korean extension services compares favorably with many other developing countries in terms of number of farms per extension worker.^{2/} However, the quality of agricultural extension workers is still very uneven as less than half have graduated from agriculture colleges. Also local workers have lacked necessary infrastructural support, such as transport facilities in village areas, audio-visual aids to instruction.

20. Agricultural credits extended by the National Agricultural Cooperatives Federation (NACF) system - the only modern agricultural credit institution - increased quite rapidly during 1964-67, averaging at 30 percent annually. However, most of the increase came from banking funds and were extended for short term at the market interest rate of 25 percent per annum. Government funds made available to the NACF for medium- and long-term lending have been stagnant and their share in total NACF lending declined from 20 percent in 1964 to 12 percent in 1967. The total amount of agricultural

1/ Another aspect which should be considered is that the PH of the same soil measured in the dry state is usually lower than in the wet state and thus the liming problem is less serious for rainy season crops than for dry season crops.

2/ See United States Operations Mission to Korea, Rural Development Program Evaluation Report, Korea, 1967, p. 277.

credit available from institutionalized sources during the 1960's remained below 30 percent of the total indebtedness of the farmers. Farmers are forced to borrow heavily from private money lenders at interest rates as high as 50 percent a year which stifles productive investment in agriculture and contributes to the growing disparity between rural and urban incomes. Particularly acute has been the lack of medium- and long-term credit for purposes other than irrigation, which has made long-range farm improvement investments extremely difficult for the farmers.

C. Farm Income and Prices

21. Agricultural production is the major factor in determining farm income. Thus, in the bumper year of 1964, the average income of farm households shown by a small sample survey rose by more than one-third (at current prices), but it fell again in 1965 on account of poor crops. The money income of the farmer depends, of course, also on the prices at which the farmer sells his products. Thus, in 1967, despite a fall in farm production, the average money income of the farmer increased, because of a substantial rise in the prices received by the farmer.

22. Comparing rural income with urban income, one discovers a distinct change after 1964 - an important year marking the beginning of the rapid economic growth in Korea. The results of the two sample surveys show that during 1963-64 the average money income of farm households was appreciably higher than that of city workers. At the same time, the purchasing power of farm income as indicated by the relation between prices received and prices paid by the farmer was also favorable to the farmer. The situation, however, changed since 1965 towards favoring the city worker. The quickened tempo of industrialization raised rapidly city workers' earnings, while the relatively slow growth of agriculture hindered the increase of farm income. Meanwhile, the terms of trade also turned unfavorable to the farmer with prices of industrial products rising more rapidly than those of agricultural products. In 1967, the average money income of farm households stood at only 60 percent of that of city worker households. Along with the more rapid increase in city workers' earning, employment in agriculture began to decline and industrial employment rose considerably. All these changes are obviously inevitable in the process of industrialization. But if the gap between urban and rural income is allowed to widen too much, social problems may arise. Also, economically, industrialization cannot proceed too far with a much lagging agricultural sector, for the latter is relied upon to supply an increasing amount of food, labor force and raw materials to industry. The answer to this problem is to increase agricultural productivity. And for this reason, all the efforts made and planned to be made for agricultural development should be reviewed from this point of view.

Table 4

Urban and Rural Income and Changes in
Farmer's Purchasing Power

<u>Year</u>	<u>Money Income per Household ('000 won)</u>			<u>Price Index (1965 = 100)</u>		
	<u>Farmers^{a/}</u> (A)	<u>City Workers^{b/}</u> (B)	<u>% of (A) to (B)</u> (C)	<u>Received by Farmers</u> (D)	<u>Paid Farmers</u> (F)	<u>% of (D) to (E)</u> (F)
1962	67.9			51.8	61.4	84.4
1963	93.2	80.2	116	76.6	58.1	112.5
1964	125.7	97.2	129	96.0	86.5	111.0
1965	112.2	112.6	100	100.0	100.0	100.0
1966	130.2	151.5	81	106.0	112.2	94.5
1967	149.5	248.6	60	121.5	127.0	95.7

a/ From Ministry of Agriculture and Forestry, Reports of the Results of Farm Household Economic Survey and Production Cost Survey of Agricultural Products, 1968.

b/ From the results of Family Living Survey in Cities, conducted by the EPB.

Source: EPB, Korea Statistical Yearbook, 1968 and MAF, Agricultural Statistical Yearbook, 1968.

23. Being aware of the declining economic position of the farmer and the growing shortage in foodgrains, the Government announced in the fall of 1968 that its purchase (support) price of rice (which was also considered low in international comparison) was to increase by 17 percent. By the price policy the Government hopes that farm income will be improved relative to other sectors, for the rise in the general wholesale price level has been around 6-7 percent, and thereby provides both incentive and means for the farmer to increase rice production. On the consumption side, it hopes that people will consume more barley and less rice, particularly rural population, thus reducing rice imports. However, one should also consider the possibility that an increase of farm income tends to increase rural consumption of non-farm products and that not all the increment in rural purchasing power will be used in buying producer goods for enlarging agricultural production. The Mission believes that from both resource allocation and income distribution points of view, it is justifiable that the domestic price of rice should be brought up to the international level, but beyond that the basic means of raising the farm income is to increase agricultural productivity the hard way by improving the land and using more agricultural inputs in an economical manner.

D. Prospects

Output

24. Assuming normal weather conditions in 1969, a rebound in agricultural production may raise the growth rate to 8.2 percent as projected in the 1969 ORB. However, owing to the smaller base amount of 1968, the absolute amount of 1969 output will be only slightly higher than in 1966.

25. The Mission estimates that foodgrain production in 1969 may reach 7.6 million MT, 8.5 percent below the original ORB projection, and 14 percent below the MAF's estimate. The MAF estimate assumes that during the Second Plan period 140 thousand hectares of land will have been irrigated by new irrigation projects, 200 thousand hectares of upland reclaimed, and 200 thousand hectares of land consolidated. In addition, annual fertilizer and lime consumption would reach 686 and 400 thousand tons respectively by 1971. As these targets are not likely to be reached the Mission believes that grain production will in 1971 probably be no more than 8.5 million metric tons, which if attained would be about 90 percent of the Plan target.

26. Owing to the lower foodgrain production realized in 1968 and projected for 1970-71, foodgrain imports will be larger than previously expected. Recently, the Government has estimated that foodgrain imports in 1969 would exceed 2 million metric tons, substantially higher than projected in the ORB. Seven hundred thousand of these imports will be rice from the United States and Japan, with the rest consisting of wheat and other food items. If the present consumption trend continues, the foodgrain gap will be at least one million metric tons in 1971.

27. Projected increases for other agricultural crops during 1969-71 appear to be more or less attainable; fruit and vegetable production may slightly exceed targets, while cocoon and special crop production may fall somewhat short of expectation. The planned increase in livestock production appears optimistic as the projection for the increase in the number of swine and cattle is on the high side. Great efforts will have to be made in obtaining adequate feed and maintenance for the planned large increase in the number of animals. Forestry production will continue to expand and a growth rate of 8 percent appears likely.

28. The ORB estimates that agriculture, forestry and fisheries will grow at 6 percent per annum during the last two years of the Plan. Given full and effective implementation of the investment program and favorable weather conditions it might be possible to achieve this target. However, the continuous dependence on uneven rainfalls, uncertainties in the implementation of agricultural programs, and the time needed to complete large-scale irrigation and other projects make an average annual growth rate of 5 percent more likely.

Investment

29. After two successive years of poor harvests, the Government has become increasingly aware of the need to bolster investment in the agricultural sector and it is now determined to step up agricultural development. In 1969 both public and private investment in agriculture will expand more rapidly than investment in other sectors. The 59 percent increase in anticipated investment in agriculture proper (at current prices) would however require substantial improvement in the general absorptive capacity and private investment climate.

30. In land development there will be a shift of emphasis from upland and tidal reclamation toward paddy rearrangement. In view of this change, it is unlikely that more than half of the target of 40 thousand hectares of land will be reclaimed in 1969. More emphasis on land consolidation is to be welcomed because of its importance for agricultural development in consolidating fragmented land holdings to facilitate drainage and mechanization.

31. Government investment in irrigation will be slightly higher in 1969 than in 1968, and it is likely that the increase in land irrigated by new projects will be somewhat above last year's total of 15 thousand hectares. The Government plans to spend over a quarter of its investment in irrigation on groundwater development, but the large increase in this investment appears premature in view of the inadequate knowledge of underground water resources and the benefit and cost of well construction.

32. MAF estimates total fertilizer requirements to be 644 thousand metric tons in 1969. To achieve this target, fertilizer consumption will have to increase roughly at a rate of three times the 9 percent average annual rate of the last several years.

33. Government investment in lime will rise by 30 percent in 1969. With this increased effort it is possible that agricultural lime consumption will approximate the target of 200 thousand metric tons. However, if lime application is to reach optimum levels greater efforts will be needed to develop local sources of lime as suggested above.

34. Investment in seed improvement will further expand in 1969. The Government is currently conducting an investigation to ascertain ways of improving the consistency and quality of processed seeds.

35. Korean agriculture has reached the stage where further increases in productivity will depend to a large extent on more mechanized power available to the farmer to meet peak season requirements for timely and effective land preparation, harvesting, and threshing. The mechanization level is very low as, for example, in 1966 there was only one power tiller per 1,500 hectares in Korea, compared to one for 63 hectares in the Republic of China, and 12.6 in Japan.^{1/} Both private and public investments in farm

^{1/} Ministry of Agriculture and Forestry, Yearbook of Agriculture and Forestry Statistics, Republic of Korea 1968; Ministry of Agriculture and Forestry, Government of Japan, Statistics of Agriculture, Forestry and Fisheries Japan, 1967; and Department of Agriculture and Forestry, Provincial Government of Taiwan, Taiwan Agricultural Yearbook, 1967.

implements are expected to increase dramatically in 1969. However, a major constraint on farm mechanization is the low level of agricultural income, as the average annual farm household income of the Korean farmer is only about two-thirds of the cost of a six horsepower power tiller. This dilemma can perhaps be resolved by coupling increased Government investment in power equipment with arrangements for renting implements to farmers through agricultural cooperatives.

36. Agricultural credit will continue to expand in 1969 with several changes from past policies. The emphasis will shift from small farm loans to support of cash crop production and agricultural business. Moreover, NACF expects to increase the amount of relatively low interest loans, particularly for livestock. It also hopes to increase medium- and long-term lending, particularly by borrowing from abroad.^{1/}

37. One of the most striking features of the Government investment program in 1969 is its emphasis on cash crops and diversification. The increase in Government investment in livestock in 1969 is mainly for the development of 36 thousand hectares of pastureland. It is essential that domestic feed supply also increases, as feed imports in 1969 alone are expected to be over 200 thousand metric tons. Some increase in feed supply for dairy animals can result from increased mechanization and the concomitant decline in the number of draft animals, more effective use of local crop residues, and use of presently marginal land for pasture purposes. Unfortunately, the Government's pasture development plans seem not very well defined and further efforts have to be made if these ambitious targets are to be fully realized. Improvement is also needed in the management of dairy farms as expensive imported cattle has not always been well maintained. It is perhaps more sensible to build up local stud herds under competent management, which could eventually provide a source of heifers at a lower cost to individual farmers.

38. Production targets for sericulture have recently been raised and Government investment in this field will concentrate on increasing the supply of fertilizer for mulberry fields and constructing cocooneries. Government efforts to increase production of cash crops (flax, kacho, oil seed, mushrooms, fruit and vegetables) include the development of specialized production areas, intensive dissemination of farming techniques, and improvement in marketing facilities.

39. Development in forestry will concentrate particularly on erosion control, protection against pests and planting of trees of high commercial value. Total investment in forestry will, however, decline slightly in 1969.

^{1/} NACF has been designated as the beneficiary of sub-loans under a \$1 million Canadian dairy loan.

40. During 1970 and 1971, the Government expects to continue its emphasis on the agricultural sector. While overall investment (at 1969 prices) is expected to increase by 17 percent by 1971 over the 1969 levels, investment in the agriculture, forestry and fisheries sector is expected to rise by 50 percent. Primary emphasis will be on production of foodgrains where investment is expected to double by 1971 over the 1969 level. The great bulk of this investment expansion will come from the Government sector. This situation raises questions about the absorptive capacity of governmental agricultural institutions, where apparently improvement is needed, particularly in economic analysis and project evaluation, and in coordination among the various agencies.

41. For the various reasons given above, the Mission feels that the amount of investment planned for the agricultural sector may be too large to be economically utilized. The amount of 106 billion won (at 1969 prices) earmarked for 1971, representing a 27.4 percent increase over 1970, seems particularly excessive.

Table 5

EPB Adjusted Agricultural Investment Program
(in billion won at 1969 prices)

	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>Total</u>	
				<u>1969-71</u>	<u>Compo- sition %</u>
Production of foodgrains	22.0	39.1	44.0	105.1	40.5
Cash crop and sericulture	5.2	5.8	6.4	17.4	6.7
Livestock	3.7	3.5	4.0	11.2	4.3
Forestry	8.1	7.3	7.8	23.2	8.9
Fisheries	11.7	11.7	12.2	35.6	13.7
Other (in agriculture and forestry)	<u>19.6</u>	<u>15.8</u>	<u>31.6</u>	<u>67.0</u>	<u>25.9</u>
Total	70.3	83.2	106.0	259.5	100.0

Source: EPB

II

MINING

42. Korea's small mining industry, which now contributes only 1.5 percent to GNP, has recently been afflicted by lagging coal production and in 1967 a decline in iron ore extraction. Main problems have been inaccessibility and low quality of deposits and uneconomical scale of operations. As a result, the sector's growth rate has been declining over the years from a high average 15.8 percent in 1962-64 to 8.3 percent in 1965-66 and to 7.6 percent in 1967 (far below the Plan target of 14.4 percent). In 1968 eventually gross value added in mining actually declined by 2.5 percent.

Table 6
Output of Major Minerals

	<u>Average</u> <u>1962-64</u>	<u>1966</u>	<u>1967</u>	<u>1968</u> ^{a/}
Anthracite coal (in million MT)	8.64	11.61	12.44	10.24
Iron Ore, 45-57% (in thousand MT)	552	789	698	800
Tungsten Concentrate, 65-75% WO ₃ (in short tons)	5,582	4,064	4,016	3,700
Copper Ore, 4-10% Cu (in MT)	11,723	21,076	15,561	17,000
Zinc Concentrate, 50% Zn (in MT)	2,726	23,385	27,299	30,000
Lime, 50% CaO (in million MT)	1.61	2.93	3.92	5.00

a/ Estimate

Source: Ministry of Commerce and Industry

43. Anthracite coal output reached only 12.4 million MT in 1967 as compared to the 13 million MT estimate due to the shrinkage in urban and industrial demand following increasing oil substitution, e.g., the substitution of coal firing thermal power plants by oil plants. Despite lower production, coal stocks at the mines rose during 1967 from 850,000 to 1,250,000 MT. With further substitution of oil for coal, output declined to 10.24 million MT in 1968. Although in rural areas there has been increasing substitution of charcoal by coal for heating - a process encouraged by the Government to contain deforestation - the development has apparently been relatively slow as a result of transport bottlenecks and maybe also lack of funds on the part of farmers.

44. In metallic minerals, extraction of Korea's poor-quality iron ore declined in 1967 by 12 percent as a result of stagnating exports and falling export prices. So far almost all iron ore has been exported to Japan. With the build-up of domestic iron and steel industry local demand is gradually to increase; therefore ore production was estimated to reach 800 MT in 1968. Tungsten output stagnated in 1967 and is expected to decline sharply despite favorable export conditions because of growing inaccessibility of deposits. The same fate looms over Korea's small gold mines while mining difficulties also accounted for the decline in copper ore output. In contrast, zinc and lead production has been showing a substantial upswing.

45. In non-metallic minerals, output of limestone has been increasing rapidly with the fast expansion of Korea's cement industry which, after the inauguration of a gypsum refinery, is independent of foreign raw materials. Out of the 5 million MT limestone to be extracted from mines in 1967, about 4.5 million MT will go to cement plants, about 350 thousand MT for agriculture, and over 100 thousand MT to the growing ceramic industry; the rest will be used for iron and NF-metal smelting. Output of other non-metallic minerals such as fluorite, pyrophyllite, and silica has been increasing because of rising export demand.

III

MANUFACTURING

A. Growth and Composition

46. Manufacturing has continued to be the most dynamic sector in the growth of the Korean economy. Its gross value added accelerated from an annual rate of increase of 12 percent during 1962-64 to 19 percent in 1965-66, and 24 percent in 1967 - 2.7 times faster than the GNP growth. The rapid expansion continued also in 1968, with the preliminary data showing a record 28.5 percent growth^{1/}. As a result of the rapid expansion, the contribution of manufacturing to GNP rose from 15.6 percent during 1962-64 to 23.4 percent in 1968.

47. The impressive growth of manufacturing has been stimulated by the rapid expansion of export demand and more recently, with rising income and consumption, by growing domestic demand. It has been made possible by large scale private investments and active Government promotion. The Government's policy has decidedly supported export industries by a plethora of fiscal and credit incentives and promoted with determination some import substitution sectors, like fertilizer, cement, petrochemicals, iron and steel, and oil refining, deemed essential for future development.

48. The recent high growth rate in manufacturing has been achieved since 1966 against the odds of serious bottlenecks in power and transportation. However, larger imports of raw materials and later an ease in the power supply have been the favorable factors.

49. Within the manufacturing sector, the producer goods industries have expanded much faster than the consumer goods industries, although the former's share in the total output is still 30 percent. This development is due mainly to the Government's promotion of import substitution. In addition, production of basic metals, metal products, and transport equipment has been expanded considerably from a low base. Machinery industry as a whole fell far behind, although in the course of export promotion, a sizeable industry producing electrical machinery and appliances as well as electronic parts has been established.

^{1/} The manufacturing production index calculated by the Korean Reconstruction Bank shows an even sharper acceleration of expansion. While production increased by an average 12 percent during 1962-64, the growth was 20 percent per year during 1965-66, and 29 percent in 1967. For the first six months of 1968, the production index showed a 31 percent increase over the corresponding period of 1967.

50. Korea's non-electrical machinery industry has only very recently started to participate in the overall boom in manufacturing. Before it had been growing rather slowly despite the overall upsurge in domestic capital formation, suffering from small-scale operation, narrow domestic market and the inability to export. The products have been overpriced and of low quality, resulting from obsolete equipment and inadequate technological skill. As the export potential was considered insignificant and a large supply of imported machinery has been made easy by the ample supply of foreign equipment loans, the development of local machinery industry has not received high priority. High cost of domestic financing in contrast with lower interest rates on foreign loans is another unfavorable factor.

51. The last Bank report emphasized the importance of establishing an efficient machinery industry since local demand for investment goods will continue to grow substantially. The Government has in the meantime also become aware of the problem and initiated in 1968 a 2.4 billion won a year loan program for the development of the machinery industry (one-half from budget funds to be matched from the commercial banks); the program is to be doubled in 1969.^{1/} Under this program, loans are being extended to 21 selected machinery manufacturing sectors to establish, expand or modernize production facilities. A list of 89 machinery parts has been announced so far, specifying items which deserve high priority in promoting development, chiefly for meeting future domestic demand. Simultaneously, steps have been taken to identify the areas where Korean machinery is most likely to produce at an internationally competitive price and quality level.

52. Although having expanded at a slower rate, consumer goods industry is still dominant in the manufacturing sector. The broadly defined textile industry (including clothing and footwear) contributes about 30 percent of the sector's gross value added and continues to be the largest manufacturing segment. The industry has catered largely (three-fourths) for the domestic market, although textile and clothing exports amounting to over \$100 million in 1967 have also become Korea's largest merchandise export earner. Currently it tends to export more and higher-quality textile end-products with higher labor contents instead of intermediaries. Thus, clothing exports, increasing by 77 percent in 1967 to almost \$60 million, exceeded for the first time exports of yarns and fabrics. More diversified use of man-made fibers, in combination with natural fibers resulted in a sharp increase of man-made fiber imports in 1966 and 1967, since so far local man-made fiber production has still been small and of generally poor quality. It is expected that after the completion of the Ulsan Petrochemical Complex, domestic synthetic fiber supply will substitute substantially more imports.

^{1/} Until 1967, the Government had provided only about ₩200 million p.a. through KRB and MIB, although, of course, some of the general funds for medium and small industries also benefitted small machinery plants.

53. The food processing, beverage, and tobacco manufacturing industry is the second largest segment, although its importance has declined. Lately, this industry has been stimulated by the growing demand for higher valued food and Government's export promotion.

B. Structural Characteristics

54. The structure of Korea's manufacturing sector has changed significantly in the 1960's. With growing competition with imports and in export markets, the scale of operation has been considerably enlarged and capital intensity increased. According to the manufacturing census^{1/}, the importance of large-size enterprises (with 200 employees or more) in manufacturing production has substantially increased in recent years. While in 1960 about one-third of gross value added in manufacturing was produced in large enterprises, in 1966 it increased to more than one-half. The share of medium-size enterprises (with 50 to 199 employees) remained virtually the same, and the share of small establishments (with 5 to 49 employees) decreased from 47 percent to 27 percent. The trend towards large-size enterprises is conspicuous especially in several producer goods industries, like chemicals, petrochemicals, basic metals, electrical machinery and appliances, and transport equipment (as well as in plywood, where new large-scale industries with modern technology have been established after 1960 and were therefore not covered by the 1960 Census). Other industries like cement, glass, and paper that have also expanded output considerably had already a predominance of large-size units.

55. However, the number of small units was still increasing, from 15,200 to 22,700 during the period. Small establishments are particularly dominant in furniture and fixtures, clothing and footwear, leather and leather products, metal products, and non-electrical machinery industries. Apparently, a large number of small enterprises are operating rather uneconomically. Since most of them are family enterprises, encouragement to merge, sometimes even outside advice for improving management and operation, meets great resistance and termination of operations as well as amalgamation constitute a difficult social problem. The Government has pursued since 1966 a development program to improve the status of small-scale industries. The program aims at converting some of the enterprises into efficient export industries, encouraging specialization and link-ups as subcontractors with large establishments, establishing industrial estates, and promoting cooperative activities. It also renders management guidances to over 100 pilot plants selected among small enterprises.

^{1/} The latest Mining and Manufacturing Census was conducted jointly by the Economic Planning Board and the Korean Reconstruction Bank from March 27 to April 15, 1967. Reporting date was December 31, 1966 and the reference period calendar 1966. The Census covers only manufacturing establishments with 5 or more employees.

Table 7

Growth and Composition of Gross Value Added in Manufacturing
(at 1965 constant market prices)

	<u>1961</u>		<u>1967</u>		<u>Increase in %</u>	<u>During 1962-67 Annual Rate of Growth (%)</u>
	<u>Billion Won</u>	<u>%</u>	<u>Billion Won</u>	<u>%</u>		
<u>Producer Goods Industries</u>	<u>17.44</u>	<u>21.1</u>	<u>61.54</u>	<u>30.0</u>	<u>253</u>	<u>23.5</u>
Cement, stone, and glass	2.61	3.2	9.14	4.5	250	23.5
Metal and metal products	3.57	4.3	10.86	5.3	204	20.5
Machinery and transport equipment	6.71	8.1	22.90	11.1	241	22.8
Chemicals and petrochemicals	4.55	5.5	18.64	9.1	310	26.5
<u>Consumer Goods Industries</u>	<u>65.38</u>	<u>78.9</u>	<u>143.79</u>	<u>70.0</u>	<u>120</u>	<u>14.1</u>
Food, beverage, and tobacco	27.10	32.7	53.06	25.8	96	11.9
Textile, clothing, and footwear	26.28	31.7	60.92	29.6	132	15.0
Others	12.00	14.5	29.81	14.6	148	16.4
<u>Total</u>	<u>82.82</u>	<u>100.0</u>	<u>205.33</u>	<u>100.0</u>	<u>148</u>	<u>16.3</u>

Source: Bank of Korea, National Accounts Data

56. Evidently, there has also been a general trend towards more capital-intensive production processes in manufacturing, when one compares machinery equipment with the number of workers. According to the BOK sample survey, the value of machinery (at 1965 machinery prices) per employee had increased from 116 thousand won in 1962 to 201 thousand won in 1966 - an increase of 73 percent within four years. Similarly, electric power used per employee increased from 2,070 KWH in 1963 to 2,930 KWH in 1966 (using Census figures for employees), a 42 percent increase within three years.

57. Equipped with more machinery and tools, and using more electric power, labor productivity certainly tends to increase. In addition, the process of learning by practice itself would also increase labor productivity, particularly because the Korean workers are literate, diligent, and easily trainable. According to the index prepared by the Korean Productivity Center, labor productivity in manufacturing as a whole increased by 63 percent between 1962 and 1967. Relatively high increases occurred in the producer goods sectors, with the conspicuous exception of machinery industry, whose labor productivity even declined. Textile industry and an average increase in labor productivity. Sectors with a relatively low rise in productivity included wood and cork, food processing, rubber, and leather products.

58. In contrast to the continuous improvement in labor productivity, the average real wage had declined during 1962-64 because of inflation, and only since 1966 began to rise together with the increase of labor productivity, although to a lesser extent in 1967. This situation has greatly enhanced the profit position of the manufacturing enterprises and to a considerable extent facilitated the financing of their rapid expansion in capital equipment. The BOK's sample survey shows that the net profit per employee of the covered manufacturing enterprises rose from 35,000 won in 1962 to 87,000 won in 1966, or by 135 percent, comparing with a 94 percent increase in the wholesale price index.

59. The low labor costs have contributed significantly to the rapid increase in exports. The international comparison of hourly wages of adult wage earners for October 1967 (Statistical Appendix) shows that Korean wage rates are in the lowest category and also generally below those of Korea's most important foreign trade competitors in the region, the Republic of China, Hong Kong, and Singapore. However, in wages for skilled labor in textile industry the Republic of China's wage level seems somewhat lower. Also in construction and electrical power generation Chinese wages are below the Korean. The Japanese wage level is distinctly higher in all occupations.

60. The low labor costs have also attracted foreign investors to establish plants in Korea for labor intensive manufacturing

processes. This has been particularly the case in electrical machinery and electronics. At present, 13 investors, almost exclusively from the U.S., started or are about to start production of parts and components for computers and other sections of the electronics industry. The products will be exported to the investor's home countries for final assemblage and most of the production is, in fact, in bond.

Table 8

Indicators of Structural Changes in the
Manufacturing Industry

	<u>1962</u>	<u>1965</u>
Share of large size establishments in gross value-added (%)	33.7 ^{a/}	53.3
Machinery per each employee (1,000 won at 1965 prices)	116	201
Electric power consumption per employee (KWH)	2,070 ^{b/}	2,930
Labor productivity (Index: 1965 = 100)	73.4	103.8 (119.7) ^{c/}
Real wages (Index: 1965 = 100)	110.6	104.0 (115.5) ^{c/}

a/ 1960 figure

b/ 1963 figure

c/ 1967 figures

Sources: Statistical Appendix Tables II and IV, and BOK, Economic
Statistics Yearbook, 1968

C. Prospects

61. Some of the favorable factors that accounted for the record growth rate of 28.5 percent in manufacturing production are likely to continue in 1969, particularly the export expansion, the construction boom, and the more ample supply of power. In addition, capacity will be further enlarged in 1969 in the production of cement, oil, fertilizer synthetic fibers, printing paper, etc. Considering on the other hand, some possible constraining factors, such as the more restricted policy towards both foreign credits and imports (which may affect adversely raw material imports) and the Government's intention of reducing the growth of private consumption, it appears safe to assume that the manufacturing output growth rate in 1969 will be noticeably lower; a rate of around 22 percent may be reasonable, which is still slightly higher than the ORB projection.

62. For the rest of the Second Plan period, the base of projections is less firm. One favorable factor will be the continuous expansion of exports. If the costly investment in the integrated iron and steel plant is postponed and some of the funds so released are shifted to other industries, there is a good chance that the manufacturing output growth rate will be maintained at a level around 19 percent per annum.

63. Fixed investment in the manufacturing sector increased by 32 percent in 1968, as compared with practically no increase planned in the previous ORB. The major factor in this expansion appears to be the easy availability of cheap foreign credits. As the accumulation of heavy external debts is rather unhealthy, further expansion in investment in the manufacturing sector should be scaled down as much as possible, particularly in large projects with high foreign exchange content, long gestation periods, and unfavorable effects on export production. With this view, the Mission considers that the manufacturing investment program for 1970 and 1971 should be re-examined and reduced. The 1969 investment program appears reasonable as a maximum program which, however, should not be exceeded in the course of implementation.

64. Over 85 percent of investment in manufacturing are expected to be undertaken in the private sector during 1969-71. Even so, the investment program is more than an indicative one, because the Government can control it through the approval of foreign financing, for more than two-fifths of total investment is likely to consist of foreign exchanges.

65. The investment program for 1969-71 continues to emphasize producer goods industries which account for 57 percent of total investment in manufacturing. Planned investment in consumer goods industries account for 28 percent of the total and promotion of medium and small industry and others, 15 percent. The emphasis on producer goods industries is particularly striking in the 1970-71 investment program.

66. Among the producer goods industries, petrochemicals and metal and metal products are the largest segments, 20 percent and 15 percent respectively of the total, because of the construction of the Ulsan refinery and petrochemical complex and the planned investment in the Pohang integrated iron and steel plant. Investments in these projects as projected by the EPB will increase substantially in 1970-71 as negotiations of foreign financing arrangements are presently delayed. Owing to the higher import contents of producer goods investment, foreign exchange requirements in the total investment in manufacturing sector will rise from 40 percent in 1969 to 49 percent in 1971.

67. Construction work for the Ulsan petrochemical complex has already started. The complex, consisting of a naphtha cracking center with 11 related plants including a VCM polyethylene plant with linked plants, was originally conceived around a 60,000 MT ethylene production capacity of the cracking unit. In order to realize economies of scale and lower unit costs of production the planned production capacity of the project has now been expanded to 100,000 MT ethylene with the potential for a further increase to 150,000 MT. However, the production costs are even under the revised scheme likely to be noticeably higher than world market prices^{1/} and the maximum scale of operation will only reach the scale of the smallest comparable Japanese plants.

68. Total foreign exchange requirements of the Ulsan complex are now estimated at \$160 million in loans and \$22 million equity participation. Financing arrangements under negotiation with foreign, predominantly U.S., investors - mostly as joint ventures - have apparently reached a final stage for most sub-projects. The Ulsan project initiated the first example of regional cooperation with an agreement between Korea and the Republic of China under which China will import Korean caprolactam and supply DMT for the complex.

69. Partly in connection with the Ulsan complex, the investment plan provides for a big expansion of production facilities for man-made fibers and yarn, accounting for a large portion of textile investments. Here again there will be the danger of lower quality and high cost production reducing the export competitiveness of the textile end-producer.

70. While the petrochemical industry may be an indispensable part in the future of industrial development in Korea, it is important that strenuous efforts should be made to improve the project economically and to learn technology and skills quickly, particularly because technological progress in this industry is very rapid.

71. The main decided project in the fertilizer sector is the modernization of the Government-owned Chungju and Honam plants which have become highly uneconomical due to obsolete coal and gasification process. While Honam is being changed to oil processing, Chungju will be transferred into an ammonia feedstock unit linked with the Ulsan petrochemical complex.

^{1/} At \$80/t compared to \$45/t in Japan.

72. Petroleum refining capacity will be enlarged to about 240,000 barrels per day after the expansion of the Ulsan refinery, and the completion of the Yosu plant and a third one, probably to be built in Inchon. Demand for oil, mainly heavy oil, is growing rapidly with the shift in fuel from coal to Bunker C oil for thermal power plants, the substitution of coal by oil in general urban heating, and the substantial demand generated by the three new fertilizer plants completed in 1967, which are based on naphtha as raw material. Also gasoline consumption has been going up with increasing motorization.

73. The Pohang Integrated Iron and Steel Plant is another major import substitution project. The complex to be run by a Government company is to produce 600,000 MT of ingot equivalent of finished steel goods, including plates and billets, when completed in 1971. The capacity is to be expanded to 1 million MT ingot equivalent by 1976-68 and eventually to 3 million MT in the 1980's. Investment costs for the first stage are estimated at \$160 million, thereof about \$100 million in foreign exchange. Planning and construction of the project has been entrusted to an international consortium, with the proviso that it will mobilize the necessary foreign finance in the five member countries. Due to the delay in the financial negotiations, the plant may not be in operation before 1972/73.

74. Under the present plan, the plant will probably produce considerably above the international price level requiring substantial import protection, because of its small scale of operation, its high infrastructural and supporting investment, and higher investment costs due to the installation of specially designed blast furnaces to permit the use of the low grade local iron ore.^{1/} In addition, all coking coal will have to be imported. If costs of production cannot be noticeably lowered, there will be danger that the competitiveness of local steel users will be jeopardized if forced to buy high priced products. Despite the favorable long-term trends in steel demand in Korea, the project at present might not have deserved a high priority, and should be postponed, particularly because of its high cost and large foreign exchange content.

75. In contrast to iron and steel investment, investment in machinery is projected to decrease in 1970-71. For 1969-71, the adjusted investment amount accounts for less than 9 percent of total planned investment in manufacturing. The Mission feels that in view of the obvious comparative advantage, it would be desirable to shift the emphasis from iron and steel to machinery industry, because in the Korean situation the capital and foreign exchange components in the latter is smaller than in the former, and the labor and skill components larger. Moreover, by using cheap imported steel and Korean labor, some unsophisticated machinery products can even be made for exports. Furthermore, investments in the machinery industry can be undertaken in smaller segments, while iron and steel investment will have to be an indivisible large lump sum.

^{1/} This problem was discussed in greater details in the previous Bank report.

76. In the field of transport equipment, the Government supported the establishment of three automobile assembly plants (with a total capacity for 35,000 automobiles, including 15,000 trucks). The small scale of the plants tends to result in high cost automobile production. In addition, the three foreign car producers will each assemble many models in Korea which will lead to a proliferation of types with resulting difficulties in servicing and maintenance.

77. Among the consumer goods industries, the investment in textiles will be further expanded. In the wood processing sector, some expansion of investment in plywood for export is envisaged, while investment in other lumber industry is reduced considerably due to restrictions put on the use of local lumber. New investment in the food industry will also decline, with emphasis shifting to starch production, milk, meat and fish processing, fruit and vegetable canning, and tobacco manufacture.

Table 9

EPB Manufacturing Investment Program

	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>Total</u>	
				<u>1969-71</u>	<u>Composi- tion (%)</u>
	(in billion won at 1969 prices)				
<u>Producer Goods Industries</u>	<u>56.1</u>	<u>62.8</u>	<u>67.1</u>	<u>186.0</u>	<u>56.9</u>
Cement, glass, ceramics	12.4	7.0	7.8	27.2	8.3
Metal and metal products	13.4	16.5	19.5	49.4	15.1
Machinery and transport equipment	10.9	7.7	9.8	28.4	8.7
Chemical products and fertilizer	4.3	4.9	6.3	15.5	4.8
Petrochemicals	15.1	26.7	23.7	65.5	20.0
<u>Consumer Goods Industries</u>	<u>32.5</u>	<u>27.9</u>	<u>30.9</u>	<u>91.3</u>	<u>27.9</u>
Processed food, beverages, and tobacco	6.6	5.8	5.0	17.4	5.3
Textiles	20.5	19.1	22.3	61.9	18.9
Lumber (including plywood), paper and pulp	5.4	3.0	3.6	12.0	3.7
<u>Other non-specified investments^{a/}</u>	<u>15.7</u>	<u>16.0</u>	<u>18.1</u>	<u>49.8</u>	<u>15.2</u>
<u>Total</u>	<u>104.3</u>	<u>106.7</u>	<u>116.1</u>	<u>327.1</u>	<u>100.0</u>

^{a/} Including promotion of medium and small industries, stocks, and some mining investments.

Source: EPB

IV

POWER

A. Recent Trends

78. Industrial and residential demand for power has been accelerating since 1964. Peak demand increased by 20 percent per annum during 1965-66, 28 percent in 1967 and possibly 35 percent in 1968. Power sales of the Government-controlled Korea Electric Company, which practically monopolizes the power supply, reached over 3,900 GWH in 1967, of which over four-fifths were for industrial use.

79. Due to a large-scale expansion of the generating capacity during 1964-65, Korea had been temporarily able to match the swift increase in power demand and overcome the chronic power deficiency which had retarded economic growth before 1964. In 1966, however, when the power investment program was slowed down and no new installed capacity was added, shortage emerged again. The gap between supply and demand was aggravated by the drought which hit the country in the second half of 1967 and early 1968. Power rationing - uniformly applied to all customers - was executed from September 1967 until August 1968. The situation was particularly severe in December 1967, when the seasonal peak demand occurred and hydro-resources were depleted; the gap between peak demand and peak supply was then almost 100 MW, with an average deficit of almost 70 MW.

80. To overcome the power shortage, the Government forcefully increased power investment in 1967: almost 150 MW (85 MW in hydro and 60 MW in thermal) were added, and in 1968 another 357 MW (all but 27 MW thermal power) was scheduled to be added. When completed it will raise total generating capacity to 1,274 MW; the dependence on seasonally unreliable hydro-power will at the same time be reduced.

81. In order to expedite the projects, the Government took in some cases recourse to cash payment to finance the foreign exchange part of the investment costs. In 1967 out of a foreign exchange component of \$57 million, \$36.8 million was financed by Korean foreign exchange. In 1968 such financing was planned in the amount of \$16.5 million.

82. As compared to the rapid expansion of generating facilities, the transmission and distribution system is lagging considerably behind. For example, while installed capacity during 1962-67 more than doubled, the length of the transmission system expanded by only 17 percent. This has particularly retarded residential electrification^{1/}, but also hampered the industrial sector because of frequent breakdowns of overburdened networks.

^{1/} The rate of electrification in the urban residential sector, although going up fast in total, is still low, being less than one-third of the total number of households in 1968. In rural areas about 22 percent of the houses now have electricity.

83. In the use of fuel for power generation, the trend has been towards using more oil. All new thermal units are built for oil firing and gradually the older coal-fuel thermal plants are scheduled to be converted to oil-burning. This tends to make power generation more economical and to alleviate the coal transport bottleneck on the railroads, but it will also substantially raise the already large oil import requirements.

B. Prospects

84. The power shortage in 1967 and 1968 has forced the Korean planners to beef up the power development program. The revised investment target of power in the adjusted Second Plan amounts to 194 billion won at 1965 prices, a sharp increase of 150 percent over the target in the original Second Plan.

85. KECO expects that power demand will continue to increase at a high rate of 35 percent per year, and peak demand will reach 1,658 MW in 1969 and 3,000 MW in 1971. The installed capacity is planned to rise to 1,629 MW in 1969 (as compared with 1,274 MW at the end of 1968) and to 3,600 MW by 1971. However, for the long-term power investment planning, such a high rate of demand increase may not be a reasonable assumption.

86. Transmission and distribution lines, lagging noticeably behind the expansion of generating capacity, are to be expanded by 7.5 percent in 1969 and further by an average of 9 percent each year during 1970-71, reaching a final target of 42.4 circuit-kilometers. (Substations will also be expanded correspondingly.) This appears too low, in view of a three-fold increase in generating capacity during 1968-71.

87. The Government is confident about the implementation of the power program. It believes that power shortage will essentially disappear in 1969 and that by the end of 1971 there will even be a 450 MW reserve capacity.

88. Investments in power will increase sharply in 1969, estimated at about 40 percent at constant prices, but thereafter will be decelerated. The foreign exchange component totalling \$318 million for 1969-71 account for 47 percent of the total costs. For 1969, almost one-third of the foreign exchange requirements (\$29.2 million) will again, as in 1968, be financed with cash payments from Korea's own foreign exchanges. Cash payments have been made to expedite the power expansion program in cases where negotiations for loans were felt too time-consuming. The remainder of the foreign exchange requirements (\$62.2 million) will come from foreign loans, of which almost all have been secured. About 60 percent of the loans appear to be suppliers' credits and the rest are Japanese official and U.S. AID loans.

89. For 1970-71, the bulk of the foreign exchange part of the investment program will be financed by foreign loans; cash payments will be only marginal (7 percent of the total). The bulk of the required foreign loan funds of \$211 million appear to have been secured. It seems, however, that the availability of domestic funds will be a problem.

Table 10

<u>EPB Adjusted Power Investment Program</u>					
(in billion won)					
	<u>1968^{a/}</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>Total</u> <u>1969-71</u>
<u>Demand and Supply (in MW)</u>					
(end of period)					
Peak demand	1,228	1,658	2,227	3,008	
Installed capacity	1,274	1,629	2,645	3,600	
Peak capability	1,132	1,529	2,544	3,460	
<u>Investment Requirements^{b/}</u>					
Total (billion W)	37.6	55.9	65.5	63.6	185.0
Domestic (billion W)	20.3	30.9	28.9	38.4	98.2
Foreign Exchange (million US \$)	63.2	91.4	134.0	92.4	317.8
Foreign Loans	(46.6)	(62.2)	(127.6)	(83.1)	(272.9)
Korean Foreign Exchange	(16.6)	(29.2)	(6.4)	(9.3)	(44.9)

a/ Estimated actual.

b/ 1968 at current prices; other years at 1969 prices.

Source: Economic Planning Board and Korea Electric Company.

V

TRANSPORTATION

A. Recent Trends

90. Along with the rapid expansion in production, exports, construction and people's income, the transportation sector has been accelerating at a faster pace than the GNP growth. The average annual growth rate of gross value added by transportation was 14 percent during 1962-64, 18 percent during 1965-66, 21 percent in 1967 and according to preliminary data 20 percent in 1968. However, contributing only 4 percent to GNP, Korea's transportation sector is obviously underdeveloped.^{1/}

91. Apparently, expansion of transport facilities could not keep pace with the rapidly growing demand, especially because of the low level of investments in transportation before 1966, when it accounted for only 18 percent of total domestic fixed capital formation. Since 1966, the Government stepped up investments in transportation which more than doubled in that year and increased by almost three-fourths in 1967, reaching 28 percent of total domestic fixed capital formation. Previously, the expansion of railroad facilities claimed top priority. More recently in 1968, the Government also embarked on a very ambitious highway construction program and transport investments in 1969 are likely to have remained at a high level.

92. Railroads - the railroad system carrying about 80 percent of freight traffic and 44 percent of passenger traffic continues to be Korea's most important mode of domestic transport. Anthracite coal accounted for 38 percent of the freight carried in 1967. In view of the marketing problems for anthracite coal its relative importance in freight has recently been declining while petroleum, cement and fertilizer transports increased. Shortage of railway capacity has in the past forced the Government to impose a rigid priority system for rail transport which gives after defense requirements high preference to grain, coal, cement and export products while fertilizer and lime for agriculture, for instance, rank much lower.

93. Main constraints have been shortage of rolling stock, limited capacity of key lines, and obsolescence of the communication system. In

^{1/} See 1967 IBRD Economic Mission Report, Volume IV, p.4. (AS-133, January 23, 1968).

order to reduce the bottleneck in railway transportation, Korea has imported rolling stock with the financial assistance of AID and IDA as well as by using Japanese Property and Claim Funds (PAC). In addition, old cars are being modernized domestically. In 1967, 795 freight cars were imported and 500 newly constructed; in 1968, another 1,050 freight cars and 236 passenger cars will be imported and 400 freight cars built. It is also planned to modernize 120 passenger and 960 freight cars. Since 1965 until mid-1968, the number of freight cars was raised by 20 percent, including a substantial increase in the number of tank cars. In addition, since 1965 steam locomotion has been phased out and the number of diesel locomotives has been doubled.

94. The length of railroads in operation has been increased since 1965 from about 3,300 to 3,500 km. This includes the completion of the Gyeong Jeon Line (80 km) which is to facilitate community development in the southern coast and Chiri Mountain Region.

95. Road Transport - Road transportation has so far played a disproportionately small role in Korean land transport. This has partly been the result of a neglect in highway construction during the First Five Year Plan. In 1966, the country had 34,500 km of roads of which only 1,930 km or 5.6 percent were paved. The highway length was 1.2 meter per capita and 350 meter per square kilometer of land area^{1/}.

96. With growing motorization in recent years, especially after the completion of Korea's first automobile assembly plant in 1967, shortage of road has led to overcongestion of major traffic routes, especially in urban metropolitan areas. The number of registered automobiles has increased at an annual rate of more than 20 percent since 1966.

97. The Government embarked in 1968 on an ambitious crash highway construction program which is to give the nation by 1976 a 1,592 km modern four-lane toll expressway system, 635 km of which shall be completed by 1971. The expressway system is to be built largely independent of the existing road network. As a beginning, Government highway investment

^{1/} For comparison:

	<u>Per Capita Length</u> (m/person)	<u>Per Area Length</u> (m/km ²)
Republic of China	1.3	459
Philippines	1.8	191
Japan	9.3	2,732
Switzerland	9.3	1,376

expenditures were raised from 2.06 billion won in 1967 to 15.61 billion won in 1968. The 30 km Seoul-Inchon expressway was nearly completed by the end of 1968, partly financed by a \$6.8 million ADB loan. It will bring relief to one of the most congested traffic areas. The construction of the Seoul-Pusan Expressway (438 km) has been proceeding with impressive speed and is to be completed by 1970. For the administration of the expressway system a Highway Transport Corporation is being established under the Ministry of Construction. It will issue bonds for financing the construction which has so far been financed from the national budget. Most of the engineering and designing work is done by the Koreans themselves. Although this performance is commendable, the dimension of the road construction program has apparently tied up at present almost all civil engineering skill in the country in this sector at the expense of other construction works.

98. In road transportation the shortage of trucks is at least an equally, if not more severe bottleneck as the lack of roads. The number of trucks has on the average increased by only 12 percent a year during 1963-67 as compared to an 18 percent growth in the number of cars and 16 percent increase in buses. In 1967, the number of trucks increased by only 18 percent as compared to 26 percent in the number of cars. Passenger traffic by motor vehicles increased at an annual average rate of 16 percent during 1963-67, while freight traffic by motor vehicles increased only at a rate of 11 percent. By mid-1968 there were 28,700 trucks in service; the older truck fleet mostly consist of surplus UN equipment and only recently imports were boosted while local assembly started on a small scale in 1967. Trucking business engaged mostly in short-haul traffic (average 30 km in 1966) has so far been discouraged by high import duties on trucks, expensive repairs, high license fees, and high fuel prices. Although the Government hopes to increase domestic supply of trucks (including three-wheelers) to about 15,000 a year by 1971 with the completion of three assembly plants, it remains doubtful whether trucking facilities will be adequate, particularly in view of the rapid highway expansion.

99. Shipping and Ports - With foreign trade increasing rapidly, there has been a fast-mounting demand for ocean and coastal shipping in Korea. The volume of goods unloaded or loaded in Korean ports has rapidly increased. Tonnage handled was considerably increased in 1967 by large-scale grain imports and by a trebling of coastal traffic in tonnage-kms, due to a deviation of fuel and cement from railroad to coastal-marine traffic to relieve the over-burdened railroad system.

100. Considerable efforts have been made to expand the shipping fleet, especially in building or purchasing from abroad oil tankers and coastal bulk carriers. The total number of vessels registered under the Korean flag (excluding fishing vessels) as of mid-1968 was 2,073, totalling 536,000 GRT^{1/}, an increase of 172 percent over the end of 1964. The tanker

^{1/} Gross Registered Tons.

fleet expanded from a negligible 10,600 GRT in 1964 to 151,400 GRT in mid-1968. The ocean-going cargo fleet (steel ships only) now comprises 158 vessels totalling 310,200 GRT. In 1966 and in 1967, 25 percent of ocean-going freight was carried on ships flying the Korean flag. Coastal vessels including coastal tankers totalled 97,600 GRT at the end of 1967, a 37 percent increase over 1966.

101. Port facilities at present are generally inadequate to handle the increasing volume of traffic. This is particularly the case with Inchon, the port for the Seoul Metropolitan area, where maritime traffic will become manageable only after completion of the Second Dock area. Pusan, Korea's most important harbor, has been expanded and will be further improved. Port facilities are under construction in Ulsan and Pohang for the petrochemical complex and the planned iron and steel plant. In addition, several smaller ports are either under construction or work is planned to start soon. These include Kangnung, Masan, Yosu, Mokpo, and Kunsang and are partly in connection with the build-up of a coastal bulk traffic system.

102. Total Government investment expenditure in harbor works rose from 1.31 billion won in 1965 and 3.22 billion won in 1967; another 1.37 billion won was spent during the first half of 1968. About 25 percent of the money spent in 1967 and 30 percent in 1968 had to be used for dredging operations, reflecting the serious siltation problem particularly in Inchon and Pusan. Shortage of dredgers and the long neglect after the war have aggravated the situation.

103. Aviation - The almost wholly Government-owned Korean Air Lines (KAL) is the only important Korean airline operating domestic and some international scheduled flights. Its fleet consists of one DC9-32, four F-27's, one DC-4 and two DC-3's. The volume of domestic passenger service remained unchanged for 1965-67. International passenger traffic both for KAL and foreign lines serving Korea expanded considerably, reflecting an increase in Korean tourist traffic. International and domestic volume of cargo and mail also expanded substantially.

B. Prospects

104. Transportation is another area where the rapid economic growth has caused demand to exceed previous estimates and created a serious bottleneck. The last IERD Mission estimated that for some years to come annual increase in passenger traffic is likely to be at 15 percent a year and domestic freight traffic at 19 percent. Although the gross value added in the transportation sector in 1968 increased by 20 percent with a 13 percent increase of GNP, the Mission sees no need for a basic modification of the previous projections as the growth rate for 1969-71 is projected appreciably below 13 percent in the ORB.

105. In order to overcome transportation bottlenecks, investment targets for the rest of the SFYP period have been raised considerably. Thus, for the whole period of 1967-71, the newly adjusted total investment in transportation at 1965 prices is 305 billion won, doubling the original target. Investment in port construction was boosted by 50 percent, in railways by 60 percent, in highways by 100 percent, and in other transportation facilities (motor vehicles, shipping, ports and dredging, airports, etc.) by 150 percent.

106. There is a distinct shift of the Government's strategy of transport development in emphasizing more on highways and less on railway investments, with the crash construction program for an expressway system. Highway investments in 1969 are planned to total 21.6 billion won (at current prices), or 26 percent of the entire transportation investment, as compared with only 16 percent formerly planned for 1968. Two-thirds of the highway investment planned for 1969 will be for the construction of the high-speed expressway system. With the Incheon-Seoul expressway and the Seoul-Suwon-Osan stretch of the Seoul-Pusan expressway completed in 1968, main works in 1969 will concentrate on the Osan-Taejon and the Taegu-Pusan sections of the system. Much smaller amounts are to be spent for farm and inter-city roads, and pavement and improvement of existing road facilities. Of the total highway investments, only \$5 million will be required in foreign exchange for imports of road building equipment which appears rather too low, although the implementation of the highway program will depend largely on the availability of domestic financial and engineering resources. For 1970-71, highway investments will remain almost at the 1969 high level, with priority given to the continuous building of the national expressway system, of which 40 percent of the total length, or 635 km, will be completed by 1971. The estimated foreign exchange requirements again appear too low.

107. The ORB is now also placing more emphasis on increasing the motor vehicle fleet by allocating in 1969 19.5 billion won for this purpose, which is almost four times the amount in 1968. About 9.2 billion won are to be used for purchasing trucks.

108. Railway investments in 1969 are mainly for the import of rolling stock. Emphasis will be placed on the expansion of capacity, including new locomotives and rolling stock, and improvements to track, station, yards and structures. Construction of new lines plays only a minor role. During 1969, KNR wishes to add 30 diesel locomotives, 100 passenger cars, and 950 freight cars to its rolling stock, in addition to a substantial repair and improvement program. For 1970-71, railway investments will be for further expansion of rolling stock, as well as modernization of facilities. The total requirements for railway investments during 1969-71 are 53-54 billion won, of which slightly less than one-half will be in foreign exchange.

109. In shipping, about 13.6 billion won will be spent in 1969 for adding to the merchant fleet 180,000 gross registered tons of sea-going vessels and 3,500 gross registered tons of coastal vessels. Further expansion of the merchant marine will continue in 1970-71, hoping to reduce the country's freight payments abroad, particularly by building up the oil tanker fleet.

110. The port development program has been considerably expanded. For the expansion of Inchon harbor facilities, an important step to give the Seoul Metropolitan area an adequate port, 1.7 billion won will be provided in 1969. Construction of port facilities in Pohang for the integrated iron and steel plant and in Ulsan for the petrochemical complex will require another 2 billion won. There are also provisions for the construction of other minor harbors in 1970-71.

111. The total investment requirements for the transportation development program for 1969-71 is projected at 264.5 billion won, of which 40 percent, or \$392 million will be in foreign exchange.

112. In view of the large amount of foreign exchange involved in the transportation development program, the Mission feels extreme caution should be used in deciding the priority of the projects.

113. Although the Mission agrees with the overall priority given to highway investments, it believes that careful consideration should be given to the relative priorities within the highway field appropriate routes, design standards and stages of construction taking into account present and future traffic. The Mission feels that a slower pace of the expressway program, first concentrating on the areas with the highest traffic density, combined with an accelerated program for improving existing roads might have been more economical. Moreover, the extraordinarily large amount of financial (and engineering) resources tied up to this program tend to reduce the resources available for other sectors. It also feels that shortage of trucks will remain a crucial bottleneck and that considerable increases in the truck fleet combined with Government's encouragement of the rather small local trucking industry should be attempted. The Mission is also somewhat concerned whether the harbor development program does not proliferate too much in building and expanding too many ports at the same time, although it endorses the expansion of Inchon harbor and the provision of port facilities for important industrial sites, such as Ulsan. If the Pohang steel plant is to be postponed, the construction of the harbor should also be postponed.

Table 11

EPB Transportation Investment Program
(at 1969 prices; domestic investment
in billion won, foreign exchange in
million US\$)

	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>Total 1969-71</u>
<u>Railways</u> ^{a/}	<u>17.0</u>	<u>18.5</u>	<u>17.4</u>	<u>52.9</u>
Domestic	<u>13.3</u>	<u>8.5</u>	<u>9.3</u>	<u>31.1</u>
Foreign	13.8	36.6	29.8	80.2
<u>Highways</u>	<u>21.6</u>	<u>20.2</u>	<u>19.5</u>	<u>61.3</u>
Domestic	<u>20.2</u>	<u>18.4</u>	<u>18.1</u>	<u>56.7</u>
Foreign	5.0	6.4	5.3	16.7
<u>Others</u>	<u>44.8</u> ^{b/}	<u>51.9</u>	<u>53.6</u>	<u>150.3</u>
Domestic	<u>20.1</u>	<u>25.0</u>	<u>24.7</u>	<u>69.8</u>
Foreign	90.5	99.0	105.5	295.0
<u>Total</u>	<u>83.4</u>	<u>90.6</u>	<u>90.5</u>	<u>264.5</u>
Domestic	<u>53.6</u>	<u>51.9</u>	<u>52.1</u>	<u>157.6</u>
Foreign	109.3	142.0	140.6	391.9

a/ The latest information shows changes between years, but the total amount for 1969-71 is approximately the same, with more foreign exchange and less domestic expenditures as follows:

	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>Total 1969-71</u>
<u>Railways</u>	<u>22.0</u>	<u>18.1</u>	<u>14.2</u>	<u>54.3</u>
Domestic	<u>12.3</u>	<u>8.5</u>	<u>8.9</u>	<u>29.7</u>
Foreign	35.5	35.2	19.4	90.1

b/ Includes the following (in billion won):

Motor vehicles	19.5	Airports	1.2
Shipping	13.6	Airplanes	1.0
Ports and dredging	7.4	Warehouse and stevedoring	1.4