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PROVISIONAL INTELLIGENCE REPORT

ECONOMIC REHABILITATION OF NORTH KOREA, 1954-56



CIA/RR PR-138

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PROVISIONAL INTELLIGENCE REPORT

ECONOMIC REHABILITATION OF NORTH KOREA
1954-56

CIA/RR PR-138

(ORR Project 15.851)

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CENTRAL INTELLIGENCE AGENCY

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ECONOMIC REHABILITATION OF NORTH KOREA*
1954-56

Summary and Conclusions

In spite of tremendous war damage, insufficient manpower, lack of adequately trained technicians, and poor crop harvests in 1953-55, the economic rehabilitation of North Korea is progressing steadily as a result of the continued assistance of the Sino-Soviet Bloc. The Korean War rendered the industrial sector of the North Korean economy 66 to 93 percent inoperable. Damage to the operating capability of specific industries was as follows: coal and nonferrous metals mining industries, about 75 percent; ferrous metals industry, about 80 percent; chemical and cement industries, about 90 percent; petroleum industry, about 95 to 100 percent; and light industry, about 60 percent. In addition, the agricultural and communications sectors were seriously damaged.

Economic planners of the Soviet-dominated North Korean regime have devised a three-phase program of economic rehabilitation and development. The first phase in 1953 prepared for rehabilitation work in all spheres of industry, the second phase consists of implementing a Three Year Plan (1954-56) of reconstruction beginning in January 1954 and ending in December 1956, and the third phase is to prepare and implement a Five Year Plan (to be announced) for the general development of industry.

As of late 1955, North Korea was well along in the second phase of this program, registering steady progress in fulfilling most of the annual goals set for the Three Year Plan, which calls for the restoration of industrial production, with the exception of the chemical and petroleum industries, to the 1949 level of output by the end of 1956. The chemical industry will not be fully restored to its 1949 level until well into the third phase of the program, and the petroleum industry apparently will not be rehabilitated during the current plan period.

* The estimates and conclusions contained in this report represent the best judgment of ORR as of 15 January 1956.

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Considerable evidence indicates that the actual direction of economic planning in North Korea resides mainly in the Soviet advisers who are attached to the State Planning Committee, the various ministries, and the major industrial plants. There is available no evidence to indicate that Chinese Communists act as advisers at the ministerial level or in other top policy positions. Thus it is probable that the ultimate authority for determination of policy in the economic field reposes either in the Soviet-trained, long-experienced Party members of the Cabinet or in their Soviet advisers, or perhaps in both.

The problem of administering the financing of the rehabilitation program is the responsibility of the Ministry of Finance, which, acting under the State Planning Committee, drafts and promulgates the annual national budget. In the budget the national resources are mobilized and allocated for investment and for use by government departments and enterprises. The most important element in the 1954 budget receipts of roughly US \$750 million* was the figure for total Sino-Soviet Bloc aid, which was listed as approximately US \$220 million.

One of the major problems confronting the North Korean regime is to find sufficient labor, both skilled and unskilled, for its industrialization program. North Korean and Chinese Communist troops have been used, and government employees and students have been drafted as unskilled laborers, particularly to meet the seasonal peak labor demand in the agricultural sector. The shortage of industrial labor presents a special problem, however, as to both quantity and quality, which cannot readily be solved by shifting labor from other sectors to the industrial sector.

The plan for obtaining trained technicians includes (1) on-the-job and factory-sponsored training; (2) sending students and trainees to the USSR, Communist China, and the European Satellites for advanced study and practical experience in both managerial and operational fields; and (3) utilization of several thousand Sino-Soviet Bloc technical advisers.

Food crop harvests have been hampered during 1953-55 by inclement weather, inefficient management of farm cooperatives, and a lack of adequate irrigation facilities and chemical fertilizers. As a result,

* The exchange rate is estimated to be 120 North Korean won to 1 US dollar.

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the ambitious 1956 goal for production of 3.27 million metric tons* of food crops has been revised to a more realistic goal of 2.73 million tons. Thus North Korea probably will be at least partially dependent on food imports from the Sino-Soviet Bloc in 1956.

In the modern industrial sector of North Korea, the restoration of production to the 1949 level has varied greatly from industry to industry. Aid by the Sino-Soviet Bloc has enabled the North Koreans to achieve good results, especially in the fields of railroad transport services, electric power, ferrous metals, and textile industries. The difficulties have been greater and progress less impressive in the nonferrous metals and chemical industries. The trends in the modern industrial sector are illustrated in the production of major industries for 1949 and 1954 and that planned or projected for 1956. Estimates of production of selected commodities in North Korea for these years are shown in Table 1.

Table 1

Estimated Production of Selected Commodities in North Korea
1949, 1954, and 1956

Commodity	Unit	1949	1954	1956
Electric power (capacity)	Million kilowatts	1.35	1	1.35 (Plan)
Electric power (production)	Billion kilowatt hours	8.2	2	3.8 (Plan)
Coal	Million metric tons	4	2.1	5
Pig iron	Thousand metric tons	166	61	320
Crude steel	Thousand metric tons	145	50	200
Finished steel	Thousand metric tons	108	37.8	129.6
Metallurgical coke	Thousand metric tons	268	Negligible	200
Iron ore	Thousand metric tons	400	140	820
Cement	Thousand metric tons	527	400	650 (Plan)
Copper	Thousand metric tons	5.6	1	3.5
Lead	Thousand metric tons	9.4	1	7
Zinc	Thousand metric tons	8	Negligible	2
Chemical fertilizers	Thousand metric tons	400	Negligible	150 (Plan)
Cotton fabric	Million linear meters	9.4	22	47.7 (Plan)
Silk fabric	Million linear meters	3.05	1.06	6.58 (Plan)

* Throughout this report tonnages are given in metric tons.

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The transport sector of North Korea apparently has made a remarkable recovery since the end of the Korean War, with Sino-Soviet Bloc aid. Transport facilities apparently are adequate for the present level of economic development, although further restoration of highways is required in areas not adequately served by rail. Greatest attention has been devoted to the railroads, which constitute by far the most important freight carrier.

Telecommunications services appear to have improved and expanded beyond the pre-Korean War level. Wireline networks, which provide a fair geographic coverage of the country, have been expanded from 156,000 kilometers of line routes in 1948 to an estimated 157,000 kilometers by December 1955.

The Three Year Plan for reconstruction in North Korea depends almost completely on grants of economic assistance from the Sino-Soviet Bloc. From 1953 to 1955, North Korea negotiated and concluded several economic agreements with Bloc countries, whereby the latter have promised to extend about US \$773 million in aid to North Korea from 1954 to 1964. The USSR and Communist China are the major contributors; the former has promised US \$250 million in aid between 1954 and 1956, and the latter has promised US \$338 million between 1954 and 1957. By mid-1955, Radio P'yongyang announced that US \$347 million in aid had been received from the USSR and Communist China since January 1954 and that approximately US \$53 million had been received from the rest of the Bloc. Soviet aid has consisted principally of capital construction equipment and machinery for the electric power, metallurgical, nonferrous metals, and engineering industries, whereas Chinese Communist aid has consisted mainly of consumer goods and some construction materials and equipment for the transport, textile, and consumer goods industries. European Satellite aid has been directed toward the development and expansion of engineering industries, rail freight car and locomotive repair facilities, and shipyards and port facilities, and toward the reconstruction of the electric power and construction materials industries.

The over-all Sino-Soviet Bloc objective in bringing about North Korean economic rehabilitation evidently is twofold: in the short run, to reestablish the North Korean economy as soon as possible so that the fact can be advertised and used as a propaganda weapon both in South Korea and in other Asian countries; and, in the long run, to develop the North Korean economy as an integral economic unit of the Sino-Soviet Bloc's Far East industrial base.

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I. Population and Manpower.A. Population Trends.

One of the most pressing problems in the economic reconstruction of North Korea has been the shortage of manpower, both skilled and unskilled. The high rate of military and civilian war casualties and the large-scale refugee movements out of North Korea into South Korea, and, to a minor extent, Manchuria, combined to effect a 13-percent decline in population from an estimated 9.1 million in 1949 to 7.9 million in 1955. It is estimated that 1 million North Koreans fled to South Korea after 1950. ^{1/}* The previous trend of immigration of Korean civilians from Manchuria into North Korea was reversed, and an undetermined number of North Koreans fled back to Manchuria, where at least 1.4 million Koreans were still resident. ^{2/}

These population movements, as well as the military casualties, reduced disproportionately the productive age group and the potential labor force. It is estimated that in 1949, 4.7 million persons were in the age group 15 to 59 years -- 51.7 percent of the total population. It is estimated that 3.98 million persons -- 50.3 percent -- were in this age group in 1955. As in most countries, persons in the dependent ages constitute a large proportion of the total population. In North Korea the population under 15 years of age was estimated at 41.7 percent of total population in 1949, but by 1955 this proportion had increased to 44.5 percent. ^{3/} The estimated distribution of the population by age groups in 1949 and 1955 is shown in Table 2.

Table 2

Estimated Population of North Korea, by Age Group
1949 and 1955

<u>Year</u>	<u>0-14 Years (Millions)</u>	<u>Percent of Total</u>	<u>15-59 Years (Millions)</u>	<u>Percent of Total</u>	<u>60 Years and Over (Millions)</u>	<u>Percent of Total</u>	<u>Total Population (Millions)</u>
1949	3.8	41.7	4.7	51.7	0.6	6.6	9.1
1955	3.51	44.5	3.98	50.3	0.41	5.2	7.9

* For serially numbered source references, see Appendix B.

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The present reconstruction program in North Korea probably is further handicapped by the fact that, of the total population of 7.9 million persons, it is estimated that 3.55 million are male and 4.35 million are female. This preponderance of females over males is particularly significant in the age group between 15 and 59, in which females currently outnumber males by 2.39 million to 1.59 million. In view of the over-all shortage of labor, this disproportion probably explains the policy of the North Korean government to encourage more women to accept employment in state productive enterprises. Table 3 shows the estimated population of North Korea by age and sex. 4/

Table 3

Estimated Population of North Korea, by Age and Sex
1955

<u>Age (Years)</u>	<u>Male (Millions)</u>	<u>Female (Millions)</u>	<u>Male Percent of Total</u>	<u>Female Percent of Total</u>
0-14	1.76	1.75	22.3	22.1
15-59	1.59	2.39	20.1	30.3
60 and over	0.2	0.21	2.5	2.7
Total	<u>3.55</u>	<u>4.35</u>	<u>44.9</u>	<u>55.1</u>

B. Problems of Labor Supply.

The division of Korea at the 38th parallel in 1945 left a disproportionately small part of the total Korean labor force in the North, where most of the Korean natural resources for industrial development were concentrated and where the Japanese had supplied the technical skills and drawn upon surplus agricultural labor for unskilled labor with which to establish the main industrial base of Korea. After the division of the country the Communists inaugurated an industrial rehabilitation and construction program to repair

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damage from World War II and to extend rapidly the industrialization of the economy. Compared with Korean War damages, the destruction done by bombing in World War II was slight, but even for the relatively modest program of reconstruction and industrialization instituted by the Communists from 1946 to 1950, the North Korean economy was short of manpower. It was at this time that Koreans resident in Manchuria and Siberia were encouraged to return to their homeland to supplement the existing labor force. The Communists made substantial progress from 1946 to 1949 in raising agricultural and industrial production toward the peaks realized under the Japanese in 1944.

The greater destruction and population reduction wrought by the Korean War aggravated seriously the labor shortage. The relatively high goals for agricultural and industrial production and for construction of industrial capacity fixed by the current Three Year Plan further intensify the needs for managerial and technical skills as well as for unskilled labor. The competing labor demands of different sectors of the economy, including the expanding government bureaucracy and the large armed forces establishment, indicate that North Korea may be faced with a choice of several possible courses: a reduction of agricultural and industrial goals and a deceleration of industrialization, increased reliance on Communist allies for both technical skills and unskilled labor, an attempt to increase labor productivity by increasing mechanization and by granting incentives to labor, the transfer of manpower from the armed forces to the labor corps, or a combination of several of these courses. North Korea has indeed sought to ameliorate its labor shortage by a number of expedients, some makeshift and some permanent in nature.

On the negative side, the continued withdrawal of Chinese Communist troops from North Korea has influenced the government to effect a heavier draft on the available labor pool in order to bolster the strength of its armed forces. As of late 1955, almost 10 percent of the total available labor force, including both sexes, was being utilized in the North Korean armed forces, which comprised about 370,000 persons. The North Korean Army, consisting of about 343,000 men in the 18- to 35-year age group, is taken from the most productive element of the population. 5/ The maintenance of so large a military establishment decreases the possibility of the simultaneous accomplishment of North Korean plans for increasing agricultural production, rehabilitating war-damaged facilities, and achieving industrial production goals.

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1. Agricultural Labor Force.

Shortages of agricultural labor in North Korea are most extreme during the sowing, transplanting, and harvesting seasons. Expedients for meeting these periods of peak labor demand have included the use of North Korean and Chinese troops and the drafting of civilians for temporary duty, especially government employees, students, and housewives. More permanent adaptations include tightened controls on labor allocation and utilization, the assignment of discharged military personnel to farms, especially agricultural cooperatives, and an effort to organize labor more efficiently through collectivization. 6/

Much can be achieved by more efficient organization and allocation of labor. In Korea, as in most Asian countries, surplus rural population previously caused underemployment and low productivity per laborer. With a reduced labor force, North Korea now is forced to utilize its available labor supply with greater efficiency and coordination. On the basis of the observed trend toward central control and allocation of labor resources, it is believed that the shortage of agricultural labor for the periods of peak activity often can be overcome by temporary shifts of labor into the agricultural sector, and that in the long run the problem can be solved by increased capital inputs to improve labor productivity in agriculture, including a gradual increase in the partial mechanization of farming activities. The discussion of trends in agricultural production, in III, below, bears out this observation.

2. Industrial Labor Force.

The shortage of industrial labor in North Korea presents a special problem because it is both quantitative and qualitative, and therefore it cannot be remedied by seasonally shifting underemployed labor from the agricultural to the industrial sector. This shortage of industrial labor, particularly of skilled technical personnel, was inherited from the 40-year Japanese occupation of Korea. During that period, Japanese policies were not calculated to develop among the indigenous population an adequate supply of managerial and technical personnel. According to the 1940 census, over three-fourths of the professional, managerial, and technical positions in the fields of industry, mining, construction, transportation, and communications were filled by Japanese. Koreans who were trained were destined for

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and kept in intermediate and lower level positions. This situation was later aggravated by the fact that thousands of skilled laborers and technical personnel joined those who fled from North Korea during and immediately after the Korean War. ^{7/} The present shortage of industrial labor, which has been magnified by the campaign to achieve the industrial production goals of the Three Year Plan before the end of 1956, has caused the government to initiate several expedients to alleviate the critical pressures of needs for industrial labor.

Shortly after the conclusion of the armistice in 1953, the North Korean government issued two decrees which were designed to ease the tight labor situation. The first ordered that, wherever possible, women should replace men in industrial and administrative organizations. Only women with children 3 years of age or younger were exempted. The second decree forbade all employees of the government, state-operated organizations, cooperative guilds, and social and industrial organizations, regardless of their position, to retire from service or transfer to other positions without official sanction. Further measures were effected to increase the corps of skilled labor and to improve labor efficiency. These measures included adult education courses to decrease illiteracy, technical education programs, on-the-job training, sending trainees abroad, and a well-organized propaganda campaign designed to encourage increased labor productivity.

The more permanent programs that have been inaugurated and the probable results of the various measures taken to increase technical skills are discussed below.

C. Status of Education and Technical Training.

1. Status of General Education.

The expansion of facilities for primary and middle schools was given high priority by the North Korean government after 1945, apparently in an effort both to provide the basis for further technical training and to reduce the high illiteracy rate, which was estimated to be over 80 percent of the total population. In spite of extensive damage to these facilities during the Korean War, North Korean authorities claim that the numbers of schools and students already have returned to the prewar level, with a total of 4,900 schools and enrollment of 1.8 million students. ^{8/} This enrollment, broken down by level of instruction, is shown in Table 4,* as reported for the years 1953-55.

* Table 4 follows on p. 10.

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Table 4

School Enrollment in North Korea
1953-55

<u>Type of School</u>	<u>1953</u>	<u>1954 (First Half)</u>	<u>1955 (First Half)</u>
Elementary	1,246,000	1,333,000	1,393,000
Secondary	283,000	327,000	376,000
Technical	20,600	25,000	25,000
Universities and colleges	4,900	7,700	12,900
Total	<u>1,554,500</u>	<u>1,692,700</u>	<u>1,806,900</u>

Beginning in August 1956, compulsory elementary education is scheduled to be enforced in North Korea. ^{9/} This has been announced as a vital priority in expanding technical education and in increasing the candidates for middle and higher education.

2. Status of Technical Education.

Official North Korean plans call for the training of 100,000 scientific and technical personnel "in the next few years." ^{10/} This figure includes 70,000 technicians and 30,000 college graduate engineers. In view of announced enrollment figures, however, even if the 1955 college enrollment were doubled, from 5 to 6 years would be needed to turn out 30,000 graduates. Moreover, it is apparent that the technical schools could achieve their goal to graduate the planned number of 70,000 technicians in 5 years, only if the courses of study were reduced to 2 years, allowing for attrition. It is believed that these plans may prove to be overly optimistic, inasmuch as statistics of the State Technical Judging Committee reveal that in the past 2 post-war years (1954-55) only 6,222 men passed the examinations for technicians, and only 2,276 passed the examinations for engineers. ^{11/} Over the same period a total of 5,000 students graduated from colleges and universities, or an average of 2,500 graduates per year. ^{12/}

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Increasing the number of skilled workers in North Korea is an important part of the plan to increase labor productivity, which has been called the "key to execution of the 1955 production quota." As a supplement to formal vocational education, factories and mines in North Korea are attempting to raise the workers' level of skill by on-the-job and other factory-sponsored training. During 1954, 20,000 skilled workers were graduated from mechanics schools and factory workers schools. 13/

Another important means of obtaining trained technicians has been the sending of students and trainees to the USSR and the European Satellites for advanced study. As of late 1955, there were 5,000 North Koreans studying in Soviet Bloc countries, with a total of 1,000 students reportedly enrolled at Soviet institutions of higher learning. 14/ Although the graduation of these trainees will substantially swell the ranks of trained North Korean technicians, it is believed that the total will still fall short of meeting the planned requirements for technical skills under the current Three Year Plan and the subsequent Five Year Plan rapid industrialization programs.

D. Sino-Soviet Bloc Technical Assistance.

Sino-Soviet Bloc technical assistance -- both in terms of its relative volume in proportion to the indigenous supply of technical and managerial skill and labor available to the North Korean economy and in terms of the interacting influences of that assistance on the orientation and technical improvement of the North Korean government itself and on the relationships between the powers participating in the North Korean development program -- cannot be measured in dollar value or defined by the number of technicians involved.

Nevertheless, to form a general impression of the effectiveness of the technical assistance of the Sino-Soviet Bloc to North Korea, it is useful to summarize the available information on the number, functions, and positions of Bloc technicians in North Korea since the war. The discussion of instances of aid from various Bloc sources, of the relationships between various Bloc participants in the North Korean aid program, and of the effects of the assistance on the functional efficiency of the P'yongyang regime will be given below.

To promote the efforts of the North Korean government to alleviate its manpower shortage, the USSR, Communist China, and the European Satellites have sent thousands of technicians and skilled workers

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to North Korea. It appears that the Chinese Communists have furnished the majority, but the USSR clearly is furnishing the most important personnel, as it did in 1945-50. Although technicians from the USSR have been mentioned as being in practically all types of industrial installations as well as in agriculture and city planning, 15/ they appear to have been concentrated in the metallurgical and mining industries. Communist China has contributed many laborers, but because of its own acute shortage of technicians, it has limited contributions of technical personnel largely to the railroad, light industry, and construction fields. The European Satellites have become increasingly important sources of technical aid since the end of the Korean War and have contributed specialists in the chemical, metallurgical, electric power, construction, and engineering industries.

Announcements of the presence of technicians from the USSR in North Korea have been rare in contrast with the publicity that Satellite experts are now receiving. In spite of the increasingly specific information on Satellite technical aid, there are no firm estimates of the total number of Soviet Bloc technical personnel working in North Korea. Minimum estimates of such personnel range from 5,000 to 6,000 persons. 16/ The former figure is broken down by country of origin as follows: USSR, 1,409 technicians; Communist China, 1,825; Hungary, 465; Poland, 464; Czechoslovakia, 397; Rumania, 333; East Germany, 30; Bulgaria, 9; and unknown, 132. Another report has listed the number of "Soviet advisory personnel and their families" at 22,613, 17/ which would imply that there are from 7,000 to 10,000 persons in the Soviet advisory group. This figure presumably includes military advisers, who have made up a significant proportion of the advisers in North Korea.

The use of Chinese Communist labor has included large-scale employment of Chinese Communist troops for reconstruction tasks, such as the rebuilding of bridges, public buildings, and houses. Moreover, the Chinese Communists took over temporarily the operation and maintenance of the North Korean railroad system. This was undertaken initially for military reasons during the war, but the subsequent restoration of the war-damaged lines and the training of North Korean railroad workers have been significant contributions to the rehabilitation of North Korea. 18/ The remainder of the technical assistance rendered by Communist China to North Korea seems to have been concentrated in the agriculture, light industry, and handicraft industries, where in 1954-55 an estimated 50,000 to 65,000 Chinese Communist

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farmers and laborers were employed. ^{19/} For example, a group of 120 Chinese Communist technicians who arrived in P'yongyang on 13 July 1954 included specialists in "enamelware, textile machines, silk, pencils, furs, musical instruments, matches, paint, welding, shipbuilding, and molding." ^{20/} References to Chinese Communist technical aid in heavy industry have been notably rare.

Technical assistance from the European Satellites appears to have increased steadily since 1953, when North Korea signed technical aid agreements with Poland, Czechoslovakia, Hungary, East Germany, Rumania, and Bulgaria. ^{21/} Polish technical aid is concentrated in the transport and construction industries; Czechoslovak aid, in the electric power and machine tool industries; Hungarian aid, in the engineering industries; East German aid, in the chemical and metallurgical industries, particularly those being reconstructed in the Hamhung area; Bulgarian aid, in the timber and forestry industry; and Rumanian aid, in the construction industry. ^{22/}

The continuous influx of technical assistance from the Sino-Soviet Bloc is believed to have provided an adequate temporary solution to the present manpower problem in North Korea. The intention of the Bloc seems directed toward continuing this aid until an adequate North Korean skilled labor pool can be developed. Furthermore, the number and assignments of foreign technicians are circumstantial evidence, in addition to the known lack of technical skills in North Korea, that the current reconstruction program would have been impossible without aid.

The general impression given by the technical and material aid is that its volume is relatively so great in proportion to the indigenous resources of North Korea that the Soviet Bloc has taken it upon itself to underwrite the reconstruction and industrialization of the North Korean economy.

II. Administration and Planning.

A. Three Year Plan (1954-56).

In April 1954 the North Korean Supreme People's Assembly announced that a preliminary estimate of the damage suffered by the North Korean economy during the Korean War had been set at 420 billion won

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(US \$3.5 billion, excluding damage to agriculture and transport) and that 66 to 93 percent of North Korean industry, particularly heavy industry, had been rendered inoperable. ^{23/} US intelligence estimates assert that the following approximate percentages of North Korean industries were rendered inoperable by war damage: coal and nonferrous metals mining, 75 percent; ferrous metals, 80 percent; chemical and cement, 90 percent; petroleum, 90 to 100 percent; light industry, 60 percent. ^{24/}

Because of the extensive war damage suffered by North Korea, a three-phase program was devised and is being implemented to rehabilitate and develop the national economy. The program includes a year of preparation (1953) for comprehensive rehabilitation work to be carried out in all spheres of industry in the following period, a period for implementation of the Three Year Plan for economic reconstruction of the country and for preparation of a Five Year Plan to be carried out in the following years, and the period for implementation of the Five Year Plan (to be announced) for the general development of industry. ^{25/}

North Korea is approaching completion of the second phase of its program by making steady progress in fulfilling most of the goals set for the current Three Year Plan, which calls for an increase in over-all industrial production of 60 percent over 1953 and a 41-percent increase in output of grain. During the course of the Three Year Plan most industries, except for the chemical and petroleum industries, which suffered the most extensive war damage, are to be restored to the 1949 level of output, which was, for the most part, the highest level of production achieved under Communist management and supervision. The plans do not include restoration of the chemical industry to its 1949 operating level until well into the third phase of the program. Official North Korean government announcements have indicated no intention to rehabilitate the war-devastated petroleum refining industry, except for a small plant at Aoji, implying that the present importation of petroleum products from the USSR will be continued.

B. Economic Organization.

The social organization of the North Korean economy is characterized by an all-pervasive governmental structure which closely resembles that of the USSR, the European Satellites, and Communist China (see Figure 1*). The North Korean Constitution, which passed through

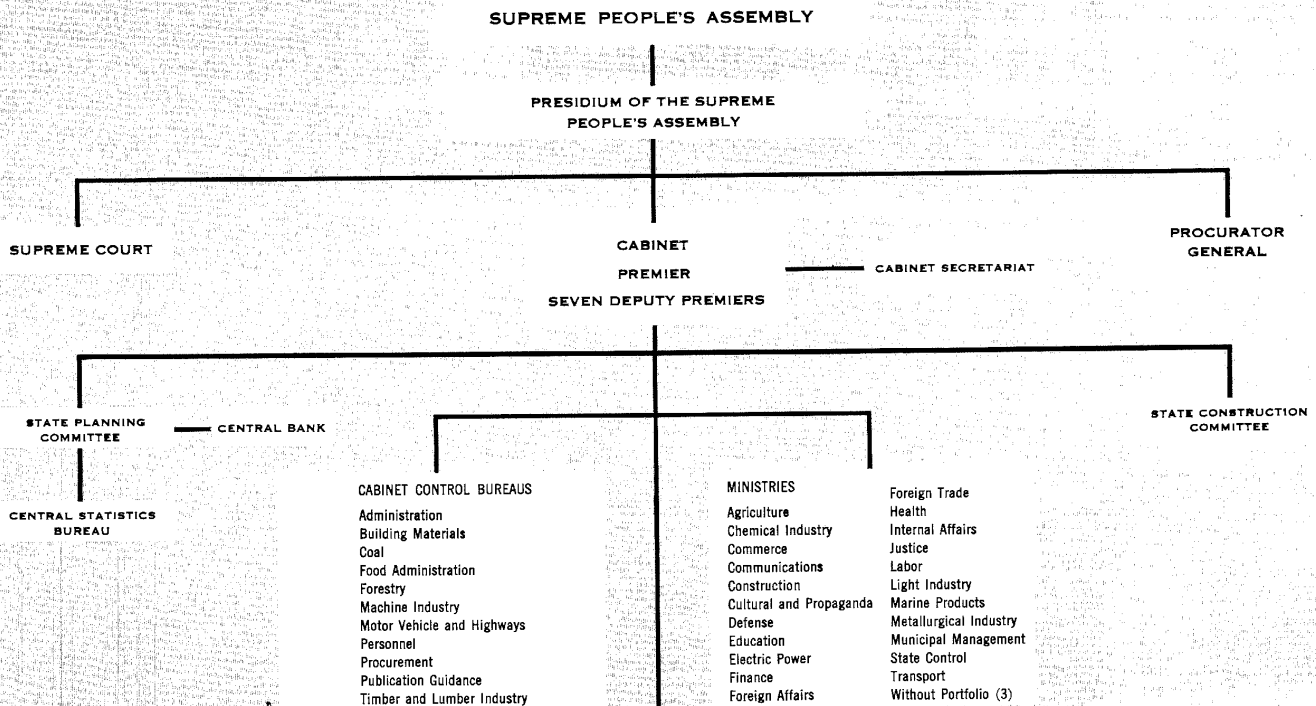
* Following p. 14.

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NORTH KOREA **Structure of The Government** **July 1955**

FIGURE 1



People's Assemblies and People's Committees at provincial, county, city, township, and village or worker district levels.

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the Communist phases of drafting by a Party committee, criticism and recommendations for revision by Party councils at various levels, "democratic discussion" by various levels of Party-dominated people's representatives, and final adoption and promulgation in September 1948 by a specially designated, Party-dominated national assembly, prescribes a formal structure of government which assures to the Korean (Communist) Labor Party and especially its Central Committee the complete domination of the economic, political, and social life of the nation. The imposition of this form of organization upon the politically untrained North Korean society naturally renders the administrative organization susceptible to penetration and influence by Communist Bloc advisers and technicians upon whom the Central Committee, ministries, and bureaus lean for assistance in shaping their plans and course of development.

1. Administrative Structure.

The North Korean Cabinet, which is officially the highest executive body, theoretically is subordinate to the Supreme People's Assembly and its Presidium, but in fact these bodies serve only to give legislative sanction to the decisions of the Cabinet. The Cabinet, which consists of Premier Kim Il-sung, 7 Deputy Premiers, and the heads of the various ministries and committees, is the nucleus of the state administrative apparatus and controls, exercising its authority in the formulation of policy and the supervision of the government hierarchy. 26/

The standing group of the Cabinet, consisting of the Premier and Deputy Premiers, 27/ probably can be characterized as the channel through which basic policy decisions of the Korean Labor Party Central Committee are passed on to the subordinate government organs. Kim Il-sung, the Premier, is also Chairman of the Korean Labor Party's Central Committee and of the Central Political Committee, the two elite groups of top policy-makers. Four of the Deputy Premiers also are members of the Labor Party's Central Committee, and 2 of these are members of the Central Political Committee. In addition to controlling the top level of government, the Party has subordinate organs at lower levels or maintains control cells within the People's Assemblies and Committees at each echelon to ensure Party control throughout the hierarchy. In this respect, the North Korean Communist control mechanism is a faithful copy of the USSR government.

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The North Korean Cabinet is composed of 25 ministries (including 3 without portfolio), 11 cabinet bureaus, and 2 committees. ^{28/} From 1950 to 1955, several changes took place in the administrative structure of the North Korean government, changes confined almost entirely to the economic sphere. New ministries have been established for those industries which have grown in importance or have caused difficulties as reconstruction proceeds. The establishment of cabinet bureaus to handle particular industries, such as the forestry, coal, building materials, and machine industries, resembles the development of the bureaucracy in Communist China. ^{29/} Thus it is possible that cabinet bureaus in North Korea may represent an interim step in developing a new ministry from a subordinate organ within a ministry. For example, the present Ministry of Marine Products was a control bureau under the former Ministry of Agriculture and Forestry and was raised to cabinet bureau status in 1952 and to ministerial status in March 1954. Whereas these changes were designed to strengthen the administration of the economy, the pattern is not that of an orderly development which would reflect a program of steady economic growth or a gradually increasing program of economic control. Rather, the changes have been sporadic, in apparent response to given conditions, tending to spread a thin layer of competent administrators over the entire productive effort of the country as executive competence is developed and probably indicating areas of particular concern in the rehabilitation of the economy.

2. Economic Planning.

The principal organ for economic planning and control in North Korea is the State Planning Committee, which is responsible for the approval, supervision, and coordination of the annual national budget after it has been prepared by the Ministry of Finance; estimates government revenues and allocates expenditures for economic, cultural, social, administrative, and military purposes; and is responsible for the national economic plan, which estimates available material and human resources and allocates them for the production and distribution of goods and services for capital investment and consumption. Administrative responsibility for implementing these instruments of national planning is vested in the government ministries, their special bureaus and departments, provincial and local agencies, and the staff of managers in charge of productive and distributive units. A Central Statistics Bureau under the Planning Committee handles the constant flow of detailed reports and forms which are required from the subordinate

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units in order that checks may be maintained on their activities. ^{30/} During occupation of P'yongyang by the United Nations in 1950, a 172-page booklet entitled Regulations and Directives of the Ministry of Industry was captured. This document, which had been issued by the Bureau of Basic Construction, one of the functional units of the Ministry of Industry in August 1949, shows the intricate detail of reporting required from, and regulation of the activities of, subordinate units of the Ministry. Among the directives and regulations contained in the document are the following:

- a. Regulations on the compilation of statistics and reports (24 separate types of statistical reports are required).
 - b. Regulations on the registration of land, buildings, machines, equipment, and the like.
 - c. Regulations on the methods of computing wages and bonuses.
 - d. Table of rents paid to laborers who provide their own tools.
 - e. Directive on purchase of goods from private sources.
 - f. Directive on use of depreciation funds.
 - g. Directive on special treatment for Soviet technicians (including salaries, subsidies, exemptions from taxes, and social insurance).
3. Extent of Soviet Economic Control.

The control of economic planning activities in North Korea appears to reside in the Soviet advisers who are attached to the State Planning Committee, to the various ministries, and to the major industrial plants. Direct evidence of the Soviet role in North Korean industrial planning and control is available in a document which was captured in P'yongyang in November 1950 entitled "Organization Plan and Technical Matters Pertaining to Factory No. 65," a major underground arsenal near Songch'on (39°16' - 126°12'). ^{32/} This document outlines the steps taken between 1 October 1949 and 1 January 1951 for the construction and bringing into production of a munitions factory.

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An organ referred to as the Soviet Union Planning Section is indicated in a number of instances to be taking an active part in all phases of the operation. Some of the steps which give an indication of its role are as follows:

- a. The Soviet Union Planning Section shall, with the help of the factory engineers, draft plans of the factory, auxiliary buildings, and installations.
- b. The Soviet Union Planning Section shall make topographical surveys ... draw topographical maps and plans of factories, buildings, and installations.
- c. The Vice Minister of Industry and the factory manager shall submit a list of materials, showing names of suppliers, places of supply, and standards used, to the Soviet Union Planning Section.
- d. The Vice Minister of Industry shall submit a detailed list of ... machinery and facilities with their specifications to the Soviet Union Planning Section.
- e. No construction of buildings and facilities at Factory 65 will be permitted without the approval of the Soviet Union Planning Section.
- f. Should there be an inadequacy in machinery to meet the maximum production schedule set by the Soviet Union Planning Section, urgent steps should be taken to import the machinery in 1950.

Although it is possible that the control exercised by Soviet personnel over a munitions factory represents an extreme, there is reason to believe that all industries of any importance were and are subject to major controls of this general character and that the Soviet authority can override a decision of North Korean authorities. It is probable that the period of active hostilities saw a major breakdown of this elaborate control mechanism but that, as the North Korean industrial plant is rehabilitated, the same or similar controls are being applied in pursuance of the Soviet model of economic development.

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4. Extent of Chinese Communist Economic Control.

Communist China first attempted to wield its influence in the domestic affairs of North Korea shortly after its entry into the Korean War. Yanan-trained Koreans, who had been in relative eclipse, rose rapidly to positions of prominence in the army, and there were apparent efforts to increase their role in the North Korean government. ^{33/} The preponderance of Chinese Communists in the military forces on the Communist side in the Korean War and their leading role in the truce talks are further evidence of their increasing influence in the area. Although the strengthening of Communist China's position in North Korea is undeniable, there is no firm evidence of any contest for control between Communist China and the USSR. The USSR appears to have conceded the expanded concern of Communist China in North Korea while quietly maintaining its advisory direction of political and economic affairs in North Korea.

Since the Korean armistice, Chinese Communist influence in North Korea appears to have experienced a relative decline in terms of the orientation of key personnel in the North Korean government. The changes which have taken place in government and Korean Labor Party personnel include the replacement of members of the domestic faction (Koreans with no close ties with either the USSR or Communist China) by Soviet-trained Koreans. In contrast with the positions held by Soviet-trained Koreans and Soviet advisers, there is no evidence of the presence of Chinese Communist advisers at the ministerial level or in other policy-determining posts. Thus it appears that the major foreign influence in top governmental and economic control echelons in the North Korean hierarchy is exerted by Soviet-trained Koreans and Soviet advisers.

C. National Budget and Banking System.

1. Budget.

The North Korean budget, which is drafted and promulgated by the Ministry of Finance, is the basic financial plan of the government and represents the core of national finance (see Figure 2*). It is based on the People's Economic Plan as promulgated by the State Planning Committee and is a major tool in the execution of that plan. It constitutes a national directive on rehabilitation of the national

* Following p. 20.

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economy by controlling all rehabilitation projects through regulation of currency circulation and by enforcement of government directives on planned finance. The national budget is a consolidated budget which includes revenues and expenditures of both the central and local governments. All revenues must be reported to and allocated by the central government, although some locally collected revenues may be retained by local governments under their allocations from the central government.

a. Expenditures.

Expenditures in the North Korean budget have risen from 19.6 billion won (US \$163 million) in 1949 to an estimated 96.5 billion won (US \$804 million) in 1955. Although some of this large increase probably is caused by postwar inflation, it is an indication of the size of investment in the current rehabilitation program. 34/

In 1949, investment in national economic construction totaled 12.1 billion won (US \$100 million), whereas in 1955 it was to be about 75.1 billion won (US \$625 million), of which 16.7 billion won (US \$139 million) was to be invested in heavy industrial construction. 35/

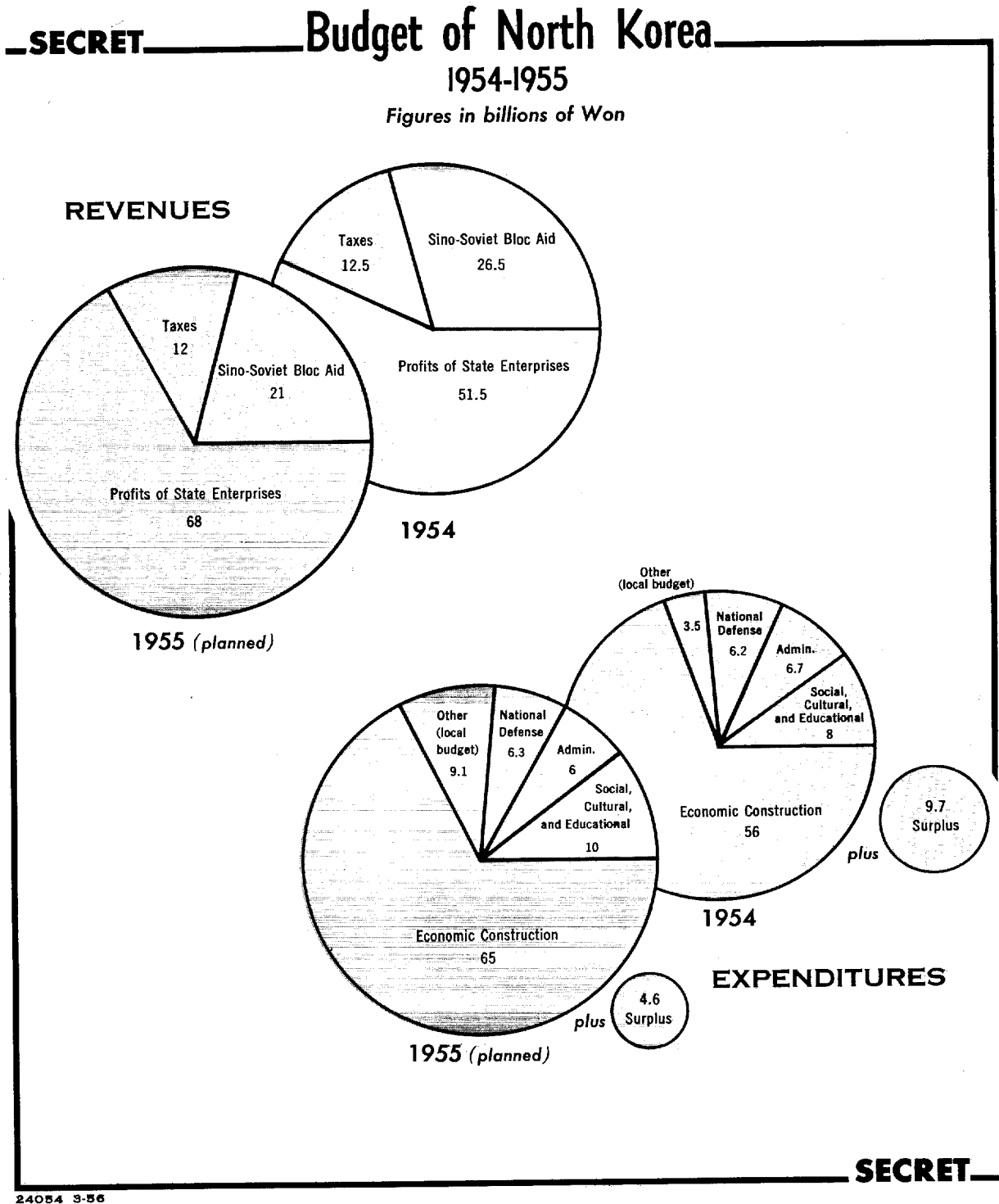
No information is available concerning either military expenditures or government administrative expenditures for the years 1949-53. In the 1954 and 1955 budgets, however, military expenditures have been listed as 6.45 billion won (US \$54 million) and 6.33 billion won (US \$53 million), respectively. Government administrative expenditures have been listed as 6.77 billion won (US \$56 million) and 6.1 billion won (US \$51 million), respectively. 36/

The other significant category of expenditures, although not specified, may be local budget expenditures. The local budget formerly was included as part of the national budget from 1946 to 1953. It was composed of provincial, city, county, and district budgets for local government expenditures. No mention of this category was made in the 1954 and 1955 national budgets. Unallocated expenditures listed in both of these budgets as Other Expenditures, together with a portion of the relatively large revenue surpluses for both years, however, may have been allocated for local budget expenditures. Table 5* presents the 1954 actual and the 1955 planned budgets of the North Korean government.

* Table 5 follows on p. 21.

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FIGURE 2



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Table 5

Budget Revenues and Expenditures of North Korea a/
1954 and 1955

Category	1954 (Actual)		1955 (Plan)	
	Thousand Won	Percent of Total	Thousand Won	Percent of Total
Expenditures				
Economic Construction	56,077,062	69.5	65,259,055	67.6
Social, Cultural, and Educational	7,871,073	9.8	9,936,233	10.3
National Defense	6,451,262	8.0	6,328,200	6.5
Administrative	6,773,825	8.4	6,108,217	6.3
Other Expenditures (Local Budget)	3,467,553	4.3	8,864,450	9.3
Total	<u>80,640,775</u>	<u>100.0</u>	<u>96,496,155</u>	<u>100.0</u>
Revenues				
Taxes	12,084,640	13.4	11,849,132	11.7
Profits of State Enterprises	51,730,240	57.4	67,999,435	67.1
Sino-Soviet Bloc Aid	26,369,000	29.2	21,426,058	21.2
Total	<u>90,183,880</u>	<u>100.0</u>	<u>101,274,625</u>	<u>100.0</u>
Surplus <u>b/</u>	9,543,105			
Total Revenue			<u>110,817,740 <u>c/</u></u>	

a. 37/

b. There is no information available concerning the disposition of surplus revenue.

c. Cumulative, includes 1954 surplus of 9,543,105 won.

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b. Revenues.

Revenues in the North Korean budget have risen from 20.9 billion won (US \$174 million) in 1949 to an estimated 101.27 billion won (US \$844 million) in 1955. This increase has been brought about principally as a result of the extensive economic aid rendered by the Sino-Soviet Bloc immediately after the Korean War. It is expected that the aid will be continued at least through 1964. In 1954, announced Sino-Soviet Bloc aid amounted to 26.37 billion won (US \$220 million), and in 1955, aid was expected to be about 21.4 billion won (US \$180 million), 38/ as shown in Table 5.*

As a result of continued large-scale Sino-Soviet Bloc investment in the industrial sector of the North Korean economy, profits from state commercial and industrial enterprises have risen steadily in the past few years. According to the planned 1955 national budget, profits from state enterprises and economic organizations were expected to approximate 68 billion won (US \$566 million), as compared with 14.84 billion won (US \$123 million) in 1949. According to the 1955 planned budget, income derived from taxes was expected to total about 11.85 billion won (US \$98.7 million), as compared with 4.8 billion won (US \$40 million) in 1949. 39/

Since 30 June 1953, North Korean citizens have been required to pay the following main types of taxes at the rates indicated:

(1) Income Tax.

- (a) On the wages of workers and clerks: 4 percent on a monthly wage of 700 to 1,500 won, progressing to 20 percent for wages exceeding 10,000 won.
- (b) On the incomes of businessmen and entrepreneurs: 6 percent on a quarterly income up to 1,500 won, progressing to 74 percent for a quarterly income of above 1.5 million won.
- (c) On the incomes of self-employed handicraftsmen and persons in related occupations not employing any workers: 4 percent on a quarterly income if less than 1,500 won, progressing to 68 percent for an income of over 450,000 won.

* P. 21, above.

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(2) Agricultural Taxes.

Farmers are required to pay three types of taxes -- an oxcart tax and an irrigation tax, both to be paid yearly, and a tax-in-kind on farm produce, to be paid twice yearly. The oxcart and irrigation taxes are collected every December. The taxes-in-kind on farm produce are collected from late August to late September on early crops (wheat, potatoes, and peas) on the basis of 25 percent of the yield. The tax on late crops (rice, millet, peanuts, soybeans, peas, corn, and red beans) is collected in December on the basis of 25 percent of the yield, except for unhulled rice, which is taxed at 27 percent of its yield. 40/

(3) Taxes Collected by Local Governments.

Taxes are collected on the wages and salaries of laborers, clerks, cultural workers, artists, translators, and the like, at the rate of 0.8 percent on the first 500 won of monthly wages and salaries, progressing to 5 percent on amounts in excess of 60,000 won.

Taxes are collected on the incomes of farmers at the rate of 1 percent on a net quarterly income of up to 2,000 won, after deduction of farm operating expenses and taxes-in-kind, progressing to 6 percent on income exceeding 300,000 won.

Taxes are collected on the incomes of merchants, industrialists, and self-employed handicraftsmen at the rate of 1.5 percent on a quarterly income of up to 1,500 won, progressing to 25 percent on income exceeding 1.5 million won.

2. Banking System.

The North Korean banking system, which is centrally controlled by the Ministry of Finance, is an important element in the government's administrative control of the economy. The banking system is composed of two long-established major banks, the Central Bank and the Farmers' Bank -- each of which has several regional branches -- and a new bank, the State Construction Bank, which was established during the current rehabilitation program.

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a. Central Bank.

The Central Bank is directly subordinate to the Cabinet and acts as the administrative organ which executes, through its branch banks, the fiscal policies and regulations instituted by the State Planning Committee. One of the major characteristics which distinguishes it from the Farmers' Bank is that it is used primarily by official government organizations, whereas the Farmers' Bank is used more by non-government depositors, particularly farmers and fishermen. The main responsibilities of the Central Bank are to issue won notes, to maintain a flexible money supply, to settle international accounts, and to keep foreign exchange reserves.

In general, the operations of the Central Bank attempt to reduce inflationary pressures on the economy by holding down the amount of currency in circulation, to coordinate financial plans of government departments and enterprises in the consolidated national plan of economic development, and to assure the proper use of funds by national enterprises. Regional banks are scattered throughout North Korea and serve on the local level as agents of the Central Bank. Each regional bank, in addition to its administrative functions, is responsible for making disbursements to all government agencies in the area, and for gathering from tax-collecting agencies all funds secured by taxation. Each national enterprise is required to submit to the Central Bank a monthly "cash requirements plan" detailing its anticipated needs. This plan is reviewed, approved, or altered by the Central Bank. The Central Bank thus plays an important role in influencing the operations of each national enterprise, consolidating the government's control over the economy as a whole.

b. Farmers' Bank.

The Farmers' Bank is supervised by the Ministry of Finance, as a part of the state-monopolized banking system, and specializes in agricultural financing. Of the total amount of farm loans made annually by the bank, about 40 percent are loans to individual farmers; the rest are loans to various agricultural organizations. One of the main purposes of this bank is to assist in organizing farmers into cooperatives. The bank has attempted to induce more farmers to join cooperatives by giving members preference on loans, charging them lower interest, and allowing them longer terms of repayment than are allowed to nonmembers. ^{41/} During the first half of 1955, the bank loaned about 660 million won (US \$5 million) to farmers for farm equipment, livestock, and fertilizer. ^{42/}

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The Farmers' Bank uses time deposits of individual farmers and agricultural cooperatives (the latter deposits are composed of membership fees, earned surplus, social and cultural reserve funds, and the like) as a regular source of funds for long-term loans. The bank's main sources of short-term loans are demand deposits of individual farmers and of the cooperatives. The latter include draft-animal and tractor-rental fees, irrigation fees, and the like, which are collected from the members, as well as current operating funds, reserve funds for deed purchases, and the like, which are deposited with the bank.

c. State Construction Loan Bank.

The State Construction Loan Bank is believed to be under the supervision of the State Construction Committee. It was established primarily to administer the financing of the state's capital construction projects and to supervise and control the utilization of state funds by state construction enterprises. In the past 2 years, subordinate branch banks have been established on the provincial, county, and municipal level to administer funds allocated for the construction, expansion, or rehabilitation of approximately 300 large and medium-sized industrial plants.

III. Growth Trends Within the Economy.

A. Agricultural Sector.

1. Extent of Land Socialization.

In 1946, all land cultivated by tenants, whether formerly Japanese property or property owned by North Korean landlords, was confiscated and redistributed to farmers who had been landless tenants or part-tenants. Approximately 2.3 million acres in all were confiscated and distributed to about 725,000 of a total of approximately 1.2 million farm households. As government controls over agricultural production gradually increased under this land reform movement, however, the individual farm took on the aspect of a producing unit operating under the close supervision of the government. In effect, the farmer was told what crops to produce, how much his yields were to be, when his planting and harvesting were to be completed, and how much fertilizer he should use.

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Immediately after the Korean War the North Korean government introduced the next stage of agricultural socialization, the agricultural cooperative, which can be of three types. The first type is privately organized as a mutual-aid team, and neither property nor yields are shared. In the second type, which is the most prevalent in North Korea, property is surrendered to the cooperatives, and the returns are distributed in proportion to the property contributed and the size of the farmer's family. In the third type, property is surrendered to the cooperative as in the second, but the returns are based on the amount and quality of labor contributed. 43/

By the end of 1953 there were 800 farm cooperatives being operated by 12,000 farm households. 44/ In 1954 the government conducted an extensive campaign to increase the number of farm cooperatives. As a result, by the end of 1954 the number of agricultural cooperatives, including the second and third types, had increased from 800 to 10,098, encompassing 32 percent of all farm households. 45/ Early in 1955, however, official announcements hinted that the 1954 crop failure was at least partly due to a too rapid expansion of cooperatives, which resulted in poor planning and inefficient management of farm cooperatives at both planting and harvest time. As a result, it was decided that the number of cooperatives should be increased gradually and that an intensive campaign should be conducted to strengthen existing cooperatives. On 3 March 1955, the Korean Labor Party's Central Committee made the following announcement: 46/

Another consideration to be taken in the Party's strengthening and guiding of cooperatives is the fact that a large part of farming in North Korea is still done by individual farmers. Therefore, Party leaders should not overemphasize the cooperatives. To disregard the majority of individual farmers will result in a big error and decrease the national agricultural output. Individual farmers should be gradually guided toward the organization of agricultural cooperatives by making them cooperate with the cooperatives and by showing them the good results.

This "go slow" policy in forcing the organization of farm cooperatives brought about the formation of only about 1,500 new cooperatives in the first three quarters of 1955, 47/ whereas 10,000 had been formed in 1954. As of 1 January 1956, half of the farmland in North Korea was still being cultivated by noncollectivized farmers.

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2. Crop Production.*

Farming in North Korea is handicapped by the scarcity of land sufficiently level to permit extensive agricultural activity. The mountainous nature of the region, combined with insufficient irrigation facilities, generally restricts the practice of double-cropping to a few scattered areas along the western coast. This in turn imposes serious limitations on increasing agricultural productivity and on farm collectivization, which depend in part on the introduction of large-scale farm mechanization techniques, which require flat, level land to produce the best results.

a. Agricultural Investment Plans.

According to the North Korean Three Year Plan, 5.58 billion won (US \$46.5 million) are to be invested in the rehabilitation of agriculture, particularly in the reconstruction of irrigation facilities, for which 2.3 billion won (US \$19.5 million) are to be spent. Most of the proposed irrigation and flood control projects are along the western coast, specifically in the paddy rice area north and east of P'yongyang. By the end of 1954 a total of 438,000 acres (179,000 chongbo**) of farmland were under irrigation. ^{48/} Although about 73,000 additional acres (30,000 chongbo) were brought under irrigation in 1955, it is estimated that only about 20 percent of the total arable land in North Korea is now under irrigation, as compared with 29 percent before the Korean War. ^{49/}

b. Crop Cultivation.

The principal food crops grown in North Korea are rice, millet, soybeans, corn, wheat, and potatoes. During the period 1940 to 1944 under the Japanese and from 1946 to 1949 under Soviet control, these crops were cultivated on 3 million to 4 million acres per year, yielding an average total harvest of about 2.5 million tons per year. ^{50/} As a result of wartime damage to many productive farm areas, the first postwar harvest in 1953 amounted to only about 2.1 million tons. ^{51/} The food crop production for selected prewar and postwar periods is shown in Table 6.*

* For production of food crops and other selected commodities and services, see Figure 3, following p. 28.

** One chongbo equals 2.45 acres.

*** Table 6 follows on p. 28.

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Table 6

Food Crop Production in North Korea a/
Selected Years, 1940-56

	Million Metric Tons						
	Average 1940-44	Average 1946-49	1953	1954	1955	1956 (Original Plan)	1956 (Revised Plan)
Food crops	2.44	2.5	2.16	2.2	2.5	3.27	2.73

a. Food crops include wheat, rice, barley, oats, corn, millet, buckwheat, sorghum, soybeans, and potatoes. Except for 1956, data are estimates. 52/

In spite of the extensive wartime damage to farm land, irrigation facilities, and fertilizer plants, the North Korean government set a production goal of 3.27 million tons of food crops for 1956, amounting to an annual increase of about 400,000 tons per year during the current Three Year Plan. Official economic planners evidently anticipated much easier, more rapid, and more extensive rehabilitation of the agricultural sector than has occurred. No allowance was made for the effect of North Korea's frequently inclement weather on the planned harvests. In the outcome, floods and early frosts combined to restrict the 1954 food crop output to 2.2 million tons, or an increase of only 3 percent over 1953. 53/

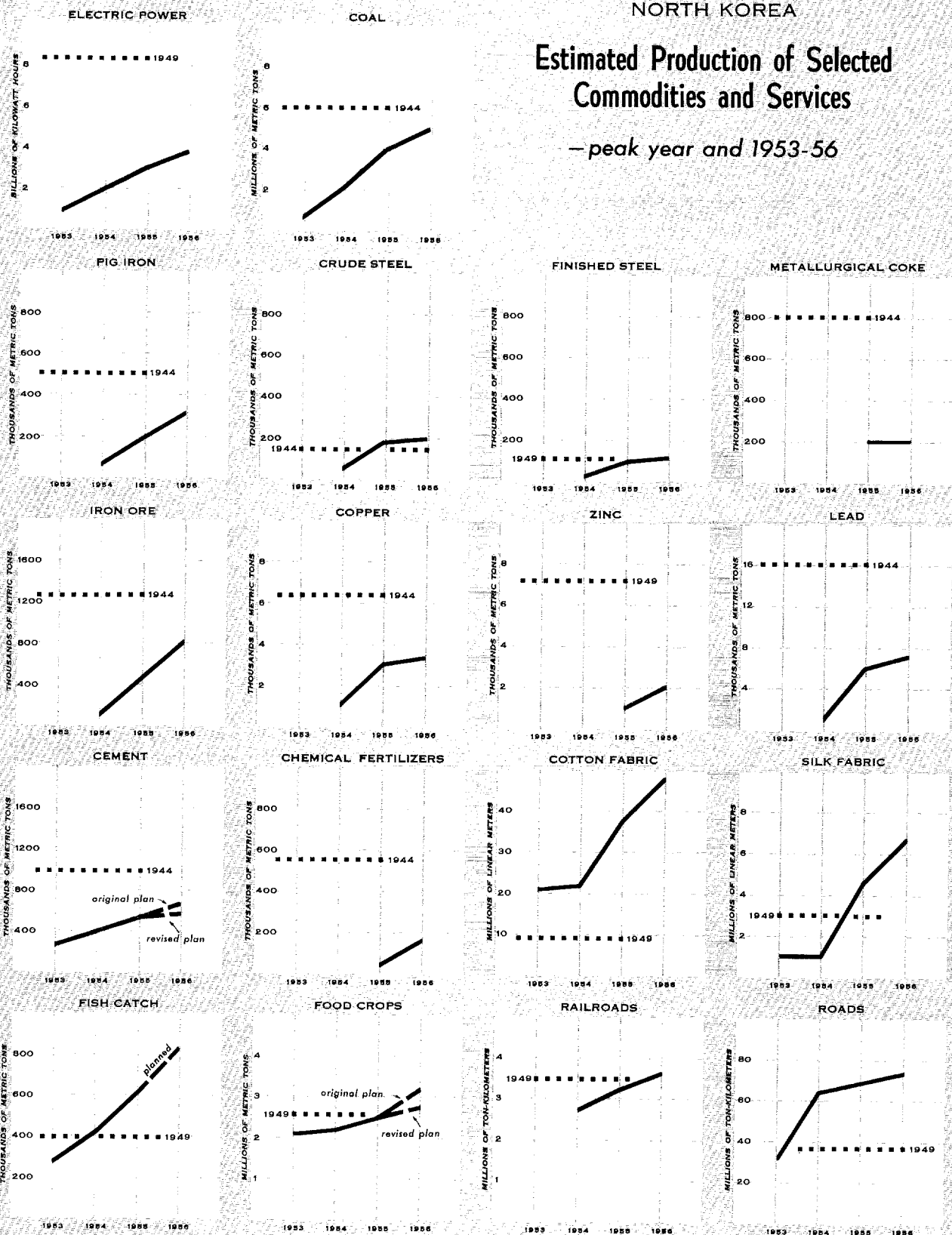
In 1955 the weather once again played an important role in restricting the size of the food crop harvest of North Korea. Although earlier crop predictions had heralded a bumper crop harvest in 1955, serious drought damage plus inefficient management of farm cooperatives combined to restrict the food crop harvest to an estimated 2.5 million tons. As a result, the original 1956 goal for production of 3.27 million tons of food crops was revised to a more realistic goal of 2.73 million tons. 55/

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FIGURE 3



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3. 1955 Food Situation.

Although North Korea had previously been a food surplus area, since the start of the Korean War it has gradually been transformed into a food-deficit area, in spite of a decrease in population from 9 million to 7.9 million persons. A serious food shortage resulted from successive crop failures in 1953 and 1954. The food shortage in urban areas was revealed in October 1954 when the government abolished all private trade in grains in order to curtail widespread speculation. The situation grew worse rather than better, however, and the government reinstated urban food rationing in March 1955. 56/

To alleviate the food shortage during the period 1 January 1954 to 31 August 1955, the North Korean government was forced to import about 350,000 tons of grains from Communist China and the USSR in addition to thousands of tons of food from the European Satellites. 57/ Thus it is clear that food crop production in the past few years has been well below the prewar level.

To prevent a food shortage in the winter of 1955-56, the government strenuously attempted to increase production of food in 1955. On 2 March 1955 the government offered incentive payments of extra rations to those cooperatives which overfulfilled their quotas in farming, livestock, and fruit production. Later, agricultural taxes-in-kind were reduced sharply as a further incentive to farmers. Nevertheless, although the 1955 food crop harvest was reported to be larger than that of 1954, severe drought damage in the west coast provinces prevented fulfillment of the grain crop production quota. As a result, North Korea probably will be partially dependent on food imports from the Sino-Soviet Bloc for at least another year.

B. Modern Industry.

1. Electric Power.

Rehabilitation and expansion of the bombshattered electric power industry of North Korea, which are a necessary preliminary to further large-scale industrial development, will depend almost exclusively on the reconstruction of seven major hydroelectric power systems, the largest of which is the Suiho Power Plant on the Yalu River.* According to the current Three Year Plan, electric

* For reconstruction of major industrial plants, see Figure 4, following p. 30.

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power productive capacity is to be restored to approximately the 1949 level of 1.35 million kilowatts (kw), but actual output is planned only to reach 3.8 billion kilowatt-hours (kwh), which is less than half the 1949 output. ^{58/} This reduction in output is mainly because the chemical industry, which formerly consumed about 70 percent of all electric power generated in North Korea, was largely destroyed in the war and probably will not be fully restored to its prewar level until 1958 or 1959. Other industrial facilities that are not scheduled to be restored to their 1949 status by 1956 similarly require a much reduced supply of electric power. Table 7 shows the estimated availability of electric power in North Korea for 1949 and 1953-56.

Table 7

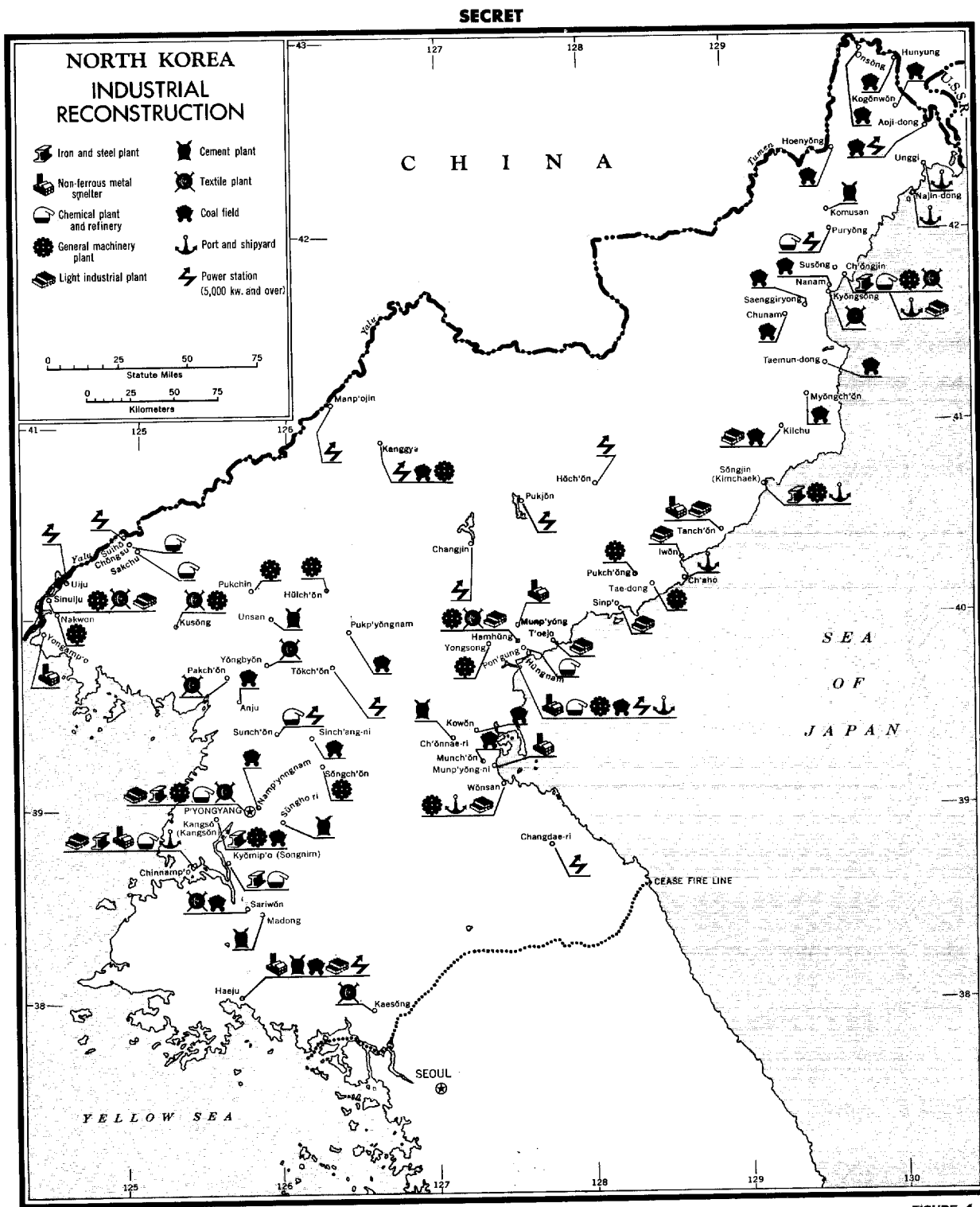
Estimated Availability of Electric Power in North Korea
Selected Years, 1949-56

Billion Kilowatt-Hours			
Year	Total Output	Exports to Communist China	Available for North Korea
1949	8.2	0.9	7.3
1953	1.0	0.4	0.6
1954	2.0	0.9	1.1
1955	3.0	1.4	1.6
1956	3.8 (Plan)	1.5	2.3

As shown in Table 7, North Korea exports an average of 0.9 billion kwh of electricity a year to Communist China. All of this exported electricity is generated at the Suiho Power Plant and transmitted into Northeast China. During the period from 1946 to 1950 this plant supplied about one-half of its total output to Manchuria -- that is, about 0.9 billion kwh -- from 2 of the 4 generators in operation at the plant. It is quite probable that this ratio will continue as the plant is restored to full operation, although it is also possible that Manchuria will get a larger portion. It is estimated that 2 units of 100,000-kw capacity each were in operation in 1953, with 1 unit supplying Manchuria. The plant's fifth 100,000-kw unit was installed in 1955, and the sixth unit is scheduled to be put back in operation in 1956, in order to give the

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plant a 600,000-kw operating capacity by the end of the Three Year Plan. As this capacity probably will not be needed by North Korean industries in 1955 and 1956, the Suiho Power Plant possibly will supply Manchuria with 50 percent more power than in 1949. 59/

Rehabilitation of the electric power industry in North Korea is apparently a joint Sino-Soviet Bloc effort. Thus far, the USSR and Czechoslovakia have provided most of the new power generating equipment as well as the technical manpower to install it. For example, Soviet technical and material aid for rehabilitating the electric power industry apparently is concentrated on the restoration of the Suiho Power Plant. In 1954, several Soviet technical engineers were reported to be supervising the installation of Soviet power equipment and the relocation of large transformers in order to provide protected locations for substation and transmission equipment in the event of the outbreak of hostilities. 60/ Czechoslovak engineers have installed several pieces of Czechoslovak power equipment at each of the Changjin, Hoch'on, and Pujon River hydroelectric power stations, where they have been responsible for the following repairs and improvements:

Hoch'on System.	Three generators rebuilt and 6 others to be restored by the end of 1955. <u>61/</u>
Changjin System.	Plant No. 4 restored and Plant No. 1 rebuilt underground. Assembly of generators in progress, while repair of penstocks was virtually completed by mid-1955. <u>62/</u>
Pujon System.	One generator rebuilt and others being repaired. <u>63/</u>

Although the planned increase in the output of electric power will be considerably less than in the years under Japanese domination, when the average annual output was about 7 billion kwh, it is estimated that enough electricity will be generated to satisfy the needs of the industrialization goals of the current Three Year Plan.

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2. Coal.

a. Supply Position.

Anthracite coal represents North Korea's second most important source of power, as there are no known reserves of petroleum, natural gas, or bituminous coal on the Korean peninsula. Although anthracite reserves are sufficient for many years at prewar peak annual production rates, the quality is poor, having low heating value and high ash content. The coal cannot be used for many industrial and domestic purposes unless mixed with bituminous coal and pitch and then briquetted. In 1949, about 30 to 50 percent of the estimated 4 million tons of anthracite coal produced in North Korea was consumed in this manner. ^{64/} During the Korean War, about 73 percent of the coal production capacity of North Korea was destroyed. In 1953, only 5 coal mines of a total of 32 were in operation, producing an estimated 714,000 tons of coal. ^{65/}

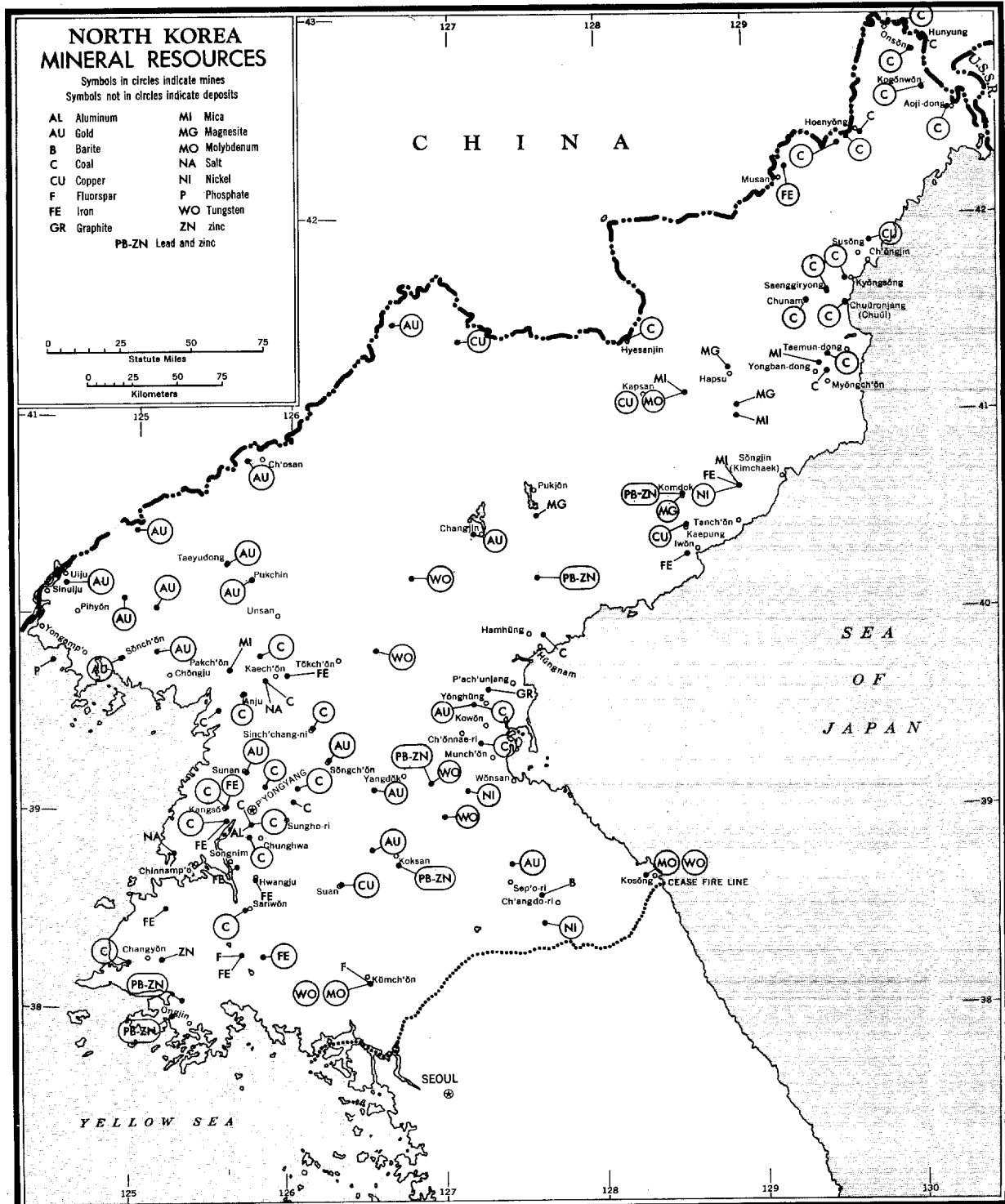
b. Extent of Rehabilitation.

Under the current Three Year Plan the North Korean government is seeking, with the aid of Sino-Soviet Bloc coal mining machinery and coal engineers, to restore coal production to the 1949 level of 4 million tons by the end of 1956. Because of the progress made in restoring and expanding such major coal producing areas as the Sinch'ang, Anju, Aoji, Kaech'on and Kowon coal mines,* however, the North Korean Cabinet announced in December 1954 that the 1956 coal production goal was scheduled to be achieved in 1955, and no new goal was set for 1956. ^{66/} The goals envisage the expansion of open-pit mining and Soviet Bloc-supervised mechanization of 90 percent of pit mining processes and 60 percent of pit hauling processes, as a result of which a total annual coal production capacity of 6.3 million tons will be achieved by 1957. ^{67/}

An annual coal production of 4 million or 5 million tons should be sufficient to satisfy the nonindustrial requirements of North Korea. As restoration and expansion of the metallurgical, chemical, and cement industries are increased, the traditional imports of coking-grade bituminous coal from Communist China probably will increase proportionately. Because there are no known deposits

* See Figure 5, following p. 32.

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FIGURE 5

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of coking-grade coal on the Korean peninsula, the future industrialization plans of North Korea, as in the past, will be dependent on imports of this type of coal. The estimated availability of coal in North Korea for 1953-56 is shown in Table 8.

Table 8

Estimated Availability of Coal in North Korea
1953-56

Thousand Metric Tons			
Year	Total Production	Imports from Communist China	Total Available
1953	714	700	1,414
1954	2,100	650	2,750
1955	4,000	1,000	5,000
1956	5,000	1,100	6,100

3. Ferrous Metals.

a. General.

The iron and steel industry of North Korea under Japanese management served chiefly as an adjunct to the metallurgical industry of Japan, supplying the latter with an average of 400,000 tons of iron ore and 500,000 tons of pig iron each year. ^{68/} By the end of World War II, however, most of the metallurgical industry of North Korea had been rendered inoperable. During the period from 1946 to 1950, under Soviet control, the iron and steel industry became more highly integrated than under the Japanese, with particular emphasis on production of crude and finished steel. By 1949, annual pig iron production was 166,000 tons; crude steel, 145,000 tons; finished steel, 108,000 tons; metallurgical coke, 268,000 tons; and iron ore, 400,000 tons. ^{69/} During the Korean War, however, the metallurgical industry was once again rendered inoperable in the following degrees: metallurgical coke production capacity, 100 percent; pig iron, 70 percent; crude steel, 85 percent; and finished steel, 30 percent. ^{70/}

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b. Extent of Rehabilitation.

Soviet technical and material assistance has been concentrated particularly on restoration of the metallurgical industry and specifically on reconstruction of the four major iron and steel plants, located in Songnim (Kyomip'o), Ch'ongjin, Songjin (Kimchaek), and Kangson. As a result of this concerted effort, all four plants are back in operation with production estimated at, or slightly in excess of, the 1949 level, which was the peak achieved under pre-Korean War Soviet management. Table 9 shows estimated production of iron, steel, and coke in 1949 and in 1953-56.

Table 9

Estimated Production of Iron and Steel in North Korea
Selected Years, 1949-56

Commodity	Thousand Metric Tons					
	1949	1953	1954	1955	1956 (Plan)	1956 (Projected)
Pig iron	166	Negligible	61	210	180	320 ^{a/}
Crude steel	145	Negligible	50	190	175	200
Finished steel	108	Negligible	37.8	94.2	129.6	129.6
Metallurgical coke	268	Negligible	Negligible	200	N.A.	200
Iron ore	400	Negligible	140	480	820	820

a. Extent of damage or destruction at Songjin Steel Plant, with a capacity of 74,000 tons of finished steel, is unknown.

Pig iron and metallurgical coke production are concentrated in the Kimchaek Iron Works in Ch'ongjin and the Hwanghae Steel Works in Songnim. Estimated production at the Kimchaek plant is 150,000 and 180,000 tons, respectively; 71/ the Hwanghae plant is estimated to be producing 60,000 tons of pig iron and 20,000 tons of coke per year. If Soviet technicians can complete restoration of the Number 2 500-ton blast furnace at the Kimchaek Iron Works by the end of 1955 or early 1956, pig iron production in 1956 could be as much as 360,000 tons. It is estimated that, by mid-1955, almost 70 percent of

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the 1950 pig iron production capacity of North Korea and 40 percent of its coke capacity had been restored. It is estimated that the 1955 production of pig iron was in excess of the 1949 level, thus fulfilling the Three Year Plan goal a year in advance. Production of metallurgical coke in 1955, however, was below the 1949 level and probably will not reach that level unless the Number 2 coke battery at the Kimchaek Iron Works is put back in operation by early 1956.

Steel production is centered principally at the Songnim, Kangson, and Songjin plants, and limited production is conducted also at the Ch'ongjin plant. It is estimated that by mid-1955 about 70 percent of the 1950 finished steel production capacity of North Korea and 95 percent of its crude steel production capacity had been rebuilt. It is estimated that 1955 production of crude steel exceeds the 1949 level and has fulfilled the Three Year Plan goal a year in advance. Production of finished steel in 1955 was slightly below the 1949 level, but probably will reach this level in 1956. Table 10 shows the estimated extent of war damage and subsequent restoration of the iron and steel industry of North Korea.

Table 10

Estimated Extent of Restoration of the Iron and Steel Industry
in North Korea
Mid-1955

Commodity	1950 Capacity	Destroyed Capacity	Damaged Capacity	Undamaged Capacity	Extent of 1950 Plant Capacity Restored by Mid-1955	
					(Percent)	(Metric Tons)
Metallurgical coke	485,000	485,000			41.2	200,000
Pig iron	425,000	100,000	100,000	225,000	63.8	271,000
Crude steel	254,000	220,000	3,000	31,000	94.9	241,000
Finished steel	300,000	37,000 a/	N.A. a/	190,000	67.0	201,000

a. The extent of damage or destruction at the Songjin Steel Plant, with a 1950 capacity of 74,000 tons of finished steel, is unknown.

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4. Nonferrous Metals.a. General.

After World War II the mining of nonferrous metals in North Korea was at a standstill because the Japanese had either destroyed or flooded most of the mines. By June 1950, although production of nonferrous metals had made substantial recovery, particularly in the smelting, mining, and refining of the major strategic metals -- copper, lead, and zinc -- World War II peak levels had not been reached.

During the Korean War the nonferrous metals industry once again suffered severe damage, and was generally rendered about 88 percent inoperable, with smelting and refining plants absorbing the most serious damage. 72/ Table 11 shows the estimated damage to the nonferrous metals smelting and refining plants of North Korea, by capacity, 1950.

Table 11

Estimated Damage to the Nonferrous Metals Smelting and Refining Plants
of North Korea, by Capacity
1950

<u>Metal</u>	<u>Plant and Location</u>	<u>1950 Capacity (Thousand Metric Tons)</u>	<u>Capacity Destroyed (Percent)</u>
Copper	Chinnamp'o (38°44'-125°24')	5 to 6	70
	Hungnam (39°51'-127°37')	2 to 3	90
	Munp'yong (39°14'-127°22')	2 to 3	Less than 50
	Haeju (37°59'-125°42')	2 to 3	Less than 50
Lead	Munp'yong	6	Less than 50
	Hungnam	4	90
	Yongamp'o (39°56'-124°22')	2	N.A.
	Haeju	1 to 1.5	Less than 50
Zinc	Chinnamp'o	9 to 10	70

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b. Extent of Rehabilitation.

Since the Korean truce, mines which had been deactivated are being brought back into production. Furthermore, there are indications that with Soviet technical and material assistance all nonferrous mines which were once in production will be worked again. For example, large quantities of Soviet mining machinery and ore-dressing facilities have been installed in the following major non-ferrous metal mines: the Komdok, Songch'on, and Koksan Lead and Zinc Mines and the Kapsan and Kaep'ung Copper Mines. 73/

According to the Three Year Plan, nonferrous metals smelting and refining capacity is to be concentrated mainly in the plants at Chinnamp'o, Mump'yong, Hungnam, and possibly Haeju. For this purpose, the following construction is scheduled to be undertaken at these plants during the period 1954-56:

- | | |
|----------------------|--|
| Chinnamp'o. | Restoration of 2 smelting furnaces, 100 electrolytic cells for the electrolysis of copper, and 160 cells for the electrolysis of zinc. |
| Mump'yong. | Restoration of 5 smelting furnaces and 540 electrolytic cells for the electrolysis of lead. |
| Hungnam
or Haeju. | Construction of a new lead smelter with 180 electrolytic cells for the electrolysis of lead. |

In addition, construction of a new zinc smelter with an 8,000-ton capacity is planned to be started at Chinnamp'o during this period.

In the past 3 years, Soviet engineers and technicians have been supervising the reconstruction and expansion of the above-mentioned plants. In 1954 they succeeded in restoring to operation 2 lead furnaces and 2 copper furnaces at the Mump'yong Smelter and one furnace at the Chinnamp'o Smelter. 74/ By mid-1955 the electrolytic lead-refining facilities at Mump'yong had been restored, and intensive rehabilitation of the Chinnamp'o and Hungnam Smelters was under way. 75/ Soviet concern over the rapid rehabilitation of nonferrous metals production stems from the fact that exports of these metals to the USSR represent North Korea's chief means of repayment for Soviet economic assistance.

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Although copper, lead, and zinc production probably will not reach the 1949 level by the end of 1956, because of damages suffered during the Korean War, the progress made in the rehabilitation of this sector of the economy has been significant. It is estimated that by the end of 1956, annual production of copper will be 3,500 tons; lead, 7,000 tons; and zinc, 2,000 tons. ^{76/} Estimated production of lead, zinc, and copper for 1949 and 1953-56 is shown in Table 12.

Table 12

Estimated Production of Nonferrous Metals in North Korea
Selected Years, 1949-56

Metal	Thousand Metric Tons				
	1949	1953	1954	1955	1956
Copper	5.6	Negligible	1	3	3.5
Lead	9.4	Negligible	1	6	7
Zinc	8	Negligible	Negligible	1	2

5. Cement.a. General.

During World War II the 6 cement plants in North Korea had a combined annual productive capacity of about 1.7 million tons and an average annual production of about 1 million tons. By 1946, capacity had been greatly reduced by dismantling and wartime destruction. During the period from 1946 to 1950 the productive capacity of the cement industry was rebuilt and increased to a little over 1 million tons a year, and annual cement output was increased to 527,000 tons in 1949. During the Korean War, however, it is estimated that about 80 percent of the cement productive capacity of North Korea was rendered inoperable. ^{77/} The estimated damage to the 6 plants is shown in Table 13.*

* Table 13 follows on p. 39.

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Table 13

Estimated Damage to Cement Plants of North Korea, by Capacity
1950

Plant and Location	1950 Capacity (Thousand Metric Tons)	Number of Kilns	Destroyed Capacity (Percent)
Komusan (42°05'-129°40')	126	1	85 to 100
Ch'onnae-ri (39°20'-127°10')	300	3	30
Sungho-ri (38°59'-125°59')	300	3	50
Sungho-ri (38°59'-125°59')	150	1	N.A.
Sariwon (Yongdam-ni) (38°31'-125°44')	120	3	85 to 100
Haeju (Yongdangp'o) (37°59'-125°42')	75	3	85 to 100
Total	<u>1,071</u>	<u>14</u>	About 80

b. Extent of Rehabilitation.

In the past 3 years, continuing imports of cement production equipment from the Sino-Soviet Bloc into North Korea have made possible the almost complete restoration of at least 4 of the 6 cement plants which had been in operation in June 1950: the plant at Ch'onnae-ri, under joint Sino-Soviet, Czechoslovak, and East German supervision; the Sungho-ri plant, under Sino-Soviet supervision; the Komusan plant, under Soviet supervision; and the Haeju plant, under Chinese Communist supervision. In addition, there is evidence that cement is to be produced in at least two other locations -- in Unsan (39°58'-125°47') under Rumanian supervision and in Madong (38°25'-125°52') under Soviet supervision. ^{78/} The construction of two cement plants is mentioned at Madong -- the Ku-Madong plant, which is being reconstructed, and the Sin-Madong plant, where construction is to begin in 1955, under Soviet supervision. It is possible that some undamaged cement production equipment was salvaged and moved from 1 of the 2 Sungho-ri plants, and from the Sariwon plant to either or both of these new locations, as

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there has been no mention of cement production in these 2 plants. The construction of two cement plants at Madong is particularly significant because Madong is strategically located near the rail center of Sariwon, about 30 miles south of the Chinnamp'o-Songnim-P'yongyang industrial complex.

Although the cement industry in North Korea failed to fulfill its annual production goals in 1954 and 1955, cement imports from Communist China at the rate of about 130,000 tons per year, combined with a current estimated annual domestic output of 500,000 to 600,000 tons of cement, have helped to satisfy most of the ever-increasing industrial and commercial requirements of North Korea for cement. In view of the size of the Sino-Soviet Bloc investment in rehabilitating the cement industry of North Korea, it is believed possible that the Three Year Plan cement production goal of 650,000 tons will be achieved in 1956. ^{79/} Increasing cement requirements for the current industrialization program, however, will necessitate continuance of Bloc imports of cement at least for the next 2 or 3 years.

6. Chemicals.

a. General.

During World War II the chemical industry was the most significant industry in North Korea because of its importance in providing the Japanese Empire with many strategic materials to sustain its war effort. For example, North Korea had one-fifth of the nitrogen-fixation capacity and one-fourth of the glycerol-refining capacity of the Japanese Empire. Moreover, the ammonium synthesis and sulfuric acid plants of the Hungnam Chemical Works were the largest in the Japanese Empire. It is estimated that, by 1946, over-all chemical production capacity had been reduced only slightly by dismantling or destruction of equipment, although actual production was only a fraction of rated capacity because of shortages of raw materials and technical and managerial skills. ^{80/}

During the period 1946 to 1950, extensive Soviet investments in the expansion of the chemical industry raised the level of chemical production to approximately that achieved under the Japanese. During the Korean War, however, the estimated destruction of the major chemical plants of North Korea was almost complete, ^{81/} as is shown in Table 14.*

* Table 14 follows on p. 41.

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Table 14

Estimated Damage to Chemical Plants of North Korea, by Capacity
1950

Plant	1950 Capacity (Thousand Metric Tons)	Destroyed Capacity (Percent)
Hungnam Chemical Works (39°51'-127°37')		
Ammonium synthesis plant	104.2	100
Ammonium nitrate plant	16	100
Ammonium sulfate plant	500	100
Nitric acid plant	18.6	100
Sulfuric acid plant	300	100
Pon'gung Chemical Works (39°52'-127°34')		
Ammonium synthesis plant	7	25
Calcium carbide plant	90	100
Calcium cyanamide plant	46	100
Ch'ongsu Chemical Works (40°30'-125°02')		
Calcium carbide plant	30	100
Sunch'on Chemical Works (39°25'-125°56')		
Calcium carbide plant	28	100
Calcium cyanamide plant	17.5	100
Chinnamp'o Chemical Works (38°44'-125°24')		
Sulfuric acid plant	12	N.A.
Calcium carbide plant	6	100

b. Extent of Rehabilitation.

In the past 3 years, Sino-Soviet Bloc aid has been concentrated on the rehabilitation of the chemical fertilizer production facilities of North Korea. Soviet assistance has been devoted principally to restoration of the Hungnam chemical fertilizer plant, which, on 11 August 1955, resumed production of ammonium sulfate with a capacity of 30,000 tons a year -- less than one-tenth its 1949 capacity. Another ammonium sulfate fertilizer plant is now under construction at Hungnam and is scheduled to begin operation in July 1956

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with a capacity of 90,000 tons per year. In addition, Soviet technicians are supervising the reconstruction of the Hungnam nitric and sulfuric acid plants. The Hungnam superphosphate lime plant, also reconstructed under Soviet supervision, resumed production on 6 September 1955. The Hungnam ammonium nitrate plant, the capacity of which is to be about 100,000 tons per year, is also being rebuilt under Soviet supervision, but it is not scheduled to begin operation during the current Three Year Plan. 82/ As a result of this Soviet assistance, by the end of 1956, total output of chemical fertilizer (including ammonium sulfate, ammonium nitrate, and superphosphate) at the Hungnam Chemical Works probably will be 100,000 tons a year.

The progress of restoration of other important chemical plants is summarized as follows 83/:

Pon'gung Chemical Works. By July 1954, Sino-Soviet technicians had repaired eight ammonium nitrate plant furnaces and started production of both ammonium nitrate and calcium carbide. By December 1954, 2 electric furnaces, a second carbide furnace, and 8 remaining ammonium nitrate furnaces had been repaired, and the hydrochloric acid facilities of the soda ash plant had been rehabilitated, but production was not resumed until 1 January 1955. By September 1955, restoration and expansion of the ammonium nitrate and soda ash plants had been almost completed, but only 50 percent of the carbide plant had been restored.

Sunch'on Chemical Works. By June 1954, Soviet technicians had installed a new nitrogen separator. By September 1955, restoration of the ammonium nitrate and calcium carbide plants had been almost completed. A new organic chemicals factory under construction by Hungarian technicians probably is scheduled to begin production of pharmaceuticals by 1957.

Ch'ongsu Chemical Works. By 1 March 1955 the Number 1 lime kiln of the carbide plant had been rehabilitated. Assembly of the first electric furnace and restoration work on the annex of the carbide plant are reported to be continuing.

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According to the Three Year Plan the goal for annual production of chemical fertilizer is 150,000 tons. ^{84/} In view of the extent of Sino-Soviet Bloc investment in this sector of the chemical industry, it is believed that this goal will be attained by the end of 1956. The over-all output of chemicals, however, will be less than 50 percent of the 1949 level of output of chemicals.

7. Engineering Industries.

a. General.

During World War II the fact that the engineering industries of North Korea accounted for less than 3 percent of the total value of industrial production reflects the relative size and importance of this branch of industry under Japanese management. During the period from 1946 to 1950 the small engineering plants which had been established in Korea were concentrated heavily in South Korea. Although almost two-thirds of all other industry was centered in the northern half of the country, only about 12 small engineering plants were operating there. Soviet technicians accorded low priority to establishing engineering industries in North Korea until a few months before the start of the Korean War.

During the Korean War the capabilities of the engineering industries were limited to production of submachineguns, small-calibre ammunition, and agricultural implements and to the repair of trucks, tanks, weapons, small boats, and launches. Nine of the 12 small machinery plants which had been operating in 1949 were bombed in the war. Moreover, a shortage of raw materials and electric power, combined with transport disruptions and manpower losses, brought production to a virtual standstill. ^{85/}

b. Extent of Rehabilitation.

Reconstruction and expansion of the small engineering industries of North Korea apparently is a more completely joint European Satellite effort than any other rehabilitation activity in the country. For example, Satellite aid has been identified in the construction, repair, or expansion of major plants as follows: ^{86/}

(1) Hungarian aid. The Huich'on Machine Tool Plant, P'yongyang Measuring Instrument Plant, Nakwon Machine Tool Plant, and Kusong Machine Tool Plant.

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(2) East German aid. The Taedong Electric Equipment Plant, Pukch'ong Machine Works (which manufactures precision equipment for semidiesel engines), diesel engine plant in the Hamhung area, and a printing plant, probably in the P'yongyang area.

(3) Czechoslovak aid. The Huich'on Machine Tool Plant and the Huich'on Automotive Repair Plant.

(4) Polish aid. The Wonsan Locomotive Repair Factory and the West P'yongyang Passenger and Freight Car Repair Plant.

Sino-Soviet Bloc assistance apparently has been directed toward the gradual integration of the metallurgical industry of North Korea with the small but expanding engineering industries. Progress in the restoration and expansion of the machinery, machine tool, railroad equipment, and armaments industries is discussed below.

(a) Machinery and Machine Tools.

Machine-building plants at Pukch'ong, Nakwon, Munch'on, and Yongsong have been restored almost completely and equipped with Soviet machine tools. According to North Korean press reports, these plants started limited production of 200 horsepower hot-bulb combustion engines, boilers, cranes, and mining machinery. ^{87/} The Huich'on Machine Tool Plant, with a capacity of 1,000 machine tools a year, was reported to have begun partial operation early in 1955 under Soviet and Hungarian technical supervision. The Kusong Machine Works, also with a capacity of 1,000 machine tools a year, was announced as being under construction and scheduled to begin operation in 1957. Construction of a third machine tool plant with an annual capacity of 1,000 machine tools also was scheduled to be started before the end of the Three Year Plan. ^{88/}

(b) Railroad Equipment.

Although there is no evidence of any domestic manufacture of railroad equipment, the restoration of locomotive, passenger, and freight car repair facilities is reported to have advanced in the cities of Wonsan, P'yongyang, and Ch'ongjin. For example, it was announced early in 1955 that Poland had shipped 30 freight carloads of cranes and tractors and 80 freight carloads of compressors and other equipment for the reconstruction of the Wonsan Locomotive Repair Factory. ^{89/}

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(c) Armaments.

The armaments industry of North Korea is dependent on the Sino-Soviet Bloc for explosives requirements, machinery, and technical assistance. As a result, approximately 33 arsenals or plants are producing infantry weapons, such as submachineguns, mortars, and various types of small-arms ammunition, hand grenades, and land mines. Many of these plants, however, are very small and are engaged principally in weapon repair and maintenance work. There are probably only five main arsenals.

The major arsenal, Factory Number 65, which formerly produced about 50 percent of the armaments of North Korea, apparently is still located underground in the vicinity of Sungch'on and the focal point of the armaments industry. It is estimated that current production of 7.62-mm submachineguns -- the only weapon produced in any significant amount -- is about 25,000 a year, which is believed to be sufficient for current requirements. 90/

8. Consumer Goods.

a. General.

Before the outbreak of the Korean War, neither the Japanese nor the Soviet occupation forces placed any emphasis on the development of consumer goods industries in North Korea. In the Korean War, many of the few textile, paper, and food-processing plants which had been in operation in 1950 were either totally destroyed or forced to move their production facilities underground.

b. Extent of Rehabilitation.

Investment allocations for light industry under the Three Year Plan provide for the complete repair and rehabilitation of 42 textile, paper, food-processing, and other light industry plants and for the construction of 11 new plants. Progress in the redevelopment and planned expansion of the major consumer goods industries of North Korea -- the textile and food-processing industries -- is discussed below.

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(1) Textiles.

The most important rehabilitation project in consumer goods industries is the reconstruction and expansion of the P'yongyang Textile Combine, which is to be completed before 1957. The planned annual output is 12,550 tons of cotton yarn, 61 million linear meters of cotton fabric, and 9.53 million linear meters of silk fabric. The Kusong Textile Mill and the Pakch'on and Yongbyon Silk Plants are reported to have been restored and in operation. New textile plants under construction include the Hamhung Silk Mill, which is to reel silk from 1,600 tons of cocoons per year, and the Kaesong Weaving Mill. It is estimated that the Three Year Plan goal of 47.7 million linear meters of cotton fabric and 6.58 million linear meters of silk fabric will be achieved by the end of 1956. 91/

(2) Food Processing.

The most important food-processing industries operating in North Korea are the fish-processing and grain-cleaning industries. Although the fisheries industry suffered severe losses to its boats, bases, and processing facilities, the total fish catch is increasing each year. In 1954 it was estimated to be 412,000 tons and in 1955, about 626,000 tons. In 1956, the total catch is planned to be 840,000 tons, more than twice the 1949 fish catch of 400,000 tons. 92/

New food-processing plants under construction include 3 new fish canneries, one of which, at Sinp'o, is capable of processing 10,000 tons of fish a year; a meat-packing plant at P'yongyang, to be finished by the end of 1955, with an annual production of 2,000 tons of meat and a daily abattoir capacity of 40 cattle and 200 pigs; a flour mill at Chinnamp'o capable of producing 800 to 1,000 bags of flour a day; and a grain-processing plant at P'yongyang capable of producing 15,000 tons of starch a year. 93/

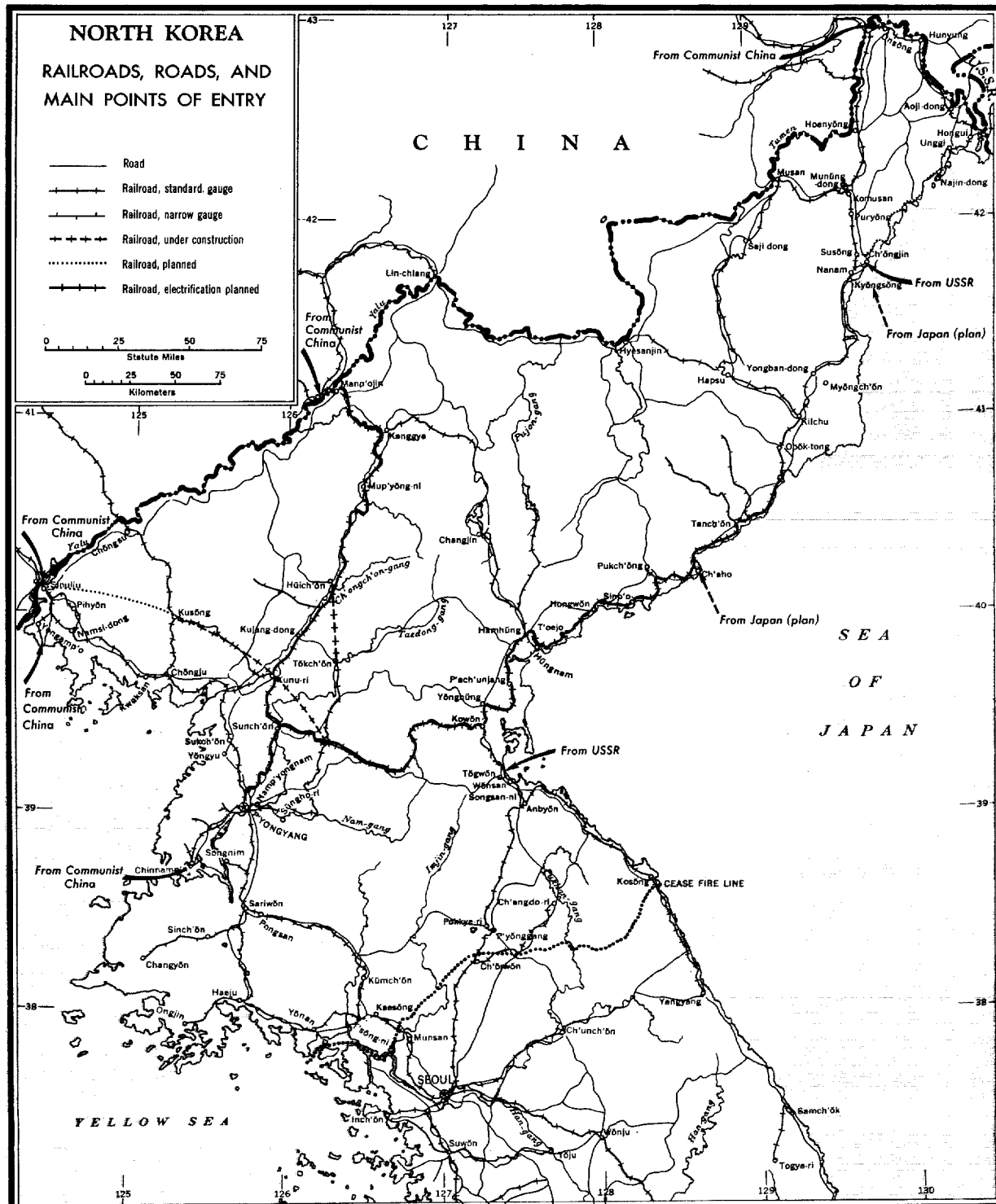
C. Transport and Telecommunications.

1. Rail Transport.

The original pattern of the North Korean rail network, which included 5,968 kilometers (km) of main-line track in early 1950, is believed to have been essentially restored. 94/ In the past 2 years, imports of over 25,000 tons of rails from the USSR (see Figure 6*)

* Following p.46.

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have enabled the North Korean government to conduct an extensive track-relaying program. In addition, Sino-Soviet Bloc shipments of locomotives and freight cars have increased the North Korean car park to an estimated 500 locomotives and 12,750 freight cars, approximately the prewar level. 95/

The North Korean rail system, which was developed by the Japanese primarily to connect Korean seaports with Manchuria, has a general north-south orientation. The major routes extending along each coast are joined by a single through east-west line connecting Kowon with Sinp'yong. Connections with the Chinese Communist rail net are made at Sinuiju, Sup'ung, and Manp'ojin in the Northwest, and Sandamdong and Tumen in the Northeast. Transfer to the Soviet rail system is possible at Hongui. In addition to the main lines, which are all standard gauge, there are numerous narrow-gauge feeder lines for coal and timber traffic. Their importance is indicated by the fact that in 1953 about 14 percent of the locomotives and 34 percent of the freight-car parks were allocated to these lines. 96/

The principal shortcomings of the North Korean rail system are the insufficiency of through east-west routes and the relative sparsity of lines in the inland areas. Moreover, there is no evidence that the second track of the Sinuiju-Kaesong line, formerly the sole double-track line in North Korea, has been restored. Although progress since the war has been considerable, continued reliance on the Sino-Soviet Bloc for equipment and material requirements will be the limiting factor in the future development of the rail system.

a. Recent and Planned Construction.

Railroads have received primary emphasis in the rehabilitation of North Korean transport because of their strategic economic importance. By late 1955, all war-damaged lines had been reconstructed, and in some cases the rail network had been significantly expanded, although track conditions remained inferior to those of prewar. One new route and possibly 2 which reportedly have been constructed during and since the Korean War have considerable military as well as economic significance. One, a 120-km line extending from Kusong through T'aech'on and Kaech'on to Sinp'yong, provides a new and more direct east-west route and avoids the congested P'yongyang junction and Sinanju bottleneck. The second route, a 48-km link, believed to have been built between Huich'on and Tokch'on, provides a north-south alternate to the Manp'ojin line and also bypasses the Sinanju junction.

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Most of the North Korean marshalling yards, stations, and repair facilities also have been rehabilitated, but on a much more permanent basis than the reconstruction work on bridges and roads. Because of this emphasis on restoration and expansion of repair facilities, major locomotive and freight car repairs which formerly had to be performed in Manchuria are now being done in North Korean railroad workshops. 97/

In July 1955, Radio P'yongyang announced that North Korea plans to electrify over 650 km of rail lines during the next $6\frac{1}{2}$ years. Approximately 145 km of the P'yongyang-Wonsan line are included in this total. The first stage of the project is to be completed during the current Three Year Plan, and the second stage under the ensuing Five Year Plan. An investment of US \$1.7 million has already been expended, and US \$3.4 million has been allocated for 1956. Soviet technicians are in charge of the project, and the USSR is supplying most of the necessary equipment, except for electric locomotives, which will be supplied by Czechoslovakia. 98/ It is possible that the North Korean government considers that the saving to be gained from reduced use of coal, which must be imported, compared with electric power, which is quite abundant, will eventually counterbalance the obvious strategic vulnerability of electric railroads.

Additional projected rail construction is believed to include a 72-km line from Ch'ongjin to Najin in the northeast and a 48-km line from Kusong to Sinuiju in the northwest. The former route will shorten by one-half the distance between Ch'ongjin and the newly constructed bridge at Hongui, which connects the North Korean rail system with the Trans-Siberian Railroad north of Vladivostok. The northwest route will extend the new east-west line between Kusong and Sinp'yong to the Manchurian border crossing at Sinuiju.

b. Operational Problems.

In March 1954 the Minister of Transportation, Kim Hoe-il, in calling for an improvement in operating efficiency, declared that "all-out efforts must be made to speed up freight transportation and the handling of freight at each station." Efforts to increase car utilization in this manner apparently were not entirely successful, because in 1954 and during the first half of 1955, the plans for freight car turnaround time were not met, indicating either inefficient use of rolling stock or overly optimistic plans. The government has attempted

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to remedy this shortcoming by placing increased responsibility on lower organizational levels and by establishing a technical training system to improve operational efficiency. The failure of the railroads to achieve an acceptable degree of efficiency may stem also from the sub-standard condition of the track and road bed. In March 1955 it was announced that "railroad tracks are not yet strong enough to meet requirements of train operations." 99/

c. Use Pattern.

The physical network of transport media in North Korea appears to suffice for the present level of economic development. Populous industrial areas such as P'yongyang, Hamhung, and Ch'ongjin are fairly well connected by rail, on which they depend for supplies of lumber, construction materials, coal, ores, capital goods, and grain. Most of these centers are served also by roads, and, as rehabilitation progresses, highway transport is being further extended to **areas** having no rail access.

During the Korean War the main flow of road traffic was oriented north-south along five major routes from the Chinese border. Supplies from Communist China usually were carried into North Korea on Chinese Communist military trucks, and Korean-owned vehicles were used for short-haul traffic in support of military movements. Few vehicles remained for purely civilian needs, which were dependent upon more primitive means of conveyance.

The termination of hostilities and subsequent economic rehabilitation have reversed this wartime pattern. Cross-border traffic now is handled primarily by the railroads, which parallel main roads in the frontier area, and a larger part of the truck park is used to support the civilian economy as a link between industrial or commercial centers and major rail lines. Truck transport, however, is still supplemented by more primitive means of conveyance, such as animal carriers, which are readily available throughout the country, especially in areas not adequately serviced by motor roads.

d. Performance.

After World War II, railroad freight traffic in North Korea experienced a rapid rate of growth. Between 1946 and 1949, tons originated increased from 3.27 million to 16.25 million, an increase of

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about 500 percent, while ton-kilometers increased at a slightly greater annual rate because of an increasing average length-of-haul. Although performance during the Korean War cannot be determined, subsequent recovery has been substantial. It is estimated that in 1955 the 1949 level of tons-originated traffic will be approximated and probably will be exceeded in 1956 by about 10 percent, 100/ as shown in Table 15.*

2. Road Transport.

The sparse North Korean road network has not been significantly augmented since 1938, when 6,000 to 8,000 km of highway were available. Much of this system was heavily damaged during the Korean War, so that subsequent construction efforts have been directed mainly to rehabilitation, particularly on strategic roads to the south. Haste and the lack of sufficient equipment, however, have generally resulted in only temporary improvement of the road system. For example, several bridges have been replaced with salvaged steel, timbers, and pontoons so that constant maintenance will be required to support sustained heavy traffic.

The relationship of the existing motor vehicle inventory to pre-World War II levels cannot be accurately determined. The number of vehicles, mainly trucks, increased from about 2,000 to 18,000 units between 1950 and 1954, principally as a result of large imports from the USSR and the large number of trucks brought in by Chinese Communist forces. The vehicle park, which is now estimated at about 20,000 vehicles, probably will be expanded by the salvaging of war-damaged trucks as well as by additional imports from the Sino-Soviet Bloc. 101/

One of the main problems facing the civilian economy of North Korea has been the difficulty of maintaining a sufficient number of vehicles in operation. The supply of drivers appears to be adequate, but shortages of spare parts, for which North Korea is still dependent on the Sino-Soviet Bloc, have prevented effective use of repair facilities. Military truck units have first priority and therefore are able to maintain from 65 to 85 percent of their vehicles in operation, whereas only about 40 percent of the civilian car park is operational. 102/

Civilian truck transport, which is second to rail in terms of volume of freight carried, has made steady progress since 1946, when

* Table 15 follows on p. 51.

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Table 15

Estimated Transport Performance of North Korea
1946-56

Year	Thousands of Tons Originated			Millions of Ton-Kilometers		
	Rail	Highway	Water ^{a/}	Rail	Highway	Water ^{a/}
1946	3,272	233	287	652.4	8.9	24.4
1947	8,276	637	330	1,490.9	21.2	26.4
1948	11,600	897	538	2,427.7	29.1	24.7
1949	16,254	1,461	846	3,462.3	36.5	48.2
1950	N.A.	1,997	888	N.A.	41.5	44.4
1951	N.A.	N.A.	932	N.A.	N.A.	46.6
1952	N.A.	N.A.	979	N.A.	N.A.	49.0
1953	10,262	1,240	1,028	N.A.	31.5	77.1
1954	13,956	2,730	1,079	2,691.2	63.1	80.9
1955	15,994	3,000	1,133	3,199.8	67.5	85.0
1956	17,993	3,290	1,184	3,598.6	72.0	88.8

a. Includes inland and coastal transport.

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only 233,000 tons were originated. By 1949 the volume of highway traffic reached about 1.5 million tons, or about 8 percent of total transport performance. Although the road transport network suffered considerable damage during the Korean War, because of extensive roadbuilding assistance by Communist China, truck transport performance in 1954 surpassed the 1949 level for tons originated by 15 percent and reached an estimated total of 2.73 million tons. Ton-kilometer performance has paralleled the growth of tons originated, but at a somewhat slower rate because of a steadily decreasing average length-of-haul. Continued increases in performance are planned through 1956, when it is planned that highway transport will originate some 3.3 million tons of freight. In 1954, imports of 25,000 horses and 2,000 oxcarts from the USSR, Communist China, and Outer Mongolia reflect continuing reliance on primitive means of transport. 103/

3. Water Transport.

Water transport in North Korea, both inland and coastal, is largely undeveloped and of little value in domestic freight movement. The sparse inland waterway system consists of a few relatively long, shallow routes which are suitable mainly for junks and native craft. Navigation is subject to interruption by freezing from December through March, and during the rainy season -- June to August -- floods cause damage to routes and port facilities.

Coastal operations are generally restricted to short-haul movements between domestic ports, most of which consist of unimproved wharf areas or fishing harbors. A few relatively large ports are available, particularly on the east coast, among which are Ch'ongjin, Wonsan, Hungnam, and Najin. Ocean traffic to Communist China and the USSR is limited to occasional trade with Dairen and Vladivostok. The fishing fleet, which probably is the main factor in coastal operations, has increased appreciably since 1953 as a result of Sino-Soviet Bloc supervised rehabilitation of the main shipbuilding yards at Chinnamp'o, Wonsan, Ch'ongjin, and Najin. 104/

Water transport has received only nominal attention in the rehabilitation plans of North Korea. Emphasis evidently has been placed on the salvaging of war-damaged vessels for use in the coastal fleet and, to some extent, on reconstructing the principal ports.

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The major commercial uses of river routes are still the floating of limited amounts of timber and the hauling of cargoes in barges or native craft to a few industrial areas. Power craft operations are restricted by the topographical irregularities of the country.

The operations of the North Korean coastal fleet are confined largely to domestic waters, where construction materials, marine food products, coal, agricultural products, and some manufactured products are carried. 105/

Although ocean shipping has been limited principally to trade carried by Soviet vessels, the recent unofficial Japanese-North Korean trade agreement signed on 15 October 1955 provides that Japanese ships will be permitted to use the port facilities of Ch'ongjin and Ch'aho, indicating that in 1956, if the trade agreement is formalized, there will be a sizable increase in North Korean port operations. 106/

Inland and coastal-water performance, although decreasing in importance, made steady gains between 1946 and 1950, when traffic increased at an average annual rate of almost 50 percent. Plan goals were met consistently during this period, and in 1949, performance was actually 18 percent above schedule. The 1950 planned goal of 1.25 million tons originated was not achieved, because of the outbreak of the Korean War, which caused considerable damage to port facilities and to the coastal fleet. The seriousness and extent of this damage are reflected by the fact that the 1956 planned goal for tons originated is only 1.18 million, 107/ which is only about 5 percent of total transport performance.

4. Air Transport.

Civil air transport service in North Korea is still in the embryonic stage, with only four LI-2 transport planes now in use. Its principal value is in the transport of strategic low-volume commodities and key personnel. Two routes are flown -- a domestic route from P'yongyang to Ch'ongjin, via Hamhung, and a former Chinese Communist civil air route from P'yongyang to Mukden in Manchuria and Chita in the USSR. Civil air operations were controlled by the Soviet-Korean Air Transport Joint Stock Company until 31 August 1955, at which time North Korea acquired the Soviet shares in the company, in exchange for exports of selected commodities over an unspecified period. 108/

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5. Trends in Telecommunications.

a. Wireline System.

(1) General.

Wirelines provide a fair geographic coverage of North Korea. In the north and northeast sections of North Korea the principal wireline routes follow the river valleys, mountain passes, and transport routes. From P'yongyang, which is the communications center of the country, the main wireline routes extend north to Manchuria via Sinuiju, east to Wonsan, northeast to Kanggye, and south to Kaesong. From Wonsan, wirelines run in a north-south direction. The 156,000 km of wireline serving telephone and telegraph systems in North Korea during 1948 are estimated to have increased to 157,000 km by mid-1955, with the aid of the Sino-Soviet Bloc. 109/

(2) Telephone System.

The North Korean telephone system has continued to expand during the post-Korean War period. At present, it is believed to have been completely rehabilitated and expanded beyond the 1949-50 level in most areas. In 1950 there were approximately 14,600 telephones in North Korea. By December 1955 there probably will be about 16,700. 110/

Early in 1955 the P'yongyang Central Telephone Exchange was equipped with automatic switchboards and additional wire and cable, so that direct contact was established with 11 major North Korean cities -- Sinuiju, Hamhung, Wonsan, Ch'ongjin, Chinnamp'o, Kanggye, Songch'on, Sunan, Hyesanjin, Chungwa, and Hungsu-ri. P'yongyang also maintains direct international connection with Moscow, Peiping, and Prague, in addition to indirect connection with the other European Satellites via Moscow. 111/

In addition to the increase in telephone facilities, there also has been an increase in the utilization of these facilities. The number of telephone calls has increased from an estimated 2.85 million in 1948 to an estimated 3.2 million in 1955. During the first half of 1955 the number of long-distance calls exceeded the planned goal for 1956. In spite of the increased capacity, however, public use of telephones appears to be extremely limited. It is believed that

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telephone facilities will continue to expand on a priority basis, but the priority for telephone usage probably will continue to be given to military and governmental organizations. 112/

(3) Telegraph System.

As of April 1955, North Korea is believed to have surpassed the pre-Korean War level in telegraph facilities and services. The 365 telegraph offices operating in 1948 are to be expanded to an estimated 385 by the end of 1955. The estimated 1.44 million domestic and 7.3 thousand foreign telegrams dispatched in 1948 are estimated to increase to about 1.56 million and 8,000, respectively, in 1955. 113/

Technological advancements have been emphasized to increase the volume of operations and to reduce telegraphic delays. For example, in 1948, telegrams from Kosong to Hamhung (a distance of about 130 miles) took 2 to 3 days for delivery. In 1954, telegrams from P'yongyang to Haeju (a distance of about 80 miles) took 5 hours for delivery. 114/

b. Radio Broadcasting System.

By April 1955, 9 of the 11 radio broadcasting stations which had been in operation in 1950 were operating again. P'yongyang, with its new 20-kw central broadcasting station, is the largest and most important station. Other cities in which radio stations are located include Sunan, Sinuiju, Wonsan, Haeju, Hamhung, Ch'ongjin, and Songjin.

Since the end of the Korean War, there has been increased emphasis on controlled radio listening by means of public and private loudspeakers. It was announced that between 1950 and 1954 the number of public and private loudspeakers increased 73 and 16 times, respectively, and the total hours of transmission to the wired loudspeakers increased 9 times. 115/ Thus North Korea is following the recent Communist pattern in radio broadcasting by emphasizing controlled listening through loudspeakers rather than through independent radio receiving sets.

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IV. Foreign Economic Relations.

A. Economic Relations with the Sino-Soviet Bloc.

1. General.

Because North Korean exports are limited at present to relatively small amounts of nonferrous metals, gold, and handicraft products, the realization of the Three Year Plan for reconstruction depends largely on economic assistance from the Sino-Soviet Bloc. From 1953 to 1955, North Korea negotiated and concluded economic agreements with Sino-Soviet Bloc countries in which aid and support were pledged to the rehabilitation and industrialization program that had been launched in North Korea immediately following the signing of the Korean armistice. During the latter part of 1953, North Korea signed aid agreements with the USSR, Communist China, Czechoslovakia, Poland, East Germany, Hungary, Rumania, and Bulgaria and received pledges of aid from Outer Mongolia, Albania, and even North Vietnam. During 1954 and 1955, North Korea again negotiated several economic agreements with Satellite countries. In almost all instances these more recent agreements spell out the implementation of the basic pacts by specifying conditions for a particular period of time. 116/ Table 16* summarizes the grants-in-aid by Sino-Soviet Bloc countries to North Korea.

The North Korean government, in its 1954 national budget report, listed the total value of Sino-Soviet Bloc aid received in 1954 at 26.369 billion won (US \$220 million).** Assuming this figure is correct, the discrepancy of approximately US \$46 million between the national budget report and Radio P'yongyang announcements concerning 1954 Bloc aid indicates either that the government, for propaganda purposes, overvalued Bloc aid in its announcements by at least 21 percent or that, inasmuch as aid from the USSR and European Satellites was announced in terms of rubles, a higher average ruble conversion factor should have been used than the official rate of 4 rubles to 1 US dollar.

2. Economic Relations with the USSR.

In 1953 the USSR offered North Korea a 3-year grant of 1 billion rubles (US \$250 million). In separate announcements, the North Korean government stated that, during 1954, the USSR delivered aid materials valued at 390 million rubles (US \$97.5 million) and that, during

* Table 16 follows on p. 57.

** See p. 22, above.

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1954, the USSR delivered aid materials and technical services valued at 420 million rubles (US \$105 million). These statements imply that the value of technical services alone may have been 30 million rubles (US \$7.5 million). 117/

Table 16

Value of Sino-Soviet Bloc Aid to North Korea
Selected Years, 1954-64

	Million US \$					
	Total	1954	1955	1956	1957	1958-64
USSR	250	105 <u>a/</u>	84 <u>b/</u>	70 <u>b/</u>		
Communist China	338	125	90 <u>b/</u>	40 <u>b/</u>	23 <u>b/</u>	
East Germany	136 <u>c/)</u>		4.5 <u>b/</u>	26.8 <u>b/</u>	23.2 <u>b/</u>	8.75
						per year
Czechoslovakia	28)	36	3.0 <u>b/</u>	(1954 through 1960)		
Rumania	16)		3.0 <u>b/</u>	(1954 through 1956)		
Bulgaria	5)		3.5 <u>b/</u>	(1954 through 1955)		
Poland	N.A.)		11.5 <u>b/</u>	(1954 through 1957)		
Hungary	N.A.)		4.0 <u>b/</u>	(1954 through 1957)		
Total	<u>773</u>	<u>266</u>	<u>203.5 <u>b/</u></u>			

a. Includes both material and technical aid. It is not known whether figures for other countries include technical aid, but in the case of Communist China, it appears that only material aid is included.

b. Allocations after 1954 are estimates based on reported deliveries made during the first 11 months of 1955.

c. Total aid to be given from 1952 to 1964; however, aid given before 1954 is believed to be nominal.

During 1954 the North Korean government also released a detailed report of Soviet aid deliveries to North Korea.* From this report it has been estimated that the value of these deliveries was approximately US \$50 million, of which about 75 percent consisted of capital goods -- machinery, transport equipment, and construction materials -- and the remainder, of consumer goods -- food, clothing, and drugs. 118/

* See Appendix A.

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The North Korean government frequently has lauded the contributions of Soviet aid to the North Korean reconstruction program and has acknowledged it as "one of the positive contributing factors to the attainment of our victories." ^{119/} The officially reported deliveries of nonmilitary aid and of technical services (US \$58.5 million) represent about half of total aid reported for 1954 (US \$105 million), which implies that military deliveries may have accounted for a part of the remainder.

During 1955 the value of reported Soviet aid deliveries to North Korea amounted to approximately US \$84 million, consisting principally of industrial equipment, machinery, and instruments. It is believed that at this rate the USSR probably will fulfill its aid commitment to North Korea in 1956 on schedule.

3. Economic Relations with Communist China.

In 1953, Communist China offered North Korea a grant of 8 trillion "old" yuan* (US \$338 million), extending over the 4-year period from 1954 through 1957, to assist in the rehabilitation of the North Korean economy.

In 1954, North Korea placed a value of 2.9 trillion "old" yuan (US \$125 million) on Chinese Communist goods delivered in 1954 under this agreement, of which about 55 percent consisted of consumer goods -- food and clothing. An analysis of the North Korean listing of Chinese Communist 1954 aid goods, however, reveals that the value of these goods as estimated on the basis of world market prices was only about US \$60 to 70 million, or slightly over one-half of the announced aid of US \$125 million.** There are at least four possible explanations for such a wide difference: the list of delivered materials may not have been complete, the value of materials may have been greatly inflated to maximize the size of the Chinese Communist gift, the exchange rate set for the Chinese Communist "old" yuan and the North Korean won may have greatly favored the Chinese Communist currency, and the value of military equipment left by Chinese Communist troops in 1954 and 1955 may have been included in the aid program.

On 30 September 1955 it was announced officially that during the period from 1 January 1954 to 31 August 1955, Chinese Communist

* Former exchange rate was 23,670 yuan to 1 US \$; now it is 2.367 to 1 US \$.

** See Appendix A.

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aid consisted principally of 300,000 tons of grain, 75 million meters of cotton fabrics, 10,700 tons of raw cotton, 1.45 million tons of coal, and several thousand tons of raw rubber, leaf tobacco, and construction materials. In addition, it was announced also that the total value of Chinese Communist aid from 1 January 1954 to 30 June 1955 was US \$202 million. At this rate, it is probable that Communist China will fulfill its aid commitment to North Korea in 1957 on schedule.

Although the total value of Communist China's aid to North Korea exceeds that of the USSR, its long-run impact on the North Korean economy probably is not as great. It appears that most of the Soviet aid consists mainly of capital goods designed for the reconstruction of basic industries, whereas the bulk of Chinese Communist aid consists mainly of consumer goods and a smaller value in construction materials, textile machinery, transport equipment, and equipment for railroad repair shops.

Although there is very little information concerning North Korean exports to other Sino-Soviet Bloc countries, the North Korean government announced in the latter part of 1954 that trade protocols had been signed with Communist China whereby North Korea would export electricity, nonferrous metals, mineral products, and medicinal herbs in exchange for coal, fishing boats, construction materials, metal products, freight cars, and industrial equipment. North Korean exports of electricity from the Suiho Power Plant are by far the most significant, with an estimated annual value of about US \$10 million.

4. Economic Relations with the Eastern European Satellites.

During the period from 1954 to 1964 the European Satellites have promised to extend to North Korea a total of US \$185 million in economic aid, which North Korea is under no obligation to repay. Deliveries amounted to an estimated US \$36 million during 1954 and to an estimated US \$29.5 million during 1955, consisting mainly of machinery and equipment but including some consumer goods. There is no evidence of North Korean exports to the Satellites. The types of aid to be delivered by each of the European Satellites are discussed below.

a. East Germany. East Germany will furnish equipment and machinery for a diesel engine factory, an electric equipment factory, and a publishing and printing plant, in addition to machinery for the construction of passenger and freight cars, textile machinery, electric motors and transformers, agricultural and medical equipment, and telephone switchboards.

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b. Czechoslovakia. Czechoslovakia will furnish equipment and machinery for the reconstruction of hydroelectric power stations, machine tool plants, automotive parts plants, and cement plants. Additional equipment will include several trucks, buses, locomotives, tractors, bicycles, automobiles, and large quantities of medical supplies and farm equipment.

c. Rumania. Rumania will furnish equipment and machinery for a cement plant, a brick plant, and an aspirin plant. Additional equipment will include passenger coaches, freight cars, tractors, bulldozers, fishing boats, and consumer goods.

d. Hungary. Hungary will furnish equipment and machinery for machine tool plants; an organic chemicals dye plant; a measuring instruments plant; and equipment including buses, trucks, telephones, switchboards, medical supplies, and consumer goods.

e. Poland. Poland will furnish equipment and machinery for locomotive, passenger, and freight car repair plants and for three coal mines as well as trucks, tractors, motors, concrete mixers, and consumer goods.

f. Bulgaria. Bulgaria will furnish equipment and machinery for a brick plant and a wood-working plant as well as textile machinery, glass, and consumer goods.

B. Economic Relations with Non-Bloc Countries.

Japan has been the only non-Bloc country showing any present inclination to establish trade relations with North Korea. The most recent, though unofficial, Japanese trade overture occurred during the period from 14 to 19 October 1955 when a Japanese Diet leftist delegation conferred with Premier Kim Il-sung and Foreign Minister Nam Il concerning the establishment of diplomatic relations and the promotion of trade between Japan and North Korea. On 19 October 1955 an unofficial agreement on promotion of North Korean-Japanese trade was signed in P'yongyang by the North Korean Committee for Promotion of International Trade and a Japanese Communist-front organization called the Japan-Soviet Trade Association.

According to the agreement, North Korea would export to Japan anthracite coal, iron ore, magnesite, graphite, and other minerals in addition to chemical, marine, and agricultural products. Japan would

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export to North Korea such embargoed items as rolled steel, metal products, wire rope, power cable, machine tools, paper and textile machinery, testing and measuring instruments, and chemicals. The two North Korean ports of Ch'ongjin and Ch'aho are designated as the ports to be used in the exchanges. Implementation of the agreement, however, requires the conclusion of a formal trade pact between the two governments, which at present appears unlikely because of COCOM and CHINCOM trade controls, and the reluctance of the Japanese government to act contrary to the interests and policies of the US and South Korea in trade with Communist countries.

In conjunction with the North Korean-Japanese trade promotion talks in P'yongyang, on 20 October 1955 it was announced that the first significant, though unofficial, trade agreement between Japan and North Korea had been signed in Peiping on 15 October between the Korean Trading Company and a Tokyo trading firm. Under this agreement, which is designed to influence Japan away from close cooperation with Western trade controls, the total trade volume is to approach 5 million pounds sterling and is to include the import of many embargoed Japanese goods in exchange for North Korean coal, metals, minerals, and agricultural and marine products.

The Japanese Foreign Ministry, however, has successfully thwarted all attempts by Japanese Communist trade organizations and pressure groups to establish trade with North Korea and has announced its intention to invalidate this latest agreement signed in Peiping. Although the latter remains the most comprehensive agreement yet reached through unofficial trade channels, formal trade between Japan and North Korea still must await official sanction. No legal trade between the two countries had materialized up to late 1955.

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APPENDIX A

PARTIAL LIST OF OFFICIALLY REPORTED
MATERIALS DELIVERED AS AID TO NORTH KOREA DURING 1954

1. From Communist China

<u>Commodity</u>	<u>Unit and Amount</u>
Consumer goods	
Grain	130,000 tons
Soybeans	30,000 tons
Meat	3,000 tons
Cotton	3,900 tons
Canvas shoes	610,000 pairs
Blankets	50,000 units
Newsprint	4,000 tons
Cotton fabric	42,000,000 meters
Sugar	50 tons
Canned foods	70 tons
Nonconsumer goods	
Coal	650,000 tons
Coke	36,000 tons
Pig iron	22,000 tons
Finished steel	30,000 tons
Cement	131,000 tons
Sheet iron	2,000 tons
Locomotives	70 units
Freight cars	1,382 units
Passenger cars	109 units
Motors	265 units
Turbine pumps	420 units
Lumber	42,700 tons
Ebonite	27 tons
Glass	75 tons
Oxcarts	2,000 units
Nails	67 tons
Rails	59 tons
Chemical construction materials	18,900 tons

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Fertilizers	1,400 tons
Transformers (high voltage)	10 units
Winches	5 units
Buses	40 units
Brick-making machinery	N.A.
Manila rope	N.A.
Raw rubber	N.A.
Fishing boats	N.A.

2. From the USSR

<u>Commodity</u>	<u>Unit and Amount</u>
Consumer goods	
Food	550 tons
Grain	6,000 tons
Flour	50,000 tons
Shoes	20,000 pairs
Drugs	350 tons
Cloth	60 tons
Wool	1,500 tons
Nonconsumer goods	
Cement	1,000 tons
Pipe	36 tons
Horse carts	1,000 tons
Shapers	15 units
Drill presses	3 units
Winches	15 units
Compressors	4 units
Turbine pumps	7 units
Iron	5,525 tons
Zinc	50 tons
Sulfur	500 tons
Railroad equipment	24,000 tons
Aluminum plate	54 tons
Belt conveyors	56 km
Scrapers	4 units
Buses	150 units
Tractor parts	17,000 units
Chemicals	2,300 tons

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Boxcars	336 units
Passenger coaches	141 units
Fertilizer	126,860 tons
Horses	18,000 units
Vehicle cranes	19 units
Motors	113 units
Steel	69,460 tons
Rails	25,000 tons
Oil	3,809 tons
Aluminum wire	171 km
Trucks	762 units
Farm tools	300 tons
Electric wire	73 km
Wire cable	16,500 tons
Sheet tin	62 tons
Lumber	370 carloads
Brick	5 carloads
Glass	1 carload
Machines	309 units
Ammonium nitrate	1,200 tons

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APPENDIX B

GAPS IN INTELLIGENCE

Significant gaps in intelligence on the North Korean economy exist in the agricultural, modern industrial, trade, and services sectors of the economy. Deficiencies of information generally consist of the lack of specific details in Communist reporting of production, consumption, labor forces, exchanges between sectors, and international trade.

Other gaps exist with respect to the identity and method of evaluation of aid from the Sino-Soviet Bloc, specific technical aid requirements, the extent of coordination on the part of Bloc countries to rehabilitate the national economy, and positive evidence of the over-all supervisory role of the USSR in the management and control of the North Korean economy.

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APPENDIX C

SOURCE REFERENCES

Evaluations, following the classification entry and designated "Eval.," have the following significance:

<u>Source of Information</u>	<u>Information</u>
Doc. - Documentary	1 - Confirmed by other sources
A - Completely reliable	2 - Probably true
B - Usually reliable	3 - Possibly true
C - Fairly reliable	4 - Doubtful
D - Not usually reliable	5 - Probably false
E - Not reliable	6 - Cannot be judged
F - Cannot be judged	

"Documentary" refers to original documents of foreign governments and organizations; copies or translations of such documents by a staff officer; or information extracted from such documents by a staff officer, all of which may carry the field evaluation "Documentary."

Evaluations not otherwise designated are those appearing on the cited document; those designated "RR" are by the author of this report. No "RR" evaluation is given when the author agrees with the evaluation on the cited document.

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