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# North Korea's Agricultural Development during the Post-War **Period**

By YOON T. KUARK \*

It is important to know the structure of the Korean economy prior to the division of the country in order to understand agricultural development in North Korea in terms of its capital expenditure and output during the post-war period.

During the first quarter of the twentieth century the Korean economy was based on agriculture. With over 70 per cent. of the population on the land until the end of the Second World War, agriculture has been the most important factor in Korea's economic life.1 Handicraft provided only the most meagre standard of living. Two decades ago Korea was the world's fourth largest rice producer. Rice comprised about 60 per cent. of all crops. Others were barley, wheat, soyabeans, red-beans. peppers and potatoes. Special crops included cotton, tobacco, hemp and ginseng.

The significant growth of industry (mostly in North Korea) during the last three decades has transformed Korea's economy to that of an agrarian-industrial nation 2—the predominantly agricultural economy of South Korea complementing that of the relatively industrialised North.3

- \* This is an excerpt and updating from the basic research on North and South Korea's Economic Development which was done during the 1960-61 academic year for the Economic Development Workshop Seminar at the University of Minnesota. The author is indebted to Professors M. Bronfenbrenner, J. Schmookler, Anne O. Krueger and fellow members of the Workshop for their valuable comments and suggestions. The author wishes to express thanks to Professor Bronfenbrenner for his help in obtaining microfilm data on North Korea from the U.S. Library of Congress, and also to Mrs. Elizabeth B. Green at the University of Denver for correcting the author's English. Errors and mistakes are the author's own responsibility.
- 1 Even in 1956 the farm population in North Korea was reported to comprise 56.6% Even in 1956 the farm population in North Korea was reported to comprise 56.6% of its population of about 10 million, and in 1960, 44.4% (see Facts About Korea [Pyongyang: Foreign Languages Publishing House, 1961], p. 9), while in South Korea nearly 63% of its population of about 22 million was engaged in agriculture in 1956 and about 58% in 1960. See Economic Statistics Yearbook 1961 (Seoul: Bank of Korea), p. 138 and Monthly Economic Research (Seoul), March 1961, p. 220.
  Zaichikov, V. T., Geography of Korea, translated into English by A. Parry. (New York: Institute of Pacific Relations, 1952), pp 52-53.
  McCune, G. M. and Grey, A. L., Korea Today (Cambridge, Mass.: Harvard Un. Press, 1950), pp. 56-57. Figures available for the later years of the Japanese occupation show that while the North accounted for 86% of Korea's output in the heavy industry

show that while the North accounted for 86% of Korea's output in the heavy industry sector, the South was the source of about 75% of total production in light industry (food processing, textile and other consumer goods) sector.

The South supplied rice, barley, and many finished consumer goods to the North in exchange for fertilisers, power, fuel, lumber and metals. Therefore, the division of the country at the 38th parallel in 1945 was a crippling blow to the integrated functioning of the two halves of the economy.

After land reform during the period of 1945–47, the rural economy of North Korea made rapid progress, although its tempo lagged far behind that of industrial development. However, progress came to a halt during the Korean war. Agricultural land was devastated, partly because of bombardment, but also because of dislocation and the consequent poor attention given to crops.4 Following the Korean war, the agricultural policy of the Communist Party and its government was directed toward two goals: (1) The swift reconstruction and rehabilitation of the war-shattered factories making agricultural implements, and of farms and irrigation systems so as to increase grain production and meet the pent-up demand for food. The development of livestock, vegetable and fruit production and sericulture was also an urgent necessity; (2) the rapid socialisation of agriculture by means of collectivisation. The Communist government hastened forward with agricultural co-operativisation. By August 1958, it was reported that complete co-operativisation had been achieved.

### CAPITAL EXPENDITURES AND MECHANISATION

The total amount of state investment in the North during the Three-Year Plan (1954–56) period reached 7,400 million Won in old currency (before the currency reform of February 1959 when 100 old Won were exchanged for one new Won). Over half the money, 4,200 million old Won, went on irrigation and river dyke projects. This investment was a decisive factor in increasing grain production, providing as it did for adding 123,000 chongbo (one chongbo is 2.45 acres) of arable land and for building dykes capable of protecting 160,000 chongbo. Besides, in 1957 the government spent 1,400 million old Won on rural construction. During the four years from 1954 to 1957, the land under irrigation increased from 227,000 chongbo to 384,000, and the proportion of irrigated rice paddies to the total area of paddies increased from 39 per cent. to 77 per cent.<sup>5</sup>

<sup>5</sup> JPRS, Economic and Statistical Information on North Korea, JPRS 901-D, Jan. 15, 1960, p. 79.

<sup>4</sup> According to the North Korean régime "the damage inflicted upon the (North Korean) economy by the war amounted to 420,000 million (old) Won [approximately \$3,000 million]." See Post-war Rehabilitation and Development of the National Economy in the Democratic People's Republic of Korea (Pyongyang: Foreign Languages Publishing House, 1957), p. 75. See also Kyongje Konsol (Pyongyang) May 1957, p. 5.

During the Three-Year Plan period, the area under rice cultivation increased by 61,000 chongbo (20.4 per cent. in 1956 against 16 per cent. in 1949 of total sown area) and that under corn by 367,000 chongbo (25.5 per cent. against 11.8 per cent.). By the end of the Three-Year Plan (1956), grain harvested amounted to 2,870,000 tons, "exceeding by far the highest production figure of the pre-war days." It is claimed that during the subsequent First Five-Year Plan grain output was increased enough to make the country self-sufficient. Cultivation of industrial crops and oil-bearing plants has been expanded due to the rapidly increasing demands of light industry, and every year ginned cotton and other materials are imported. Fruit-growing acreage amounting to 100,000 chongbo was newly brought under cultivation. It is reported that the total capital expenditures for increasing agricultural output during 1954 to 1959 amounted to 23,900 million Won (equivalent to 239 million new Won).

It is known that state farms played an important part in introducing mechanisation and advanced farming methods. Widely introduced methods included rice seeding on cold beds or dry fields, wide row and criss-cross sowing, use of an excellent quality of seeds and increased supplies of chemical fertilisers.<sup>7</sup> Chemical fertilisers used in 1953 were about 30,000 tons, and by 1959 use was increased to 310,000 tons, approximately 172 kg. per chongbo of arable land.8 It was reported that there were 15 machine-service stations dealing with 500 tractors of 15 horse-power, and tilling 95,000 chongbo in 1953. With help from the Agricultural Research Institute under the Academy of Science, and from agricultural colleges, some 50 machine-service stations handled, by 1957, 2,092 tractors (15 horsepower), tilling 854,000 chongbo (19 per cent. of total arable land) and supplied other advanced farm machines and implements such as weeding machines and seeders, threshing machines and fan-blowers. By 1959 the machine-service stations increased to 84 units, the number of tractors to 8,050 (15 horsepower), and the volume of various machine work by 2.9 times over that of 1953.9

It is also reported that the electrification of co-operative farms has become extensive, and that in 1959 more than 7,000 generators, motors and transformers were supplied to the farms. In view of the rich hydro-electric power resources available in North Korea, these figures appear to be conceivable.

<sup>&</sup>lt;sup>6</sup> North Korea's Economic Development Since Liberation (Japanese edition) (Pyongyang: Foreign Languages Publishing House, 1960), pp. 25-26.

<sup>&</sup>lt;sup>7</sup> JPRS 901-D, op. cit., pp. 80-82.

<sup>8</sup> North Korea's Economic Development Since Liberation, op. cit., p. 26.

<sup>9</sup> Ibid. p. 26.

## AGRICULTURAL PRODUCTION

Following the complete shut-off of economic intercourse between the North and the South after the birth of the South Korean Government in 1948, an acute shortage of foodstuffs in North Korea occurred, and remained a perennial problem for the Communist régime thereafter. This was the basic reason for the enormous capital expenditures ploughed into agriculture during the immediate post-Second World War period. The land reform in 1945–47 and the co-operativisation immediately following the Korean War were typically Communist attempts to increase agricultural production through rigid control, and to siphon off as much of that output as possible to pay for industrialisation. This was effected through heavy taxes.

A very interesting feature of the agricultural co-operatives of North Korea is the device of "efficient division of labour" of farm workers, that is, the work-team system. In co-operative farms there are three types of work-teams—specialised, mixed, and all-purpose—each work-team consisting of from a dozen to 100 workers, depending upon its type of work. A specialised work-team specialises either in one crop (such as a "rice work-team" or a "cotton work-team") or in one species of livestock (such as a "dairy-cow work-team" or a "sheep work-team") at farms where a great number of livestock are raised. A mixed work-team raises more than one crop or more than one species of livestock, for instance, an "agricultural team" which raises both rice and vegetables, or a "livestock team" which raises both dairy-cows and hogs. An all-purpose work-team is engaged in more than one sector of agriculture, such as raising hogs or poultry, cultivating fodder fields, or engaging in pomiculture, crop raising, etc., concurrently.<sup>11</sup>

All these types of work-teams have their strong points and draw-backs. Because a team can concentrate on its specialised work, it can be very efficient in terms of labour productivity. However, the work-team organisation can create a great many problems in determining optimal team size, classification of mediocre workers' specialisation,

<sup>40</sup> However, in the later years, especially after the Korean War, state investment in agriculture was reduced. The ratio of capital expenditures between industry and agriculture to the total are shown as follows. From the table one can easily see that the Communist régime put far more emphasis on developing industry than on agriculture in the post-Korean War period. The data below are in percentages.

		1954	1955	1956	1957	1958
Industry	 	43.2	51.4	53.6	57.9	54.6
Agriculture	 	6.4	10.5	10.5	5⋅1	7.7
Others	 	50.4	38.1	35.9	37.0	37.7

Source: JPRS 901-D, op. cit., p. 222.

<sup>11</sup> Kyongje Chisik, No. 2, February 1960, pp. 11-13. Kyongje Chisik, No. 4, April 1960, pp. 24-28.

distribution of adequate tools and implements, work norms, production plan assignments, etc. In fact, Premier Kim II-song deplored the unsatisfactory performance of work-teams and suggested various solutions to these problems in his speech at the Chongsanni general meeting of the Communist Party in late 1959.<sup>12</sup>

The incentive system employed by the Communist régime is also worth studying. Each work-team operates on its own independent accounting system <sup>18</sup> whose balance sheet indicates the team's performance and supplies the yardstick for material reward and preferential treatment by the Communist Party. <sup>14</sup> Incentives for overfulfilment of state production plans in farm, livestock and sericulture output are given up to 40 per cent. of excess production in the form of products or cash or grain; penalties for failure to fulfil the plans are imposed in terms of products or cash or grain between 10 and 20 per cent. of the deficit production. The head of an agricultural work-team receives an additional reward of 10–20 per cent. of the reward given to him as a team member if his team has overfulfilled its production plan.

In the case of agricultural products, the incentives and penalties are applied to the individual work-teams. If a work-team grows more than one crop, it will receive rewards for those crops whose output has surpassed the assigned production plan; but the work-team must pay a penalty on the other crops whose output falls short of the production target. The penalties for deficit output of products of all types are added to the co-operative's collective income.<sup>15</sup>

A work-team must fulfil not only monthly production plans but also daily and ten-day production plans. Specific measures concerning production plan implementation are taken by the Party as a result of analysis of so-called "production rhythm assurance." <sup>16</sup> Thus, a work-team must always maintain its "rhythm" of production performance

<sup>12</sup> Ibid. No. 2, February 1960, pp. 11-13. See also JPRS, Economic Report on North Korea (No. 29 of series), Aug. 15, 1960, pp. 81-86.

<sup>18</sup> The work-team is not authorised to reduce or increase the use of labour, nor to buy or sell intermediate goods or raw materials. These are supplied by the higher echelon organs. It is not in a position to prepare a complete profit and loss statement, because it is not even allowed to open its own settlement account. The team just prepares its balance sheet for plan fulfilment within the limit of given factors of production, wage funds and budgets. *Ibid.* No. 4, April 1960, pp. 11–14.

<sup>14</sup> In this connection, the Ministry of Agriculture published "Standard Regulations Concerning Material Preferential Treatment and Indemnities," *ibid.* pp. 11-14. See also JPRS, *Economic Report on North Korea* (31st of series), Oct. 14, 1960, pp. 88-90.

Ahn Chae-bok, "Material Incentives and Penalties in Agricultural Co-operatives," Kyongje Konsol, No. 10, October 1959, pp. 34-37. See also JPRS, Economic Report on North Korea (No. 23 of series) Feb. 25, 1960, pp. 31-32.

<sup>16</sup> Kyongje Chisik, No. 1, January 1960, pp. 47-48. See also JPRS, Economic Report on North Korea (No. 28 of series) July 25, 1960, pp. 5-10.

or pace of work, under the slogan "Let us produce more with existing labour and facilities." 17

A Communist Party official, Kim Kin-am, declared that "the introduction of the independent accounting system in work-teams, and the work-team bonus system, revision of wage schedule of workers in machine-service stations, improvement in the purchasing system, increase in the purchasing price of livestock products, and abolition of tax-in-kind for agricultural co-operatives in mountainous regions . . . have created great incentives for agricultural labour as well as for the increase of agricultural productivity." 18

However, it is interesting to note that the average output of principal product per *chongbo* indicates that agricultural productivity has not quite caught up to the pre-Korean War level even in 1957, which was termed a record year or a "turning-point" in the First Five-Year Plan period.<sup>19</sup> It is a moot question whether alleged productivity in agriculture has actually increased so remarkably between 1958 and 1960, a period for which no verifiable data are available to this author.

Table 1. Average Per Chongbo Output of Principal Produce (In tons)

		1946	1949	1953	1954	1955	1956	1957
Rice	•••	2.71	3.03	2.84	2.27	2.73	2.82	2.92
Corn		0.90	1.33	0.93	1.30	1.08	1.25	1.49
Vegetables	•••	8.67	17.50	9.71	11.61	12.92	14.63	16.32
Potatoes		4.24	5.92	4.39	6.74	6.36	7.32	7.11

Source: JPRS, 901-D, p. 210.

Let us now turn our attention to the actual achievement in agricultural production during the post-Korean War period. More or less confirmable figures, available to this author only up to 1957, are shown in the following tables. The figures themselves show that increase in agricultural production has not been so phenomenal, unlike the Communist régime's impressive (although unconfirmed) percentage ratios over the years.

<sup>17</sup> *Ibid*. pp. 9-12.

<sup>18</sup> Kim Kin-am, "Life of the People under the Socialist System," Kulloja, No. 6, June 1960, pp. 24-33. See also JPRS, Economic Report on North Korea (31st of series) Oct. 14, 1960, p. 88.

<sup>19</sup> Chosen Chungang Nyongam 1958 (Pyongyang), December 1958, pp. 102-137. See also JPRS, Economic and Statistical Information on North Korea, 901-D, pp. 79-104.

Table 2. Total Value of Grain Output of North Korea

	Total area sown		Total grain output	*	Annual
	(thousand chongbo)	Index	(thousand tons)	Index	growth rate
1953	 2,295	100	2,327	100	
1954	 2,337	102	2,230	96	<b>-4·2</b> %
1955	 2,325	97	2,340	101	4.9%
1956	 2,413	105	2,873	123	22.8%
1957	 2,555	113	3,201	138	11.4%
1958	 N.A.	N.A.	3,700	159	15.6%

<sup>\*</sup> Total grain output includes all food grains such as rice, barley, wheat, corn, foxtail millet, broomcorn millet and beans, etc.

Source: Economic and Statistical Information on North Korea, JPRS 901-D, Jan. 15, 1960, pp. 83-85. Also Nodong Shinmun (Labour News), Jan. 19, 1958, and other North Korean periodicals.

Table 3. Total Output of Agricultural Produce (thousand tons)

		1949	1953	1954	1955	1956	1957
Food grain		2,654	2,327	2,230	2,340	2,873	3,201
Rice		1,158	1,229	1,025	1,242	1,392	1,459
Corn		375	224	307	361	760	1,130
Wheat and Barley		212	162	196	197	183	164
Foxtail millet		394	268	273	222	117	58
Broomcorn millet		103	87	87	95	71	58
Soybeans		191	208	196	128	230	206
Others		221	149	146	95	120	126
Tobacco		10	2	6	7	12	13
Vegetables		797	466	833	954	1,049	1,249
Tubers		782	412	647	619	948	1,186
Potatoes		616	344	500	512	761	965
Fodder crops	• • •	7	17	42	64	72	81
Others		159	51	105	43	115	140

Source: JPRS 901-D, p. 207.

Table 4. Number of Livestock (Year-end Census)
(in head)

	1946	1949	1953	1956	1957
Milk cow	766	959	637	1,205	2,851
Korean cattle	470,978	786,765	503,761	483,619	566,303
Horse	9,628	8,787	6,367	15,028	12,416
Sheep and goats	6,913	12,696	25,286	87,516	121,651
Hogs	219,847	659,645	542,725	710,314	1,339,351

Source: JPRS 901-D, p. 216.

Agricultural output has risen at an average annual growth rate of 10·1 per cent. during the post-Korean War period, except for 1954. The proportion of total value of agricultural product to national income, compared with that of industrial product, has declined in recent years, as might be expected in the course of industrialisation.

Table 5. Proportion of National Income by Sectors

	-	-	Agricultural output	Industrial output*
1949			53.5%	46.7%
1956	•••		39.9	60.1
1957		•••	36.6	63·4
1958		• • •	31.4	68.6
1959			30.0	70.0

<sup>\*</sup>Industrial output here includes all non-agricultural output excluding "Service."

Source: Kim Sung-jun, "The Two-Horse March Demands the Full-Scale Assistance of Industry to Agriculture," Kulloja, No. 6, June 1960, pp. 18-23. See also, JPRS, Economic Report on North Korea (No. 31 of series) Oct. 14, 1960, p. 14.

It is very interesting at this point to make some comparison of agricultural production between North and South Korea. Comparative economic factors relevant to agriculture in 1957 were as follows.<sup>20</sup>

	North	South
Area-square miles	 47,097	37,959
Paddy fields—acres	 1,140,475	2,936,697
Dry fields—acres	 3,773,245	1,984,047
Population—persons	 10,000,000	22,500,000

As of 1957, per capita production of rice in the North was approximately 150 kg. against South Korea's 110 kg.; wheat and barley 16 kg. for the North against 15 kg. for the South. It is apparent from the following table that South Korea enjoys far more grain production than North Korea, and yet its per capita figures are less favourable than those of the North because of the relative population size.

Table 6. Comparison of Selected Agricultural Production (in thousand metric tons)

			1954		1955		1956		1957	
			North	South	North	South	North	South	North	South
Rice			1,025	2,295	1,242	2,374	1,392	1,955	1,459	2,408
Wheat	and	Barley	196	455	197	387	183	402	164	366
Corn			307	11.8	361	12.5	760	10.5	1,130	13.0

Note: South Korea's figures for agricultural products are published in terms of sok, which is equivalent to about 4.96 bushels or 180.39

<sup>20</sup> Refer to McCune, S., "Korea: Geographical Parallels, 1950-60," The Journal of Geography, No. 5, May 1960, p. 204.

litres. I computed South Korea's figures in metric tons, using the following conversion rates: 1 bushel of hulled rice=68 lbs. (a bushel of unhulled rice=45 lbs. and 152 lbs. of unhulled rice is equivalent to 100 lbs. of hulled rice); 1 bushel of wheat=60 lbs.; 1 bushel of barley=48 lbs.; 1 bushel of corn=56 lbs., and 1 metric ton=2.204.6 lbs.

Source: North Korea's figures: Economic and Statistical Information on North Korea, JPRS 901-D, Jan. 15, 1960, p. 169. South Korea's figures: Annual Economic Review, 1959 (Seoul: Bank of Korea, 1959), pp. (III)-147-148.

However, it is very intriguing to compare my figures of *per capita* food grain output and those of the Communist Party official, Kim Kin-am, published in *Kulloja* (*Working People*) under the heading, "The Share Per Member Family of Agricultural Co-operatives," as follows:

	1955	1956	1957	1958
Food grain crops (kg.)	1,250	1,616	1,742	1,826
Tubers (kg.)	193	357	434	501
Cash (in new Won)	56.05	95.42	137.03	203.50

Source: Kim Kin-am, "Life of the People under the Socialist System," Kulloja, No. 6, June 1960, pp. 24-33.

My calculations show that *per capita* food grains for 1957 were approximately 280 kgs. (rice, wheat, barley and corn) while Kim's *per co-operative family* food grain crop was 1,742 kgs.; the average family size of North Korean co-operatives should not exceed five persons (280 kgs.  $\times$  5 = 1,400 kgs.).

#### FLYING HORSE MOVEMENT

Although agricultural collectivisation in North Korea was carried out along the lines of the Soviet example,<sup>21</sup> Chinese innovations in agriculture inspired the North Koreans. The Ch'ollima Undong (Flying Horse Movement)<sup>22</sup> was launched in September 1958, only a few months after the start of the Great Leap Forward in China.

- 21 Kim Il-song wrote for *Pravda* in October 1957 that "experience in agricultural co-operativisation in the Soviet Union became the guiding compass of our Party's agricultural co-operativisation policies." Kim Il-song, *Selected Works*, V (1960), p. 209. The North Koreans have always used the term "hyopdong-wha (co-operativisation)" instead of "Kongdong-wha (collectivisation)" in agriculture.
- 22 The direct translation is *Thousand-ri Horse Movement* (one *ri* equals about one-third of a mile). The flying horse image was perhaps taken from a popular Korean legendary novel about ancient China, The *Samguk Chi* (Tales of the Three Kingdoms). See Paige, Glenn D., "Building Socialism in North Korea: The Emergence of the 'Korean Model'" (Mimeograph), Princeton University, 1962, p. 13. The Chinese influence in North Korea was perhaps most pronounced in 1958, as Chinese innovation and assertiveness in building socialism were hailed in North Korea, a Sino-Korean friendship association was established in that October, and the Chinese Volunteers' Army withdrew at the end of the year.

Some Chinese farming techniques, notably in rice cultivation (such as seeding on cold beds and dry fields, wide row and criss-cross sowing, etc.) were adopted. Communal cooking and other "socialist" measures suggested Chinese influence. The North Korean Communists were neither attracted to the Chinese notions of communal dwelling nor to those of making "every man a soldier," apparently because of North Korea's shortage of labour.

Another innovation perhaps inspired by China's experience was the integration of 16,032 agricultural co-operatives into 3,843 economic-administrative units into the *ri* (an administrative unit below *Kun* or county) levels which took place in October 1958. Since 1959, the North Koreans seem to have been cautious about the Chinese communes. The kitchen plots, chickens, ducks, pigs, rabbits and so forth have been restored to private hands.<sup>23</sup> The individual peasant is told to produce and sell more of these products so that he can earn money to build a new house.<sup>24</sup> North Korea has returned to the Leninist line in agriculture: "electrification and mechanisation," supplemented by the Asian slogan of "irrigation." In early 1962 neither the Chinese people's communes nor the "three red banners" were being hailed in North Korea.<sup>25</sup>

The Flying Horse Movement appears to have been more significant in heavy industry than in agriculture. The continued emphasis on expanding heavy industry seriously tightened the economic bottleneck in 1959. Although the targets of the Five-Year Plan were said to have been achieved by mid-1959, the undue concentration on heavy industry had been a drain on the rural labour force, and therefore aggravated the serious imbalance between agriculture and industry. The impact was severe, if not disastrous. No wonder Kim Il-song had to put so much emphasis on quickly mechanising agriculture and on increasing the productivity of labour. Hence, the 1960 slogan of "Let us fulfil the task of the shock absorption period." This may explain why the figures of total food grain output for 1959 are not shown in the Central Yearbook for 1960, while the absolute figures for sericultural output, vegetable and fruit output, number of livestock, etc., are published.

For attacking Kim's undue concentration on heavy industry in the Five-Year Plan, both Pak Chang-ok, Soviet-Korean director of the Central Statistical Commission and Choe Chang-ik, leading Yenan Communist in North Korea and their followers were purged in late

<sup>25</sup> Paige, Glenn D., op. cit., p. 14.

<sup>&</sup>lt;sup>23</sup> Narumoto, K., "Political Story," Kita-Chosen no Kiroku (Record of North Korea), Tokyo: Shindokusho-sha, 1960, p. 67.

<sup>&</sup>lt;sup>24</sup> Korean Workers' Party. Problems Concerning the Political and Economic Strengthening of the Agricultural Co-operatives, Pyongyang: KWP Press, 1960, p. 190.

1958. Kim Il-song reportedly said in October 1959, "if our Party had listened to their views we would not have reached today's level of industrial development in fifty years." <sup>26</sup> Apparently, Kim must have felt the need to vindicate his position. In the first four years of the Seven-Year Plan (1961-67) there is to be virtually no new heavy industrial construction. Electrification and mechanisation are emphasised, together with extensive irrigation and use of fertilisers to increase agricultural production.

In 1962, 5 million tons of food grain were to be produced. However, the actual fulfilment figures are not known. The inconsistency of what published figures there are casts doubt on the fulfilment of the Plan although the mechanisation of agriculture was apparently rather impressive. Twenty-seven more machine service stations were added in 1961. They are said to have used 15.700 tractors of 15 horsepower and supplied 622,000 tons of various chemical fertilisers in 1962.

#### CONCLUSIONS

In his report before the National Conference of Agricultural Co-operatives in 1959, Premier Kim Il-song stated: "In the past our agriculture concentrated itself upon increasing the production of food grains, and yet the results were not too satisfactory...." On the reorganisation of the agricultural structure, he said: "The Party policy of giving priority to food grain production and concurrently expanding other sectors of agriculture such as industrial crops, livestock, sericulture, pomiculture and fisheries should be continuously and thoroughly implemented. Thus, our countryside should be built up into a strong raw material base as well as a strong food-supply base." 27 I think this statement well summarises North Korea's agricultural development during the post-war period, although what "should be" is quite different from what "is." North Korea can hardly reach the production level of rice, barley and wheat of the naturally fertile land of South Korea as a whole, just as the converse may be true with respect to heavy industry.

There is no doubt that agricultural collectivisation, sanctioned by Marxist-Leninist principles, has made possible the large increase in agricultural production. With its rigorous regimentation, over 95 per cent. of the peasants are herded into Soviet-style co-operatives, and toil 12 to 14 hours (48 legal working hours per week plus various chores

Kim Il-song, Let Us Grasp the Central Link and Concentrate All Our Forces in Solving All Problems, Pyongyang: KWP Press, 1959, p. 12.
 Kyongje Konsol, No. 11, November 1959, pp. 7-13. See also JPRS, Economic Report on North Korea (24th of series), p. 58.

#### AGRICULTURAL DEVELOPMENT IN POST-WAR PERIOD

within the co-operatives) per day under the "big-brothers" supervision and "self-criticism" report system. However, the Communists' claim that self-sufficiency in agricultural production was attained by 1959 is quite untenable in view of the fact that rationing of foodstuffs is still in force and troubles permeate the collective mess halls, <sup>28</sup> and that there is no evidence of food-grain export. <sup>29</sup>

So Shin Song, "Problems in Connection with the Organisation and Operation of Mess Halls for Families and Unmarried Persons," Sangop, No. 7, July 1960, p. 8-11.
 Kyongje Chisik, No. 3, March 1960, Editorial titled "Let us Acquire More and Save More Foreign Exchange," pp. 2-4. Also refer to Vneshnyaya Torgovlya (Foreign Trade) (Moscow), No. 9, 1958, cited by Karshinov, L. N., in his People's Democratic Republic of Korea, JPRS 3822, Sept. 6, 1960, pp. 68-69.