

AGRICULTURAL DEVELOPMENT POLICIES OF CAMBODIA SINCE 1990'S

YOON HO-SEOP*

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ABSTRACT

Agriculture is the biggest contributor to the Cambodian economy. However, Cambodian agriculture include a number of problems such as weak institutional framework of agriculture-related organizations, rural poverty and small budget for agriculture, lower productivity, lower efficiency, etc. In spite of these problems, Cambodian agriculture should play a role of engine in economic and rural development by improving agricultural productivity, modernizing agricultural marketing systems, developing human resources, diversifying rice farming to other crops, etc.

* Research Director (previous), Korea Rural Economic Institute, Seoul, Korea.

I. Introduction

The Kingdom of Cambodia is located in the Southeast Asian mainland, and endured an unfortunate history in the 1970s popularly known as, “The Killing fields.” It suffered from civil war in the 1980s, and a new government was established after general elections under the auspice of the United Nations Transitional Authority of Cambodia in 1993. During these periods of political instability, most of the social and industrial infrastructure had been destroyed. Now Cambodia imports most of its industrial products and even fresh vegetables. However it is an agricultural country and agriculture is the mainstream of its economy. Cambodia has a great potential to develop agriculture and the agricultural sector should play an important role in the process of nation building and economic development. In this sense, this paper attempts to identify problems with the agricultural sector in the early stage of economic development and to suggest future policy directions for agricultural and rural development.

II. Agricultural Situations

The Cambodian economy was stagnant until the early 1990s mainly due to political instability. Although a new government came to power in 1993, political instability continued. A regular economic policy was not executed until the first socio-economic development plan (SEDP I) was implemented from 1996 to 2000. In this sense it is important to review agricultural situations during the period of SEDP I and the second socio-economic development plan (SEDP II) of 2001 to 2005. The rice economy is reviewed because rice is the most important crop. Agricultural marketing situations are also to be reviewed.

Agriculture is the main stream and biggest sector of the Cambodian economy. 11 million people or 84 percent of the total population lived in rural areas in 2001, and the agricultural sector

employed about 73.7 percent of total employment in 2000, showing a decreasing trend in the late 1990s. It is noteworthy that the farm household population was 58.3 percent of the total Korean population in 1960.

Agriculture contributed 40.4 percent of Gross Domestic Product (GDP) in 1996, 41.6 percent in 1998, and 37.6 percent in 2000. The agricultural GDP increased from 2,873.9 billion Riels to 3,173.7 billion Riels over the period of SEDP I from 1996 to 2000, recording an average growth rate of 1.94 percent. An official exchange rate of 1 US Dollar was 2,624 Riels in 1996, 3,845 Riels in 2000, and 3,922 Riels in 2001.

Among the agricultural sectors, the crop sector was the largest. The GDP of the crop sector increased from 1,357.9 billion Riels in 1996 to 1566.3 billion Riels in 2000, showing an average growth rate of 3.9 percent. The GDP of the livestock sector increased from 555.0 billion Riels to 592.6 billion Riels from 1996 to 1998, but declined to 544.2 billion Riels in 2000. Its annual growth rate was 0.6 percent. The GDP of the fisheries sector increased from 629.9 billion Riels to 844.0 billion Riels, showing an average growth rate of 4.9 percent over the same period. The growth rate of the fisheries sector was the biggest in the agricultural sector. The GDP for the forestry sector increased

TABLE 1. Population and Employment

Unit: Million People

	1996	1997	1998	1999	2000	2001
Total Population (A)	10.34	10.37	11.44	11.60	12.2	13.1
Rural Area (B)			9.63			11.0
B/A (%)			84.2			84.0
Total Employment (C)	4.46	4.43	4.91	5.52	5.28	
Agriculture, Forestry & Fisheries (D)	3.48	3.49	3.77	4.21	3.89	
D/C (%)	78.1	78.8	76.8	76.3	73.7	

Note: Data for 1998 is based on Census, while the others are projected.

Source: Cambodia Statistical Yearbook 2001, National Institute of Statistics, Ministry of Planning, 2002

from 331 billion Riels to 477.7 billion Riels from 1996 to 1997, but decreased to 219.3 billion Riels in 2000. That is, GDP for the forestry sector showed a negative growth rate of 7.0 percent in this period.

Paddy is the biggest sector in agriculture. Paddy production increased from 3,404 thousand metric tons (hereafter, tons) to 4,041 thousand tons from 1996 to 1999, and exceeded 4 million tons in 2000. Average paddy production from 1996 to 2000 was 3,679.2 thousand tons. Maize production decreased from 64.6 thousand tons in 1996 to 42.4 thousand tons in 1997, and increased sharply to 157.0 thousand tons in 2000. Average production was 81.6 thousand tons in this period. Vegetable production in 1996 was 249.7 thousand tons, and was below this level until 2000. Mungbean production peaked at 15.9 thousand tons in 1999.

For short-term industrial crops, sugar cane production increased from 171.3 to 187.5 thousand tons from 1996 to 1997. But production decreased to 133.1 thousand tons in 1998, and increased again to 164.2 thousand tons in 2000. Soybean production increased from 28.3 to 56.3 thousand tons from 1996 to 1997, and average production was 35.1 thousand tons for the period of 1996 to 2000. Average production of peanut, sesame and tobacco were 7.3, 6.4 and 8.9 thousand tons respectively, for the same period.

TABLE 2. Agricultural GDP (at constant 1993 prices)

	Unit: Billion Riels					
	1995	1996	1997	1998	1999	2000
Total GDP	6,875	7,115	7,378	7,485	8,003	8,434
Agricultural GDP	2,893.0	2,873.9	3,039.2	3,114.9	3,262.9	3,173.7
Crops	1,301.0	1,357.9	1,321.0	1,329.2	1,515.9	1,566.3
Livestock	532.2	555.0	561.4	592.6	591.6	544.2
Fisheries	671.6	629.9	679.0	715.6	829.9	844.0
Forestry	388.3	331.0	477.7	477.4	325.6	219.3

Source: Cambodia Statistical Yearbook 2001, National Institute of Statistics, Ministry of Planning, 2002

TABLE 3. Production by major crop

Unit: 1,000 M/T

	1996	1997	1998	1999	2000	Average
Paddy	3,404.0	3,414.9	3,509.9	4,041.0	4,026.1	3,679.2
Maize	64.6	42.4	48.5	95.3	157.0	81.6
Vegetables	249.7	176.8	217.3	181.9	196.0	204.1
Mungbean	13.8	15.3	9.2	15.9	15.1	13.9
Peanuts	6.2	7.0	6.6	9.2	7.5	7.3
Soybeans	28.3	56.3	27.7	35.1	28.1	35.1
Sesame	5.3	3.1	5.1	8.4	10.0	6.4
Sugar cane	171.3	187.5	133.1	159.9	164.2	163.2
Tobacco	9.6	10.5	10.1	6.4	8.0	8.9

Source: Cambodia Statistical Yearbook 2001, National Institute of Statistics, Ministry of Planning, 2002

The annual growth rate for paddy production was 3.3 percent for the period of the SEDP I (1996 to 2000). The growth rate was mainly due to a good harvest in 1999, which was 15.1 percent over the previous year. Maize production increased at the remarkable growth rate of 31.8 percent, and sesame production also recorded a growth rate of 29.1 percent. Soybean production showed a growth rate of 23.8 percent. Growth rates for mungbean and peanuts were 2.0 percent and 4.0 percent respectively. On the other hand, production of vegetables, sugar cane and tobacco had negative growth rates.

Yield data is available for only rice and corn in the "Cambodia Statistical Yearbook 2001," published by the National Institute of Statistics, Ministry of Planning. Average growth rates of yield per hectare for rice and corn were 2.0 and 9.1 percent, respectively, for the period of 1996 to 2000.

Since yield is a production divided by harvest area, the yield equation is expressed as follows;

$Y=Q/H$, where Y represents yield, Q represents production and H represents harvested area

Then,

$$Y_g = Q_g - H_g,$$

where Y_g represents growth rate of yield,

Q_g represents growth rate of production, and

H_g represents growth rate of harvested area.

Therefore, the growth rate of yield is obtainable if the growth rates of production and harvested area are available. The calculated growth rates of yield of major crops for the period of 1996 to 2000 are shown in table 4. The growth rate for paddy production was 3.3 percent, although harvested area decreased at 0.1 percent annually. This indicates that an increase in paddy production was a result of an increase in yield. The case for corn is same as that for rice. On the other hand, increases in production of soybeans and sesame were results of an increase in harvested area. However, annual growth rates in yield for sugar cane and tobacco showed negative values. To conclude, there is a great potential that agricultural output can increase by improving yield. In order to realize this potential, various policies including research and development should be followed.

TABLE 4. Annual Growth Rate of Production

	Unit: Percent		
	Growth rate of Production	Change rate of Harvested area	Change rate of Yield
Paddy	3.3	-0.1	3.4
Maize	31.8	8.0	23.8
Vegetables	-3.7	-5.9	2.2
Mungbean	2.0	3.4	-1.4
Peanuts	4.0	3.6	0.4
Soybeans	23.8	20.3	3.5
Sesame	29.1	24.2	4.9
Sugar cane	-2.4	1.2	-3.6
Tobacco	-3.8	-2.5	-1.3

Note: Growth rates for vegetables are for 1997 to 2000

The agricultural development plan for SEDP II (from 2001 to 2005) focuses on boosts in production, a reduction of rural poverty and conservation of natural resources. This is because about 84 percent of the total population lives in rural areas and most farmers suffer from a vicious circle of poverty. Production-boosting policies include increases in cultivated areas, land improvement and maintenance, expansions of irrigated land, promotion of agricultural mechanization, development of high yield seeds, improvements in farming systems, promotion of agricultural extension services, etc. The policies to reduce rural poverty include an increase in agricultural income by improving quality of agricultural products and promoting the agribusiness sector, and creation of job opportunities in the rural area, etc.

As for specific outcomes in the SEDP II, rice production will ensure food security to feed about 15 million people in 2005. Average rice yield per hectare is targeted to reach up to 2 tons in 2005 and rice surplus for export is to increase to about 600 thousand tons. Irrigated systems are to be increased up to 20 percent from 16.6 percent, and cultivated areas are also to be increased. In addition, food shortage should be reduced in rural areas through an increase in food production. As for specific programs, operation of a rice and crop research institute is to be promoted, and the establishment of a research institute for agricultural machinery is proposed in order to promote agricultural mechanization. Development of high yield seeds is also to be promoted, and agricultural extension services are to be strengthened.

The rice economy is reviewed since rice is a staple food and the most important crop in Cambodia. Paddy production increased from 2.4 million tons to 4.0 million tons from 1993 to 2000, showing a remarkable increase of 68.9 percent. Average paddy production over the last 10 years was 3.4 million tons, and was recorded at 3.8 million tons in 2002. Rice requirements, at polished rice base, were about 1.5 million tons in 1993, implying that there was a shortage of 183 thousand tons. Although rice requirement increased to approximately 2 million tons in 2000,

rice surplus was 91.2 thousand tons. In 2002, per capita consumption was about 143 kilograms and total requirements were about 2 million tons. Rice surplus was 156 thousand tons. As a result, Cambodia could be an exporter of rice. This indicates that increases in rice production have contributed greatly not only to agricultural and economic development but also to an increase in rural income. The rice industry also contributes positively to balance of payment in trade and played an important role in foreign exchange earnings.

Agricultural marketing is important for agricultural development. However, most of the marketing facilities, which were operated until the late 1970s, were destroyed during the period of political instability and are not currently operating. There are few new marketing facilities with modern marketing systems such as storage facilities with cold and cooling systems for fresh produce in urban and rural areas. Agricultural markets are not developed in rural areas. Agricultural markets can be found at the district level, but none exist at the commune level. Farmers do not generally have any adequate storage and processing facilities. Physical and social infrastructures including

TABLE 5. Production and Consumption of rice

	Unit	1993	1996	2000	2001	2002	Average (1993-2002)
Cultivated Area	1,000 Ha	1,856.6	2,170.9	2,318.5	2,240.9	2,137.1	2,106.2
Yield	Ton/Ha	1.31	1.84	2.12	2.07	1.92	1.80
Production (A)	1,000 ton	2,383.4	3,458.0	4,026.1	4,099.0	3,822.5	3,442.6
Requirement (B)	1,000 ton	1,539.0	1,617.8	1,980.6	1,918.2	1,972.4	1,743.5
(A - B)	1,000 ton	-183	161.6	91.2	364.1	156.0	99.4

Note: There is a difference in cultivated areas between this table and table 5. Production is at paddy-base, and consumption is at milled rice. The conversion ratio from paddy to milled rice is about 64 percent.

Source: Annual Conference on Agriculture, Forestry and fisheries (10-11 April 2003), Ministry of Agriculture, Forestry and Fisheries

roads and telecommunications are outdated, bringing a higher marketing cost. Price information in Phnom Penh is not delivered to farmers in rural areas, and consequently farmers have no marketing information. They therefore have no alternative to sell their products to middlemen and/or collectors in rural areas, and farm-gate prices are relatively low because farmers' bargaining powers are weak.

The government does not intervene even at the rice market, and does not actually have a stock of rice for price stabilization and emergency use. Instead, rice price is influenced by the international market price, mainly the prices in Thailand and Vietnam, at the border area with Thailand and Vietnam. Rice price tends to decrease during the main harvest season (November to January) and increase during the flood season. It is meaningful to outline the flow of rice on the basis of regional data of production and consumption of rice. Annual consumption data on rice in urban and rural areas was not available, but per capita consumption of rice was about 143 kilograms in 2002-03. Marketing flow of rice can be roughly estimated by using the data on production and population by province, based on the assumption that per capita consumption of rice is same in urban and rural areas. That is, the deficit or surplus areas can be determined by comparing production and requirement data by province. Among 24 provinces, 10 provinces are in surplus, and 12 in deficit. Two regions are in a condition of equilibrium. Generally, the southern part and northeastern parts are in deficit and northwestern part is in surplus.

Road linkages between/among provincial and regional cities are not well developed, except the linkage between Phnom Penh and regional cities. More than half of the national and provincial roads are not paved. That is, road conditions are generally poor. There are only 2 railway lines. In addition, transportation vehicles are also outdated. These indicate that there are problems in rice distribution between/among surplus regions and deficit regions, causing a shortage problem in deficit areas.

The above phenomena are applied to other agricultural

products. In particular, fruit and vegetables are easily perishable. If these products are not delivered in a timely manner, their prices can fluctuate significantly. In other words, there is a possibility of big price variability for fruit and vegetables by region and by season. These phenomena would bring a lower and unstable income for farmers. To conclude, agricultural marketing policy should be strengthened for price stabilization and effective regional distribution of agricultural products.

III. Problem-finding

Every country has its own problem(s) in its agricultural sectors. The problems faced by Cambodian agriculture can be classified into 4 areas; weak institutional framework of agriculture-related organizations, rural poverty and small budgets for agriculture, lower productivity in agricultural production, and lower efficiency in agricultural marketing.

The Cambodian government has undertaken nation-building efforts including establishing a constitution and rule of law during the last decade, and has made substantial progresses in every sector including agriculture. However, the status of governance is still weak, causing an obstacle in the implementation of economic and agricultural development policies. Therefore, the first objective that needs to be achieved is to strengthen the institutional and legal framework of agriculture-related organization such as the Ministry of Agriculture, Forestry and Fisheries (MAFF), and the Ministry of Rural Development (MRD).

In the MAFF, there is no department related directly to rice by viewing the name of department, although rice contributes 28.7 percent of agricultural GDP in 2000. Most departments in the MAFF may be related to the rice industry. However, it is not clear which department is in charge of the demand and supply of rice. No data on export and stock could be available from the MAFF. It is noteworthy that Cambodia is a net importer of rice, although it began to have a surplus from 1995.

It is also unclear which department is responsible for fruits

and vegetables. Vegetable production was about 196 thousand tons in 2000. This means that per capita consumption was only 16 kilograms, excluding imports. No data on vegetable import was available. In one word, data on vegetable production is unbelievably low, considering the Cambodian dietary pattern. Vegetable production is likely to be underestimated. If not, there must be a huge amount of import of vegetables.

Development of human resources in agriculture-related areas is needed to promote their qualifications and meet the rapidly changing situations of the world economy toward globalization in an information-oriented society. Therefore, a high priority should be given to train agriculture-related civil service workers for effective and efficient implementation of agricultural and rural policies.

Although “Krom Samkki” was organized as a farmers’ organization in 1979, activity was very limited. Therefore, establishment of agricultural cooperatives with efficient management is important, because they can contribute not only to promotion of farmers’ socio-economic status but also to building in an institutional capacity. The MAFF prepared the Cooperative Law in 2000, which was approved by the National Assembly in 2001. However, agricultural cooperatives have not yet been established.

The second problem is related to rural poverty and small budgets for agricultural and rural sectors. The agricultural sector contributed 37.6 per cent of the total GDP and 73.7 per cent of total employment in 2000. 11 million people or 84 per cent of the population live in rural areas. About 90% of the workforce are subsistence farmers or unpaid family workers. These indicate that incomes for rural people are lower than that for urban residents.

To reduce rural poverty and promote agricultural development, the Cambodian government continues to allocate more expenditure from defense and security to socio-economic development including agricultural and rural development. The national budget for the MAFF increased from 21,178 million Riels in 1999 to 31,387 million Riels in 2001, and was planned

to increase to 43,340 million Riels in 2003. The annual growth rate of the MAFF's budget was about 20 percent. The budget for the MRD increased from 3,256 million Riels in 1999 to 12,513 million Riels in 2001, and was planned to increase to 21,000 million Riels in 2003. The MRD budget increased 66 percent annually. However, the absolute value of the budget for MAFF and MRD seems to be smaller in terms of the portion of agricultural GDP and rural population over total GDP and total population.

The third problem is related to lower productivity in agricultural production. Although many efforts had been made to improve agricultural productivity during the period of SEDP I, productivity is still low. For example, yield of paddy rice in

TABLE 6. Budget allocation, 1999–2003

Unit: Million Riel

	1999	2000	2001	2002	2003
MoH	75,366	101,808 (35.1)	130,294 (28.0)	171,700 (31.8)	202,000 (17.6)
MoEYS	149,781	165,816 (10.7)	212,306 (28.0)	286,200 (34.8)	323,000 (12.9)
MAFF	21,178	23,414 (10.6)	31,387 (34.1)	40,000 (27.4)	43,340 (8.4)
MRD	3,256	7,558 (132.1)	12,513 (65.6)	20,000 (59.8)	21,000 (5.0)
Defense and Security	468,061	450,724 (-3.7)	424,127 (-5.9)	390,000 (-8.0)	413,500 (6.0)

Note 1) MoH is the Ministry of Health,
MoEYS is the Ministry of Education, Youth and Sports,
MAFF is the Ministry of Agriculture, Forestry and Fisheries,
MRD is the Ministry of Rural Development.

Note 2) Budget for 2002 is an estimation, and budget for 2003 is a projection

Note 3) Figures in parenthesis are change rates over previous years.

Source: Significant Achievement Made by the Royal Government of Cambodia (30 November, 1998-2002), Office of the Council of Ministers, March 2003

Cambodia was 1,824 kilograms per hectare in 1996 and increased to 2,115 kilograms in 2000. Average yield was 1,889 kilograms over this period. Average yields of paddy rice in the Union of Myanmar and Thailand were 3,196 kilograms and 2,426 kilograms, respectively, over the same period. The yield in Vietnam continuously increased from 3,769 kilograms per hectare to 4,243 kilograms over the same period. That is, the yield in Cambodia was about 59 percent of the yield in Myanmar, 78 percent of the yield in Thailand, and 47 percent of the yield in Vietnam, respectively, over the period of 1996 to 2000. To conclude, agricultural productivity is low in Cambodia.

There are many reasons responsible for low productivity. One is due to natural disaster such as flood and drought. The area of paddy fields destroyed by natural disasters in 2000 exceeded 410 thousand hectares, about 20 percent of cultivated area. Although the destroyed area decreased to 135 thousand hectares in 2002, its portion over cultivated area was still over 7.4 percent.

The second reason for low yield comes from poor irrigation systems. The percentage of irrigated land over the total crop land was only 7.1 percent in Cambodia. The percentage of irrigated lands over the total crop land were 15.3 percent in the

TABLE 7. Average yield of paddy rice in major Asian countries

	Unit: Kilograms/ha						
	1996	1997	1998	1999	2000	2001	Average (1996-2000)
Cambodia	1,824	1,771	1,792	1,943	2,115	2,070	1,889
Myanmar	3,216	3,064	3,079	3,240	3,383	3,169	3,196
Thailand	2,410	2,350	2,324	2,424	2,623	2,571	2,426
Vietnam	3,769	3,899	3,958	4,102	4,243	4,256	3,994
Korea	6,789	6,997	6,997	6,596	6,753	6,930	6,826
Japan	6,540	6,416	6,219	6,414	6,702	6,659	6,458

Source: Production Yearbook 2001, FAO, 2002.
Production Yearbook 1998, FAO, 1999.

Union of Myanmar, 24.5 percent in Thailand and 31.9 percent in Vietnam, respectively. This data shows that the higher the portion of irrigated land over total crop land, the higher the yield in paddy production.

The third reason can be attributed to lower application of chemicals such as fertilizer. The fertility of farmland is generally low, due to continuous cultivation without application of adequate fertilizers. Fertilizer consumption per hectare of arable land in Cambodia was only 22 grams. The consumption was 179 grams, 866 grams and 2,773 grams in the Union of Myanmar, Thailand and Vietnam, respectively. This indicates that the more the application of fertilizer, the higher the yield in paddy production.

Other factors include lack of high-quality varieties, small size of holdings, traditional method of farming, and others. Certified high-yield seeds are not available to farmers. There is no government institute to supply certified seeds of rice through "multiplication after selecting high-yield varieties." In addition, farmland is scattered and divided into small blocks resulting in a lower quality of land. Although data on the holdings of agricultural machinery is not available, the number of holdings is said to be very small, which in turn results in a low productivity of labor in farming.

The fourth problem is related to lower efficiency in agricultural marketing. Most agricultural marketing facilities were destroyed during the period of political instability, and have not yet been restored. There is no wholesale market for agricultural

TABLE 8. Indicators for agricultural production, latest year

	Cambodia	Myanmar	Thailand	Vietnam
Irrigated land (% of crop land)	7.1	15.3	24.5	31.9
Fertilizer Consumption (100 gram/ha of arable land)	22	179	866	2,773

Source: "Country Economic Report Myanmar, Volume 2: Statistical Appendixes," Asian Development Bank, December 2001

products with modern facilities and auction systems in Phnom Penh, and modern agricultural markets are not developed at the provincial level.

There seem to be no organizations and/or groups to improve farmers' bargaining powers in selling their products. Joint sale and/or joint shipment in rural areas are also not observable. Farmers have no marketing information, and have no alternative to sell their products to middlemen and/or collectors. Therefore, prices received by farmers are generally low.

For rice, most farmers sell their paddy to collectors and/or local millers. Some retailers purchase directly from rice millers. In border areas with Thailand and Vietnam, trade to these countries is developed, because local traders have some domestic marketing information, and road conditions to domestic markets are poor and trade to these countries is sometimes more profitable. Although the border trading of rice seems to be active in border areas, there is no official data on border trading of rice.

Agricultural marketing systems can be summarized as being less-developed marketing structure and facilities, with small-scaled market participants. The MAFF seems to not have an overall plan for modernization of agricultural marketing systems, and agricultural marketing seems to have a lower priority in agricultural policy. That is, investment in farmer organizations, input supply and marketing services is only 3 percent (15 million US dollars) of proposed investment in Agriculture, Forestry and Fisheries for 2001 to 2005 (500 million US dollars).

IV. Policy Directions

The condition of the agricultural sector can be considered as both products and results of other Cambodian problems such as poverty, disasters, inadequate social and physical infrastructure, less motivation for future prosperity, and others. In addition, the agricultural sector is overpopulated. Agricultural development, however, will contribute greatly to economic development and

bring a reduction of rural poverty, which is the most important issue. Therefore, agricultural development is important and must be the engine for economic and rural development. Here, it is helpful to note the role of agriculture in economic development which was suggested by Johnson and Mellor as follows:

- 1) Economic development is characterized by substantial increase in the demand for agricultural products, and failure to expand food supplies in pace with the growth of demand can seriously impede economic growth,
- 2) Expansion of exports of agricultural products may be one of the most promising means of increasing income and foreign exchange earnings, particularly in the earlier stage of development,
- 3) The labor force for manufacturing and other expanding sectors of the economy must be drawn mainly from agriculture,
- 4) Agriculture, as the dominant sector of an underdeveloped economy, can and should make a net contribution to the capital required for overhead investment and expansion of secondary industry,
- 5) Rising net cash incomes of the farm population may be important as a stimulus to industrial expansion.

Adelman recommended an agricultural-demand-led industrialization (ADLI) strategy rather than an export-led industrialization strategy, emphasizing the following advantages;

- 1) Creation of a domestic mass market for industrial products,
- 2) Establishment of an employment program because agriculture is considerably more labor-intensive than even labor-intensive manufacturing,
- 3) Foreign-exchange-saving by reducing the need for food imports,
- 4) Reduction of risk because investments in agriculture reduce weather dependence.

Following Johnson and Mellor, and Adelman, agricultural

development must have a higher priority in economic development. In the agricultural development plan for 2001 to 2005, the development objective is to, “Achieve and ensure food security and conserve natural resources.” The policies proposed to achieve this objective include the following;

- 1) Increase cultivate areas,
- 2) Expand the irrigated system from 16.6% to 20%,
- 3) Ensure safety of land occupation, and prevent the illegal land occupation,
- 4) Continue to implement the agricultural water policy,
- 5) Promote the establishment of rural finance for providing credit to farmers, and others.

Objectives of the policies can be summarized as an increase in agricultural production and a reduction of rural poverty. The policy objectives are clearly identified to attempt to resolve problems with Cambodian agriculture. There are also great potentials to increase agricultural production through an improvement of agricultural productivity.

However, there are preconditions to achieve the policy objectives through effective implementation of agricultural policy. They are an increase in agricultural budget, production of accurate data in agricultural and rural sectors, establishment of agricultural cooperatives, promotion of work ethics and a self-support spirit, promotion of sufficient migration of rural population to urban areas, and so on.

Since agriculture is the backbone of the Cambodian economy, more financial resources should be allocated to agricultural and rural development in order to improve agricultural productivity and to reduce rural poverty. The budget for both MAFF and MRD in 2000 was about 31 billion Riels, only 6.9 percent of the budget for national defense and national security, and 18.7 percent of the Ministry of Education, Youth and Sports. The budget for both the MAFF and MRD in 2003 is planned to be 64.3 billion Riels, showing a 107.8 percent increase over the 2000 budget. However, the budget for MAFF and MRD is still

only 15.6 percent of the budget for national defense and national security and 19.9 percent of the Ministry of Education, Youth and Sports. Therefore, the agricultural budget should be increased for agricultural development and reduction of rural poverty. In addition, the role of the MAFF and MRD should be enhanced to achieve the policy goal, based on the review of the functions and responsibilities of the Ministries and each department of each ministry.

Accurate statistics are necessary for effective implementation of agricultural policy. For example, accurate statistics on demand, production, stock, import and export of major agricultural products are necessary for effective agricultural policy. However, some important agricultural statistics are not produced. No data on (informal) export and stock of rice is available. Although import of vegetables seems to be big, no data on vegetable import is available. Therefore, the function of producing agricultural data for major products should be strengthened.

Establishment of a rural financial institute for providing credit to farmers is one of the proposals for agricultural development plan for 2001 to 2005. However, the banking business is not developed even in urban areas, and agricultural cooperatives are not yet established. Agricultural cooperatives in Korea are involved in the provision of banking and credit services to farmers, marketing of agricultural products, supply of farm inputs and consumer goods, extension and education services, and other activities. Korean-style multi-purpose agricultural cooperatives can play an important role in the process of institutional capacity building in the agricultural sector and in the development of rural society in Cambodia. That is, Korean-style agricultural cooperatives can contribute to develop financial markets in rural areas and to modernize agricultural marketing systems, and to improve bargaining positions of producers.

Rebuilding of work ethics is important in the rural societies for agricultural and rural development, because most of farmers suffer from vicious circle of poverty and become desperate. A self-support spirit and/or a “can-do-spirit” should be

promoted and disseminated throughout the rural society. The “rural saemaul movement” in Korea in the 1970s can provide a good model for Cambodian rural society (Saemaul means new village). The movement emphasized a self-support spirit to farmers, and was instilled at the village level. Projects under the movement included construction of village facilities such as village halls, roads and bridges, and maintenance and repair of village roads and riverbanks, etc. The movement induced a spirit and philosophy of cooperative works at the village level, and accelerated modernization of rural communities, instilling a “can-do-spirit” to rural societies. The movement contributed greatly to Korea's agricultural and rural development in the 1970s. This kind of movement can be a good lesson for the development of human resources in rural areas and mobilization of resources in rural society for agricultural and rural development in Cambodia.

Sufficient migration of rural people to urban areas should be made for agricultural and economic development, because about 84 percent of total population lives in rural areas. Although agricultural production increases, rural poverty can not be cured without sufficient migration of rural people to urban areas. In this sense, a policy of reducing farm population should be executed in connection with industrial and population policies.

Together with a fulfillment of the above preconditions, agricultural policy should be focused on an improvement of agricultural productivity, diversification from rice farming to other crops, modernization of the agricultural marketing system, development of human resources, and rural village development for a better living-environment. That is, these five areas should be implemented with a higher priority.

An improvement in agricultural productivity means, but is not limited to, an increase in agricultural production, an increase in farm household income and a reduction in rural poverty. To achieve a productivity increase, it is necessary to strengthen the production base including minimization of damages by natural disasters, improvements in irrigation systems, land consolidation, development of high-yield varieties, introduction of modern

farming systems, etc. Programs to improve agricultural productivity include the following;

- 1) Strengthening of natural disaster prevention programs
- 2) Improvement of irrigation systems
Water-supply facilities: reservoirs, pumping stations, irrigation canals, etc.
Development of ground water resource, maintenance of irrigation facilities, etc.
- 3) Land consolidation/re-arrangement program for improvement of farmland quality
- 4) Development of new varieties and distribution of certified rice seeds
Development of high-quality and high-yield seeds
Establishment of the Seed Management Office and Seed Bank
- 5) Adequate application of fertilizer to improve fertility of farmland.
- 6) Promotion of agricultural mechanization to increase labor productivity

The second program with a higher priority is a diversification of rice farming to other crops. Cambodia began to have a rice surplus from 1995, and there are potentials to increase rice production. If more rice is produced, the surplus will also increase. If a surplus is expected in the future, development of export markets should follow. Cambodia can export more rice as surpluses increase, given that Cambodian rice is competitive on the world rice market. Expansion of the export market is important, since rice is expected to be a major contributor to the Cambodian economy. On the other hand, diversification of cropping patterns from rice to other crops as one policy alternative should be pursued along with expansion of rice exports.

Vegetable production seems to be too small in terms of population and Cambodian dietary patterns. Vegetable consumption tends to increase along with an increase in income. Fortunately,

vegetables are cultivated throughout the country, and parts of cultivated areas for paddy can shift to alternative crops, if the rice sector continues to show a surplus. There is a good potential to produce more vegetables. However, the problems in vegetable production are similar to those in rice farming. That is, vegetable production is based on traditional farming and there are few quality seeds, furthermore, application of chemicals such as fertilizers and pesticide is low. In this sense, supply of agricultural input should be increased and R & D on vegetable production should be promoted. In addition, marketing facilities for fresh products should be expanded to improve efficiency of agricultural marketing, since marketing facilities for vegetables are poor.

Thirdly, agricultural marketing systems should be modernized. Since agricultural marketing systems can be summarized as an inadequate organization of marketing structure, small-scaled market participants, and less-developed marketing facilities, a modernization plan for agricultural marketing systems should be designed and implemented. Modern wholesale markets with cold/cool storage systems for fresh agricultural products should be constructed in major cities, and auction systems should be introduced at new modern wholesale markets in order to improve transparency of trade. Food processing and storage industries should also be promoted in urban areas. Agricultural markets should be developed at the district level in rural areas, and marketing and processing facilities should be improved and newly constructed. Agricultural marketing information should be disseminated to farmers and farmers' group. To conclude, a blue print for development of agricultural marketing systems including processing, transporting and storage systems should be planned and implemented as soon as possible.

Development of human resources in the agricultural sector is also important for agricultural and rural development. The objective of human resources development is to foster quality farming experts and farming companies who are able to improve agricultural productivity and modernize agricultural marketing systems. This plan can include a program for family farms and

owner operators, fostering of farming corporations and companies, programs for education and training, support for farmers with advanced farming technology, etc.

An improvement in living environment is necessary to make farmers work with hope and confidence and to activate the rural economy. At an initial stage one village at each district can be chosen and strategic support from the central and local governments can be provided to improve living environments for the village including water supply, village roads, welfare and educational facilities, improved model housing, etc. In addition, an effort can be focused on the development of principal products in each village. This program can be driven in connection with a, “can-do-spirit” movement as shown in the “New village movement” in Korea.

V. Summary and Conclusions

The Kingdom of Cambodia endured an unfortunate history in the 1970s popularly known as, ‘The Killing fields’ and suffered from civil war in the 1980s. Most of its social and economic infrastructures were destroyed in the 1970s and 1980s. Its economy was stagnant until the early 1990s mainly due to political instability. Political instability continued after a new government was inaugurated in 1993. A regular economic policy was not executed until the first socio-economic development plan (SEDP I) was implemented from 1996 to 2000. It can be said that agricultural and economic development started from scratch. In this sense, an attempt is being made to develop the agricultural sector under a situation that agricultural and economic development is at an initial stage.

Agriculture is the main stream and biggest sector of the Cambodian economy. 11 million people or 84 percent of total population live in rural areas in 2001, and the agricultural sector employed about 73.7 percent of total employment in 2000. Agriculture contributed 40.4 percent of Gross Domestic Product (GDP) in 1996, and 37.6 percent in 2000. The agricultural GDP

increased from 2,873.9 billion Riels to 3,173.7 billion Riels over the period of SEDP I from 1996 to 2000, recording an average growth rate of 1.94 percent. In the agricultural sector, the crop sector was the largest, followed by fisheries, livestock and forestry sectors. Paddy was the largest over the crop sector. Paddy production increased from 3.4 million metric tons to 4.0 million tons from 1996 to 1999, and exceeded 4 million tons in 2000. This increase in paddy production was a result of an increase in yield.

The agricultural development plan for the second socio-economic development plan (SEDP II) from 2001 to 2005 focused on boost of production, reduction of rural poverty and conservation of natural resources. This is because about 84 percent of total population lives in rural areas and most farmers suffer from a vicious circle of poverty. Production-boosting policies include an increase in cultivated areas, land improvement and maintenance, expansion of irrigated land, promotion of agricultural mechanization, development of high yield seeds, improvement of farming systems, promotion of agricultural extension services, etc. Policies to reduce rural poverty include an increase in agricultural income by improving quality of agricultural products and promoting the agribusiness sector, and creation of job opportunities in the rural area, etc. As specific outcomes in the SEDP II, rice production will ensure food security to feed about 15 million people in 2005. Average rice yield per hectare is targeted to reach up to 2 tons in 2005. Irrigation systems are to increased to 20 percent, and cultivated areas are also to increase.

Problems with Cambodian agriculture include weak institutional framework of agriculture-related organizations, rural poverty and a small budget for agriculture, lower productivity in agricultural production, and lower efficiency in agricultural marketing, etc. The Cambodian government has undertaken nation-building efforts including establishing a constitution and rule of law in the last decade, and made substantial progresses in every sector of government including agricultural and rural development.

However, the status of governance is still weak, causing an obstacle in the implementation of economic and agricultural development policies. Although the Cambodian government continues to allocate more expenditure on agricultural and rural development, the budget for the MAFF and MRD is still relatively small. Although many efforts had been made to improve agricultural productivity during the period of SEDP I, productivity is still low. For example, yield of paddy rice in Cambodia was lower than that of neighboring countries including Thailand and Vietnam. Most of the agricultural marketing facilities were destroyed during the period of political instability, and are not still restored. There seem to be no organizations and/or groups to improve farmers' bargaining power in selling their products. Farmers have no alternative to sell their products to middlemen and/or collectors, and prices received by farmers are still low.

The condition of the agricultural sector can be considered as both products and results of other Cambodian problems such as poverty, disasters, inadequate social and physical infrastructure, less motivation for future prosperity, and others. Therefore, agricultural development is important in Cambodia, because agriculture is the main stream of the Cambodian economy. The objective of agricultural policy should be clearly identified for successful agricultural development, and preconditions to execute agricultural policy effectively should be prepared in advance.

The preconditions to achieve policy objectives for effective implementation of agricultural policy include an increase in agricultural budget, production of accurate data of agricultural and rural sectors, establishment of agricultural cooperatives, promotion of work ethics and self-support spirit, promotion of sufficient migration of rural population to urban areas, etc.

In the agricultural development plan for 2001 to 2005, the development objective is to, "Achieve and ensure food security and conserve natural resources." The policies proposed to achieve this objective include the following; (1) Increase cultivation areas, (2) Expand the irrigation systems from 16.6% to 20%,

(3) Ensure safety of land occupation, and prevent illegal land occupation, (4) Continue to implement the agricultural water policy, (5) Promote the establishment of rural finance for providing credit to farmers, etc. The objectives of the policies can be summarized as an increase in agricultural production and a reduction of rural poverty. The policy objectives are clearly identified to attempt to solve problems in Cambodian agriculture.

There are also great potentials to increase agricultural production through an improvement of agricultural productivity. Finally, agricultural policy should be focused on an improvement of agricultural productivity, diversification from rice farming to other crops, modernization of agricultural marketing systems, development of human resources, and rural village development for better living-conditions. That is, these five areas should be implemented with a higher priority.

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