

Present Condition and Problems of Rice Industry under Socio-Economic Transformation in Cambodia

Koji Ishikawa

Graduate School of International Development, Nagoya University

Doctoral Student

ishikawa.koji@a.mbox.nagoya-u.ac.jp

Introduction

Cambodia is located in the southeastern part of the Indo-Chinese peninsular. The country to the northwest is Thailand, to the north is Lao PDR, and to the east is Vietnam. The south is boarders the Gulf of Thailand. Historically, Cambodia has close ties with its neighboring countries Vietnam, Laos and Thailand and shares the Mekong with them as a major corridor for commerce. The total area is 181,035km² with fertile land and abundant water resources in the Mekong river system, where more than 70% of working population engaged in agricultural sector.

Thus Cambodia is still a largely agrarian society with agriculture representing the major share of GDP (28.5%: MAFF 2008) and most of the population living in rural areas, and make their livelihood from rice production activities. For most of farmers, rice is their major source of income and sustenance and thus rice plays an integral part in the economy of rural Cambodia.

However, Cambodia's history and structure of industry has helped define rice-based agricultural sectors in which poor populations have traditionally engaged and earned a livelihood. The agricultural sector is where the poor are employed and earn a living in Cambodia.

It would follow that increasing productivity and trade returns on rice produce in this sector will be important for improving the livelihood of the poor. And it would seem that policies designed to increase rice production and stimulate exports would accrue benefits to those involved in the production of rice. As many of the people involved in rice production are poor, it would also seem that such policies would be a useful tool in alleviating poverty in rural areas.

Therefore, the challenge for Cambodian rural development is to grasp the present situation and prioritize the constrains to increase productivity and generate improvements within the rice industry, and develop the strategies to overcome the existing obstacles.

This study describes the present condition and problems of rice industry especially in terms of the marketing system, and investigates how Cambodian rice industry might be improved under socio-economic transformation in Cambodia.

Methods

Among the 24 provinces, the survey was targeted on the 6 main rice-producing provinces, located in the country and consistent with active trading/business transactions such as Banteay Meanchey, Battambang, Pursat, Kampong Chhnang, Kandal, Takeo and Cambodia-Thai, Cambodia-Vietnam border areas, as well as in the capital city of Phnom Penh. The data has been gathered from sample questionnaires through direct interviews with concerned stakeholders in the rice industry. The sample/questionnaire was classified into five types (producer, collector, trader(exporter), rice miller, wholesaler/retailer), based on marketing system and business/trading transactions of each province. Some information, especially on the seasonal movement of paddy/rice, was also gathered from observation and interviews with provincial agricultural officials and relevant officials at border checkpoints in 4 provinces. Farther information was obtained from interviews with various government officials involved in policy implementation. These included the Custom Office, Camcontrol, the ministry of Agriculture, Forestry and Fisheries, and the Ministry of Commerce.

Table 1. Rice Production by Province 2007

Province	Rice Production					
	Wet season 2007		Dry Season 2007		Total	
	ha	t	ha	t	ha	t
Prey Veng	254,542	692,609	71,164	298,926	325,706	991,535
Takeo	173,341	504,723	73,088	305,508	246,429	810,231
Battambang	239,925	555,680	3,143	11,554	243,068	567,234
Kampong Cham	168,105	548,190	51,679	198,989	219,784	747,179
Banteay Meanchey	208,815	440,600	2,030	6,579	210,845	447,179
Siemreap	174,122	297,655	13,985	45,269	188,107	342,924
Svay Rieng	161,421	344,874	13,404	48,855	174,825	393,729
Kampong Thom	154,038	350,589	18,709	76,282	172,747	426,871
Kampong Chhnang	106,034	230,238	21,675	81,221	127,709	311,459
Kampot	122,850	314,619	1,734	5,032	124,584	319,651
Kampong Speu	108,997	265,922	141	439	109,138	266,361
Kandal	45,089	130,214	58,430	236,135	103,519	366,349
Pursat	93,598	234,275	1,750	5,449	95,348	239,724
Oddar Meanchey	49,370	78,991	0	0	49,370	78,991
Kratie	29,938	81,312	12,402	39,690	42,340	121,002
Preah Vihear	33,097	79,463	22	49	33,119	79,512
Ratanak Kiri	27,056	46,529	0	0	27,056	46,529
Stung Treng	22,998	63,244	0	0	22,998	63,244
Mondul Kiri	17,054	32,658	0	0	17,054	32,658
Sihanoukville	12,450	21,665	0	0	12,450	21,665
Koh Kong	9,605	21,949	0	0	9,605	21,949
Phnom Penh	5,043	13,111	200	660	5,243	13,771
Kep	3,000	5,250	0	0	3,000	5,250
Pailin	2,108	9,330	800	2,800	2,908	12,130
Cambodia	2,222,596	5,363,690	344,356	1,363,437	2,566,952	6,727,127

Source: Statistics of MAFF 2008

Table 2. Number of Samples/ Questionnaires

Provinces	Producers	Collectors ^{a)}	Traders ^{b)}	Rice millers	Wholesalers ^{c)}	Retailers ^{d)}
Banteay Meanchey	20	6	4	4	1	1
Battambang	60	10	6	25	4	6
Pursat	20	3	2	4	1	3
Kampong Chhnang	20	8	4	8	2	3
Kandal	20	3	5	5	2	3
Takeo	15	6	5	4	3	3

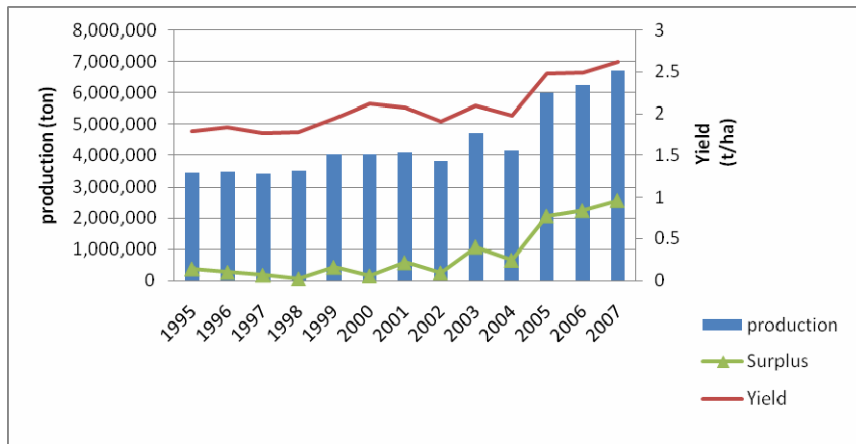
Source: Field survey 2007-2008

- a) Collector: who are regularly go around the farm(from village to village) to collect the product and sent to traders or rice millers. Most of them are perform a daily transaction rather than speculation purpose.
- b) Trader: who is performed export function across the countries.
- c) Wholesaler: mostly located in or near market. They purchase the products from rice millers and sold mainly to retailers.
- d) Retailers: who have own stall in the market and play retail function with consumers.

General Condition of Rice Production

In the past, due to the adverse impact of the civil war and the state-planned economy, rice production in Cambodia was not able to meet the domestic demand for a long time after the 1970s. However, rice production has increased significantly since the major economic reforms of 1989. The planted areas of rice have increased from 1.9 million hectares in 1990/1991, to about 2.6 million ha in 2007/2008. The increase was the result of mine clearance, improved security, and reclamation of unused or deforested land. Meanwhile, the productivity per ha of rice increased considerably over the same period, from just over 1.4 tons/ha to 2.6 tons/ha. The increase in yield was due to many factors: favorable weather conditions, an increase in the availability of rural credit, an increase in private investment, technology improvement, use of chemical fertilizers and other inputs, and new high-yielding rice varieties. The combination of the expansion of planted areas and the increase in yields has boosted production to surplus levels since 1995/1996.

Figure 1. Production, Yield and Surplus of Rice



Source: MAFF Annual Conference Report 2008

The supply and demand balance of rice calculated by MAFF does not count exports/imports and the carry-over amount including stocks. In addition, due to lack of adequate statistical data on farmer’s gross sales quantity, it is difficult to estimate the trade quantity of paddy/rice in the entire country. However, considering fact that a huge amount of paddy is being unofficially exported to Thai and Vietnam, it is clear that there is a considerable surplus of rice, regardless of the amount, and that the self-sufficiency has been achieved.

Present Condition and issues of rice distribution

The marketing of rice is a major economic activity in Cambodian rice industry. Although rice is grown almost nationwide in Cambodia, marketing systems play an important role in bridging distances between producers and consumers to ensure production efficiency and food security.

Until 1995, total rice production in Cambodia was below what was needed to feed the country. Hence, the distribution system for rice was determined both by the internal movement of the commodity from producer to consumer and by substantial imports from other countries, both as food aid and for commercial sale. Although production was insufficient for national need, during the main harvesting season, a considerable proportion of paddy was reportedly exported to Thailand and Vietnam. To supplement the domestic deficit, milled rice was imported back from Thailand and Vietnam, particularly during the off peak season (wet season), both as donor-funded food aid and for commercial sale.

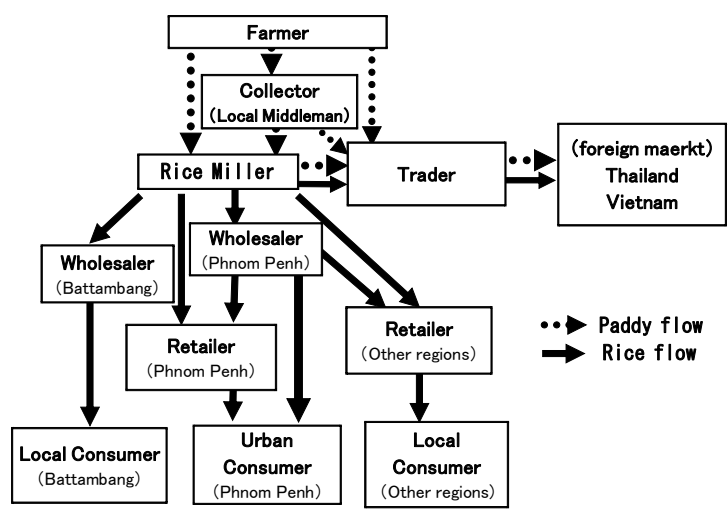
The rice distribution system developed quickly after 1996, the first year that production recovered surplus levels on a national level. From this point on, the

movement of rice from surplus to deficit areas, or to export markets, is charged entirely in the hand of the private sector.

This distribution system was highly fragmented. It involved a large number of small operators in the initial stage, and a smaller number of large-scale operators at later stages, who supplied large bulk orders to populous city markets and to exports.

Under the present market-oriented economy, the Cambodian government has no market intervention or market control systems for domestic marketing. In this situation, farmers, collectors, commercial rice millers, traders, wholesalers and retailers formulate various marketing channels.

Figure 2. Distribution Channels in Northeast Region (Battambang)



Source: Field survey 2007-2008

Farmers traditionally sell their products directly to local mills, if easily accessible. However, if there are no rice mills nearby, or if poor road conditions mean high transportation costs, farmers sell their products to paddy collectors or traders (Table 3). Paddy collectors/ traders usually come to purchase paddy in villages, then transport and sell it for a profit either to millers or to foreign market. In the surplus producing provinces bordering Thailand or Vietnam such as Battambang, Banteay Meanchey and Takeo, paddy collectors and traders sometimes buy paddy from rice millers and sell it directly to foreign market (foreign traders).

As the paddy collectors usually come first to make villages accessible in order to improve collection efficiency, remote villages have limited contacts with them and

limited market information, which eventually leads to information divide. There is no cooperative sale of paddy by farmers at present in survey areas. Having weak bargaining power, individual farmers are forced to accept the offered price of the paddy collectors.

Procurement of paddy is a process that goes on throughout the whole year, though it is more incentive during the main harvest season (December-February).

Generally, the time for farmers to sell their paddy is just after harvest and at the time when they start to purchase input materials such as fertilizer, pesticide for the next cultivation. The sale made immediately after the harvest is to get cash for not only supporting their living but also refunding a loan for fertilizers. In the case of the rainy season rice, the sale is at the harvest time of November to December and at the preparation time for the next crop around April and May.

Although the supply of the paddy rice varieties greatly by season, it is supplied to markets throughout the year. In fact, a few better-off farmers have the financial sources to store paddy for sale later in the year during the wet season when the paddy sales price is higher. This means that some paddy sold throughout the year.

Table 3. Farmers consumption and Sales of Paddy

Province	Own Consumption	Sold	Sales connection	
			collectors	Rice Millers
Kandal	15	5	4(1)*	1
Takeo	6	9	7(2)*	2
Kampong Chhnang	11	9	5	4
Pursat	9	11	8	3
Battambang	19	41	26(6)*	15
Banteay Meanchey	8	12	8	4

Source: Field survey 2007-2008

In common rural areas, it is the paddy collectors' custom to go around farmers' houses with small to medium size trucks to collect paddy though a few farmers take their paddy to rice mills by their own transportation means.

Generally, the operation of the local paddy collectors is limited within the province. Trader buy paddy from the local paddy collectors, then transport to outside the province. Rice millers usually purchase paddy from the local paddy collectors. In a word, the transportation of paddy for domestic consumption is only to a rice mill within the province while paddy transported a long distance is exported to Thai and Vietnam by traders.

At the rice miller's level, rice millers can be divided into two types of rice mills: village mills and medium-large commercial mills. Each type of mill plays a slightly different role in the marketing system. Village mills are found in almost all rice producing villages. Typically, the

village miller will mill the farmer's paddy free of charge in exchange for the rice bran. When the farmer requests the return of the bran from the miller, the farmer is generally assessed a small amount of milling fee. By and large, given the limited working capital and capacity of the milling machine, their business is relatively small.

Medium and large scale mills are found in the large rice production regions. They play two main roles: milling rice and supplying paddy/ milled rice to wherever there is high market demand and better prices. These include urban areas, populous areas, rice-deficit areas, and traders. The millers usually purchase paddy either directly from farmers or collectors who bring it to the mill. They mill paddy and then supply the market either through wholesaler/trader or through retailers.

Milled rice is packed into bags labeled with millers' particulars, and then rice is sold to wholesale markets or retail markets.

For export, both paddy and milled rice are exported directly to neighboring countries during and after harvesting season. Rice is exported both officially as well as unofficially.

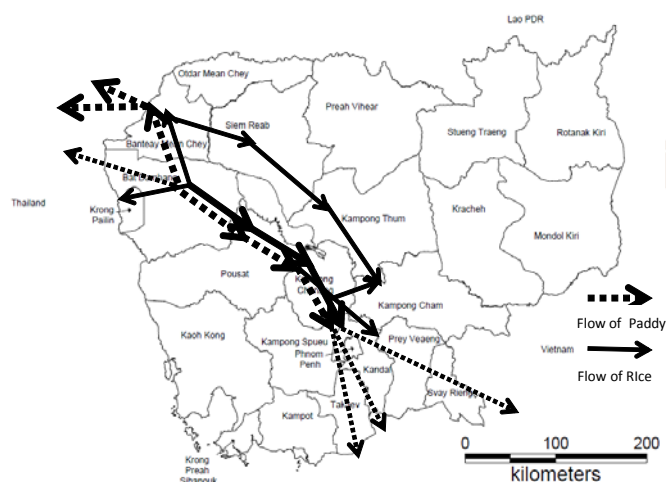
However, the sequential chain described above does not automatically mean that all rice products pass through all the intermediaries in the market system. There are an increasing number of private companies which play multiple roles in the rice marketing business. These have business ties with local paddy collectors and they have their own mills, storage facilities, and retail shops. This system tends to increase the efficiency of rice marketing.

Distribution direction of rice

Rice and paddy trade flows vary depending on the supply and demand in different provinces and on the prices in neighboring countries.

Basically, the absolute condition of distribution direction is price difference, and goods move from a place with cheap price to another place with high price under free transaction. Trade flows are generated not only by quantity imbalance but also demand for specific rice varieties and quantities. Major trade flows are as Figure 3 and Table 4.

Figure 3. Trade flows of Rice and Paddy in Cambodia



Source: Field survey 2007-2008

Table 4. Major trade flows

Region	From	To	Type ¹⁾	Variety ²⁾
Northwest production area	Battambang	Phnom Penh	Rice	PM/PK/NM/NK
	Battambang	Siemreap/ Pursat/ Kampong Chhnang	Rice * Paddy	PM
	Battambang	(Pailin)/Takeo	Rice	Mixed Rice
	Battambang	Thailand	Rice * Paddy *	PM/Mixed Rice
	Battambang	Vietnam	Paddy	FIR/ Mixed Rice
	Banteay Menchey	Phnom Penh	Rice	PM/PK/NM/NK
Southeast production area	Banteay Menchey	Thailand	Paddy	PM/Mixed Rice
	Takeo	Phnom Penh	Rice	IR/PK/Mixed Rice
	Takeo	Kampong Speu	Rice * Paddy *	IR/Mixed Rice
	Takeo	Vietnam	Paddy	IR/FLR/NK
	Kandal	Phnom Penh	Rice	IR/Mixed Rice
	Kandal	Vietnam	Paddy	IR

Source: Field survey 2007-2008

1) Boldface means main type of flow.

2) Variety name: PM(Phker Mali), PK (Phker Khney), NK (Neang Khon), NM (Neang Minh), FLR (Floating Rice)

Only specific varieties such as Somaly, Phker Khney, Neang Minh, IR are marketed on a specific variety basis. Many other wet season varieties are marketed as mixed rice since they are mixed together at the collector or rice miller stages from many small plots of individual farmers.

Somaly, Phker Khney, Neang Minh are mainly produced in the northwest regions and have an established reputation for high quality and good taste. These are sold to Phnom Penh and provincial towns of Takeo, Kandal, Siem Reap with relatively high prices.

Other local varieties are marketed only within the province and/or to neighboring provinces.

Domestic Distribution

Although rice moves from the production areas to consumption area according to the supply and demand, marketing channels from production areas to provincial towns are relatively simple. Rice wholesaler/ retailer in each market buy the locally produced rice directly from rice mills nearby. In addition to the local rice, wholesalers/retailers also procure several rice varieties according to the needs of local consumers from rice mills in other province. However, there is no rice flow into the provincial towns of northwest regions (Battambang and Banteay Meanchey) from other province because both provinces are surrounded by production area with high value varieties.

Phnom Penh is the largest market in the country. Various kinds of domestic rice are shipped directly from rice mills in production areas to wholesaler/retailer in Phnom Penh mainly by the national road network. Rice from the northwest production areas has an established reputation of good taste and good quality. It has a large market share in the high/medium price market in Phnom Penh. In contrast, rice from the southern part of the country such as Takeo and Kandal is evaluated poor in taste and the cheapest rice in Cambodia.

In principle, most milled rice is consumed locally within the province it is produced, with medium and larger mills selling rice to traders with distribution network outside the province. While rice mills near Phnom Penh, where rice is not grown, must buy paddy from outside the city. In principle, paddy is transported within the province or to neighboring provinces and milled. Considering high transportation costs, it is practical to mill paddy in nearby mills, as paddy is bulky and heavy.

Transactions between sellers and buyers are basically negotiated transactions. Normally, a buyer informs an acquainted seller of variety/ price date of collection by word of mouth or a cellular phone. Therefore, when the seller takes paddy to the buyer, a standard price has already been set. Only paddy with particularly high moisture content or many foreign matters/impurities is subject to a discount negotiation.

In case a farmer takes paddy to rice mill based on the information by word of mouth, the rice miller is in a strong position to negotiate. In principle, the way of payment is a cash transaction. The pricing between sellers and buyers is always done with negotiation but not in an open environment. Thus, it is not clear for outsiders.

Trade flow to Thailand and Vietnam

Export fall into official export and unofficial export. In Cambodia, the largest transaction of paddy is an unofficial export of paddy from Cambodia to Vietnam/ Thai, there is no official export of paddy and the procedure of export declaration is not carried out. However, it is not smuggling as tolls are collected by the military/police/local government/customs.

In northwest regions, farmer's scale of rice production is large, over 2 ha and farmers grow high value variety such as Somaly and Domaly. These regions have well-established commercial mills. Traders in these areas regularly collect price information at the Thai border and/or rice mills along National Road 5 (main national economic road in Cambodia) and ship the paddy at higher profits.

There are no restrictions when crossing the borders, as long as the appropriate unofficial fees are paid for the government officials. For the Thai border, the paddy is transported by 20/ 40 tons trucks to the border, offloaded onto small carts for the actual border crossing, before being loaded back onto trucks on the Thai side of the border.

The majority of paddy flow to Vietnam is considered as IR variety. The amount of paddy exported depends almost on the differential in the paddy price between Vietnam and Cambodia. In Vietnam, paddy is distributed by waterways in a dense network. Thus, the major paddy transportation to Vietnam is by waterways and Vietnamese traders come up the main streams of the Bassac River and Mekong River. In Kandal province, paddy is loaded along banks of Bassac River. Trader carries paddy by boat to a place near the border gate where trader meets Vietnamese traders without preliminary contact. In this area, paddy trade begins in April and continues to November, with the peak season in June/July.

In northwest regions (Banteay Meanchey/Battambang) , the settlement is usually made in Thai Baht, the market price of paddy in Cambodia is set by the asking price of Thai traders. Similarly, in south regions (Takeo/Kandal), the settlement is mostly made in cash and traders in Vietnam side pay in their own currency. In Banteay Meanchey and Battambang, the export price to Thailand has a strong impact; In Takeo and Kandal, the export price to Vietnam also has the same effect. Thus, it can be guessed that both regions are more susceptible to influence of large size market in neighboring countries than other provinces,

It is often said that underdeveloped distribution infrastructure is the obstacle to the distribution, but that is not an absolute condition. If the price difference can compensate the distribution cost, merchandize will be transported even on a long and poor road.

Prospects for export expansion

In Cambodia, liberalization policy has pushed up rice supply considerably over the past decade, mostly as the result of increases in yield and cropping intensity. The production

increases have allowed Cambodia to achieve self-sufficiency and to export rice. Cambodia has started to export rice to international market and paddy to Thai and Vietnam.

Exports are likely to be the main driver of future production expansion in rice in the medium term, given that domestic demand for rice is unlikely to grow much faster than the population. Although the world rice market is thin and growing only slowly, it presents good opportunities for export gains with the growing commercial relations among the GMS countries that have a comparative advantage in rice.

Currently Cambodia has a 2 percent share of world rice exports, and if Cambodia wants to increase the share in world rice market, the country must maintain or increase the rice productivities related to the competitors. Its success will also depend on establishing links with value chains that go beyond their national boundaries.

With respect to future exports, some opportunities for export gains may lie in diversifying into higher-quality rice. In Cambodia, as farmers grow many rice varieties, grades, standards, and quantities, selection of profitable varieties would have a crucial impact on production and marketing. Therefore, provision of high-quality rice varieties will eventually encourage rice exports.

Another matter of export expansion is the licensing systems. The licensing system will continue to hamper export rather than encourage them. Given the currently-poor policing of rice exports at the border, the elimination of export licenses should be the first significant step to encourage exports and stabilize prices. Such elimination could help operators in the marketing system reduce payments of unnecessary fees for the export of the paddy. These fees, if they can be avoided, will eventually be reallocated to the various actors. In the case of paddy exports, farmers could get benefit more than the present condition.

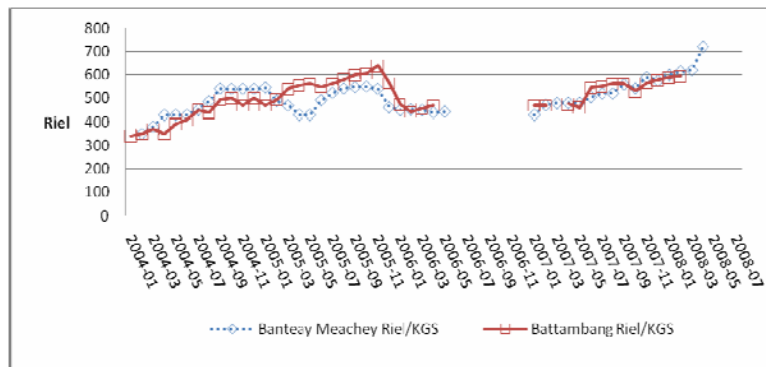
Rice Value Chain Analysis

Numerous stakeholders take part in the rice industry that links rice producers to final consumers: farmers, collectors, rice millers, traders, wholesalers/retailers. Other stakeholders include transporters, seed companies, agrochemical companies, agricultural equipment companies, irrigation companies, inspection agencies, commerce and tax departments, agricultural department and so on.

Each time paddy or rice is sold in the marketing chain between the producers to the consumers, the price increases. The price difference between the producer and consumer is generally defined as the marketing margin. In other word, the marketing margin could be regarded as the difference between primary and derived demand curves for rice products.

Due to lack of accurate information on farm gate prices for paddy/milled rice in any province, it is difficult to estimate the marketing margin of rice in Cambodia. However, the rough estimate of the marketing margin can be derived by taking the buying price of paddy at mills in northwest regions (Battambang, Banteay Meanchey), where most of the rice that is sold in Phnom Penh and other provincial town markets.

Figure 3. farmers sales price for rice miller



Source: MAFF, Field survey 2007-2008

* 1US\$= about 4000 Riel (2008)

However, two things must be taken into consideration. First, buying prices of paddy at mills in northwest region can be used to represent only prices for farmers whose paddy can be delivered to rice mills without any intermediary costs. Second, it is common practice among farmers to sell their product to paddy collectors and traders at prices about 10 percent lower than the prices paid at mills, depending upon the distance to the mill, and the road conditions. In consideration of above factors, the market margin has been discussed below.

Generally, farm gate prices and retail prices vary with the seasons. They are low during the harvest season (dry season) and high during the growing season (wet season). In January 2008 which is the peak harvest season, farmers in northwest regions received only about 600 riels per kilogram (kg) of paddy for one of their high-quality rice varieties (Phker Khney). The low sales price of farmers can be explained by farmers' weak bargaining power under a small, individual, subsistence family production system.

It is common practice in Cambodia for farmers to borrow cash to hire labor or to purchase agricultural inputs. Therefore, they must pay back their loans right after when they harvest their products. With so many farmers all selling their paddy at the same time, the large volume reaching the rice market at the same time bring prices

down. Unlike farmers, paddy collectors/ traders and rice millers are in a better negotiating position in the marketing system. They can always make some profit through their transactions.

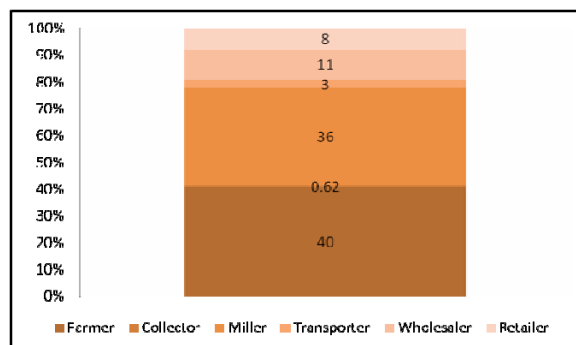
Paddy collectors/ traders base the price they pay to farmers on what mills will pay them, less about 10 percent to cover transportation costs from the farm gate to the mill, and their own profit.

The milling sector plays the most significant role in the marketing system in determining the price difference between what farmers earn and what consumers pay. Most of the product's value is added at the milling stage. Based on what they think they can earn in future, rice millers purchase paddy during the harvesting season to build up their paddy stocks. They mill and sell the paddy later to wholesalers, traders or retailers, at a time when large profit can be made. The profits of millers depend on prices at the time they sell the paddy or rice, marketing costs, waste, milling yield. Although farm gate price vary seasonally relate to retail prices, miller's profits can be maintained if they purchase paddy when it is cheap and sell when it is expensive.

Retailers in Phnom Penh markets have a certain profitable position in the rice marketing system. Regardless of a price increase at any level, from farm gate to wholesale, they always make about 10 percent of sales price. However, profits tend to reduce by strong competition in the business and a low entry barrier. Whatever rice is shipped, transportation costs contribute considerably to its retail price. Given the poor existing transportation infrastructure, transportation costs make up a significant share of retail price. Moreover, an avoidable unofficial fee along the road checkpoints force up the transportation costs.

In the past report of World Bank's study team, marketing margins and profits at each level of marketing chain is detailed in Figure 4. Although World Bank estimated marketing margins for rice were accruing to other levels of the marketing chain due to differences in grouping together collectors and traders with other level of the chain, there is a truth what rice millers have captured relatively higher margins than other stakeholders.

Figure 4. Profit share for rice value chain in Cambodia



Source: Derived from data collected by World Bank Study Team

The above description of the rice marketing system in Cambodia indicates the transition from an imperfect market to a perfectly competitive market, although the pace is slow. There is a tendency to create smooth marketing system by large scale rice millers. They might act as wholesalers, traders, and retailers and they might have their own collectors. Under this situation, prices seem to flow rapidly from retailers to farmers through reverse marketing channels. Throughout this marketing structure, any change in price at the retail level is mirrored to the farmers more efficiently.

However, there are still serious market imperfections in Cambodia. For example, a lack of market information about prices is common problem in rural Cambodia. Moreover, due to the limited irrigation areas, the rice production supply is strongly determined by the seasonality of the production system.

Therefore, within the current marketing system of rice products in Cambodia, any changes in the marketing margin will not really benefit producers in the short term.

But there are some rural development assistances which could indirectly support and stabilize prices of rice. For example, through the assistance of micro-finance activities, affordable micro-credit to finance agricultural inputs might help farmers get out of the situation of having to sell their products during or right after harvesting, when prices are low. Through the farmers' organize activities, they will be in a better position to bargain with paddy collectors/traders or rice millers for better prices.

Constraints of Rice industry stakeholders

The sections that follow briefly analyze the key constrains of rice industry stakeholders, and draw policy recommendation for improving efficiencies and distribution in Cambodia.

Farmers

Cambodian farmers are facing serious constraints on increasing productivity and output quality. These include seed improvement constraints, land tenure constraints, fertilizer and pesticide constraints, and irrigation constraints.

Increased public investment is needed to maintain the breeder stock of seeds, particularly for the low yielding local rice varieties that the poor grow. This should be complemented through an appropriate institutional framework to ensure that research centers focus on basic research and varietal development, while private companies focus on the multiplication and sale of the certified seed. Provision of high-quality and high-yielding rice varieties will eventually increase rice prices encourage exports.

Efforts also need to be redoubled to implement the land law and raise public awareness of land right, while improvements in the functioning of water user groups would go a long way to raise productivity and returns. Those farmers who cannot profitably produce rice because of poor natural resource endowments should be encouraged to diversify into other products, helped by agricultural extension and advisory services.

Collectors

Due to the nature of collectors business, collectors are small private enterprises operating on small margins. There are definite economics of scale in collecting activities as well as substantial imperfectly competitive market constrains due to spatial effects. This is despite large number of people involved in the trade. Each collector might have their own particular collection areas and there is scope for asymmetric information effects. Constraints for collectors comprise credit and capital constrains as well as price and information constraints. Collectors find it difficult to make enough money to upgrade transportation means in order to increase capacity.

Rice millers

Commercial rice mills also face a number of significant constrains. The most widely perceive constraint is a lack of adequate working capital for purchasing paddy. At harvest time, millers face a sizable surplus of paddy to be milled that cannot be easily absorbed by domestic millers. In order to purchase paddy at harvest, millers require large amounts of liquid working capital, in the form of cash. However, because most millers sell milled rice throughout the year on credit to buyers, millers face difficulties in absorbing the large amounts of paddy available at harvest time. This situation encourages the unofficial export of paddy to Vietnam and Thailand and prevents the

country from capturing the value added from rice milling.

Milling is another key bottleneck in the rice value chain in Cambodia. Cambodian rice millers complain that the quality of milled rice, in terms of the percentage of broken rice and moisture contents, is compromised by poor seed quality and mixed paddy varieties. Cambodian farmers often use multiple varieties of seed in their paddy production, which results in higher losses for millers as the rollers used in the milling process are better suited for paddy of a relatively uniform length.

Low levels of milling technology are also constraint. The majority of machines used in Cambodia are obsolete milling equipments, mainly second-hand from Vietnam or China. Reliance on obsolete milling equipment results in high levels of broken rice, reducing the value of the crop and low level of technology have been purported to prevent millers from accessing international markets. Therefore, rice millers have limited access to foreign markets, given their inability to produce consistent amounts of standardized varieties of milled rice and their lack of information about foreign market conditions.

Traders

Traders are particularly hampered by high transaction costs imposed by poor road and a heavy unofficial cost in the transport and clearance of rice destined for export market. Unofficial costs occasionally account for nearly 50 percent of the costs faced by exporters in moving product from the mill to foreign markets and result in diminished competitiveness in foreign market. While most rice export from Cambodia are currently high-value varieties and thus not price sensitive, such costs nonetheless impede the ability of exporters to diversity sales to more price-sensitive markets.

In addition, traders are also constrained by the inability of mills to supply appropriate amount of rice of a standardized quality. A number of rice millers and traders remarked that while there was latent demand for Cambodian rice among international markets, particularly in Asia, it is difficult for millers and exporters to obtain enough rice that is of an appropriate standard to meet these orders. This is due to a combination of low mill technology and mixed paddy varieties and is exacerbated by limited access to capital. Integrated channels of distribution to ensure higher quality in Cambodia have not yet developed to meet export standards.

Wholesalers/Retailers

In Cambodia, there is no retail market specialized in milled rice and milled rice retailers are conducting their business in ordinary retail shops or in the public retail market. One of the constraints faced by wholesalers/retailers is related to competition

and distribution. Retailers, particularly in remote areas, are hampered by poor infrastructure and fragmented distribution systems that impede the ability of retailers to procure rice. Retailers are also constrained by a distribution system that is relatively concentrated among a minority of traders and wholesalers. Combined with significant competition in the retail sector, these result in low margins for retailers.

Concluding remarks

To the extent that the poor are able to benefit from increased production, they will also benefit from trade. Most poor household in Cambodia are farm households, and are mainly engaged in rice farming. The poor are likely to benefit from any improvement in value added. They are likely to benefit most from improvements in productivity and technology associated with traditional varieties, so short term strategies to reduce the number in poverty should focus on how to increase returns from these varieties. Actions are needed to improve production technologies for traditional varieties, moderate postharvest losses, introduce increased competition and more modern technology into milling, strengthen infrastructure, and lower transaction costs including illegal fees. Particularly significant will be efforts to develop farmer organizations. The development of institutions and markets that increase information about prices and permit the stakeholders in a rice value chain to form strategic alliances can play an important role in increasing returns to poor farmers.

Policies that promote infrastructure, information systems, and farm organizations will help to transfer some of the benefits to farmers. Better infrastructure will lower the cost of transport from the farm gate to the market and lower the marketing costs of collectors or traders. For farmers, such reductions will likely result in higher prices and a greater share of the value added. Better information systems will help farmers to adopt better technology and convert from traditional variety of rice to higher quality rice that is demanded by foreign markets. The result will be higher production and higher prices for the raw material and both suggest that farmers will capture a larger share of the value added. The formation of farm association will raise the bargaining power of farmers against collectors, rice millers, and traders. The development and strengthening of farmer's cooperatives, and their alliance with rice millers and other rice industry stakeholders, can lead to substantial improvements of paddy quality and distribution.

(References)

- Acharya, S. (2003), *Labour Migration in the Transitional Economies of South-East Asia*, Working Paper on Migration and Urbanization (Economic and Social Commission for Asia and LabourMigration/index.asp
- AgriFood Consulting International (2006): Cambodia Agriculture Sector Diagnostic Report, p64-114
- AQIP (2002): *Annual Households Crop Production Survey Milestone M1.9.2* Cambodia, Agriculture Quality Improvement Project
- ASEAN Secretariat (1993), *AFTA Reader, Volume I: Questions and Answers on the CEPT for AFTA* (Jakarta: ASEAN Secretariat)
- Cameron, B. and P. Twyford-Jones, (1995), *Marketing of Rice in Cambodia* (Phnom Penh: Ministry of Agriculture, Forestry and Fisheries)
- CARDI (2004): *Annual Research Report*, Cambodia, Cambodian Agriculture Research and Development Institute.
- CARDI (2002): *CAR Impact Assessment*, Cambodia, Cambodian Agriculture Research and Development Institute.
- CDRI (2007a) *Annual Development Review 2006–07* (Phnom Penh: Cambodia Development Resource Institute)
- CDRI (2001) :*Cambodia's Annual Economic Review 2001*, Cambodian Agriculture Research and Development Institute.
- Enterprise Development Cambodia (EDC NW Team) (2000), *Report: The Cambodian Rice Millers Conference*, held from 18-19 May 2000 in Battambang Province (Phnom Penh: Enterprise Development Cambodia)
- Ellis, F. (1996), *Agricultural Policies in Developing Countries* (Cambridge University Press)
- International Monetary Fund (1999) *International Financial Statistics, Database and Browser* (Washington, D.C.: International Monetary Fund)
- JICA (2001): *The study on Improvement of Marketing System and Post-Harvest Quality Control of Rice in Cambodia: Final Report*
- Kasenta, D., M. Lockwood, J. Vivian, , and A. Whitehead, (2000), 'Gender and The Expansion of Non-Traditional Agricultural Exports in Uganda', *Occasional Paper for Fourth World Conference on Women, Beijing 1995* (Geneva: UNRISD and UNDP)
- Ministry of Agriculture, Forestry and Fisheries (1995-2008) *Agricultural Statistics: Annual Reports*, Department of Planning and Statistics, (Phnom Penh)
- Ministry of Agriculture, Forestry and Fisheries (2008): *Annual Report on Agriculture, Forestry and Fisheries 2007-2008*.
- Ministry of Agriculture, Forestry and Fisheries (2007): *Development Scenario for Agriculture Sector in Cambodia*, Phnom Penh.

- Ministry of Agriculture, Forestry and Fisheries(1993-2002): *Quarterly Bulletin of Agricultural Statistics and Studies*, Department of Planning and Statistics, Phnom Penh
- Ministry of Commerce (1995-2005): *Reports on Cambodian Exports, 1995-2005* , Department of Foreign Trade, (Phnom Penh)
- Ministry of Economy and Finance (1995-2006): *Annual Report of Trade*, Custom Department, Phnom Penh
- Ministry of Planning (1995-2000): *Consumer Price Index, Series*, National Institute of Statistics
- Nesbitt, H.J., ed. (1997), *Rice Production in Cambodia* (Manila: International Rice Research Institute)
- Overseas Merchandise Inspection Co., Ltd and Sanyu Consultants INC.(2006), *The Feasibility Study on Establishment of Open Paddy Market In Cambodia, Final Report*
- Rozemuller, H.B. (1998), *From Big Rearing to Stock Marketing: Rice Milling, a Broad Spectrum of Entrepreneurial Activities* (Phnom Penh: Occasional Paper Series No. 1, *Center for Advanced Study*)
- Tomek, G.W. and K.L. Robinson, (1987), *Agricultural Product Prices* 2nd Edition (Cornell University *Cambodia Development Resource Institute Marketing Constraints to Rice Production Development* 45 Press: Ithaca and London)
- Tuot Sokphally (2007), “Cross-Border Labour Migration in and out of Cambodia”, *Cambodian Economic Review*, Issue 3, June, pp. 21–39
- Ung, B. (2000), *Seasonality in the Cambodian Consumer Price Index* (Phnom Penh: Cambodia Development Resource Institute) Working Paper 13.
- World Bank (1970), *Report on the Economic Mission to Cambodia-1969: The Main Report* (Washington, D.C: World Bank) Vol. I