

Appendix E : Marketing System

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Appendix E : Marketing System

E.1 Trade Flows

E.1.1 Trade Quantity

Since Cambodia achieved the rice self-sufficiency in 1995, annual paddy production has been in the range of 3.4 – 4.0 million tons. According the 1999/2000 food balance data (Agricultural Statistic 1999/2000, MAFF), the total of provincial surplus amount is 568,639 ton (milled rice), the total of provincial deficit is 307,928 ton, and the nation-surplus is 260,710 ton.

Due to lack of adequate statistical data on farmer's gross sale quantity, it is difficult to estimate the trade quantity of rice/paddy in the entire country. If the rice-deficit was generated only in urban areas where there is no paddy production, and if there was no paddy trading at the borders, trade quantity would be equal to the deficit quantity of urban areas. However, as stated in previous section, there exist many rice-deficit communes/villages in the surplus Provinces. Thus actual trade quantity of paddy/rice should be larger than the simple deficit quantity.

Although some import/export statistics are available from various agents such as Foreign Trade Dept. /MOC, Custom Dept./MOEF, Port Authority and Camcontrol, each figure is based on different sources, is different from the other and has no reliability. There is no statistics for paddy export to neighboring countries because it is informal export.

Based on data obtained, the 1999/2000 rice supply-demand situation is roughly assumed as follows:

Table-1 Rice supply-demand situation 1999/2000

Supply	X 1,000 ton	Demand	X 1,000 ton
Production (paddy)	4,041	Domestic consumption	1,819
Production (milled rice) *1	2,505		
Reduction for non-food use & postharvest loss (milled rice) *2	426		
Rice import *3	34	Rice export *3	3
Informal rice import from Thailand	5 - 10	Informal paddy export (milled rice base)	477 - 485 (296 – 301)
Opening stock	NA	End stock	NA
Total (Milled rice)	2,118 - 2,123	Total (Milled rice)	2,118 – 2,123

*1 : milling degree 62%

*2 : 17% (2% for animal feed, 5% for seed and 10% for loss)

*3 : Custom dept., MOEF 1999 (Import figure includes 10,882 ton rice imported by WFP)

E.1.2 Directions of Flow

Rice/paddy trade flows vary depending on crop conditions in different provinces and the prices in neighboring countries. Consistent trade flows, which have been identified since the study commenced, are listed below:

(Since rice procured for the WFP Food program and for the army/police are of a different category to the commercial rice trade, rice flow for WFP and army/police is not described in this section).

a. Trade flows within a Province

Flows to the Province/district capital from surrounding production areas.

b. Trade flows to another Province (* : large trade flow)

Flows to a deficit area from a surplus area. Kinds of rice for each flow are clearly defined.

Rice

From	To	Variety /Kind
* Northwest production area (Bat Dambang/ Banteay Mean Chey)	Phnom Penh and other provincial towns through Phnom Penh	Somely, Phaka Kagney, Neang Menh, Neang Khon
* South production area (Takaev/ Prey Veang/ Kandal)	Phnom Penh	IR, Phaka Kagney, Srov Krahome, Wet season mixed
Siem Reap/ Kompong Tom	Kg. Cham	Wet season mixed
Bat Dambang	Siem Reap, Pousat, Kompong Chhnang	Somely
Takaev	Kompong Speu	IR
Kompong Speu	Phnom Penh	IR, Wet season mixed, other local varieties
Prey Veang	Kompong Cham	IR, Wet season mixed
Kompong Cham	Kratie	IR, Wet season mixed

Paddy

- Prey Veang to Kompong Cham

c. Trade flow between neighboring countries (* : large trade flow)

Paddy flows to neighboring countries stop depending on the price in the neighboring countries; while rice flow from Thailand to Phnom Penh is steady.

Rice

- * Thailand to Phnom Penh (Thai Jasmine broken rice)
- Phnom Penh to Vietnam (Phaka Kagney)

Paddy

- * Northwest production area (Bat Dambang/ Banteay Mean Chey) to Thailand (Somely)
- * South production area (Takaev/Prey Veang) to Vietnam (IR)

In addition, there are minor flows such as, flows from southeast production area to coastal area and mountainous area; and a flow of Thai broken rice through northwest boarder and then to Phnom Penh. Consistent trade flows, which have been identified during the study period, are shown in the next figure.

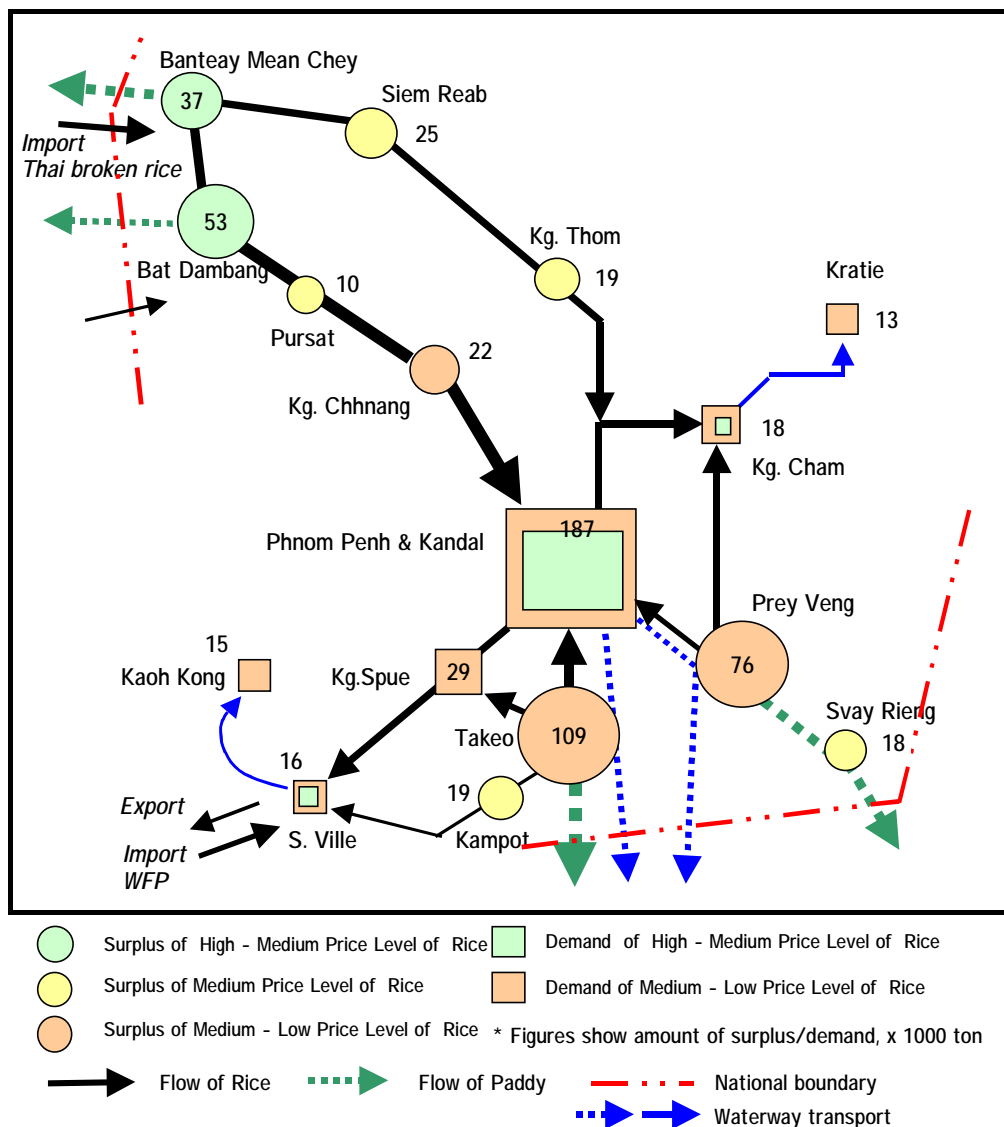


Figure-1 Classification of Surplus/Demand by Price Level and Direction of Rice/Paddy Flow (General Idea)

Phnom Penh is the largest rice-consuming center in the country. Various kinds, quality and price of rice flow into the City. As Phnom Penh is located at a hub of the national road network, wholesalers play a role in relaying the rice from northwest production area and import Thai broken rice to provincial towns in the southeast and coastal area.

Only specific varieties such as Somaly, Phaka Kagney, Neang Minh, Srov Krahome, Srov Sor, IR and etc. are marketed variety-wise. Some thousands of other wet season varieties are marketed as

mixture of varieties (called as 'Mixed rice' in market) from the collection stage due to the small quantities produced.

Somaly, Phaka Kagney & Neang Minh produced at the northwest production areas, have an established reputation for high quality (good taste) and are marketed to many urban areas - Phnom Penh, Sihanouk Ville and provincial towns of Takeav, Kandal, Siem Reap, Kg. Cham. Other local varieties are marketed only within the Province and/or to neighboring provinces.

E.2 Transport

E.2.1 Mode of Transport

Most paddy and rice is transported by road. Regular use of water transport is limited to some areas in the southern provinces, such as paddy transport to the rice mills in Nhak Loeung in Prey Veang Province, paddy transport to Vietnam through the main/branch streams of the Bassac River and rice transport to Kratie from Kompong Cham town. The railway was a major mode of rice transportation from the Northwest Provinces to Phnom Penh during the 1960's. Now it is estimated that about 80% of rice are transported by heavy trucks through NR5. In this year, NR5 became impassable and heavy trucks were stacked up in mud during October due to unusual high level of flood water, and many truck transport were shifted to railway transport to Phnom Penh.

For road transportation, various means are used depending on distance and road condition. Paddy transport in rural areas is most often by ox-cart for short distances and for the roughest roads within villages/communes (e.g. field to the farmer's house, farmer's house to rice mill/collector's house). In Bat Dambang Province, the use of tractors and locally made trucks for paddy transportation is significant. For medium distances within districts (village to local town/rice mill), tractor and truck are used. For long distances (inter-district/inter-provincial transport mostly for rice), heavy trucks over 10 tons are used. 40-ton heavy trucks with trailers are widely used for rice transport from Bat Dambang to Phnom Penh. Transport of rice in town areas by traders is most often by truck and motorcycle.

Most of paddy/rice traders including rice millers do not have their own transport. Both large and small-scale traders hire transportation.

200 – 300 ton boat transportation is available on demand between Siem Reap and Phnom Penh except during the dry season, but it is not much used to transport rice and paddy at present. In 1998, paddy/rice was transported to Siem Reap from Nhak Loeung to supply the army.

E.2.2 Transport Costs

Transport rates for the major destinations are consistent and well known to the users. Rates for short distance truck transport from surrounding areas to town market/rice mill is commonly around 10,000 Riel/ton. Rates for medium and long distances transport vary depending on the cases. High rates of over 300 Riel/ton-km are applied to poor condition roads. In contrast, cheapest rate is 55 Riel/ton-km on NR4. Rates for the major transport route, Bat Dambang – Phnom Penh – Sihanouk Ville, is relatively cheaper than that of other routes. A transport company expects 30-40% reduction in transport rate between Bat Dambang and Phnom Penh if the NR5 is rehabilitated. Transport rates for between major provincial towns and for medium distance transport are shown in the Table below:

Table-2 Transport costs

Road Number	From	To	Distance	Rate (Riel/ton-km)	Means of transport
Roadway					
NR1	Phnom Penh	Vietnam border	167 km	201	20 ton truck
NR4	Kg. Spue town	Sihanouk Ville	181 km	55	20 ton truck
NR4	Phnom Penh	Sihanouk Ville port	229 km	94	35-40 ton heavy truck
				108	20 ft. container
NR5 *	Bat Dambang	Phnom Penh	291 km	137	35-40 ton heavy truck
NR6 *	Sisophon	Siem Reap town	105 km	467	10-15 ton truck
NR6 + Provincia l road *	Siem Reap town	Boeung Tra Kuon, Thai border	165 km	242	4WD pick-up truck
NR1	Peam Ro, Prey Veang	Phnom Penh	63 km	248	10-15 ton truck include ferry fee
NR3	Takeav town	Phnom Penh	74 km		
NR5	Mongkul Borei, Bat Dambang	Bat Dambang town	58 km	259	
NR6 *	Soutr Nikom, Siem Reap	Siem Reap town	37 km	324	10-15 ton truck
NR11 *	Peam Ro, Prey Veang	Prey Veang town	23 km	593	10-15 ton truck
NR68 *	Samrong district, Otdar Mean Chey	Siem Reap town	67 km	597	
NR157 *	Bavel district, Bat Dambang	Thmar Koul district, Bat Dambang	23 km	522	10-15 ton truck
Village road *	Leuk Daek, Kandal	Vietnam border	40 km	875	
Railway					
	Bat Dambang	Phnom Penh	291 km	110	
	Phnom Penh	Sihanouk Ville town	229 km	77	Include truck transport to town

Note : exchange rate @3900/USD, @100/Bath, * Road in poor condition

It is currently reported that there are no illegal fee collection points along the trunk lines of national roads except at town/city areas, border gates and port areas. It is mainly the police, military police and the army who operate illegal fee collections. This fee collection has become an accepted fact of life and a predictable cost that is routinely included in the calculation of transport costs.

Table-3 Fee collection at Roadblocks

Road / Section	Check Point Site		Amount (Riel)	Remarks
	Legal	Illegal		
Road No.2 / Kaoh Andaet District, Takeo Province – Vietnam Boarder (50-60 Km)	Takeo city	Takeo city	154,000	Customs
		Takeo city	5,000	Police
		Takeo city	5,000	Military police
		Takeo city	20,000	Parking
		Small check point	20,000	Provincial administration
		Close to border	20,000	Police
Road No.5 / Bat Dambang – Phnom Penh		Battambang	15,000	Customs and police
		Pursat	15,000	Customs and police
		Kompong Chnnang (Ou Dong)	15,000	Customs and police
Road No.5 / Banteay Meanchey – Phnom Penh		Battambang	15,000	Customs and police
		Pursat	15,000	Customs and police
		Kompong Chnnang (Ou Dong)	15,000	Customs and police
Road No.6 / Kampong Cham – Phnom Penh (125 Km)	Prek Leap	Kampong Cham city	5,000	Police & military police
		Ponhealeur distric	10,000	Police & military police
		On the way	30,000	Parking
		Chroung Changvar bridge	10,000	Mobile customs
		Chroung Changvar bridge	10,000	Police
			10,000	MPWT, truck weight check

Source: Study Team (as of July - Aug. 2000)

E.3 Marketing System

E.3.1 Marketing Channel

Under the market economic policy, rice/paddy marketing is entrusted entirely in the hand of the private sector. Currently, the government has no market intervention or market control system for the domestic marketing. Under this situation, farmer, middleman, commercial mill, custom mill, wholesaler and retailer formulate various marketing channels. From the varieties of the channels, a trunk form is abstracted as shown in the figure.

All the marketing agents including farmers conduct business by utilizing all available resources; and physical distribution of rice/paddy is efficient as far as transport conditions permit. Marketing channels are generally short; as a channel shortcut, such as farmer's direct sale to rice mills and retailer's direct purchase from rice mills, is widely practiced. Also, channels are flexible to adapt quickly to new opportunities and change direction of trade flow. Rice is marketed by variety and there is a definite, common price order among the varieties. Prices prevailing in their immediate area of operation are well known by all agents except farmers.

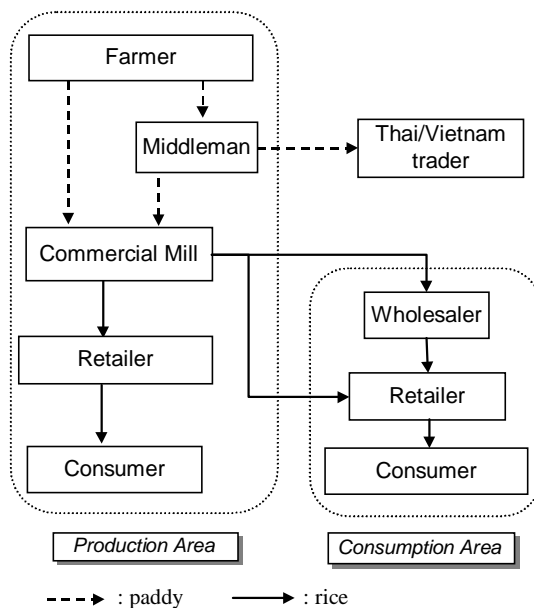


Figure-2 Trunk marketing channel

Note : Almost all retailers have two prices: price per 100 kg and price per kg. And some people call price per 100 kg as wholesale price. To avoid confusion, wholesaler shall be defined as 'Rice seller who buy rice from rice mill and sell only to retailer' in this section.

E.3.2 Marketing Agents

(1) Farmer

According to the questionnaire survey, only 40% of farmers sold rice, regardless of quantity, during the last 2 years. Average sales volume is 1.6 ton/year and maximum is about 3 ton/year. Thus, the number of farmers involved in the marketing system is limited. Farmers tend to sell part of the surplus paddy immediately to repay debts and store the rest until they need more money. Except for farmers who have easy access to rice mill/town, farmers sell surplus paddy to collector in the village. Farmers always get cash payment immediately for sale of paddy. At present, no group marketing is carried out in Cambodia.

According to the results of the questionnaire survey, the methods of marketing paddy are shown in the table below. Most farmers (67%) sold paddy to collectors. In Kandal province, selling to consumers (in the market or villagers) is one way of marketing paddy, as well as selling to collectors. Compared to other provinces, more farmers sell to rice mills in Bat Dambang (45%) and Kg. Chhnang (34%).

Table-4 Methods of marketing paddy by farmers

Province	Sell to collector	Sell to mill	other
Kandal	34%	13%	53%
Prey Veaeng	70%	16%	14%
Kg. Cham	69%	19%	12%
Svay Rieng	59%	15%	26%
Takaev	81%	4%	15%
Kg. Spue	96%	4%	0%
Kg. Chhnang	61%	34%	5%
Bat Dambang	52%	45%	3%
Siem Reap	57%	29%	14%
Study Area	67%	20%	13%

Source: JICA Study Team, Questionnaire survey

(2) Middleman (Paddy Collector)

Middlemen play an important role in the marketing of farmer's paddy, especially in remote areas far from rice mills, markets or towns. Large-scale middleman uses agents to visit individual farmers and buy paddy. The area for paddy collection is generally fixed within several districts. In areas of rough and poor road conditions, ox-cart is used for transport.

Many of rice mills have regular business relations with select middlemen. Rice millers order a specific variety of paddy to middleman when they receive a large or urgent order. The scale for paddy orders is 20 - 300 tons and the rice miller gives 30%-50%-70% advance payment.

(3) Commercial Rice Miller

Among the marketing agents, commercial rice millers have the largest business scale and play the role of financial supplier to other agents; making advance payments to middlemen and deferred payments to rice sellers. They also play an important role in paddy storage. Most commercial rice millers keep 300 – 1000 tons of paddy stock in July-August. In general, 50% of material paddy is purchased directly from farmers.

Scale of business vary from 200 ton/year to 10,000 ton/year in throughput. Some commercial millers have a combination function as custom mill. Except for a few commercial mills in Bat Dambang, which are formed as a company or partnership, almost all commercial mills are family run and categorized as Sole Proprietorship. It is presumed that the total number of commercial rice mills in the Study Area is more than 324. (number of mill which equip with power of over 24 HP in the Report on Working Activities 1999 /MIME)

Figure-3 shows the year of milling machine installation. Most were installed after year 1995. Prior social upheavals clearly deterred the investment.

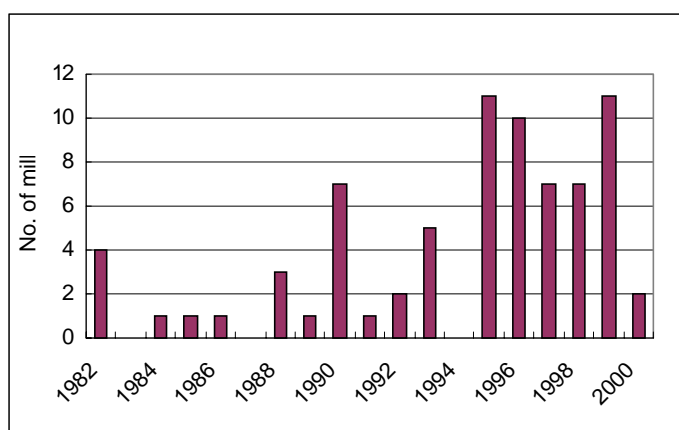


Figure-3 Year of milling machine installation

It is to be noted that rice millers in Bat Dambang province have large shares in high-medium price markets in Phnom Penh with their established reputation for rice of good taste and good quality. Many of rice mills only in this province individually label their rice bags with the name of variety, rice mill, trademark and telephone number.

With the assistance of UNDP/PDS Unit/EDC, commercial rice mills have organized nine (9) provincial Rice Millers Associations and Federation of Rice Millers Association with 240 total members (as of Oct-2000).

Outlines of transaction between farmers and collectors/rice mill

Pricing

Price is always decided by negotiation. Farmers obtain price information from available resources such as neighbors, collector, rice mill and local market. Collectors commonly have ICON and obtain information of buying price from rice mills. Available resources are limited for farmers in remote areas.

Weighing & quality inspection

All paddy is weighed on scale under supervision of the farmer. Some reports say that collectors cheat farmers when weighing. According to surveys with rice mills and collectors, it appears that quality inspection is not practiced properly. The appearance/color of paddy is always checked. Occasionally broken ratio and yellow kernel are checked after husking very little sample by manual. Moisture is usually not checked at all.

Rice millers say that if the quality is poor, the buying price will be low. But no precise definition of paddy quality was obtained from any rice mills because no any quantitative indicator is applied. Evaluations of good or bad are made by comparison with other paddy and by his/her experiences. But it seems some kind of common scale of quality evaluation exist among the rice millers and paddy traders.

(4) Rice Trader (seller)

Except for Men Saron Company, who exclusively supplies rice to the police/army, all rice traders are small-scale businesses. Most rice shops in towns are owned and managed by housewives earning supplemental housekeeping money.

Combining the functions of retailer/wholesaler and direct purchase from rice millers is widely practiced by rice sellers. True 'wholesaler' who sell *only* to retailers are very few : and they are only in Phnom Penh and in a few provincial towns. The size of the urban population of each town restricts the number of rice sellers. Except Phnom Penh and Sihanouk Ville, the number of rice sellers in provincial towns is very limited.

Table-5 Scale of Rice Sellers' Business

	Retailer/ Market stall type	Retailer/Wholesaler Independent shop type	Wholesaler/ Independent shop type
Phnom Penh			
Sell	20 – 200 kg/day	0.2 – 2 ton/day	40 – 200 ton/month
Stock	1 – 3 tons	10 – 30 tons	30 – 400 tons
Buy	500 kg – 5 tons	4 – 40 ton/time	40 ton/time/miller
Siem Reap			
Sell	100 – 300 kg/day	8 – 15 ton/month	
Stock	0.2 – 3 tons	20 – 50 tons	
Buy	0.3 – 2 ton/time	2 – 5 ton/time/mill	
Kg. Cham			
Sell	50 – 150 kg/day	15 – 60 ton/month	
Stock	0.2 – 2 tons	10 – 30 tons	
Buy	0.3 – 2 ton/time	10 – 20 ton/time	

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Rice sellers can be divided into two types: i) stall shop type in the markets and ii) independent shop type. Stall shop type generally has more variety of commodities than independent shop type, such as bran and chips for animal feed. Low-income earners tend to use stall shop type.

Between rice miller - wholesaler – retailer, deferred payments are usual. It is common for retailers to settle payment when re-purchasing. The grace period is usually 1 to 2 weeks.

E.3.3 Trade Flows in the Province

Marketing channels to provincial/district towns from surrounding production areas are simple and have not much variation. Rice sellers in each town buy the locally produced rice directly from rice mills nearby. In addition to the local rice, sellers procure several kinds of rice according the needs (i.e. income level) of local consumers from rice mill/wholesaler in other provinces.

Bat Dambang province

A number of rice mills line up near each town and rice sellers in each town buy rice directly from the several rice mills nearby.

Most retailers are given the condition of 100% deferred payment with 7 – 15 days grace period from rice millers. Millers are in tight competition to sell to a local outlet.

Thai broken rice, very popular in Phnom Penh, can not be seen in any markets in Bat Dambang town.

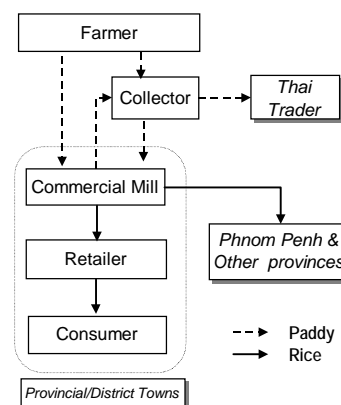


Figure-4 Marketing channel in Bat Dambang

Siem Reap province

As with Bat Dambang, rice sellers in town buy rice directly from several rice mills located near the provincial/district town. Somely rice is brought regularly from Banteay Mean Chey by wholesaler/retailers.

Takaev province

Takaev province has some variations in outflow channel. Though the amount is limited, direct marketing by farmers of under-milled rice to Phnom Penh market is steady and considered a unique characteristic here.

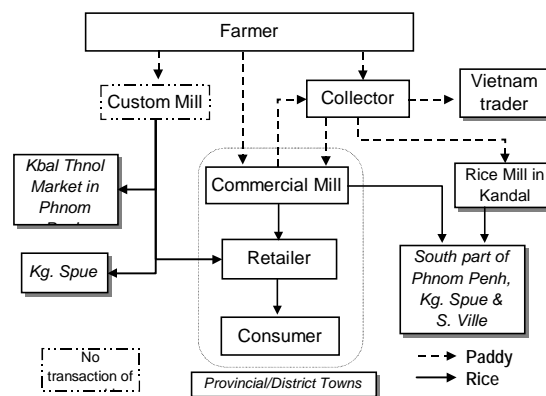


Figure-5 Marketing channel in Takaev

Kompong Spue province

Though Kompong Spue is a deficit province, locally produced rice (mixed variety) is shipped to S. Ville City and Srae Ambel town together with IR rice produced in Takeo province by wholesalers.

Low priced rice such as Local mixed rice and IR rice (Riel 700 – 800/kg) were found in large quantities in the provincial market.

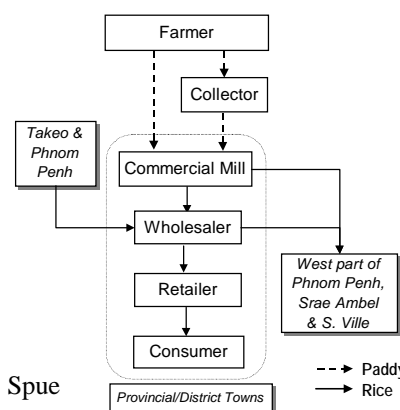


Figure-6 Marketing channel in Kg. Spue

Varieties, price and origin of marketed rice in the provincial towns are shown in Table-6. Notable characteristic in rice supply to provincial towns are summarized as follows:

- No rice flow into the provincial towns of Bat Dambang and Banteay Meanchey from other provinces. Moreover, even though closest to Thailand, no Thai broken rice is marketed because both provinces are surrounded by production areas of high value varieties.
- Although Takeav province has the largest surplus in the country, rice from Bat Dambang (rice of good taste) flow into the provincial town to meet consumer needs.
- Only high-price rice (Bat Dambang rice and Thai rice) flows into Siem Reap because it has large tourist demands.
- Only the cheapest rice (IR) flow into Kratie town.
- The lowest rice price in each town is commonly 600-650 Riel/kg, with either IR or Mixed rice.

Table-6 Varieties, price and origin of marketed rice in the provincial towns

Province	Banteay Mean Chev	Bat Dambang	Siem Reap	Kandal /Takmahao	Kandal /Kin Svav	Kg. Spue	Sihanouk Ville	Takeo	Kg. Cham	Kratie
Date of survey	24-Oct	14-18 July	9-13 July	26-Aug	8-Nov	30-Sep	30-Sep	17-Nov	1-Sep	29-Sep
Somely	1164	1200-1300	750-900-1000	1400 (BTB)			1400-1500 (BTB)	1200 (BTB)	1200 (BTB)	
Phaka Kagney	970-1067	700-1000	1000-1100 (BTB)	900 (Kandal, Takeo), 1000-1100 (BTB)	1000 (BTB)	970-1000 (BTB)	900-1100 (BTB)	1000-1060 (BTB)	980-1000 (BTB)	
N. Menh	679-873	700-720	750-800	800-900 (BTB), 700 (Takeo)	850-900 (BTB)	750 (BTB)	800-900 (BTB)	800 (BTB)	780-850(BTB)	
N. Khon	873-970	700	800-850		900-1000 (BTB)	900-950 (BTB)		900 (BTB)	850 (BTB)	
Mixed	660-776	600-680	600-700			680-700(Takeo) 680-700(Pusat) 730-750(Local)	750 (Kg.Spue)		600 - 650 (P.Veng, Local)	
IR				600 (Takeo), 700-800 (Local)	700 (P.Veng)	600-650 (Takeo)		600	570-590 (P.Veng, Kg.Cham)	670-700 (Kg.Cham)
Srov Sor				800	900 (Takeo)					
Sro Krahome					900 (Takeo)			700-800		
Ka Ngoak Pong									900	
Chum Riek Phdao									650	
Phdao Pen									600	
Neang Chhong									600	
Kam Ping Pouy										
Bram Bey						770-800	800-1000 (Kg.Spue)			
Banla Padao					700 (P.Veng)					
Neang Am										1050-1100
Srov Thnaut										720-750
Srov Kngeing										720-750
State rice / USAID rice						600-650			600	
Thai broken (Lotus)			1000						1050	
Thai broken (Swan)			1100		900-1200		1100-1200		1150	

Source : JICA Study Team

Riel/kg (Origine of Rice), BTB: Bat Dambang, P.Veng: Prey Veang, PP: Phnom Penh, If no specify, origin is that province. Rice for wine make and noodle make are not listed in the table.

Paddy does not flow through the markets in provincial towns. Most paddy is milled in the province of origin or in a neighboring province. Regular inter-provincial paddy trade is observed only at Neak Loeng, Prey Veang Province where a large scale trader collect mixed variety paddy from Siem Reap, Bat Dambang, Pursat, Kg.Tom, Kg.Cham, Prey Veang and Kandal, to supply rice mills in Prey Veang and Kg.Cham, and also to Vietnamese traders. Rough estimate of this annual trade is about 10,000 tons paddy of which about 60% is for Vietnam.

E.3.4 Trade Flows to Phnom Penh

Phnom Penh has a population of about 1.1 million and is the largest market in the country. Rice of various kinds, quality and price is marketed here. All domestic rice is shipped directly from rice mills in production areas to wholesalers/retailer in Phnom Penh. Phnom Penh is the hub of the national road network in Cambodia. Rice flows to Phnom Penh along this network. NR5 carries the rice from the northwest production areas, Bat Dambang and Banteay Mean Chey. NR1, NR2 and NR3 carry rice from the southern areas such as Takaev and Prey Veang.

Phaka Kagney, N. Menh, N. Khon, Wet Season Mixed rice, IR and Thai broken rice are popular rice varieties in Phnom Penh markets. There is a clear price order among those varieties/kinds of rice.

Table-7 Retail shops and rice price in and out of Phnom Penh

Variety/kinds	In Phnom Penh /1		Out of Phnom Penh /2	
	Price (Riel/kg)	Shops selling	Price (Riel/kg)	Shops selling
Somely	1100 – 1560 *	21%	1500	3%
Phaka Kagney	900 - 1100	17%	900 - 1200	22.5%
Neang Khon	850 - 1000	13%	NA	0%
Neang Menh	750 - 900	17%	800 - 1000	17%
Srov Sar	800 - 850	3%	750 - 900	14%
Srov Krahome	750 - 900	3%	700 - 900	7%
IR & State rice	590 - 800	9%	500 - 800	17%
Other local varieties	780 - 1014	1%	600 - 1000	7%
Thai rice *	858 – 3500 *	16%	1000 – 1300 *	12.5%

/1 Rice shops near Railway Station and near Orussey market (sample 23 shops)

/2 Rice shops in Takmaho market, Kandal province (sample 15 shops)

Prices differ depending on the production area. * Include several different grades

High-medium priced rice such as Somaly, Phaka Kagney, N. Menh from Bat Dambang are the most common in the city center where residents have the highest income level in the country. In contrast, medium-low priced rice from surrounding provinces such as IR, Local variety and Mixed rice are common in the outskirts of the city area where lower income earners live.

Rice from the northwest production areas, namely Bat Dambang, has an established reputation of good taste and good quality. It has large market share in high-medium price market in Phnom Penh. Some wholesalers request rice mills in Bat Dambang to remove small broken rice. This 'quality-oriented-request' is not made to rice mills in other production areas. Now quality competition has started among rice mills in Bat Dambang seeking outlets in Phnom Penh, due to the market's limited size.

IR rice produced in the southern part of the country such as Takaev and Prey Veang is evaluated poor in taste and the cheapest rice in Cambodia. In Phnom Penh, IR rice is marketed mostly for factory lunch consumption and for low-income earners living in the outskirts of the city. IR rice is sold only at a few markets in the city center. Phaka Kagney produced in Takaev is 100 – 150 Riel/kg

cheaper than the same produced in Bat Dambang, due to "hard taste".

The “look“ of rice is an important factor in determining price (quality) in the market. Therefore, foreign matter and colored grain are all removed before retailing. According to a long experienced wholesaler, “ even with rice from Bat Dambang, it was always necessary to remove foreign matter. But now there is no need due to quality improved. The quality of rice wasn't stable during the last few years but it stable this year”. In confirmation of this, there were no negative reports of Bat Dambang’s quality of rice by any rice sellers in Phnom Penh City during this study period.

Thai Broken rice is sold at most rice shops in center of Phnom Penh. Consumers value this rice and considered as “It is soft and it maintain softness even when rice get cool”. In contrast, Cambodian rice is considered as “It becomes hard when it is cool”. Many local restaurants use Thai broken rice for blending with local rice to add fragrance and softness.

The distribution system in the city is composed of wholesaler - retailer. A few large-scale rice mills of Bat Dambang have warehouses in Phnom Penh and they operate as wholesalers.

Retailer is divided into two types: i) stall type in the markets and ii) independent shop type. Stall type have more variety of commodities than independent shop type, such as bran and chips for animal feed. It is presumed that low-income people who cannot buy one 50kg bag of rice use stall type shop. Independent shops sell rice in large bags which the richer customers buy.

Stall type display their commodities, which are in bag or container, in storefronts. Independent shop type, both of wholesaler and retailer, seldom display rice in storefronts. Because there is no warehouse space, stall type in the markets store several tons at home.

The number of rice sellers in the major markets is shown in Table-8. As the registration system has not cover small-scale businesses, rice sellers outside of the markets are not known. Including sellers in the markets, it is guessed that there are at least 300 – 400 rice selling businesses in the center part of the city.

Table-8 Rice shops in major markets in Phnom Penh.

Name of Market		Total	Retailer	Wholesaler/ Retailer
Thmei (Central) Market	*	9	9	0
Chah (Old) Market	*	3	3	0
Kandal Market	*	23	23	0
Orussey Market	**	30	30	0
Depot Market	*	6	4	2
Kbal Thnol Market	**	9	3	6
Dumkor Market	*	12	12	0
Kapko Market	*	13	13	0
Russian Market	*	10	4	6
Chba Ampov Market	**			

Name of Market		Total	Retailer	Wholesaler/ Retailer
Pochentong Market	**	3	3	0
Near Railway station	**	18	7	11
Near Orussey market	**	7	3	4
		0	0	0
Total		140	111	29

Near Railway station and near Orrusey market are where many shops are located.

Half of those shops are used jointly each by 5 – 10 retailers/shop.

Source : *Phnom Penh Municipal Office, ** Observation by JICA Study Team

Orussey market has shifted into a new building since the 3rd of August. Before shifting, there were 86 shops but it decreased to about 30 shops because many sellers quit rice selling due to low profits and changed to selling other goods. Stall shop owner in several markets expressed their concerns that: " It isn't possible to bring up a family with a rice shop. Too many rice shops and too few sales this year".

Wholesalers procure domestic rice directly from rice mills in the production areas. Wholesalers have business relations with 3 to 10 mills, and with 20 - 50 retailers. Their business is to replenish after selling and do not keep large stocks (300 tons of stock as maximum, ordinary is less 100 tons).

Among rice mill - wholesaler – retailer, deferred payment usual. It is common for retailers to settle this payment when re-purchasing. The grace period is usually 1 to 2 weeks.

E.3.5 Trade Flows to Thailand and Vietnam

Physical difficulty and high costs of transporting commodities within Cambodia and the more accessible and better mills on the other side of the border, make markets in the border provinces integrate with those of the neighboring countries. Often it is more profitable to sell surplus paddy across the borders than to domestic markets.

Main reason for the paddy flow to Vietnam is lack of a domestic market for irrigated early rice (specially IR variety). The main reason for the paddy flow to Thailand is physical difficulty and high costs of transporting commodities within the northwest region and/or higher profit. Due to this illegal export, there is no trade data. This is a major hindrance to estimate the national food balance and to formulate policies and intervention measures.

(1) Paddy flows to Thailand

Paddy flows to Thailand from Banteay Meanchey province, Bat Dambang province and Siem Reap province through 'smuggling corridors' along the northwest border. Among the three provinces, it is presumed that the flow from Banteay Meanchey province is the largest.

Table-9 Major places for paddy trading at Thai border

Places	Features
Boeng Trakuon, Thma Puok district, Banteay Meanchey province*	<ul style="list-style-type: none"> - Presence of stationed traders for paddy and other commodity with storage facilities. - Reportedly the largest out-flow area of paddy to Thailand.
Poipet, Ou Chrov district, Banteay Meanchey province *	<ul style="list-style-type: none"> - International gate on NR6, but very poor road. - Exist modern & huge border market in Thai side.
Malai district, Banteay Meanchey province *	<ul style="list-style-type: none"> - Reportedly a one of major out-flow area of paddy. (No information about present facility)
Phnom Preuk, Sampov Lun district, Bat Dambang province	<ul style="list-style-type: none"> - Reportedly a major out-flow area of paddy from Bavel district, Bat Bang province. - Presence of stationed maize traders with small storage facilities. Maize trade period is August to middle of November. - Exist newly opened border market in Thai side.

* out of the study area

In Banteay Meanchey province, farmer's scale of rice production is large, over 5 ha and grow high value variety such as Somaly and Domaly. But due to the unstable social conditions until recent year, commercial rice mills have not been established in this area. At present, there are only 2 commercial rice mills between Sisophon and Poipet, and no commercial rice mill in the north of Sisophon upto Thai border. The road conditions are also extremely poor. Reportedly, not only middlemen but many farmers also carry paddy by push cart/animal cart to Thailand.

In contrast to Banteay Meanchey province, Bat Dambang province has well-established commercial rice mills. Middlemen in Bavel district, a major surplus area in the province, regularly collect price information at the Thai border and rice mills along NR5 and ship the paddy at higher profit.

At districts close to the Thai border, 'district to district level' discussions about border trade are made with local authorities on the Thai side. As a result of this, regular, though very limited, paddy trade is conducted at a border gate in Banteay Meanchey province.

Because the Thai traders always inspect paddy quality with testing tools, some Cambodian paddy traders who are stationed at the border gate, now also use testing tools.

At present time, there is no public market facility for border trade in Cambodia. Besides this poor situation, modern market facility has already established or under-preparation in Thai side at major border gates in Bat Dambang and Banteay Meanchey province.

(2) Paddy flow to Vietnam

In the border area with Vietnam, the population on the Cambodian side is thin. Though the figure is unknown, considerable area is leased to Vietnamese farmers for rice cultivation and all paddy produced on the leased land is collected by Vietnamese paddy collectors. Large-scale export factories are located only 30-40 km across the border. Thus, this border area has the best access to export facility in Cambodia.

The majority of paddy flow to Vietnam is considered as IR variety. It was reported that due to low export price during Feb. - June in this year, few Vietnamese paddy collectors came to buy paddy in Takeav province and farmers were left with unsold stocks of paddy.

In Vietnam, paddy/rice is distributed by waterway in a dense network of irrigation/waterway canals. Thus the major mode of paddy transport to Vietnam is by waterways and Vietnamese traders come up the main/sub streams of the Bassac River and Mekong River. Several local ports in Takeav Province are used as loading places. NR2 and several byways through rice fields are also used to reach the border. In Kandal province, paddy is loaded along the banks of the Bassac River.

Table-10 Major places for paddy trading at Vietnam border

Places	Features
Peam Ro, Prey Veang province	<ul style="list-style-type: none"> - Presence of stationed traders for paddy, maize and beans with storage facilities. - Exists MOC warehouses leased to WFP. - Good access to Vietnam border with Mekong river & NR1
Takeav port, Takeav province	<ul style="list-style-type: none"> - In Takeav town area. - Shallow draft of canal to Bassac river.
Angkor Boeri port, Takeav province	<ul style="list-style-type: none"> - Presence of stationed paddy traders. - Paddy trade period is April to September with peak period in June/July. - Exist wharf and MOC warehouse. - Good access to Vietnam border with branch stream of Bassac river. - Some difficulty in access by roadway during flood/rainy season.
Phnom Den, Takeav province	<ul style="list-style-type: none"> - Bilateral gate on NR2. - Major area of paddy out-flows by roadway.

At Angkor Borei port in Takeav, a Cambodian paddy trader is stationed to purchase paddy and he waits for prices to rise in Vietnam. Trader carries paddy by boat to a place near the Bak Day border gate where he meets Vietnamese traders without preliminary contact. Vietnam's paddy prices are obtained from boats coming to Angkor Borei from Vietnam. Paddy trade at Angkor Borei begins in April and continues to November, with the peak times in June/July.

Several large-scale paddy traders are located at Neak Loeang (ferry station) in Prey Veang province. A trader estimates his annual trade at 10,000 tons of paddy, of which 60% is sold to

Vietnam. This trader sells paddy to Vietnam traders through several Cambodian boarder traders. Vietnamese buyers come up to Neak Loeang in 30 – 50 ton boats together with a Cambodian boarder trader. The fee to pass through the boarder is estimated at 50 – 70 VND/kg including commission to the Cambodian boarder trader.

Other Cambodian border traders who deal with bean, maize and tobacco are stationed at Neak Loeang. They have regular contact with several Vietnamese traders and buy commodities after receiving orders from them.

Along the Vietnam border in Takeav province and Prey Veang province, there are local markets at opposite side of border (at opposite side of canal) but facilities are in poor condition. It should be noted that most of Vietnam border areas are inundated about three months every year.

(3) Policy on paddy trade

General agreement on trade cooperation between respective country was made and promotion of bilateral trade and border trade is clearly stated in the agreements. But it seems that no definite (written) agreements about paddy border trade exists. Actual situation of paddy trade at border is described as follow:

Thai

Reportedly paddy trade is banned. Legislation stipulates the banning of paddy import has not yet confirmed. Thai local authority has some flexibility in border trade and admits the paddy import with a limitation of amount at a certain gate.

Vietnam

Vietnam government allows Vietnamese people residing permanently in border areas to trade goods at border. Also allows Cambodian people with legal permanent residence in border areas in Cambodian territory to conduct trade at border markets in Vietnam if they have border passes issued by the relevant Cambodian authority. The commodities worth less than VND 500,000 carried across the border to Vietnam will be exempted from tax once in a day (Decision 24/1999/QD-BTM, June 1999). Rice imports need the permit from the Ministry of Trade (Document No.2860, June 1999). According to the hearing from Vietnam traders, paddy import is legalized with import tax, but rice import is banned in border trade.

Cambodia

Paddy export is not banned in Cambodia but it is required to get an export license. Practically it is impossible to get a license for small-scale paddy traders and farmers who live at the border area in their daily life, and they have to ship paddy to the market of neighboring countries with informal way. Moreover, it gives the chances to government official to collect illegal fees.

As it is apparent that no one can stop paddy flow to neighboring countries as far as the buying power and/or market demand in Cambodia remain at present level.

(4) Fee collection at border area

Thai border

According to the hearing at a gate where paddy trade is admitted by both Thai and Cambodia local authorities with a limitation of amount, Cambodia authority collect Bath 10 – 8 /bag (100-120 kg), i.e. 10,000 - 6,700 Riel/ton. No data was obtained about formal/informal fee in Thai side.

Vietnam border

According to the hearing from Vietnamese traders, total of informal fees in Cambodia side is calculated as 6,570 – 9,500 Riel/ton and fee and tax in Vietnam side is about 31,000 VND/kg (8430 Riel/ton) including 34,000 VND/ton of tax collection on about 50% of the cargo value.

The profit of Vietnam trader is roughly estimated as 120 VND/kg. This is the usual level of profit for paddy collection in Mekong Delta in Vietnam.

Table-11 Fee collection on paddy border trade in Takeav province

	Case 1-1 at Takeo town port per boat (60 ton)	Case 1-2 at Takeo town port per boat (60 ton)	Case 3 at Ou Pw port per boat (35 ton)
Cambodia Side			
Export license fee (*1)	300,000	--	--
Port charge	30,000	30,000	30,000
Border police	30,000	30,000	60,000
Custom	70,000	400,000	70,000
Military police	10,000	30,000	
Economic police	7,000	50,000	
Soldiers	10,000	30,000	70,000
sub total (a)	457,000	570,000	230,000
Unit cost per ton in Reil	7,617	9,500	6,571
Vietnam Side			
Custom	600,000	600,000	300,000
Soldier	200,000	200,000	100,000
Tax	1,110,000 (*2)	1,110,000 (*2)	680,000 (*3)
sub total (b)	1,910,000	1,910,000	1,080,000
Unit cost per ton in VND	31,833	31,833	30,857
Total fee in Riel per boat (a) + (b)	976,682	1,089,682	523,852
Fee per ton in Riel	16,278	18,161	14,967

*1 Reportedly, Takeav governor issue a license. Some local authority denies the issuance of license.

*2 Tax rate is @37,000 VND/ton, charged only 50% of actual load

*3 Tax rate is @34,000 VND/ton, charged only on 20 tons

Exchange rate : Riel 3850/USD, VND 14150/USD

E.4 Rice Procurement by the Police and Army

Reportedly, the total rice supply for the army and police was 70,000 tons in 1999. This accounts for 12% of the total of the provincial surplus amount (568,639 ton) in 1999/2000. As a result of demobilization, the number of the soldiers and police has decreased; and the amount of rice supplied has also presumed to be decreased to 60,000 tons in 2000.

About the rice procurement by the police (staff of central/provincial/municipal governments under Ministry of Interior), the following information was obtained from Dept. of Logistics & Technical Material, Ministry of Interior.

Amount per capita	: 0.75 kg/day/person
Number of objective personnel	: 63,726 officials (whole country, for year 2000)
Quantity of rice	: approx. 18,000 tons (include Local mission use)
Contract price	: Riel 1,270 /kg (for year 2000)
Quality	: 30% - 35% broken (No.2 Rice)
Inspection	: Compare with contract samples
Delivery	: Designated warehouses at each province
Tender/Contract	: Usually made in January

Thai Boon Rong Company was the supply agent during 1997 – 1998. It is reported they stopped supplying rice due to payment problem by the government. By taking over in 1999, Men Sarun Import & Export Co., Ltd is now the sole agent supplying rice to the army and police.

The details of the business activities of Men Sarun Import & Export Co., Ltd. are unclear. The following fragmented information was obtained:

- Procure rice from rice mills directly. Enter into a contract with one person (rice mill) in each region/province. This person uses other rice mills in the region as sub-contractors.
- Rice is delivered directly to designated warehouses from each rice mill.
- In 1998, rice was procured from Vietnam through a trader.
- Past contracts are as follows. It has a long delivery period.

<u>Date of contract</u>	<u>28 Nov., 1998</u>	<u>20 Dec., 1999</u>
Quantity	: 840 ton	5445 ton
Unit price	: US\$255/ton	US\$232/ton
Delivery period	: 25 Dec., 98 - 10 Oct., 99	25 Dec., 99 – 10 Oct., 00
Payment	: 20% in Feb. 99 80% (not specified)	35% in March 00 65% in year 2000

Because the contract fixes the buying price a year in advance, it is assumed that the contract price will have significant influence on the market price.

Although the payment is ‘long-term deferred payment’, the contract price is considered sufficiently

high to cover the extra cost.

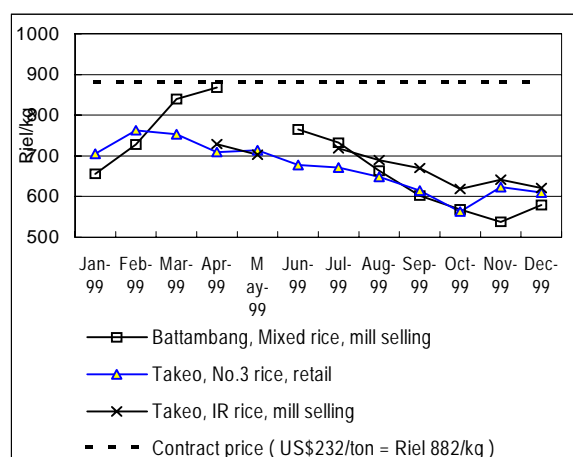


Figure-7 Contract price and Market prices

E.5 Rice Procurement by the WFP

The amount of rice procured by WFP, from foreign countries/from domestic market, were 16,352 ton /19,673 ton in 1998 and 10,882 ton /13,037 ton in 1999. Domestic procurement accounts for 2.3 % of the total of the provincial surplus amount (568,639 ton) in 1999/2000.

Table-12 Rice procurement and distribution by WFP (ton)

Year	Foreign procurement	Domestic Procurement	Total	Distribution
1998	16,352	19,673	36,025	28,828
1999	10,882	13,037	23,919	27,474

Source : WFP

Though the place of procurement has not been confirmed, 60 – 70 % of rice procured domestically was delivered to warehouses in Phnom Penh.

Table-13 Breakdown of the domestic procurement (ton)

Delivered to warehouse at	1998				1999			
	Jan.	June/July	Oct.	Total	Mar.	July/Aug	Dec.	Total
Bat Dambang	1,500	1,000	--	2,500	1,000	--	--	1,000
Kampong Thom	1,000	800	432	2,232	535	--	--	535
Phnom Penh	4,500	5,144	2,147	11,791	5,872	1,500	1,830	9,202
Preah Vihear	150	1,000	--	1,150	--	--	--	--
Sisophon	1,000	--	--	1,000	--	--	--	--
Odor Mean Chey	--	--	--	--	--	800	--	800
Siem Reap	--	1,000	--	1,000	1,200	--	300	1,500
Total	8,150	8,944	2,579	19,673	8,607	2,300	2,130	13,037

Source : WFP

WFP procures domestic rice from rice mills through tenders. WFP has at present 24 pre-selected

suppliers who have had several years experience in providing WFP with rice. Because the WFP carries out local tenders whenever it receives confirmation that funds have been made available for local purchase, it is difficult to schedule local purchase tenders. The specifications for rice procurement for the March-2000 tender is as follows:

Broken :	35% broken white rice
Crop :	from the Dec. 1999 Wet season crop
Moisture content :	between 12 and 14 %
Other :	suitable for human consumption and free from bad smell and live insect infestation. Two 250g samples of the rice on offer must be submitted with the bid.
Packing :	new 50 kg (net) polypropylene bag, triple-stitched and marked on one side only
Price :	USD163.00 (Riel 620/kg) at Peam Ro warehouse, Prey Veng province
Payment :	Bank transfer, after each delivery
Performance bond :	5% of contract value, 60 days after completion of the contract.
Deliveries :	Over several months. For the 2500 ton contract made on April-2000, delivery is four times as specified: 700 MT : before 12 May, 600 MT : 15 May – 31 May 600 MT : 01 June – 30 June, 600 MT : 01 July – 31 July

E.6 Rice Export

There is no restriction on rice export but exporter need to apply an export license from the government. Under the free trade system, private traders export small amounts of rice.

Table-14 Export amount & turnover

Year	Export Q'ty (M/T)	Turnover (USD)	FOB USD/ton (average)
1996	16,310	4,314,070	265
1997	10,947	3,234,815	295
1998	3,080	808,840	263
1999	7,390	1,632,310	221
2000 (Jan. – Apr.)	600	154,000	257

Source : Foreign Trade Department/MOC

Note : Although several export-import data are available form Custom dept./MEF, FTD/MOC and Camcontrol, each data shows different figures because data sources are different from each other.

As shown in Table-15, Singapore is major destination and it occupied 82% of total export and high quality rice was major export.

Table-15 Export by Destination & Kind during 1996 – 1999

Destination	M/T		100% WR & 5% Broken	10% & 15% Broken	Over 30% Broken
Singapore	31,011	82%	22,250	600	8,161
Honk Kong	2,626	7%	2,626		
Thailand	800	2%	700		100
China	750	2%	750		
Australia	740	2%	500	240	
Malaysia	500	1%			500
Phillipne	450	1%			450
Netherland	420	1%	420		
Irasel	215	1%	215		
Spain	215	1%	215		
Total	37,727	100%	27,676	840	9,211
			73%	2%	24%

Source : Foreign Trade Department/MOC

Export costs for dry cargo container (20 feet) is quoted at USD 20.9/ton by a forwarder. Informal fee payments for port procedures are included in the quotation and it makes custom/port clearance fee very costly.

Table-16 Export costs from Phnom Penh to Sihanouk Ville

Item	Cost per 20 ft. container	Cost per ton
Inland truck fee: Phnom Penh to S. Ville	USD 170	USD 7.7
Custom clearance and Port clearance	USD 230	USD 10.5
Loading fee on to vessel	USD 25	USD 1.1
Customs, Camcontrol, Police inspection	USD 35	USD 1.6
Total	USD 460	USD 20.9

22 tons rice/20 ft. container, Exchange rate : Riel 3,850/USD

E.7 Price Mechanism

E.7.1 Price Trend

Retail price in Phnom Penh showed similar fluctuation with US\$ exchange rate until Sep- Oct. 1999. After sharp drop in the end of 1998, although it once recovered, rice prices remain low level and rice price in US\$ value in 2000 is about 25% less than that of during 1995.

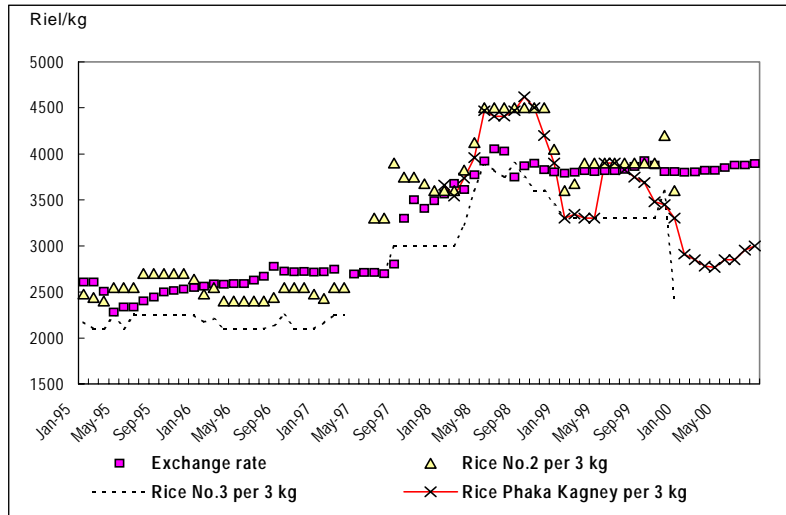
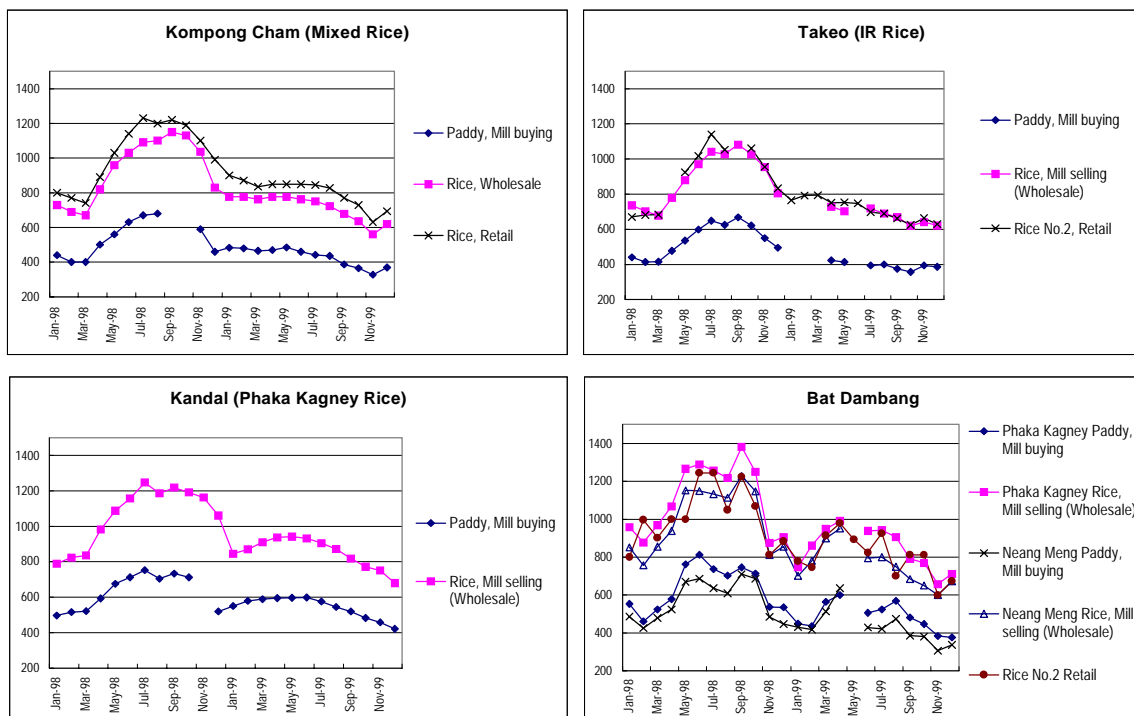


Figure-8 Rice Price in Phnom Penh and USD exchange rate (Jan. 1995 - Aug. 2000)

Rice price tends to show a seasonal fluctuation pattern: decreasing during main harvest season (Nov. – Jan.) and increasing during off-season (flood season) although the range and pattern of fluctuation varies every year.

Paddy price and rice price fluctuates in parallel at each production area. Also, fluctuation of each area is in same pattern as shown in the figures below. Among the provinces, prices in Bat Dambang province show most frequent fluctuation.



Source : Bulletin of Retailing & Wholesale prices for Agr. Commodities 1998 - 1999, MAFF (Yearly Bulletin Series)

Figure-9 Fluctuations of Paddy/Rice prices

Paddy and rice prices converted to US\$ and export FOB price in Cambodia, Thailand and Vietnam during 1998 – 1999 are shown in the figure in Appendix. Paddy prices and rice prices of Cambodia, Thailand and Vietnam show similar fluctuation. According the analysis of correlation among these prices of three countries, Thailand prices and Vietnam prices have high correlation, and Vietnam paddy price has a significantly high correlation with IR rice price in Takeav. The correlation between Thai prices and Cambodia prices is less than that of between Vietnam prices and Cambodia prices.

Although the farmers hoped to sell their paddy about 350 to 380 Riel/kg, paddy price stayed lower than that during the Study period.

Table-17 Farmer’s Selling Prices

Year & Month	Province	Variety (Crop season)	Price of paddy (Riel/kg)
April to May 1999	Prey Veang	IR (dry)	310 to 360
Sep. to Oct. 2000	Prey Veang, Kandal	Mixed rice (wet), IR (dry)	290 to 310
Nov. to Dec. 2000	Prey Veang, Kandal	Mixed rice, Banla Phdau, other local varieties (wet)	260 to 300
Feb. 2001	Takeav, Bat Dambang	Mixed rice, other local varieties (wet)	250 to 290
May 2001	Whole Cambodia	IR (dry), Mixed rice, other local varieties (wet)	210 to 250

Source: Study Team

Note: Price information for May 2001 was obtained in the technology transfer seminar from commercial millers. Other information was collected from farmer and/or middleman. High value varieties such as Somaly were not included.

E.7.2 Price Differences

(1) Price differences between provinces

In Cambodia, rice varieties being produced in each province are varied, and most local varieties are marketed only within the province and/or to neighboring provinces. Varieties of Somaly, Phaka Kagney, Neang Minh produced in northwest production areas, which have an established reputation for high quality and good taste of rice, are marketed to many provincial towns. These varieties of rice: Somaly, Phaka Kagney, Neang Minh can be used to clarify the price differences between provinces, but there is no accumulated price data available, in which variety and origin identical.

Situation of price difference between provinces is clarified as follows, according the price data being collected during the study periods at each provincial town. The collected data is attached at the end of this Appendix.

Despite there are some time-lags among the data, differences in price of Somaly, Ph. Kagney and Neang Menh produced at Bat Dambang are small. Prices of IR variety rice, which are always

cheapest in the markets, are in the same level among several provinces. It is noteworthy that prices of Mixed Rice, which are mixture of minor wet season varieties and have different content of varieties depending on the province, also are in the same level (Riel 600- 700/kg) among all provincial towns in Cambodia.

(2) Price difference among variety/grade

There is a definite price order among major marketed varieties that is Somaly- Phaka Kagney- Neang Khon- Neang Menh- Mixed Rice – IR, and this order never change in the markets.

Table-18 Retail price by variety (Unit: Riel/kg)

Variety/Grade	Phnom Penh	(origin)	Siem Reab Town	Bat Dambang Town
Somely	1300 - 1400	(BTD)	900 - 1000	1200 - 1300
Phaka Kagney	900 - 1100	(BTD)	1000 - 1100	900 -1000
Kraya	NA		1200	
Neang Khon	900 - 1000	BTD	800 - 850	700
Neang Menh	800 - 900	(BTD)	750 - 800	700
Local (Mixed)	700 - 800	(PP, KS)	600 - 700	600 - 680
IR	600 - 650	(TK)	NA	NA
Thai broken rice	1000 - 1200	(Thai)	NA	NA

Price data collected : Phnom Penh/Aug. 18, Siem Reab/July 9-13, Bat Dambang/July 14-18

BTD=Bat Dambang, PP=Phnom Penh, KS= Kg. Spueu, TK=Takaev

Source : JICA Study Team

The price difference between Phaka Kagney rice and Neang Menh rice is average 171 Riel/kg (1998) and 157 Reil/kg (1999) in Phnom Penh. The paddy price difference between those two varieties is 68 Riel/kg (1998) and 58 Riel/kg (1999) in Bat Dambang. The difference is about 2.5 times larger in rice price than that of paddy price.

In Phnom Penh, some wholesalers and retailers have different grade of rice, called as No.1 and No.2, in higher price variety such as Somaly and Phaka Kagney. The price difference between grades is normally 100-200 Riel/kg. Rice sellers explain the difference is: in appearance (clearness) which comes from different degrees of milling, broken rice ration, or production area (i.e. taste). Although it appears that some common scale/sense of quality evaluation exist among the traders, no numerical indicator is used for grading the rice quality in domestic trade.

E.7.3 Cost & Margin

Cost and margins, which is indicated with the difference of buying/selling prices, is larger in the higher priced varieties.

Table-19 Difference of buying-selling price

(Unit: Riel/kg)

Place	Rice Mill *1					Wholesaler/Retailer *2		Retailer *2		
	Bat Dambang			Takaev	Kandal	Phnom Penh		S.Ville	S. Ville	K. Cham
Variety	Neang Meng	Phaka Kagney	Mixed	IR	Phaka Kagney	Neang Menh	Phaka Kagney	Neang Menh	Neang Menh	Mixed
Value *3	378	399	333	322	364	48	59	65	123	88
S.D.	77	120	67	56	82	6	20	20	54	24

*1 / Difference of paddy buying and rice selling price

*2 / Difference of rice buying price and selling price

*3 / Riel/kg, Average of monthly price difference during 1998-1999

Source: Bulletin of Wholesale prices for Agr. Commodities 1998, 1999, MAFF (Yearly Bulletin Series)

Cost and margins at each stage are shown in the figure below:

Figure-10 and 11 indicate that the farmers share account for 70 – 80% of the retail price. In accordance with the retail price level, the percentage of cost/margin at wholesale stage is altered from 12% to 24% for Ph.Kagney and 10% to 24% for N.Menh. It tends to become large once the retail price fluctuated and then it gradually decreases. The cost/margin at milling stage and retail stage is stable: both stages of cost/margin account for 6 – 13% for Ph.Kagney and 8 – 13% for N.Menh.

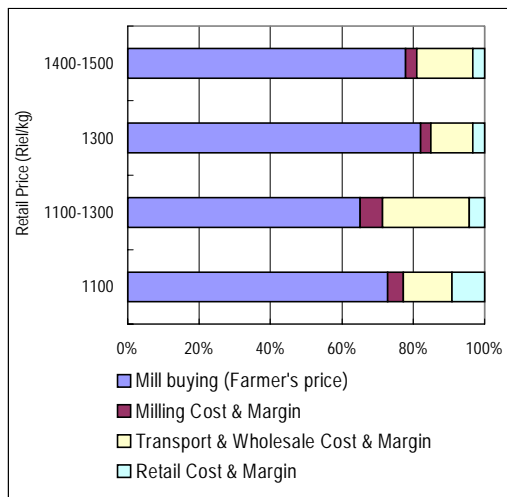


Figure-10 % of Farmer's price, Cost & margin (1998-99, Variety : Phaka Kagney)

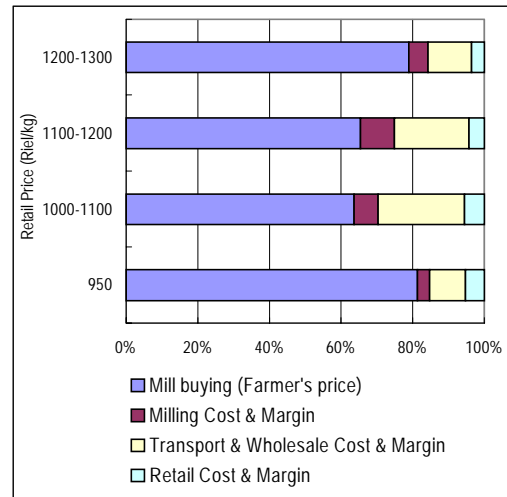


Figure-11 % of Farmer's price, Cost & margin (1998-99, Variety : Neang Menh)

E.7.4 Pricing Mechanism

According to the results of price trend/correlation analysis, pricing mechanism in Cambodia is summarized as follows:

- Cambodian rice/paddy prices receive the influences of international market price through Vietnam at the southeast and through Thailand at northwest. Due to the price of rice in both Thailand and Vietnam have a very similar fluctuation each other, paddy/rice prices in both the southwest and northeast production areas also shows similar fluctuation each other.
- Paddy price in Vietnam (i.e. export situation) has significant influence to the price of cheapest rice (IR variety) in Takeav and Prey Veang. With a definite price order among the varieties in domestic markets, fluctuation in IR variety shift the price of next cheapest rice (Mixed rice) in the provinces.
- The highest priced rice (Somaly) is mainly produced at the northwest production areas, and it is reported that Thai traders buy Somaly/Domaly with higher price than other varieties. Thus, price in Thailand has influence to the price of highest priced rice.
- Rice price tends to show a seasonal fluctuation pattern: decreasing during main harvest season (Nov. – Jan.) and increasing during off-season (flood season), although the range and pattern of fluctuation are influenced by the international market price.
- As the result of price correlation analysis, the influence of Vietnamese prices on Phnom Penh prices is larger than that of Thai prices.

Table-20 shows the USD converted prices of Cambodia-Thai-Vietnam paddy/rice. Prices are observed positioned in fairly rational order, although the retail prices in Phnom Penh are rather high level.

Table-20 Rice/paddy Price Order in Cambodia-Thailand-Vietnam (1998 – 1999)

Type of price	Origin, Variety & Grade	USD/ton
Paddy / Mill buying	Battambang, Mixed	122.3
Paddy / Mill buying	K.Cham, Mixed	124.8
Paddy / Mill buying	Takeo, IR	125.7
Paddy / Mill buying	Battambang, N.Meng	131.4
Paddy / Mill buying	Dong Thap/Vietnam, Ordinary paddy	136.4
Paddy / Mill buying	Battambang, P.Kagney	147.4
Paddy	Thailand, 10% Paddy	148.4
Paddy / Mill buying	Kandal, P.Kagney	152.6
Paddy	Thailand, 5% Paddy	154.3
Rice / Mill selling	Takeo, IR	174.8
Paddy	Thailand, Jasmine Paddy	190.6
Rice / Export FOB	Thai A1 Special 100% broken	203.2
Rice / Retail	Battambang, Rice No.3	208.6
Rice / Retail bulk sale	K.Cham, Mixed	215.7
Rice / Mill selling	Battambang, N.Meng	220.5
Rice / Export FOB	Thail Long grain 35% broken	230.5
Rice / Retail	Dong Thap/Vietnam, Ordinary white rice	233.5
Rice / Retail	Battambang, Rice No.2	238.1
Rice / Mill selling	Battambang, P.Kagney	245.7
Rice / Mill selling	Kandal, P.Kagney	250.0

Type of price	Origin, Variety & Grade	USD/ton
Rice / Export FOB	Vietnam 5% broken	255.8
Rice / Export FOB	Thai Long grain 15% broken	261.2
Rice / Retail	Battambang, Rice No.1	262.6
Rice / Retail bulk sale	Kampot, Chmarproum	282.2
Rice / Export FOB	Thai Long grain 100% grade B	284.7
Rice / Retail bulk sale	HCM City/Vietnam, IR64	286 *1
Rice / Retail bulk sale	Phnom Penh, N.Menh	294.1
Rice / Retail	Phnom Penh, Rice No.3	296.2
Rice / Retail bulk sale	Phnom Penh, P.Kagney	335.5
Rice / Retail	Phnom Penh, Rice No.2	352.0
Rice / Retail bulk sale	HCM City/Vietnam, Tai Nguyen	357 *2
Rice / Retail	Phnom Penh, Rice No.1	431.0
Rice / Export FOB	WFR 100% A	533.1

Average of converted monthly prices during 1998-99 except price marked with *1 and *2.

*1 : Market price on 20 May 1999, average price (min. \$264 – max. \$300/ton).

*2 : Market price on 20 May 1999, one of best selling rice in HCMC.

E.8 Market Information System of Rice

E.8.1 MAFF/ Agricultural Marketing Office

The current Market Information System (MIS) for agricultural commodities was set up through the FAO project providing technical assistance, training, equipment and a budget for general operating expenses. It started full-scale operations in August 1997. This MIS collects the following rice/paddy prices:

Table-21 Rice/paddy price information collecting by MAFF/AMO

Province	Place	Variety	Kinds of price
Phnom Penh	Rice shops near Railway station and Orussey market	Phaka Kagney	rice buying ex-truck
		Neang Menh	rice selling price (100kg bag)
Sihanouk Ville	Leu Market	Neang Menh	rice buying rice selling (larger quantity & retail)
Bat Dambang	Rice Mill near Bat Dambang town	Phaka Kagney	paddy buying ex-mill
		Neang Meng	rice selling ex-mill
		Mixed	
Takaev	Rice Mill	IR Krarnorm	paddy buying ex-mill rice selling ex-mill
Kampot	Shammaki Market	Chmarproum	rice buying rice selling (larger quantity)
Kompong Cham	Rice Mill Kompong Cham Market	Mixed	paddy buying
		Mixed	rice selling (larger quantity & retail)
Kompong Chhnang	Krom Market	Neang Krim	rice buying rice selling (larger quantity & retail)

Province	Place	Variety	Kinds of price
Kandal	Rice Mill at Takhmao	Phaka Kagney	paddy buying at mill rice selling ex-mill
Prey Veaeang	Rice Mill at Nhak Loeung	IR Banla Pdout	paddy buying ex-mill rice selling ex-mill

Note : In addition to the above domestic prices, overseas market information of rice in Thailand, Pakistan, Vietnam and India (Original information source is Reuters Commodities Service) is collected from a private company (IMIC) in Phnom Penh through exchange of domestic price information.

Collected price data is transmitted daily to the Agricultural Marketing Office of DPSC from the Provinces by fax or telephone; and the compiled data is disseminated to the public through the following channels:

Table-22 Means of dissemination of Market information

Mean of dissemination	Frequency	Broadcast time	Stared since
A. Radio broadcasts			
National Radio Cambodia	Daily	5 – 10 min. 6:05 PM	Aug. 97
Bat Dambang National Radio *1	Mon. to Fri.	5 – 10 min. 7:10 PM	Dec. 97
Bayon FM 95 *2	Daily	5 min. 12:05 PM & 6:05 PM	Feb. 98
B. TV broadcasts			
TV Bayon UHF27 *2	Daily	5:45 PM	Feb. 98
C. Newspapers			
Business News (English paper)	Weekly		

*1 : As reception of NRC is not so good in the northwest region, the price information program is transmitted from the provincial station in Bat Dambang.

*2 : Broadcasts have been stopped in since the middle of 2000.

The following rice/paddy prices are disseminated through a daily radio program of National Radio Cambodia. Due to time limitation of the program, only selected information is broadcasted.

Table-23 Contents of Daily radio program of NRC

Province/Variety	Type of price	
Paddy	Kandal / Phaka Kagney	Rice mill in Takmaho
	Takaev / IR	Rice mill
Rice	Phnom Penh / Phaka Kagney (BTD) Neang Menh (BTD)	Near Railway station
		Buying & selling
	Kandal / Phaka Kagney Takaev / IR	Rice mill in Takmaho
		Selling
		Rice mill
		Selling

In addition to this quick dissemination of price information, yearly bulletins are issued and provided to DOAs and other relevant institutions as well as IOs and NGOs.

Current Problems:

- Disconnected telephones: Sometimes due to delay in budget release and bill payments, the telephones are disconnected.
- Accuracy of collected information: difficulty in collecting the true market price from traders.
- Lack of appropriate trainers for staff training.

- Shortage of budget for monitoring MIS activity in the Provinces.
- Difficulties in negotiating with a private radio station.

Improvement Plan for year 2001

- Improve the broadcasts: Broadcast the local price information in each province through the local radio station. (Negotiations with radio stations are on-going in each province)
- *Training on marketing, data processing and data analysis
- *Micro-Crop Production Programming: Introduce the market-oriented production to farmers. Pilot cases with vegetable farmers are planned to start in the provinces of Kandal, Takeav, Kampot and Kampong Cham. Train provincial staff of DOA to be marketing extension officers for introducing market-oriented production.
- *Improve comminations with provincial offices (introduction of HF Radio)
- *Strengthening field monitoring activities.

E.8.2 Activity of Other Organization

(1) MOC

The MOC has been collecting for wholesale prices of Rice No.1 and Rice No.2 together with 51 other commodities in 14 provinces. The information collected has never been disseminated with any urgency to the public. It is published as part of a weekly business roundup and provided to relevant institutions. The collected rice price data is hard to analyze because variety for Rice No.1 and Rice No.2 is not same among the provinces.

(2) EDC (Enterprise Development Cambodia)

EDC has been assisting the rice millers through the formation of the Rice Millers' Association (RMA) at provinces and Federation of RMA, exposure and awareness study tours to Thailand, Singapore and Vietnam to help build social capital for economic development.

EDC have been providing international market information to RMAs periodically. EDC is setting up a communication and information network among RMAs, called RICENET, through the internet and is currently designing its homepage.

(3) Phnom Penh Municipality (Management offices at markets)

Market management offices at most of markets in Phnom Penh City collect the price information of commodities daily. The collected data is usually sent to district governor office. It has never been disseminated to the public.

E.9 Characteristic of Rice Consumption in Phnom Penh

E.9.1 Consumer

A questionnaire-hearing survey was made to find out the purchasing behavior and the favorite of consumers. Survey was conducted in the markets, vocational training center, and mother-health center and obtained 159 answers. Average household size of all respondents is 6.4 persons. ‘Possession of goods’ which can be an indicator of respondents’ income level is shown in Figure-12.

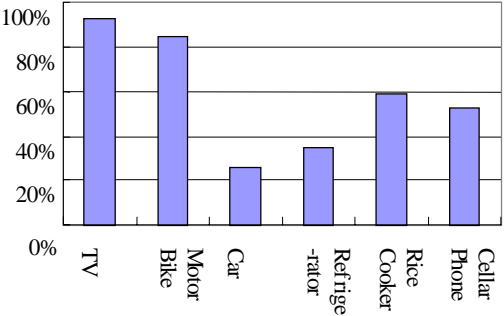


Figure-12 Possession of respondents

(1) Quantity and frequency of purchase

The average quantity purchased per time is 64 kg and about 60% of the respondents purchase one bag (50 kg) of rice at a time. 40% of respondents answered, “purchase once per month” and a total of 35% of respondents purchase at intervals longer than a month. Analyzing the answers for quantities purchased, frequency and household size, the per capita consumption of rice is calculated at 0.3195kg/day and 116.6 kg/year.

(2) Criteria for choosing rice

The respondents gave higher value to ‘variety’, ‘fragrance’ and ‘price’ in choosing rice. Among the criteria, ‘broken rice percentage’ is the least important.

Table-24 Consumer’s criteria for choosing rice

Criteria	Variety	Price	Fragrance	Whiteness (color)	Broken rice	Production place	Shop recommendation
Average score	1.596	3.396	2.324	3.917	6.042	4.917	5.729
Order	1	3	2	4	7	5	6

This characteristic of the consumers (i.e. caring about the fragrance but not the broken rice) is reflected in the constant demand for Thai fragrant broken rice in Phnom Penh markets.

Of the rice varieties purchased by consumers, is Phaka Kagney, accounted for almost 50%. Somaly, Neang Minh and Thai rice come next. The total of the 3 higher-ranking varieties accounts for 84 %. These percentage results for each variety parallels the assortment of varieties in the rice shops in the city.

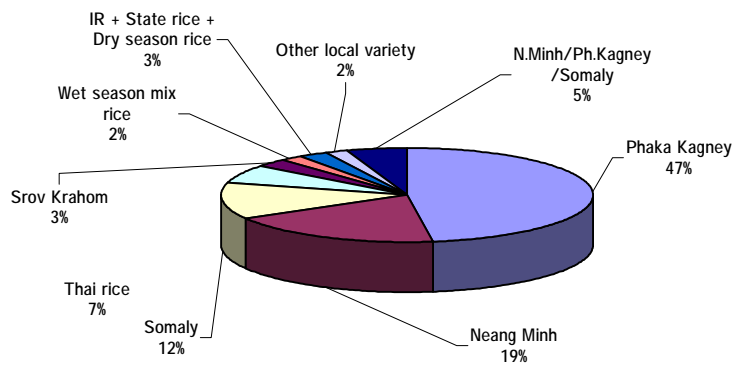


Figure-13 Kind of rice usually buy

The criteria for choosing a certain variety depend on the individual. By analyzing the correlation among choice criteria of individuals, their favorite varieties and income levels, the following patterns can be seen.

- Consumers who choose Mixed Rice care about price and does not care about variety and broken percentage.
- Consumers who choose IR are sensitive to whiteness (color) but do not care about place of production.
- Consumers who give higher value to fragrance choose Somaly and Phaka Kageny.
- Consumers who choose Neang Minh and IR do not care about fragrance.
- The higher the income, the less they choose Neang Minh.

According to the result of analyzing the relations between 'taste' and 'price', softer rice is judged as high quality and high price. Next to it, 'stickiness' has influence over the price. With this result, it is confirmed that the feeling of chewing/eating is very important element for consumers in Phnom Penh.

The respondent who answered the 'prefer new rice' account for 45.2%, and 'prefer old rice' account for 54.8%.

E.9.2 Restaurant

A questionnaire-hearing survey was conducted by visiting restaurants (mainly Khmer food) at 8 points in the city and obtained total of 40 answers.

(1) Purchase behavior

Almost all restaurants have a fixed place of purchase or seller. About 40% of respondents 'go to the purchase place' and other 60% 'order by telephone' or 'the seller come to get the order'.

The purchase places are: rice shops on the street 44 %, rice seller in the market 38 % and rice mills accounts for 10 %. In case of direct purchases from rice mills, most respondents have a relative who own/manages the rice mill. The quantity purchased varies depending on the size of the restaurant.

The average quantity purchased per time was 364 kg and the maximum was 1500 kg. However, a small-scale restaurant purchases just enough quantities for a day's operation at a market near by everyday.

(2) Kinds of rice used

The kind of rice used at each restaurant is fixed. In almost all restaurants, their selection was based on good taste/customers' choice, but not on price.

Phaka Kagney is most popularly used (26%). Compare to the consumer use, the major difference is in the use of blended rice. A blend of Thai rice and local variety rice account for 21% and a blend of local varieties account for another 21%. Another difference is they so not use IR rice.

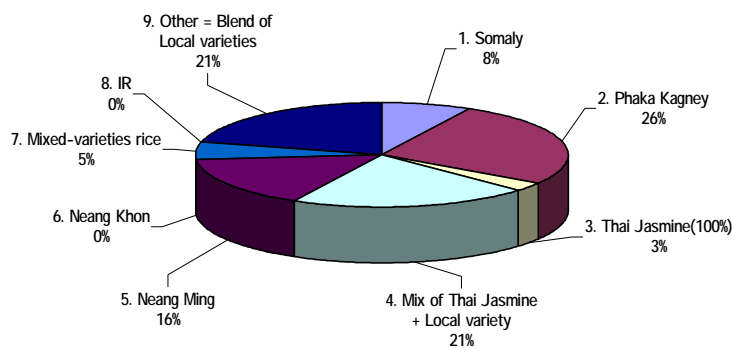


Figure-14 Kinds of rice used by local restaurants

A blend of Thai fragrant broken rice with various local varieties is made to add fragrance and to increase softness. Wide use of this blended rice conforms to the outcomes of the above consumer survey: fragrance is an important criterion for choosing rice, and softer rice is judged highly in quality and price.

Few restaurants expressed complaints about rice quality. Several restaurants complained about the price rise due to the floods.

E.9.3 Rice Distribution “Need for Rice Wholesale Market”

(1) Situation of pricing

As mentioned earlier, various varieties and quality of rice are marketed in the markets in accordance with the consumer needs. Prices prevailing in Phnom Penh are well known by rice sellers and they are well-matched among the markets in the city. Some rice sellers have different grade (quality) of rice in higher valued rice such as Somaly and Phaka Kagney. The grades are made by difference in the ratio of broken rice, production area and etc. to provide more choices for the consumers.

Due to unusual floods, raise of rice prices in the city was worried during the late July. Because the government, IOs and NGOs procured the rice for disastered areas, price of low valued rice such as IR and Mixed rice were raised from around 500 to 700 Riel/kg. But for most popular rice, Phaka Kagney, Neang Menh in Phnom Penh, were kept in stable with little increase. Thus, pricing

function in Phnom Penh being carried by small-scale rice sellers did not made a speculative movement.

Grading in high valued rice are practiced by individual sellers, and introduction of standard must improve the fairness in the pricing.

(2) Situation of physical distribution

About 50% of increment in Phnom Penh population are projected until year 2010. With the assumed conditions: rice production in Phnom Penh is in same level and rice consumption per capita is 151.2 kg, increment of rice deficit is calculated as 250 ton/day in year 2010.

Table-25 Deficit amount in Phnom Penh in 2010

		1999/2000	2005	2010
Population /1	X 1000	1,053	1,387	1,656
Rice demand /2	X 1000 tons	159.2	209.7	250.4
Rice production /3	X 1000 tons	6.2	6.2	6.2
Deficit amount	X 1000 tons	153.0	203.5	244.2
Amount of rice flow into the City *	ton/day	419	558	669
Increment from 1999/2000	ton/day	0	138	250

* Assume the deficit amount as marketed amount.

Source: /1 NIS, Ministry of Planning /2 per capita consumption = 151.2 kg /3 MAFF

As indicated by the population density in the table below, real urban areas are 4 districts in center part covering about 25 km². Other districts are rather in similar situation with remote area in provinces, and there are many swampy areas inundate during the rainy season.

Table-26 Population density of Phnom Penh city

Disrtrict	Area (Km ²)	Population (person)	Population density (person/km ²)	Rice cultivation area (ha)	
	a	b	c	d	d/a
1 Chamkar Mon	9.59	196,988	20,531	0	0%
2 Doun Penh	7.34	138,898	18,918	0	0%
3 Prampir Meakkakra	2.19	101,285	46,219	0	0%
4 Tuol Kouk	7.94	163,173	20,559	0	0%
5 Dangkao	187.91	97,357	518	5,431	29%
6 Mean Chey	50.86	165,431	3,252	0	0%
7 Ruessei Kaev	107.89	189,611	1,758	1,165	11%
Total/Average	373.73	1,052,743	2,817	6,596	18%

250 ton/day of increment in rice supply into the city from outside (i.e. 13 heavy trucks/day) will have no influence in city traffic. Also it is not critical increment for the present rice distribution

system in the city, composed by wholesale/retail shops in the streets and small-scale rice sellers in the markets. It is not clear how will the population spread due to the municipality has no clear city development plan. If it increase proportionally with present population, increment of rice deficit (supply) amount in the 4 districts of city center, where a new markets development may be limited, is calculated as 143 ton/day.

(3) Needs of the marketing agents

1) Rice sellers in the City

No rice sellers in the City complain about procurement of rice. Wholesale market will be located outside or outskirts of the City and it must be difficult to shift whole sellers to such place due to worse accessible for the fixed customers and possibility to lose the fixed customers. Also, the fact that the most rice shops on the street are combined with their residents.

2) Commercial rice millers

Already many rice sellers purchase rice directly from rice millers in the provinces. Therefore, there will be no much changes in shipping style from rice millers to the City, even after establishing the wholesale market.

Rice is just one of commodities handled in the markets. As stated above, wholesale market only for rice has less realistic need for it. On the other hands, the increment of supply amount of all-agricultural commodities into the city will be very large in year 2010 although the increment in rice is limited. It is more rational to plan the improvement of existing market facilities and/or wholesale market for agricultural commodities, in line with the improvement of the agricultural products supply and distribution system in Phnom Penh.

Commercial rice millers need a stock point of rice in Phnom Penh. Utilization of MOC warehouses will be studied. It is desirable that warehouse business will be developed to provide the stock handling service, because it is hard to rent a whole warehouse by a rice miller.

E.10 Development Constraints

There are constraints relate to the aspect of rice marketing, many of which are common across the regions, provinces, and to the marketing of other agricultural products.

Limited Capacity of Domestic Absorption of Incremental Production

Cambodia has been in rice-surplus situation over the past 5 years. Considering the present high level of cereal consumption, there is not much scope of greater domestic absorption of increment production. At present, absorption of the rice surplus is highly dependent on neighboring countries, although its export is carried out informally.

Poor Marketing Infrastructure

In Cambodia the basic infrastructure required for improved economic activity is underdevelopment. The very poor condition of roads, such as NR5, NR6 and farm-to-market roads, is a serious obstacle to more efficient trade. Even with rehabilitation efforts, about half the length of national roads needs major improvement. Most provincial and tertiary roads are broken and damaged, with many being impassible during the rainy season. In urban areas, the run-down condition of most markets in terms of cleanliness, drainage and truck access is another major obstacle to efficient trading activity.

Lack of nation-wide telecommunication system also hinders efficient trade activity. Although several mobile-phone networks have been developed, communication is still limited to urban areas and costly. Larger traders such as rice millers and wholesalers are equipped with ICON for local communication. But small-scale traders and farmers, even government offices in remote areas, lack effective means of communicating with urban areas.

Poor Financial Service System

Even the basic banking services being required for most business operations are currently unavailable in the provinces. Settlement of accounts between rice millers in the provinces and rice sellers in Phnom Penh are mostly done face to face. In some cases, informal remittance services of gold shops are used to settle accounts between provinces.

Banks do no offer long term lending, and the maximum lending period is only 1 year. Although many NGOs provide minimum financial services in the countryside, no loan conditions meet the requirements of rice millers for renovation of their facilities or for procuring paddy.

Illegal fee collection

With police and army heading the list, government officials collect illegal fees from the private sector. These illegal fees increase marketing costs in addition to the difficulties in transportation due to poor road conditions. Illegal fees are routinely collected at the following places/phases of rice marketing;

- Road fee collections at provincial towns, Phnom Penh city, Sihanouk Ville port and etc.

- Fee collections at border areas.
- Custom clearance and other exporting procedures

Informal Paddy Export

Physical difficulty and high costs of transporting commodities within Cambodia and the more accessible and better mills on the other side of the border, make markets in the border provinces integrate with those of the neighboring countries. Often it is more profitable to sell surplus paddy across the borders than to domestic markets.

Main reason for the paddy flow to Vietnam is lack of a domestic market for irrigated early rice (specially IR variety). The main reason for the paddy flow to Thailand is physical difficulty and high costs of transporting commodities within the northwest region and/or higher profit. Due to this illegal export, there is no trade data. This is a major hindrance to estimate the national food balance and to formulate policies and intervention measures.

Informal Thai Rice Import

Thai fragrant broken rice is illegally imported to Cambodia via the small corridors along the Thai border and via the formal gates without leaving a record, then it is marketed to Phnom Penh and other provincial towns to fulfill the need for high quality rice of urban residents. As with the above informal export of paddy, lack of trade data is a hindrance to estimate the national food balance.

Restricted opportunities for farmers to see better buyers

Farmers often have limited outlets for their paddy and are often bound to sell to middleman because of poor condition of farm-to-markets road, and may include an element of credit provision by the middleman. Opportunities for farmers to see better buyers are restricted. Such opportunities are further hindered by the small quantities produced by most farmers.

Weak bargaining power of farmers

Despite the definite price order existing among rice/paddy varieties, the price difference of high and low quality varieties in rice mill buying prices, specially in Bat Dambang, is relatively small compared to the price difference in urban markets. Price is always decided by negotiation, but the information resources available to farmers are limited. In most cases, a farmer gets price information from neighbors or buyer. Also, no numerical indicator is applied in paddy quality evaluation except a few rice millers in Bat Dambang, and the farmer's capability to evaluate paddy quality is limited.

Weak marketing capability of rice millers

Northwest production areas such as Bat Dambang and Banteay Mean Chey have an established reputation for high quality (good taste) rice. It dominates the domestic high quality rice markets in Phnom Penh city and in some provincial towns. There are several other local varieties of high quality (good taste) in some other provinces around Phnom Penh. But the weak marketing capability of rice

millers in these provinces hinder their expansion and outlets in Phnom Penh markets. This in turn limits the market for farmers.

Weak incentive for physical quality improvement

Based on income levels and buying power of consumers, the markets in urban and provincial towns have different needs. At lower buying power area such as Kompong Spue town, consumer needs are for cheap price. Therefore the physical quality is kept inferior level (high contents of small broken rice) deliberately to maintain a lower price for the consumer. On the other hands, in Phnom Penh, where consumers have the highest income levels in the country, consumer's first criteria for choosing rice is its variety and few complaints are raised about physical quality.

Constraints in Market Information Service

Difficulty in disseminating provincial information

Due to time limits of the MIS radio program, it is unable to disseminate all provincial information, and there exists a mismatch between what the farmers/traders want to know and the program content. Negotiations for 'free' broadcast with a private radio station in the provinces was attempted but so far none of them have successful.

Duplication of data-gathering activity

Beside the AMO/AMFF, several governmental institutes, including MOC, also collect the marketing information of agricultural commodities. But there is no cooperation in data collection/exchange at present time.

Scarce records for import and export

There are several export/import records available from the Custom Department/MOEF, Foreign Trade Department/MOC, Camcontrol and Port Authority. All these records are based on different sources of information and have no consistency with each other. In addition to their unreliability, the lack of border trade data is the biggest hindrance to estimate the national food balance and to formulate policies and intervention measures.

Weak Institutional Capacity

The institutional capacity for supporting the private sector is weak. Beside the constraints in MIS activity mentioned above, the lack of capable and experienced staff remains the biggest constraint of AMO/MAFF in providing marketing support to farmers and traders. Worse situation is encountered in MOC.

Unfair dealing in State rice procurement

Reportedly there are unfair dealings in the government's rice procurement for the army and police supply, and collusion in the WFP rice tender. These large quantities of rice procurement may influence the market prices. The government should have a mechanism such as Fair Trade Commission to supervise such large transactions to maintain fairness and transparency.

Rice Import by WFP

Although it may be cheaper to import rice from neighboring countries when the need arises, it would be desirable for donors, including WFP, to purchase local rice surplus for internal transfers to deficit areas. Apart from cost savings, this would help support prices in surplus areas in Cambodia.

E.11 Direction of Development

E.11.1 Direction of Development

With the yield growth and planted area expansion, the country achieved an overall rice “surplus” in 1995 and this have been sustained until now. It must be noted that attaining self-sufficiency despite weak infrastructure, low adaptation of modern technology, and a rapidly increasing population indicates considerable potential for further rice production. Needless to say, availability of food supply is a necessary condition for food security and a situation of steady supply is clearly preferred to stabilize food prices and improve real incomes of the poor. At present, absorption of the surplus rice is highly dependent on the informal paddy trade with neighboring countries.

Despite Cambodia being in a favorable situation of rice-surplus, the agricultural production system in Cambodia still remains highly vulnerable to weather shocks and pest damage. Stabilization and expansion of rice production remains an immediate problem to be solved. From the marketing aspect, it is essential to give incentives to farmers for increase production. One such is to improve farmer’s income by strengthening their bargaining power and expanding markets.

Despite the large amount of paddy flowing out to the neighboring countries, there is no trade record due to informal export. To improve the paddy trade, it should be liberalized and legalized. By doing so, traders will pass through formal boarder gates, thus eliminating illegal fee collection at border areas, and it will also enable official recording of trade. Moreover, the bargaining power of Cambodian traders should be improved and the opportunity taken to promote the paddy trade to convert to a milled rice trade.

Domestic markets have different needs according to the buying power of residents in each area. Each production area shall attempt marketing to match the regional needs. In Phnom Penh, large amount of imported Thai fragrant broken rice is sold for blending with domestic rice to add fragrant. This imported Thai broken rice should be replaced with domestic rice by enhancing the production of fragrant variety.

Despite an overall “surplus” situation, many Cambodians lack access to food supply due to insufficient purchasing power, poor roads and due to there are more profitable markets to sell. These

poor roads need to be rehabilitated to reduce the marketing cost and the distribution barrier to deficit areas, and to meet the potential demands. Another factor increasing marketing costs is the illegal fee collection by police, army and civil workers: this must be eliminated immediately.

Consumers do not care about some degree broken rice and are satisfied with the present quality of rice. Rice processed in Bat Dambang province has an established brand value and dominates the domestic high-quality rice markets in Phnom Penh and in some provincial towns. If the industry develop with foreign capital investment, it is expected that the demand for high-quality rice will increase as the incomes of city dwellers improve. Other production areas should consider introducing a fragrant/soft type of rice to fit the consumer's taste. Another constraint to competing with Bat Dambang rice in Phnom Penh markets is the weak marketing capability of rice millers. Rice millers should take a initiative to formulate a vertical integration of rice production–processing-marketing with farmers for mutual benefit. Competition in high-quality markets among the provinces shall lead the overall quality improvement in the country, and then lead to further possibilities of entering the overseas markets.

Another problem in the marketing system is weak bargaining power of farmer's. To give incentives to farmers for increasing production, creation of paddy markets, where many buyers and sellers gather for their paddy transaction, shall provide the more opportunities for farmers to see better buyers. Also, such markets shall form the open-index-price reflecting the supply-demand situation of the production area. By sending other production areas clear price signals regarding quantities and varieties required, it will also facilitate spatial distribution to fill the price gaps among provinces and reduce the price fluctuation in provinces.

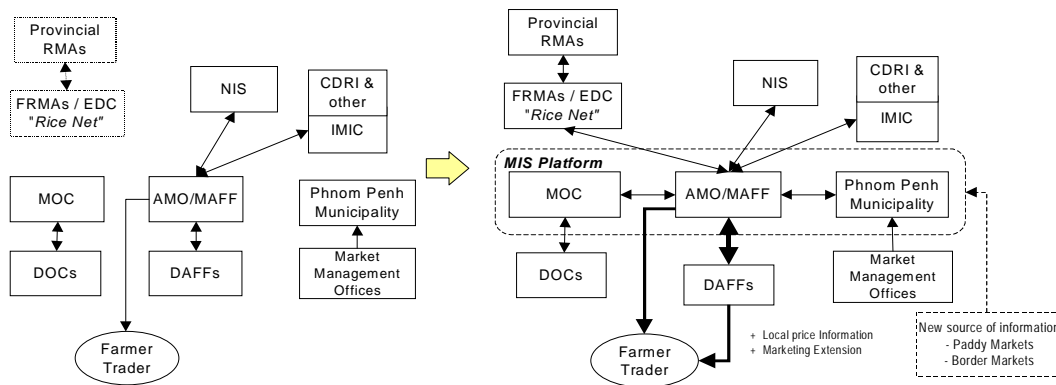
The government shall strengthen the supporting services to the private sectors through creating a better business environment, more efficient and fair. First, illegal acts by government officials should be cracked down on immediately. Legislation and regulations relating to private businesses such as registrations/permissions for business, tax system, market fees and etc. should be clearly made known to the public to reduce the chances for illegal fee collection. As emerging Traders Associations grows, there might be possibility for price-fixing arrangements in the market. A supervisory system by government to secure fair competition shall be necessary in future.

Except Men Saron Company who exclusively supplies rice to police/army, almost all rice traders in the country are small-scale private businesses, including most rice millers.

Most rice shops are managed by housewives to earn supplemental housekeeping money. In the center of Phnom Penh City, it is observed that too many rice sellers have resulted in sales decline in certain markets. Rice mills also are in over crowded situations in the country. From the viewpoint of promoting efficiency, relocation and/or streamlining may be needed. However, considering the nature of those small-scale businesses, relocation and/or streamlining shall not a focus in the Study.

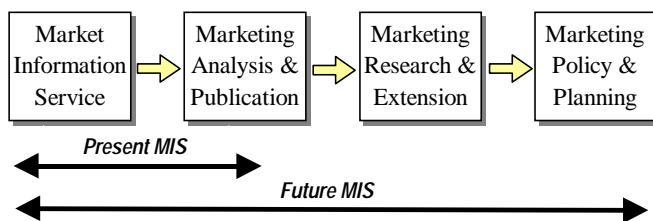
As an immediate task, present MIS (market information service) needs to be strengthened by making the cooperative scheme/system among the concern agencies in the government and in the non-government sectors. For this activity, an initiative of MAFF/AMO is desired. The conceptual figure of MIS is shown below.

Figure-15 Proposed Concept for Future MIS



Collection and dissemination of market price information is just a part of MIS. As future task, MIS should cover the activity of analysis of historical data and market researches to provide the marketing advisory services to the private sector, especially to farmers to promote the market-oriented production. The outcomes of analysis and marketing research shall contribute information for policymaking.

Figure-16 Mission of MIS



As it is apparent in Thailand and Vietnam, there is no social need for mechanization of commodity handling in physical distribution, given the availability of cheap labour. Considering the employment opportunities in the marketing industry, mechanization of commodity handling shall not a focus in the Study.

E.11.2 Strategy for Development

Based on the above preliminary development concept, strategy for development of rice marketing system can be summarized as follows;

Strengthening the farmer's bargaining power

- Improve access to markets and opportunity to meet better buyers by establishing the paddy collection markets
- Cooperate with the milling industry (Agribusiness vertical integration)
- Strengthen the Market Information Service
- Introduce a marketing extension service
- Promote farmer's group activity

Expanding the markets

- Legalize and liberalize the border paddy trade
- Strengthen the bargaining power of Cambodian border traders
- Convert paddy to milled rice in border trade
- Strengthen a market research and production of rice to match market needs
- Reduce distribution barriers by rehabilitating roads to deficit areas
- Procure domestic rice for WFP activity

Improve the rice quality

- Agribusiness vertical integration to enter high-quality rice markets

Improve the marketing efficiency in spatial distribution and pricing

- Strengthen the Market Information Service
- Eliminate informal costs
- Rehabilitate trunk roads and core distribution facilities
- Create an open-index-price by establishing the paddy collection markets
- Introduce quality standards and inspection services

Strengthen the public support services

- Improve fair access to business legislation/regulation
- Strengthen institutional capability
- Create a supervisory system over collusiveness

Appendix E : Marketing System

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Table E.1 Rice price in Phnom Penh and US\$ exchange rate (Jan. 1995-Aug. 2000)

Items	Unit	Jan-95	Feb-95	Mar-95	Apr-95	May-95	Jun-95	Jul-95	Aug-95	Sep-95	Oct-95	Nov-95	Dec-95
Exchange rate	Riel/US\$	2,609	2,609	2,508	2,280	2,337	2,337	2,406	2,445	2,500	2,518	2,533	2,550
Rice No.1	Riel per 3 kg	3,075	3,000	3,000	3,000	3,300	3,300	3,300	3,600	3,789	4,050	3,150	3,000
Rice No.2	Riel per 3 kg	2,475	2,439	2,400	2,550	2,550	2,550	2,700	2,700	2,700	2,700	2,700	2,640
Rice No.3	Riel per 3 kg	2,175	2,100	2,100	2,250	2,100	2,250	2,250	2,250	2,250	2,250	2,250	2,250
Rice Phaka Kagney	Riel per 3 kg												
Rice Neang Menh	Riel per 3 kg												

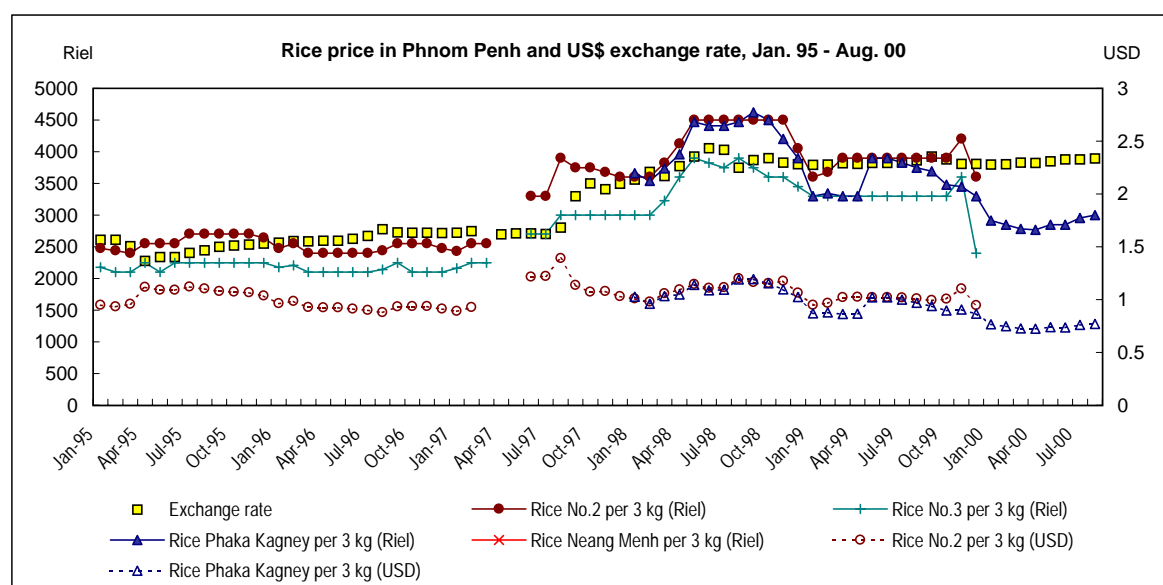
Items	Unit	Jan-96	Feb-96	Mar-96	Apr-96	May-96	Jun-96	Jul-96	Aug-96	Sep-96	Oct-96	Nov-96	Dec-96
Exchange rate	Riel/US\$	2,565	2,590	2,585	2,594	2,594	2,628	2,670	2,780	2,728	2,721	2,723	2,715
Rice No.1	Riel per 3 kg	3,075	2,925	2,700	2,850	2,850	2,925	3,000	3,075	3,300	3,264	3,264	3,264
Rice No.2	Riel per 3 kg	2,475	2,550	2,400	2,400	2,400	2,400	2,400	2,439	2,550	2,550	2,550	2,475
Rice No.3	Riel per 3 kg	2,175	2,205	2,100	2,100	2,100	2,100	2,100	2,139	2,250	2,100	2,100	2,100
Rice Phaka Kagney	Riel per 3 kg												
Rice Neang Menh	Riel per 3 kg												

Items	Unit	Jan-97	Feb-97	Mar-97	Apr-97	May-97	Jun-97	Jul-97	Aug-97	Sep-97	Oct-97	Nov-97	Dec-97
Exchange rate	Riel/US\$	2,721	2,746		2,695	2,711	2,713	2,700	2,803	3,300	3,500	3,408	3,493
Rice No.1	Riel per 3 kg	3,138	3,300	3,300			4,500	4,500	5,100	4,650	4,650	4,350	4,200
Rice No.2	Riel per 3 kg	2,427	2,550	2,550			3,300	3,300	3,900	3,750	3,750	3,675	3,600
Rice No.3	Riel per 3 kg	2,160	2,250	2,250			2,700	2,700	3,000	3,000	3,000	3,000	3,000
Rice Phaka Kagney	Riel per 3 kg												
Rice Neang Menh	Riel per 3 kg												

Items	Unit	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
Exchange rate	Riel/US\$	3,563	3,680	3,614	3,773	3,925	4,056	4,030	3,750	3,870	3,900	3,828	3,805
Rice No.1	Riel per 3 kg	4,200	4,200	4,389	5,175	6,000	6,000	6,000	6,000	5,400	5,400	4,800	4,650
Rice No.2	Riel per 3 kg	3,600	3,600	3,825	4,125	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,050
Rice No.3	Riel per 3 kg	3,000	3,000	3,225	3,600	3,900	3,825	3,750	3,900	3,750	3,600	3,600	3,450
Rice Phaka Kagney	Riel per 3 kg	3,660	3,540	3,735	3,960	4,470	4,410	4,410	4,470	4,620	4,500	4,200	3,900
Rice Neang Menh	Riel per 3 kg	3,240	3,150	3,240	3,360	3,870	3,840	3,900	3,840	4,020	3,900	3,750	3,600

Items	Unit	Jan-99	Feb-99	Mar-99	Apr-99	May-99	Jun-99	Jul-99	Aug-99	Sep-99	Oct-99	Nov-99	Dec-99
Exchange rate	Riel/US\$	3,792	3,800	3,819	3,808	3,821	3,821	3,831	3,864	3,926	3,880	3,810	3,810
Rice No.1	Riel per 3 kg	4,500	4,575	4,800	4,800	4,800	4,800	4,800	4,800	4,800	4,800		4,200
Rice No.2	Riel per 3 kg	3,600	3,675	3,900	3,900	3,900	3,900	3,900	3,900	3,900	3,900	4,200	3,600
Rice No.3	Riel per 3 kg	3,300	3,300	3,300	3,300	3,300	3,300	3,300	3,300	3,300	3,300	3,600	2,400
Rice Phaka Kagney	Riel per 3 kg	3,300	3,345	3,300	3,300	3,900	3,900	3,828	3,750	3,690	3,480	3,450	3,300
Rice Neang Menh	Riel per 3 kg	2,850	3,255	2,850	2,850	3,450	3,420	3,231	3,150	3,093	3,138	3,150	2,850

Items	Unit	Jan-00	Feb-00	Mar-00	Apr-00	May-00	Jun-00	Jul-00	Aug-00				
Exchange rate	Riel/US\$	3,799	3,805	3,826	3,823	3,850	3,878	3,880	3,895				
Rice No.1	Riel per 3 kg												
Rice No.2	Riel per 3 kg												
Rice No.3	Riel per 3 kg												
Rice Phaka Kagney	Riel per 3 kg	2,913	2,850	2,781	2,766	2,850	2,850	2,955	3,000				
Rice Neang Menh	Riel per 3 kg	2,487	2,550	2,448	2,334	2,295	2,313	2,394	2,400				



Source : AMO/MAFF, Bulletin of Retailing & Wholesale prices for Agr. Commodities

Table E.2 Paddy / Rice prices in selected provinces, 1998 - 2000

Province	Kompong Cham			Kandal		Takeo			Bat Damabang					
Variety	Mixed varieties			Phaka Kagney		IR		Rice No.2	Phaka Kagney		Neang Meng		Rice No.3	Rice No.2
Type of price	Paddy, Mill buying	Rice, Wholesale	Rice, Retail	Paddy, Mill buying	Rice, Mill selling	Paddy, Mill buying	Rice, Mill selling	Retail	Paddy, Mill buying	Rice, Mill selling	Paddy, Mill buying	Rice, Mill selling	Retail	Retail
Jan-98	440	730	800	496	789	441	736	671	553	958	487	852	700	800
Feb-98	400	690	770	515	824	413	704	681	461	877	425	756	835	995
Mar-98	400	670	740	521	835	415	678	684	524	969	479	855	823	903
Apr-98	500	820	890	593	982	478	779		578	1068	524	938	875	1000
May-98	560	960	1030	675	1088	537	880	925	761	1266	670	1153	900	1000
Jun-98	630	1030	1140	712	1157	599	972	1018	812	1290	686	1148	1107	1245
Jul-98	670	1090	1230	752	1247	648	1041	1140	736	1257	636	1132	1107	1245
Aug-98	680	1100	1200	705	1187	626	1028	1054	703	1218	609	1112	950	1048
Sep-98		1150	1220	733	1219	668	1082		745	1381	710	1229		1225
Oct-98		1130	1190	712	1191	621	1027	1061	714	1249	686	1147	821	1070
Nov-98	590	1035	1100		1162	549	953	955	536	875	484	810	763	812
Dec-98	460	830	990	520	1060	495	805	833	535	906	447	855	830	883
Jan-99	484	776	900	550	845			765	448	748	430	701	731	778
Feb-99	480	777	870	580	870			793	436	861	418	780	700	745
Mar-99	465	763	836	589	910			795	563	949	514	899	858	913
Apr-99	469	776	850	594	937	424	729	751	599	991	635	950	861	980
May-99	486	776	850	596	942	413	703	753					745	893
Jun-99	459	762	850	598	932			748	506	939	429	795	725	825
Jul-99	442	750	845	575	904	395	718	698	525	941	422	799	800	925
Aug-99	436	723	828	545	873	400	690	690	570	906	473	749	615	700
Sep-99	387	677	771	519	819	374	670	663	480	790	385	684	763	812
Oct-99	365	637	729	483	772	358	619	625	446	769	380	650	738	812
Nov-99	328	560	630	459	750	394	642	665	383	658	307	599	538	600
Dec-99	369	619	694	422	680	386	621	629	377	711	337	672	575	674
Jan-00	345	575	631	415	639	NA	NA		415	682	303	624		
Feb-00	333	558	609	429	648	NA	NA		389	659	295	589		
Mar-00	354	567	600	440	670	NA	NA		434	663	332	560		
Apr-00	360	580	620	427	656	NA	NA		399	658	335	526		
May-00	360	580	620	452	683	288	481		382	674	334	573		
Jun-00	365	590	630	450	688	289	492		405	704	354	634		
Jul-00	360	590	630	465	717	319	522		464	767	382	659		
Aug-00	374	619	663	464	748	346	592		459	819	431	745		
Sep-00	390	658	700	455	725	336	579		480	871	413	746		
Oct-00	390	665	700	474	748									
Nov-00														
Dec-00														

Source : Bulletin of Retailing / Wholesale prices of Agricultural Commodities 1998 -1999 AMO/MAFF

Raw data of Retailing / Wholesale prices Jan.-Oct. 2000 collected by AMO/MAFF

Table E.3 Price/origin of marketed-varieties in the Provincial towns

Province	Banteay Mean Chey	Bat Dambang 1	Bat Dambang 2	Siem Reap	Kandal/Takmahao	Kandal/Kin Svay	Phnom Penh/suburb	Phnom Penh (Railway Station)	Phnom Penh (Railway Station)	Kg. Cham	Kg. Spue 1	Kg. Spue 2	Prey Veang	Takeo 1	Takeo 2	Sihanoukville	Kratie
Date of survey	24-Oct	14-18 July	28-Oct	9-13 July	26-Aug	8-Nov	26 -28 Aug	18-Aug	10-Nov	1-Sep	28-Aug	30-Sep	15-Dec	14-Sep	17-Nov	30-Sep	29-Sep
Somely	1164	1200-1300	1358-1436	900-1000	1400 (BTB)		1500 (BTB)	1400 (BTB)	1250-1550 (BTB)	1200 (BTB)			900	1200 (BTB)	1200 (BTB)	1400-1500 (BTB)	
Phaka Kagney	970-1067	700-1000	1000-1100	1000-1100 (BTB)	900 (Kandal, Takeo), 1000-1100 (BTB)	1000 (BTB)	1100 (BTB)	1100 (BTB)	975-1050 (BTB)	980-1000 (BTB)		970-1000 (BTB)		1100 (BTB)	1000-1060 (BTB)	900-1100 (BTB)	
Kraya				1200													
N. Menh	679-873	700-720	730- 800-900	750-800	800-900 (BTB), 700 (Takeo)	850-900 (BTB)	800-900 (BTB)	800-900 (BTB)	780-900 (BTB)	780-850(BTB)	800 (BTB)	750 (BTB)		900 (BTB)	800 (BTB)	800-900 (BTB)	
N. Khon	873-970	700		800-850		900-1000 (BTB)	1000 (BTB)	1000 (BTB)	900-950 (BTB)	850 (BTB)		900-950 (BTB)			900 (BTB)		
Mixed	660-776	600-680	680	600-700			800 (Kg.Spue)	800 (Kg.Spue)		600 - 650 (P.Veng, Local)	750	680-700(Takeo), 680-700(Pusat), 730-750(Local)				750(Kg.Spue)	
IR					600 (Takeo), 700-800 (Local)	700 (P.Veng)	700 (Takeo, Kg.Spue)	650 (Takeo)	590-665 (Takeo)	570-590 (P.Veng, Kg.Cham)	700 (Takeo)	600-650 (Takeo)	550-700		600		670-700 (Kg.Cham)
State rice / USDA rice										600	600	600-650					
Srov Sor				560-600	800	900 (Takeo)											
Sro Krahome						900 (Takeo)	900 (Kg.Spue), 800 (PP)		750-850 (Takeo)					1000/5 cans	700-800		
Banla Padao						700 (P.Veng)							700-750				
Bram Bey												770-800				800-1000	
Chum Riek Phdao										650							
Damneb													850				
Ka Ngoak Pong										900							
Kam Ping Pouy											800						
Marum													800				
Neang Am																	1050-1100
Neang Chhong										600							
Phdao Pen										600							
Srov Kngeing																	720-750
Srov Thnaut																	720-750

Source : JICA Study Team Riel/kg (Origin of Rice) BTB: Bat Dambang, P.Veng: Prey Veang, PP: Phnom Penh, If no specify, origin is that province.
Gultinose rice and rice for processing use are not listed.

Table E.4 Prices in Phnom Penh Markets on August 18

Location of Seller	Category & Shop type		Buy from	Variety & Price										Sales Unit		
				Somely		Phaka Kagney		Neang Menh		Neang Konh		IR			Mix / Local	
				price	origin(grade)	price	origin(grade)	price	origin(grade)	price	origin	price	origin	price	origin	
North edge Km 6	Wholesaler	Shop	rice mill			940 BTD(no.1)		740 BTD(no.1)				na				Riel/100kg
						800 BTD(no.2)		720 BTD(no.2)								
North edge Km 6 market	Retailer	Shop	rice mill	na		1000 BTD		800 BTD		900 BTD		na		800, 750 PP		Riel/kg
City center St. 118	Retailer	Shop	rice mill	1400 BTD		1000 BTD		900 BTD		900 BTD		na		na		Riel/100kg
City center Railway station	Retailer	Shop	rice mill	1400 BTD		1100 BTD		900 BTD		1000 BTD		650 TK		800 KS		Riel/100kg
						800 PS										
City center St. 178	Wholesaler	Shop	rice mill	1250 BTD		1100 BTD		750 BTD		820-830 BTD		na		na		Riel/100kg
City center Orsey market	Retailer	Stall	wholesaler	1400 BTD(no.1)		1000 BTD(no.1)		800 BTD		900		na		na		Riel/kg
				1300 BTD(no.2)		900 BTD(no.2)										
City center St. 470	Retailer	Shop	wholesaler	1310 BTD		1080 BTD		850 BTD		1000 BTD		na		na		Riel/100kg
South edge Chbar Ampov market	Retailer	Stall	wholesaler/mill	na		1000 BTD		800 BTD		900 BTD		600 TK		700 KS		Riel/kg
South edge Chbar Ampov market	Wholesaler/Retailer	Shop	mill	na		910 BTD		710 BTD		800 BTD		600 TK, PV		660 BTD,TK,PV		Riel/100kg
						770 TK										

Source : JICA Study Team

BTD: Bat Dambang

PS: Pousat

TK: Takaev

PV: Prey Veang

PP: Phom Penh

na: not selling

Table E.5 Result of quality analysis, by seller's rice grades

(1) Comprison of quaiy by quality grade

Ref. No.	Variety	Production Area	Retail Price	Seller's grade	Whole grain	Head rice	Big broken	Broken	Small broken/ Chip (Fine)	Whole + Head	Big broken + Broken	Whole + Head + Big broken	Moisture content	Chalky kernels	Yellow kernels	Damage d kernels	Immature	Red/ red streak kernel	Foreign matter	Paddy	Location of seller
			(Riel/kg)		100%	80 ~ <100%	50%<80%	25 ~ <50%	<25%	100% ~ 80%	80% ~ 25%	100% ~ 50%	% w.b.	%	%	%	%	%	%	%	
P011	IR	Takeo	700	--	15.9	24.9	8.3	5.7	43.7	40.8	14.0	49.05	13.9	32.7	0.4	0.7	0	2.0	0	0.05	Kin Svay Market
P012	IR	Kampong Speu	700	--	3.2	9.8	7.3	9.5	69.9	13.0	16.8	20.29	14.0	18.5	0.1	0.3	0	0.6	0	0	Kin Svay Market
P07	Neang Menh	Battembang	800	Grade 1	16.0	16.3	9.9	7.0	49.5	32.2	16.9	42.14	13.1	11.6	0.2	0.1	0	0.4	0	0	Kin Svay Market
P010	Neang Menh	Battembang	800	Grade 1	23.1	43.6	5.4	3.2	24.1	66.7	8.6	72.06	13.7	9.2	0.3	0.4	0	0.1	0	0	shop near Railway Station
P03B	Phaka Kagney	Battembang	800	Grade 2	49.3	16.1	7.5	10.3	15.9	65.4	17.8	72.89	13.1	16.5	0.5	0.3	0	0.7	0	0	Kilo Meter 6
P08B	Phaka Kagney	Kandal	800	Grade 2	4.3	18.0	15.6	9.2	51.3	22.3	24.7	37.81	13.7	11.7	0.2	0.0	0	0.1	0	0	Kin Svay Market
P01B	Phaka Kagney	Battembang	900	Grade 2	29.1	24.2	6.2	7.5	31.6	53.3	13.7	59.51	13.1	12.8	0.3	0.2	0	0.2	0	0	Takhmau market
P02B	Phaka Kagney	Battembang	900	Grade 2	8.3	46.1	7.8	6.8	29.7	54.4	14.7	62.22	13.0	12.8	0.1	0.1	0	0.5	0	0	shops near Orussey market
P02A	Phaka Kagney	Battembang	1000	Grade 1	25.5	25.6	4.0	5.3	39.1	51.1	9.2	55.00	13.2	19.7	0.5	0.1	0	0.3	0	0	shops near Orussey market
P03A	Phaka Kagney	Battembang	1000	Grade 1	26.9	42.8	5.5	3.1	20.5	69.8	8.6	75.29	13.1	15.1	0.9	0.2	0	0.6	0	0	Kilo Meter 6
P01A	Phaka Kagney	Battembang	1100	Grade 1	21.4	31.7	8.2	3.9	34.1	53.1	12.1	61.29	13.1	15.2	0.5	0.3	0	0.2	0	0	Takhmau market
P08A	Phaka Kagney	Battembang	1200	Grade 1	19.2	51.9	10.3	2.5	15.6	71.1	12.8	81.45	13.2	16.7	0.2	0.1	0	0.7	0	0	Kin Svay Market
P09	Somaly	Battembang	700	Grade 3	0.5	0.4	0.3	12.8	84.7	0.9	13.1	1.19	13.5	10.8	0.5	0.6	0	0.2	0	0	Kin Svay Market
P05B	Somaly	Battembang	900	Grade 2	30.4	17.7	13.8	11.0	24.9	48.1	24.8	61.89	14.2	16.2	1.0	0.2	0	0.2	0	0	shops near Orussey market
P04B	Somaly	Kandal	1000	Grade 2	14.0	29.1	15.7	11.7	28.3	43.0	27.4	58.71	13.6	10.6	0.8	0.3	0	0.2	0	0	Takhmau market
P06B	Somaly	Battembang	1000	Grade 2	36.9	14.8	7.2	10.9	28.5	51.7	18.2	58.92	13.1	16.1	0.2	0.2	0	0.1	0	0	Kilo Meter 6
P04A	Somaly	Battembang	1100	Grade 1	42.0	18.9	6.3	3.5	24.7	60.8	9.8	67.15	12.3	11.1	0.2	0.5	0	0.4	0	0	Takhmau market
P05A	Somaly	Battembang	1100	Grade 1	35.0	37.8	12.2	7.0	7.5	72.8	19.2	84.91	12.5	18.9	0.4	0.1	0	0.1	0	0	shops near Orussey market
P06A	Somaly	Battembang	1200	Grade 1	52.8	13.5	8.9	7.4	16.1	66.3	16.3	75.20	14.6	12.2	1.4	0.3	0	0.7	0	0	Kilo Meter 6

Data Source : JICA Study Team, samples collected on Dec.09, 2000

(2) Correlation coefficient between retail price and quality indicators

Quality indicator	Phaka Kagney	Somaly
Retail Price (Riel/kg)	1	1
Whole grain	-0.116	0.897++
Head rice	0.704+	0.515
Big broken	-0.199	0.167
Broken	-0.930++	-0.673+
Small broken/ Chip (Fine)	-0.341	-0.884++
Whole + Head	0.507	0.940++
Big broken + Broken	-0.651+	-0.189
Whole + Head + Big broken	0.525	0.900++

Table E.6 Price/monthly sales amount in & outside of Phnom Penh

(1) Rice shops at the center of Phnom Penh

Total Nos. of Surveyed Shop = 23

Variety	Origin	Seller's Grade	Average retail price	Max. retail price	Min. retail price	Total of sales amount per month per variety (Kg/Month)	Number of shops selling it
Somaly		No.1	1,424	1,560	1,287	8,500	2
Somaly		No.2	1,326			3,000	1
Somaly		New crop	1,236	1,482	1,100	7,600	5
Somaly		Old crop	1,470	1,800	1,300	4,100	5
Somaly		?	1,322	1,450	1,100	28,850	15
Phaka Kagney			1,003	1,100	900	15,500	23
Neang Ming			835	900	750	229,400	23
Neang Khon			928	1,000	850	165,000	18
Thai rice		No.1	2,795	3,500	2,340	550	4
Thai rice		No.2	1,275	1,560	1,014	1,350	3
Thai rice		No.3	1,008	1,092	936	15,250	9
Thai rice		AAA	939	1,000	858	111,700	5
Srov Kraham			820	900	750	25,400	4
Srov Sar			813	850	800	17,300	4
IR	Takeo		634	663	590	420,600	4
IR	Kg.Spue		750	--	--	If get order	1
IR	Unknown		750	800	700	2,500	3
IR (state rice)			642	700	600	30,000	5
Chhut Tana	BTB		1,014	--	--	200	1
Chang Vay Phdao			780	--	--	1,400	1

Data Source : JICA Study Team

Total 1,088,200 136

Collected on 10 Nov. 2000

Per shop per month 47,313 6

at rice shops near railway station and near orrusey market

Per shop per day 1,577

(2) Rice shops in Takmaho Market

Total Nos. of Surveyed Shop = 15

Variety	Origin	Seller's Grade	Average retail price	Max. retail price	Min. retail price	Total of sales amount per month per variety (Kg/Month)	Number of shops selling it
Somaly			1,500	--	--	50	1
Somaly		No.3 / 4	1,000	--	--	100	1
Phaka Kagney	BTB		1,125	1,200	1,100	1,400	4
Phaka Kagney	Kandal		963	1,000	900	4,090	12
Neang Ming	BTB		933	1,000	900	1,500	3
Neang Ming	Kandal		850	900	800	2,400	4
Neang Ming	Other&Unknown		860	900	800	1,350	5
Thai rice	Thai		1,250	1,300	1,200	170	2
Thai rice	Thai		1,100	1,200	1,000	720	7
Srov Kraham			780	900	700	1,600	5
Srov Sar			835	900	750	4,110	10
IR			686	800	600	2,650	7
IR (state rice)			580	700	500	1,180	5
Phaka Sla			600	--	--	50	1
Masary			800	--	--	500	2
KaNgok Pong			1,000	--	--	300	1
Chhmar Prum			800	--	--	450	1
Glutinous rice			1,164	1,400	1,000	570	7
Blended rice	Ph.Kagney+Somaly		1,050	1,100	1,000	1,300	2

Data Source : JICA Study Team

Total 24,490 80

Collected on 31 Oct. 2000

Per shop per month 1,633 5

Per shop per day 54

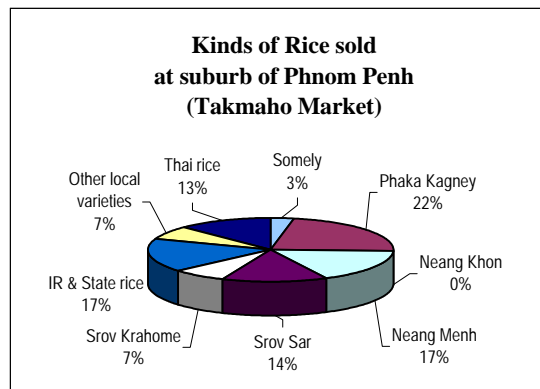
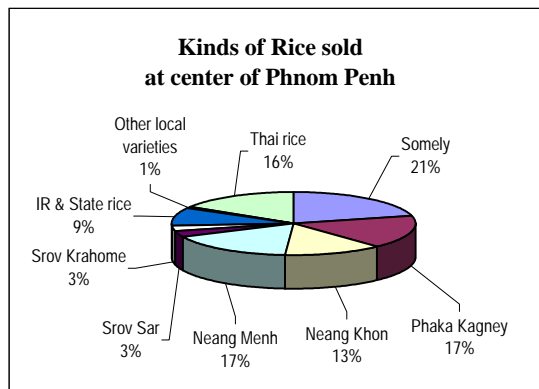


Table E.7 (1/2) Cost & Margin (Phaka Kagney, Battambang - Phnom Penh)

Variety	Phaka Kagney						Cost & Margin (Value, Riel/kg)				% of Farmer price, Cost & margin in Retail price				
Price Source	Battambang Rice Mill		Battambang Rice Mill		Phnom Penh near Railway station		Milling Cost & Margin	Transport & Wholesale Cost & Margin	Rice shop Cost & Margin	Total Cost & Margin	Mill buying (Farmer's price)	Transport & Wholesale Cost & Margin		Rice shop selling Cost & Margin	
	Paddy, Mill buying	Paddy→Rice (x 1/62)	Rice, Mill selling	Rice, rice shop buying	Rice, rice shop selling	1A/4						5/4	6/4		7/4
Price	1	1A	2	3	4	5=2-1A	6=3-2	7=4-3	8						
Jan-98	553	892	958	1170	1220	66	212	50	328	73%	5%	17%	4%		
Feb-98	461	744	877	1130	1180	133	253	50	436	63%	11%	21%	4%		
Mar-98	524	845	969	1195	1245	124	226	50	400	68%	10%	18%	4%		
Apr-98	578	932	1068	1270	1320	136	202	50	388	71%	10%	15%	4%		
May-98	761	1227	1266	1440	1490	39	174	50	263	82%	3%	12%	3%		
Jun-98	812	1310	1290	1420	1470	-20	130	50	160	89%	-1%	9%	3%		
Jul-98	736	1187	1257	1420	1470	70	163	50	283	81%	5%	11%	3%		
Aug-98	703	1134	1218	1440	1490	84	222	50	356	76%	6%	15%	3%		
Sep-98	745	1202	1381	1490	1540	179	109	50	338	78%	12%	7%	3%		
Oct-98	714	1152	1249	1450	1500	97	201	50	348	77%	6%	13%	3%		
Nov-98	536	865	875	1350	1400	10	475	50	535	62%	1%	34%	4%		
Dec-98	535	863	906	1250	1300	43	344	50	437	66%	3%	26%	4%		
Jan-99	448	723	748	1000	1100	25	252	100	377	66%	2%	23%	9%		
Feb-99	436	703	861	1030	1115	158	169	85	412	63%	14%	15%	8%		
Mar-99	563	908	949	1000	1100	41	51	100	192	83%	4%	5%	9%		
Apr-99	599	966	991	1000	1100	25	9	100	134	88%	2%	1%	9%		
May-99				1250	1300			50					4%		
Jun-99	506	816	939	1250	1300	123	311	50	484	63%	9%	24%	4%		
Jul-99	525	847	941	1226	1276	94	285	50	429	66%	7%	22%	4%		
Aug-99	570	919	906	1200	1250	-13	294	50	331	74%	-1%	24%	4%		
Sep-99	480	774	790	1200	1230	16	410	30	456	63%	1%	33%	2%		
Oct-99	446	719	769	1114	1160	50	345	46	441	62%	4%	30%	4%		
Nov-99	383	618	658	1100	1150	40	442	50	530	54%	4%	38%	4%		
Dec-99	377	608	711	1000	1100	103	289	100	492	55%	9%	26%	9%		
average	565	911	982	1225	1284	71	242	59	365	71%	6%	19%	5%		
SD	122	197	199	157	144	53	114	20	104	10%	4%	10%	2%		
Max.-Min	435	702	723	490	440	199	466	70	402	35%	15%	38%	7%		

Source : Bulletin of Wholesale prices for Agr. Commodities 1998, MAFF (Yearly Bulletin Series No.1)
 Bulletin of Wholesale prices for Agr. Commodities 1999, MAFF (Yearly Bulletin Series, Pre-binding copy)

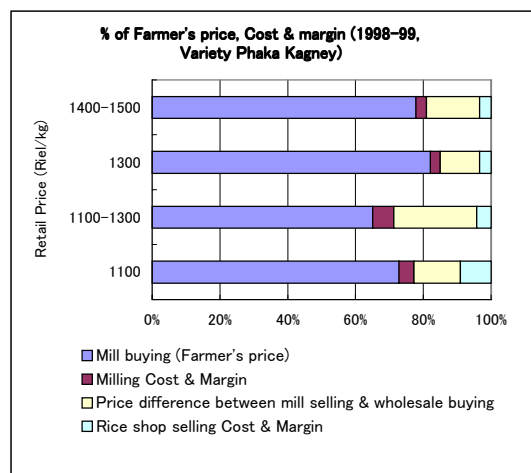
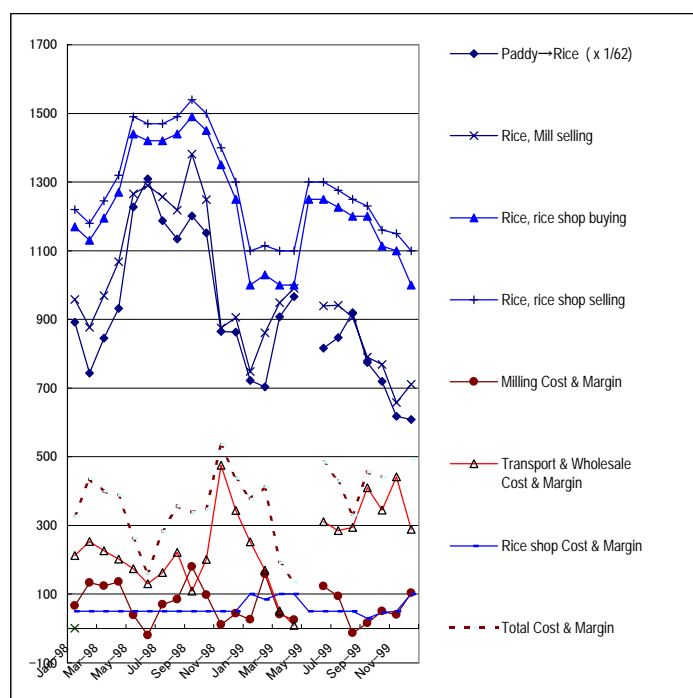


Table E.7 (2/2) Cost & Margin (Neang Meng, Battambang - Phnom Penh)

Variety	Neang Meng						Cost & Margin (Value, Riel/kg)				% of Farmer price, Cost & margin in Retail price				
	Battambang Rice Mill	Battambang Rice Mill	Battambang Rice Mill	Phnom Penh near Railway station	Phnom Penh near Railway station		Milling Cost & Margin	Transport & Wholesale Cost & Margin	Rice shop Cost & Margin	Total Cost & Margin	Mill buying (Farmer's price)	Milling Cost & Margin	Transport & Wholesale Cost & Margin	Rice shop selling Cost & Margin	
Price Source	Paddy, Mill buying	Paddy→Rice (x 1/62)	Rice, Mill selling	Rice, rice shop buying	Rice, rice shop selling		5=2-1A	6=3-2	7=4-3	8	1A/4	5/4	6/4	7/4	
Price	1	1A	2	3	4										
Jan-98	487	785	852	1030	1080		67	178	50	295	73%	6%	16%	5%	
Feb-98	425	685	756	1000	1050		71	244	50	365	65%	7%	23%	5%	
Mar-98	479	773	855	1030	1080		82	175	50	307	72%	8%	16%	5%	
Apr-98	524	845	938	1070	1120		93	132	50	275	75%	8%	12%	4%	
May-98	670	1081	1153	1240	1290		72	87	50	209	84%	6%	7%	4%	
Jun-98	686	1106	1148	1250	1280		42	102	30	174	86%	3%	8%	2%	
Jul-98	636	1026	1132	1250	1300		106	118	50	274	79%	8%	9%	4%	
Aug-98	609	982	1112	1230	1280		130	118	50	298	77%	10%	9%	4%	
Sep-98	710	1145	1229	1290	1340		84	61	50	195	85%	6%	5%	4%	
Oct-98	686	1106	1147	1250	1300		41	103	50	194	85%	3%	8%	4%	
Nov-98	484	781	810	1200	1250		29	390	50	469	62%	2%	31%	4%	
Dec-98	447	721	855	1150	1200		134	295	50	479	60%	11%	25%	4%	
Jan-99	430	694	701	900	950		7	199	50	256	73%	1%	21%	5%	
Feb-99	418	674	780	930	1085		106	150	155	411	62%	10%	14%	14%	
Mar-99	514	829	899	900	950		70	1	50	121	87%	7%	0.1%	5%	
Apr-99	635	1024	950	900	950		-74	-50	50	-74	108%	-8%	-5%	5%	
May-99				1100	1150				50					4%	
Jun-99	429	692	795	1090	1140		103	295	50	448	61%	9%	26%	4%	
Jul-99	422	681	799	1027	1077		118	228	50	396	63%	11%	21%	5%	
Aug-99	473	763	749	1000	1050		-14	251	50	287	73%	-1%	24%	5%	
Sep-99	385	621	684	1000	1031		63	316	31	410	60%	6%	31%	3%	
Oct-99	380	613	650	1000	1046		37	350	46	433	59%	4%	33%	4%	
Nov-99	307	495	599	1000	1050		104	401	50	555	47%	10%	38%	5%	
Dec-99	337	544	672	900	950		128	228	50	406	57%	14%	24%	5%	
average	503	812	881	1072	1125		70	190	53	312	72%	6%	17%	5%	
SD	117	189	183	127	124		49	116	22	137	13%	5%	11%	2%	
Max.-Min	403	650	630	390	390		208	451	125	629	61%	21%	43%	12%	

Source : Bulletin of Wholesale prices for Agr. Commodities 1998, MAFF (Yearly Bulletin Series No.1)
Bulletin of Wholesale prices for Agr. Commodities 1999, MAFF (Yearly Bulletin Series, Pre-binding copy)

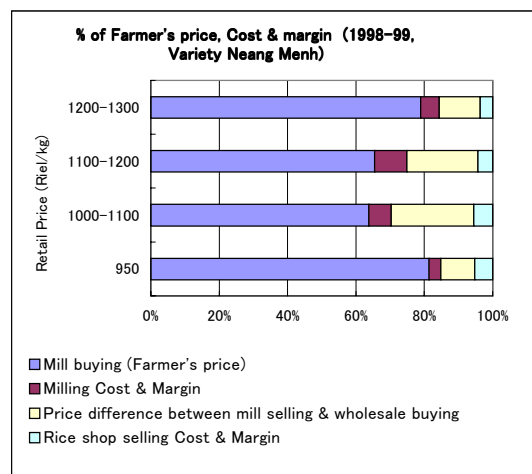
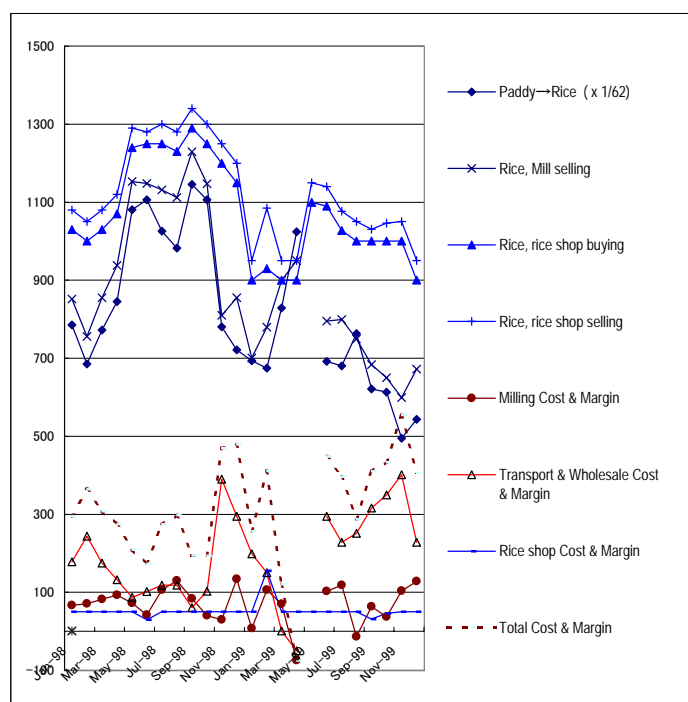


Table E.8 Paddy/rice/export prices in Cambodia-Thailand-Vietnam, 1998-1999 (US\$ converted price)

Unit : US\$/ton

	Thailand, Expor price & Paddy price							Cambodia, Paddy Rice Mill buying price by variety						Cambodia, Wholesale/Mill selling price by variety								Cambodia, Retail price of Rice No. 1-2-3						Vietnam, Export & Paddy price		
	WFR 100% A	Thai Long grain 100% grade B	Thai Long grain 15% broken	Thai Long grain 35% broken	5% Paddy in Thailand	10% Paddy in Thailand	Jasmine Paddy in Thailand	BTB, Paddy, P.Kagney, Mill buying	BTB, Paddy, N.Meng, Mill buying	BTB, Paddy, Mixed, Mill buying	Takeo, Paddy, IR, Mill buying	K.Cham, Paddy, Mixed, Mill buying	Kandal, Paddy, P.Kagney, Mill buying	PP, Rice, P.Kagney, Bulk selling	PP, Rice, N.Menh, Bulk selling	Takeo, Rice, IR, Mill selling	BTB, Rice, P.Kagney, Mill selling	BTB, Rice, N.Meng, Mill selling	Kampot, Rice, Chmarpr, Bulk selling	K.Cham, Rice, Mixed, Bulk selling	Kandal, Rice, P.Kagney, Mill selling	Rice No.1, Retail in BTB	Rice No.2, Retail in BTB	Rice No.3, Retail in BTB	Rice No.1, Retail in PP	Rice No.2, Retail in PP	Rice No.3, Retail in PP	Vietnam 5% broken	Ordinary paddy, Dong Thap	Ordinary white rice, Dong Thap
Jan-98	638	299	278	236	134.40	130.67	170.82	155.21	136.68		123.77	123.49	139.21	342.41	303.12	206.57	268.87	239.12	276.73	204.88	221.44	252.60	224.53	196.46	392.93	336.79	280.66	262	154.58	241.40
Feb-98	630	307	279	235	159.29	154.75	214.51	125.27	115.49		112.23	108.70	139.95	320.65	285.33	191.30	238.32	205.43	244.57	187.50	223.91	309.24	270.38	226.90	380.43	326.09	271.74	255	150.52	240.01
Mar-98	635	306	278	235	159.53	154.77	209.16	144.99	132.54		114.83	110.68	144.16	344.49	298.84	187.60	268.12	236.58	271.44	185.39	231.05	275.32	249.86	227.73	404.81	352.79	297.45	280	130.98	213.19
Apr-98	641	326	296	249	166.92	161.00	217.73	153.19	138.88		126.69	132.52	157.17	349.85	296.85	206.47	283.06	248.61	287.04	217.33	260.27	337.93	265.04	231.91	457.20	364.43	318.05	295	141.62	237.43
May-98	655	328	299	248	170.04	167.12	227.72	193.89	170.70	154.65	136.82	142.68	171.97	379.62	328.66	224.20	322.55	293.76	280.25	244.59	277.20	299.36	254.78	229.30	509.55	382.17	331.21		163.48	277.35
Jun-98	630	338	311	256	157.84	151.86	202.11	200.20	169.13	155.08	147.68	155.33	175.54	362.43	315.58	239.64	318.05	283.04	303.99	253.94	285.26	325.44	306.95	272.93	493.10	369.82	314.35	304	160.48	272.19
Jul-98	607	337	304	255	166.42	158.04	199.25	182.63	157.82	155.09	160.79	166.25	186.60	364.76	322.58	258.31	311.91	280.89	321.59	270.47	309.43	327.54	308.93	274.69	496.28	372.21	310.17	305	148.81	268.27
Aug-98	603	334	305	264	172.61	160.92	200.32	187.47	162.40	154.13	166.93	181.33	188.00	397.33	341.33	274.13	324.80	296.53	345.33	293.33	316.53	314.40	279.47	253.33	533.33	400.00	346.67	315	150.40	271.09
Sep-98	563	332	304	269	179.81	167.96	198.54	192.51	183.46	179.07	172.61		189.41	397.93	346.25	279.59	356.85	317.57		297.16	314.99	347.03	316.54		465.12	387.60	323.00	311	156.19	264.27
Oct-98	520	306	282	264	188.18	176.71	205.46	183.08	175.90	161.03	159.23		182.56	384.62	333.33	263.33	320.26	294.10	358.97	289.74	305.38	291.28	274.36	210.51	461.54	384.62	307.69	295	142.17	255.65
Nov-98	490	278	260	248	159.74	154.37	183.70	140.02	126.44	117.03	143.42	154.13		365.73	326.54	248.96	228.58	211.60	365.73	270.38	303.55	226.49	212.12	199.32	417.97	391.85	313.48	278	141.96	253.99
Dec-98	480	282	261	245	153.32	149.52	171.70	140.60	117.48	112.75	130.09	120.89	136.66	341.66	315.37	211.56	238.11	224.70		218.13	278.58	245.20	232.06	218.13	407.36	354.80	302.23	258	139.35	239.90
Jan-99	490	308	283	252	169.55	164.10	182.03	118.14	113.40	107.59		127.64	145.04	290.08	250.53		197.26	184.86	348.10	204.64	222.84	215.72	205.17	192.77	395.57	316.46	290.08	245	134.04	237.68
Feb-99	481	287	263	234	163.16	158.86	177.98	114.74	110.00	105.53		126.32	152.63	293.42	285.53		226.58	205.26	328.68	204.47	228.95	219.47	196.05	184.21	401.32	322.37	289.47	239	123.37	228.22
Mar-99	444	263	239	213	153.38	150.63	170.99	147.42	134.59	128.31		121.76	154.23	288.03	248.76		248.49	235.40	288.03	199.79	238.28	246.14	239.07	224.67	418.96	340.40	288.03	228	118.71	211.02
Apr-99	407	242	221	199	143.08	140.74	165.99	157.30	166.75	137.34	111.34	123.16	155.99	288.87	249.47	191.44	260.24	249.47	288.87	203.78	246.06	275.74	257.35	226.10	420.17	341.39	288.87	221	120.48	213.41
May-99	420	252	229	202		141.26	173.27				108.09	127.19	155.98	340.23	300.97	183.98			301.75	203.09	246.53	265.64	233.71	194.98	418.74	340.23	287.88	229	122.00	214.29
Jun-99	422	262	240	217	145.21	138.99	174.68	132.43	112.27	105.47		120.13	156.50	340.23	298.35		245.75	208.06	330.02	199.42	243.92	242.08	215.91	189.74	418.74	340.23	287.88	238	124.00	214.29
Jul-99	441	259	241	220	145.19	139.53	184.14	137.04	110.15	108.33	103.11	115.37	150.09	333.07	281.13	187.42	245.63	208.56	308.54	195.77	235.97	259.72	241.45	208.82	417.65	339.34	287.13	230	125.86	213.07
Aug-99	450	253	237	216	141.09	136.53	184.96	147.52	122.41	106.63	103.52	112.84	141.05	323.50	271.74	178.57	234.47	193.84	318.06	187.11	225.93	209.37	181.16	159.16	414.08	336.44	284.68	230	125.79	207.14
Sep-99	516	235	217	198	140.86	136.85	203.27	122.26	98.06	93.48	95.26	98.57	132.20	313.30	262.61	170.66	201.22	174.22	285.53	172.44	208.61	220.84	206.83	194.35	407.54	331.13	280.18	221	121.79	207.14
Oct-99	530	223	205	186	132.55	128.16	194.58	114.95	97.94	90.21	92.27	94.07	124.48	298.97	269.59	159.54	198.20	167.53	283.51	164.18	198.97	223.45	209.28	190.21	412.37	335.05	283.51	201	119.64	207.14
Nov-99	540	236	216	195	128.67	124.01	193.29	100.52	80.58	74.54	103.41	86.09	120.47	301.84	275.59	168.50	172.70	157.22	367.45	146.98	196.85	185.83	157.48	141.21		367.45	314.96	217	120.14	200.00
Dec-99	562	240	221	195	118.95	113.28	167.86	98.95	88.45	78.22	101.31	96.85	110.76	288.71	249.34	162.99	186.61	176.38	268.24	162.47	178.48	185.83	176.90	150.92	367.45	314.96	209.97	227	136.36	215.50

Source : AMO/MAFF, USDA Rice Outlook, OMIC, Dong Thap province Pricing Dept./Vietnam

PP : Phnom Penh

BTB : Battambang

Table E.9 Correlation Coefficient for Selected Prices, 1998 - 1999 (US\$ converted prices)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	BTB, Paddy, P.Kagney, Mill buying	BTB, Paddy, N.Meng, Mill buying	BTB, Rice, P.Kagney, Mill selling	BTB, Rice, N.Meng, Mill selling	Takeo, Paddy, IR, Mill buying	Takeo, Rice, IR, Mill selling	Kandal, Paddy, P.Kagney, Mill buying	Kandal, Rice, P.Kagney, Mill selling	K.Cham, Paddy, Mixed, Mill buying	K.Cham, Rice, Mixed, Bulk selling	PP, Rice, P.Kagney, Bulk selling	PP, Rice, N.Menh, Bulk selling	Kampot, Rice Chmarproum, Bulk selling	Thai Long grain 100% grade B	Thai Long grain 15% broken	Thai Long grain 35% broken	Jasmine Paddy in Thailand	5% Paddy in Thailand	10% Paddy in Thailand	Vietnam 5% broken	Ordinary paddy, Dong Thap	Ordinary white rice, Dong Thap
1	1	0.952++	0.958++	0.952++	0.833++	0.833++	0.889++	0.834++	0.801++	0.833++	0.806++	0.724+	0.053	0.736+	0.742+	0.711+	0.41	0.654+	0.630+	0.809++	0.698+	0.783+
2	0.952++	1	0.939++	0.962++	0.811++	0.812++	0.886++	0.809++	0.787+	0.832++	0.706+	0.637+	0.036	0.711+	0.711+	0.698+	0.334	0.710+	0.693+	0.761+	0.634+	0.742+
3	0.958++	0.939++	1	0.982++	0.857++	0.847++	0.917++	0.827++	0.799+	0.840++	0.836++	0.774+	-0.007	0.795+	0.794+	0.757+	0.445	0.719+	0.683+	0.854++	0.708+	0.776+
4	0.952++	0.962++	0.982++	1	0.886++	0.870++	0.911++	0.848++	0.829++	0.864++	0.795+	0.747+	0.031	0.789+	0.786+	0.764+	0.375	0.733+	0.703+	0.853++	0.703+	0.799+
5	0.833++	0.811++	0.857++	0.886++	1	0.988++	0.887++	0.930++	0.943++	0.961++	0.896++	0.899++	0.465	0.830++	0.838++	0.911++	0.293	0.826++	0.782+	0.919++	0.746+	0.899++
6	0.833++	0.812++	0.847++	0.870++	0.988++	1	0.918++	0.951++	0.965++	0.984++	0.907++	0.899++	0.5	0.795+	0.808++	0.906++	0.276	0.840++	0.798+	0.894++	0.714+	0.888++
7	0.889++	0.886++	0.917++	0.911++	0.887++	0.918++	1	0.932++	0.937++	0.936++	0.774+	0.739+	0.329	0.741+	0.733+	0.757+	0.352	0.826++	0.783+	0.783+	0.534	0.763+
8	0.834++	0.809++	0.827++	0.848++	0.930++	0.951++	0.932++	1	0.923++	0.962++	0.849++	0.845++	0.414	0.704+	0.711+	0.807++	0.3	0.787+	0.748+	0.832++	0.596	0.811++
9	0.801++	0.787+	0.799+	0.829++	0.943++	0.965++	0.937++	0.923++	1	0.985++	0.742+	0.720+	0.331	0.754+	0.759+	0.798+	0.19	0.741+	0.682+	0.821++	0.612+	0.846++
10	0.833++	0.832++	0.840++	0.864++	0.961++	0.984++	0.936++	0.962++	0.985++	1	0.839++	0.825++	0.416	0.742+	0.754+	0.848++	0.288	0.807++	0.758+	0.855++	0.668+	0.868++
11	0.806++	0.706+	0.836++	0.795+	0.896++	0.907++	0.774+	0.849++	0.742+	0.839++	1	0.955++	0.246	0.702+	0.715+	0.753+	0.511	0.654+	0.589	0.860++	0.721+	0.772+
12	0.724+	0.637+	0.774+	0.747+	0.899++	0.899++	0.739+	0.845++	0.720+	0.825++	0.955++	1	0.316	0.694+	0.705+	0.759+	0.438	0.651+	0.591	0.829++	0.704+	0.786+
13	0.053	0.036	-0.007	0.031	0.465	0.5	0.329	0.414	0.331	0.416	0.246	0.316	1	0.053	0.076	0.303	-0.137	0.308	0.255	0.214	-0.111	0.172
14	0.736+	0.711+	0.795+	0.789+	0.830++	0.795+	0.741+	0.704+	0.754+	0.742+	0.702+	0.694+	0.053	1	0.997++	0.930++	0.55	0.796+	0.782+	0.927++	0.834++	0.873++
15	0.742+	0.711+	0.794+	0.786+	0.838++	0.808++	0.733+	0.711+	0.759+	0.754+	0.715+	0.705+	0.076	0.997++	1	0.945++	0.534	0.793+	0.777+	0.931++	0.849++	0.883++
16	0.711+	0.698+	0.757+	0.764+	0.911++	0.906++	0.757+	0.807++	0.798+	0.848++	0.753+	0.759+	0.303	0.930++	0.945++	1	0.427	0.874++	0.843++	0.915++	0.775+	0.874++
17	0.41	0.334	0.445	0.375	0.293	0.276	0.352	0.3	0.19	0.288	0.511	0.438	-0.137	0.55	0.534	0.427	1	0.51	0.515	0.527	0.501	0.459
18	0.654+	0.710+	0.719+	0.733+	0.826++	0.840++	0.826++	0.787+	0.741+	0.807++	0.654+	0.651+	0.308	0.796+	0.793+	0.874++	0.51	1	0.990++	0.762+	0.505	0.718+
19	0.630+	0.693+	0.683+	0.703+	0.782+	0.798+	0.783+	0.748+	0.682+	0.758+	0.589	0.591	0.255	0.782+	0.777+	0.843++	0.515	0.990++	1	0.719+	0.49	0.696+
20	0.809++	0.761+	0.854++	0.853++	0.919++	0.894++	0.783+	0.832++	0.821++	0.855++	0.860++	0.829++	0.214	0.927++	0.931++	0.915++	0.527	0.762+	0.719+	1	0.840++	0.897++
21	0.698+	0.634+	0.708+	0.703+	0.746+	0.714+	0.534	0.596	0.612+	0.668+	0.721+	0.704+	-0.111	0.834++	0.849++	0.775+	0.501	0.505	0.49	0.840++	1	0.908++
22	0.783+	0.742+	0.776+	0.799+	0.899++	0.888++	0.763+	0.811++	0.846++	0.868++	0.772+	0.786+	0.172	0.873++	0.883++	0.874++	0.459	0.718+	0.696+	0.897++	0.908++	1

Table E.10 Allotment of State Rice for Police

as of Aug. 2000

	Number of Official	Amount of Rice (ton/year)
Cambodia (A + B)	63,726	17,445
A. Total of employee of Min. of Interior (Central government)	20,312	5,560
B. Total of employee of Provincial Departments of Interior (breakdown)	43,414	11,885
1 Phnom Penh	5,889	1,612
2 Kandal	2,549	698
3 Prey Veang	2,253	617
4 Kampong Cham	3,916	1,072
5 Svay Rieng	1,419	388
6 Takev	1,916	525
7 Kampong Chhnang	1,469	402
8 Bat Dambang	2,885	790
9 Siem Reab + Angkor Area Protection	2,842	778
10 Kampong Spueu	2,218	607
Sub-total (Study Area)	27,356	7,489
11 Kampong Thum	1,763	483
12 Banteay Mean Chey	1,917	525
13 Pousat	1,843	505
14 Otdar Mean Chey	671	184
15 Krong Pailin	349	96
16 Krong Preah Sihanouk	1,232	337
17 Kampot	2,092	573
18 Kaoh Kong	1,223	335
19 Krong Kaeb	429	117
20 Preah Vihear	868	238
21 Stueng Traeng	906	248
22 Rotanak Kiri	655	179
23 Mondol Kiri	565	155
24 Kracheh	1,545	423
Sub-total (Non Study Area)	16,058	4,396

Source : Dept. of Logistics & Technical Materials, Min. of Interior, Phnom Penh

Note : In addition to above amount, there are rice used for the rural missions.

Basis for calculation is 0.75 kg/day/person. This figure have been applied customary.

Table E.11 Paddy varieties purchased by rice millers

	Somely	Phaka Kagney	Neang Khon	Neang Minh	Mixed	Total
Bat Dambang	5,300 9%	15,920 28%	3,570 6%	6,550 11%	25,830 45%	57,170 100%
Pousat	2,740 10%	2,450 9%	2,000 8%	0 0%	19,150 73%	26,340 100%
Siem Reap	2,760 6%	2 0%	0 0%	0 0%	43,138 94%	45,900 100%
Banteay Mean Chey	1,155 6%	2,190 12%	1,600 9%	3,610 20%	9,950 54%	18,505 100%
Total	11,955 8%	20,562 14%	7,170 5%	10,160 7%	98,068 66%	147,915 100%

Source : Rice Mills Operation and Capacity Study in Northwest Cambodia, EDC / May 2000

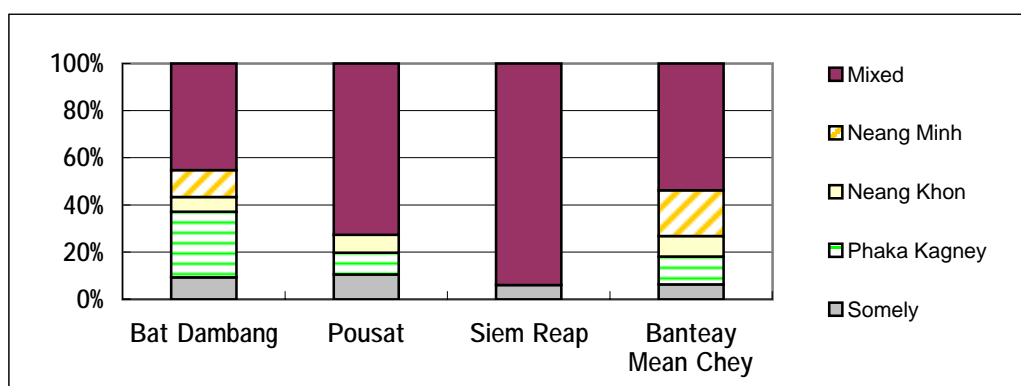
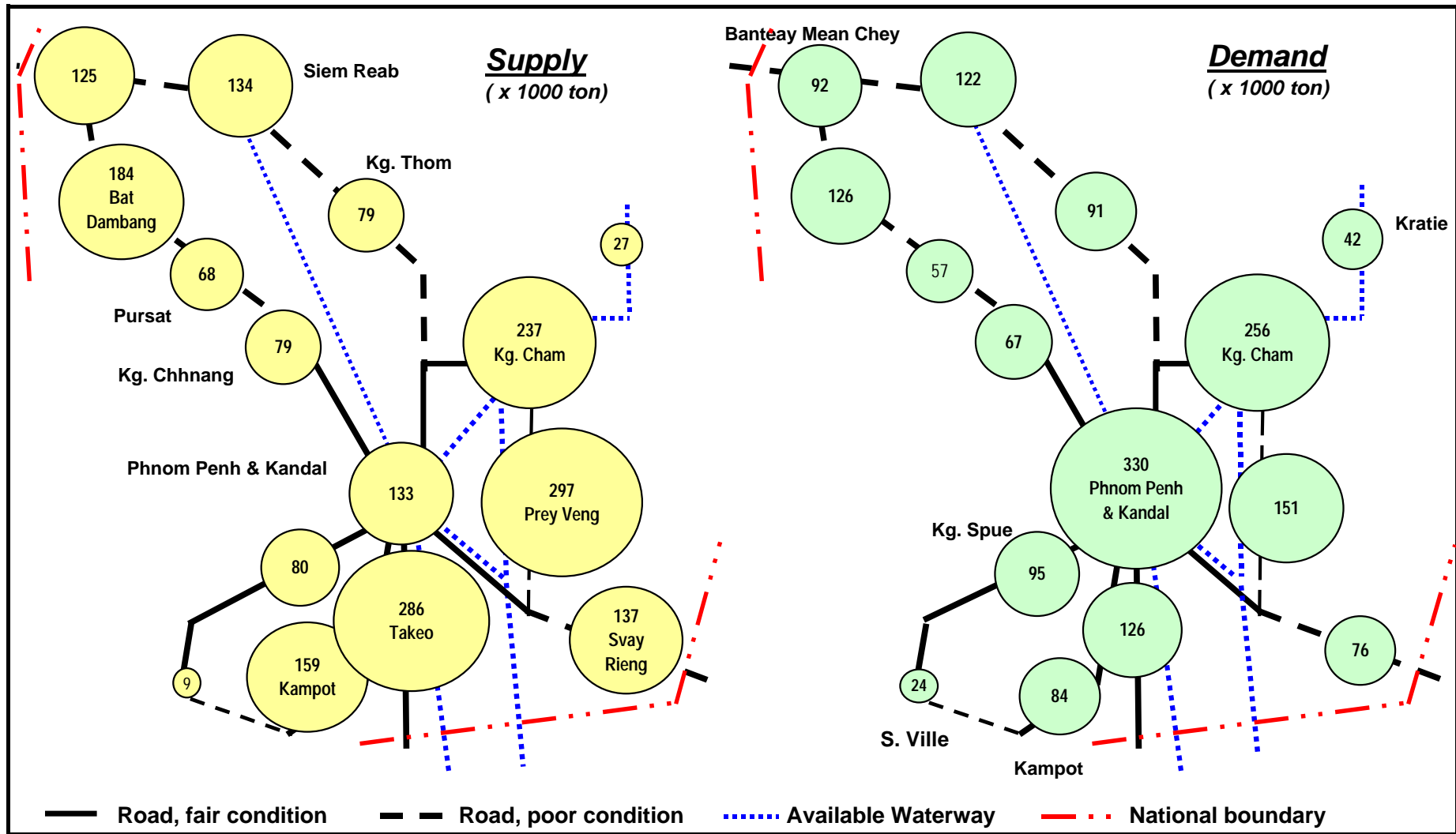


Table E.12 List of border gates

Connected to:		Province	Name of the Gates	Classification	
Thai	Roadway (NR 5)	Banteay Mean Chey	Pioy Piet, Ou Chrov	International	
Thai	Roadway	Banteay Mean Chey	Boeng Trakuon, Thma Puok	Regional	
Thai	Roadway	Banteay Mean Chey	Malai	Regional	
Thai	Roadway	Battambang	Phnom Domrey	Regional	
Thai	Roadway	Battambang	Phnom Preuk, Sampov Lun	Regional	
Thai	Roadway	Battambang	Saun Som, Kamrieng	Regional	
Thai	Roadway	Battambang	Svay Chek, Kamrieng	Regional	
Thai	Roadway	Battambang	O Rumduol, Kamrieng	Regional	
Thai	Roadway	Battambang	Gateway 400, Samlout	Regional	
Thai	Roadway	Battambang	Gateway 203, Samlout	Regional	
Thai	Roadway	Battambang	Bansanchhav, Samlout	Regional	
Thai	Roadway	Battambang	Peam Ta, Samlout	Regional	
Thai	Roadway	Presh Vihear	An Seak, Choam Khsant	Regional	
Thai	Roadway	Presh Vihear	Brasat Preah Vihear	Bilateral	
Thai	Roadway	Otdar Mean Chey	Cham Rus Ngam	Regional	
Thai	Roadway	Otdar Mean Chey	Preah Bra Lay	Regional	
Thai	Roadway	Otdar Mean Chey	Osmach, Samraong	Regional	
Thai	Roadway	Pailin	Chrok Prum, Pailin	Regional	
Thai	Roadway	Poursat	Sphean Chhey Chum Neah, Veal Veng	Regional	
Thai	Roadway	Poursat	Gateway 56, Veal Veng	Regional	
Thai	Roadway	Poursat	Phnom Rossey	Regional	
Vietnam	Roadway (NR 17)	Kompot	Preak Chak	Bilateral	Transit gate
Vietnam		Kompot	Toanhon	Regional	
Vietnam	Roadway (NR 2)	Takaev	Phnom Den	International	Transit gate
Vietnam	Bassac River	Takaev	Bak Day	Regional	
Vietnam	Bassac River	Takaev	Kampong Krasabg	Regional	
Vietnam		Takaev	Thmar Beidom	Regional	
Vietnam	Mekong River	Kandal - Prey Veang	Kaam Samnor - Koh Roka	International	Transit gate
Vietnam	Bassac River	Kandal	Chreay Thom - Kna Tang You	Regional	
Vietnam	Waterway	Prey Veang	Peam Manner	Regional	
Vietnam	Roadway	Prey Veang	Koh Sampov	Regional	
Vietnam	Roadway (NR 1)	Svay Rieng	Bavet	International	Transit gate
Vietnam	Roadway	Svay Rieng	Bos Mon	Regional	
Vietnam	Roadway	Svay Rieng	Prey Vor	Bilateral	
Vietnam	Roadway	Svay Rieng	Sam Rong	Regional	
Vietnam	Roadway (NR 7)	Kg. Cham	Trapeang Phlong	Bilateral	Transit gate
Vietnam	Roadway (PR 313)	Kg. Cham	Chann Mul	Regional	
Vietnam	Roadway	Kg. Cham	Dar	Regional	
Vietnam	Roadway	Kg. Cham	Choam Kravien	Regional	
Vietnam	Roadway (NR 13)	Kracheh	Snoul	Bilateral	Transit gate
Vietnam	Roadway	Kracheh	Chey Khliang	Regional	
Vietnam	Roadway	Kracheh	Trapiang Sre	Regional	
Vietnam	Roadway (NR 19)	Rotanak Kiri	O Ya Dav (Andaung Pich)	Bilateral	Transit gate
Vietnam	Roadway (NR 14)	Mondil Kiri	Dak Dam, O Rang	Bilateral	Transit gate
Vietnam	Roadway	Mondil Kiri	Lapakhei	Regional	



Source : Crop assesment for Wet season rice 1999/2000 and Dry season rice 2000

Figure E.1 Rice supply and demand of each province

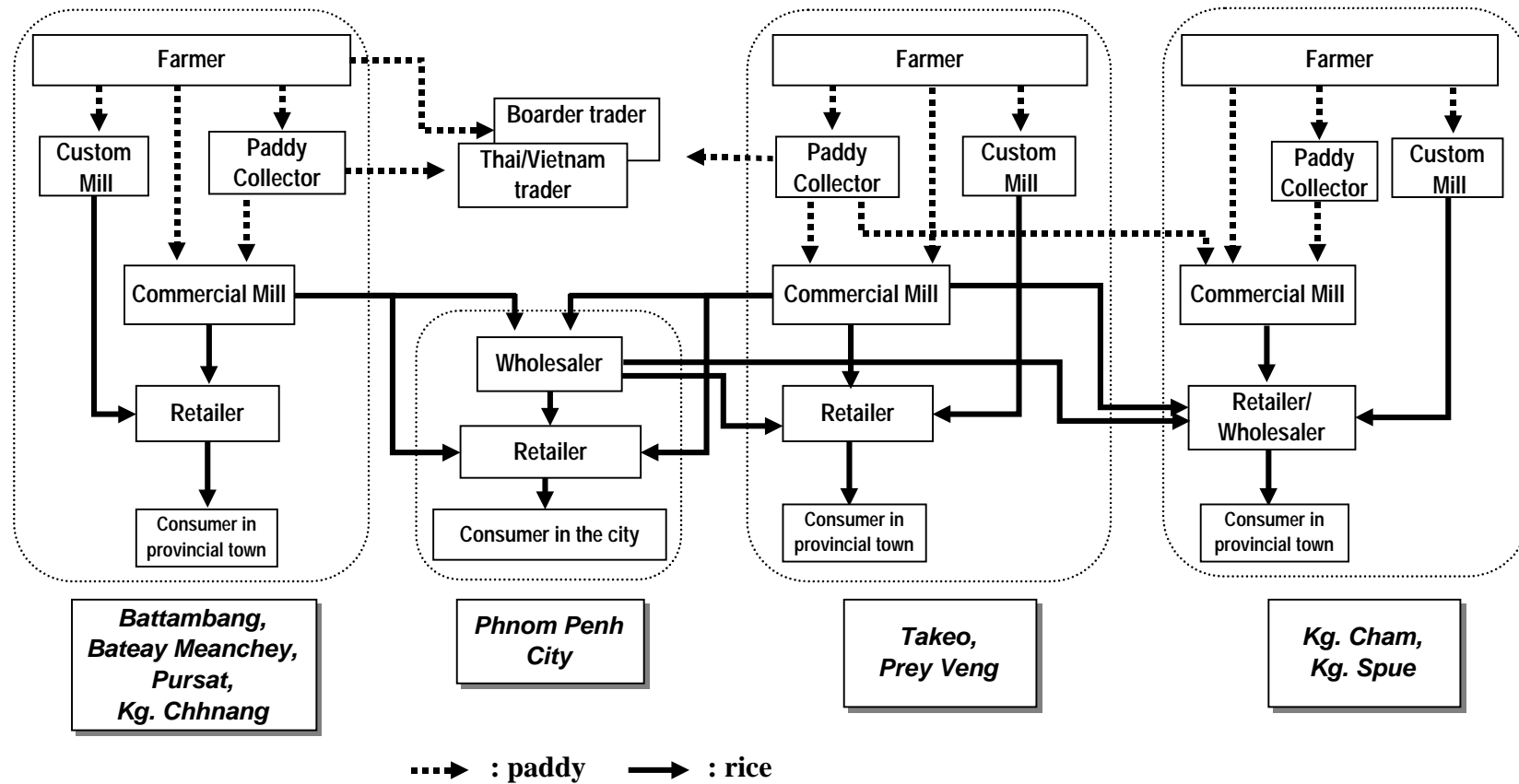


Figure E.2 Inter-provincial marketing channels

Figures based on the price data shown in Table E.8

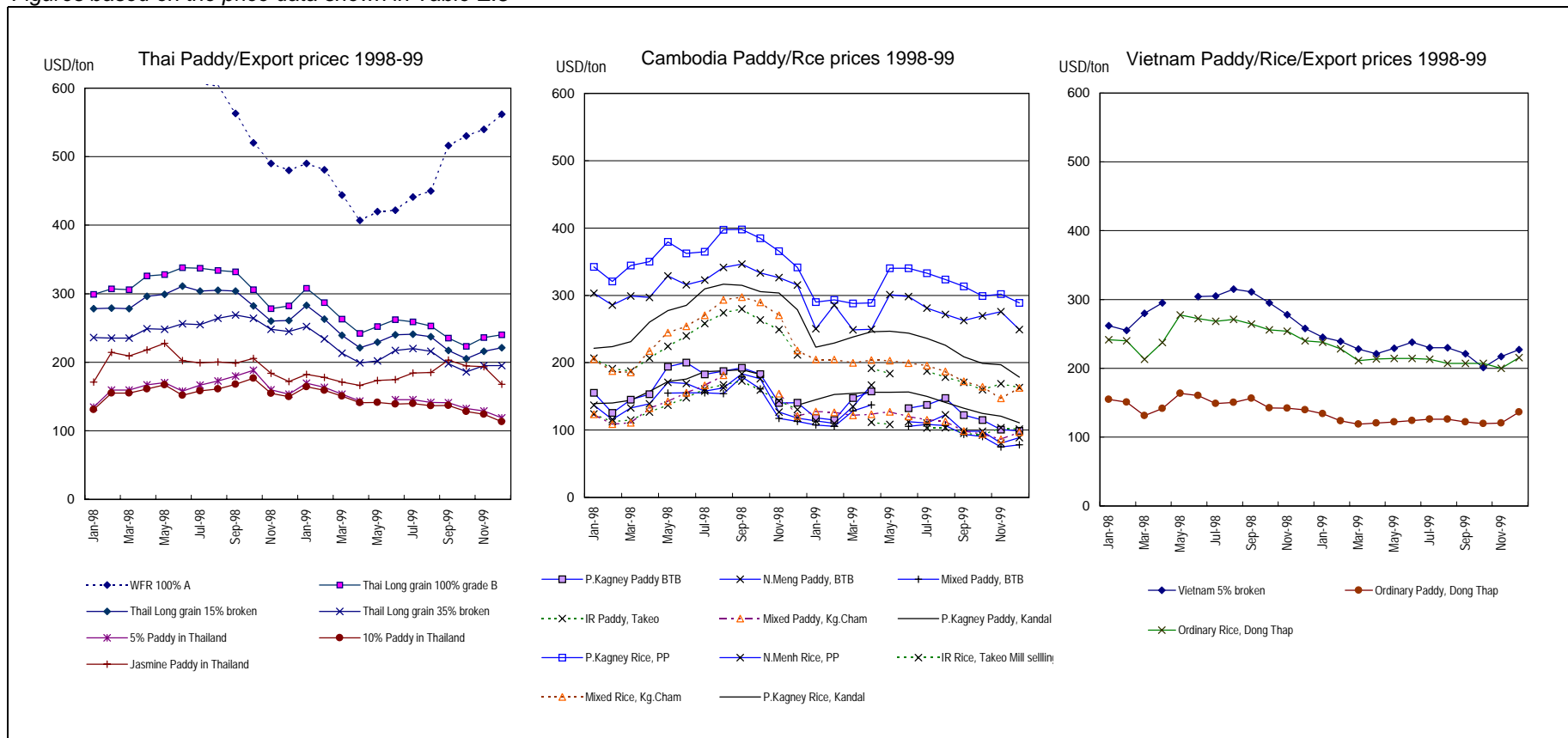
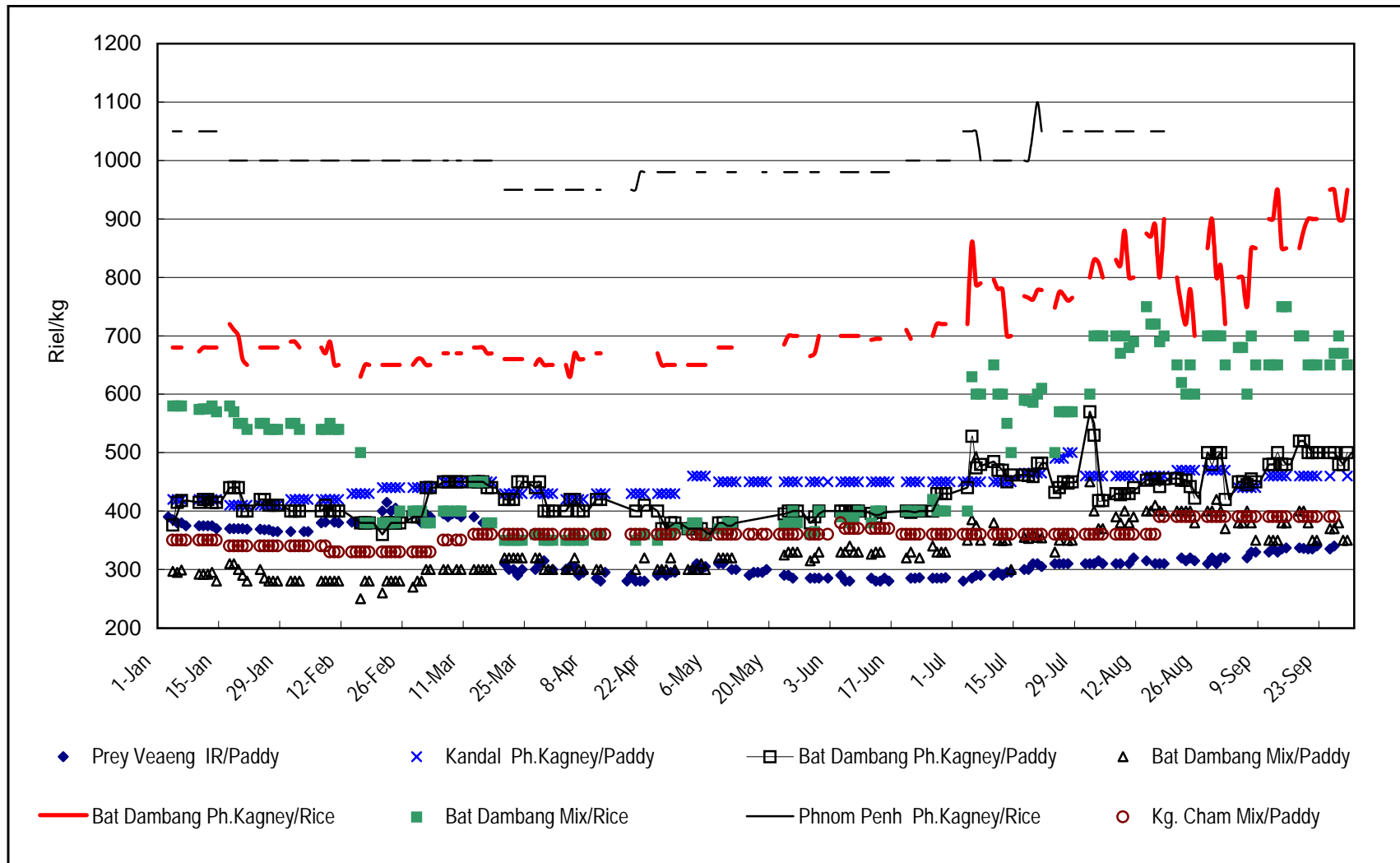


Figure E.3 Paddy/rice/export prices in Cambodia-Thailand-Vietnam, 1998-99 (US\$ converted price)

Figure E.4 Paddy/Rice prices during Jan. - Sep. 2000



Note: Paddy prices are buying price of commercial rice miller
 Rice prices of Bat Dambang are selling price of commercial rice miller
 Rice prices of Phnom Penh is bulk sales price of rice shop

Source: AMO/MAFF