



**Cambodian Center for Study and Development in Agriculture**  
#119, Street 257, Sangkat Teak Laak 1, Khan Tuol Kork, Phnom  
Penh, Cambodia  
B.P. 1118, Phnom Penh, Cambodia  
Tel: +855-23-880-916  
Fax: +855-23-885-146  
[cedac@online.com.kh](mailto:cedac@online.com.kh); [www.cedac.org.kh](http://www.cedac.org.kh)

## **Rapid Market Appraisal on Rice**

29 villages across 8 communes of 4 districts

**Kompot Province**

**By Yim Sok Sophors and Nhep Mengcheang**

**CEDAC, 2009**

## LIST OF ACRONYMS AND ABBREVIATIONS

ACLEDA	:	ACLEDA Bank Plc. ( <i>Association of Cambodian Local Economic Development Agencies</i> )
AMK	:	Angkor Microfinance Kampuchea
AMRET	:	AMRET (Microfinance Institution)
CEDAC	:	Cambodian Center for Study and Development in Agriculture
CSPPM	:	Civil Society and Pro-Poor Market
DAI	:	Development Alternatives, Inc.
DPA	:	Development and Partnership in Action
IFAD	:	International Fund for Agricultural Development
FAO	:	Food and Agriculture Organization of the United Nations
FHI	:	Family Health International
GTZ	:	Deutsche Gesellschaft Fur Technische Zusammenarbeit
HEKS	:	Hilfswerk der Evangelischen Kirchen Schweiz
ILFARM-KP	:	Improving Livelihood of Small Farmers in Kompot Province
MFI	:	Microfinance Institution
NGO	:	Non Governmental Organization
TPC	:	Thaneakea Phum -Cambodia (Microfinance Institution)

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## I. RATIONALE AND BACKGROUND

Arable land for rice cultivation is gradually becoming degraded in terms of the soil fertility due to misuse and/or over-use of chemical fertilizers. As a result, land productivity is decreasing and negatively affecting the harvests of farmers. Fully 85% of Cambodia's population are rice-based families and the majority of them have rice fields of less than 1 hectare per family.

Due to poor soil fertility, rice production is low so that farmers rely heavily on external agricultural inputs (chemical fertilizer and pesticide). As the production cost is increased farmers can no longer benefit from their rice production.

In dealing with this matter, the practice of low external input rice production (rice intensification) is a key factor to improve soil fertility as well as to prevent chemical contamination. For this reason, the promotion of low external input rice production is an appropriate method for small farmers to apply and it will be an opportunity for them to compete in market.

### 1. Objectives of the Study

Based on the reasons mentioned above, CEDAC conducted a field study on “**Rapid Market Appraisal on Rice**” with the specific objectives as follows:

- To seek better understanding of rice market opportunities;
- To determine market chains in the areas studied and to analyze farmers' position in them; and
- To come up with strategies to assist farmers participate in specific market chains, with an understanding of costs and margins in their participation, as well as the development of support they will need.

### 2. Scope of the Study

The study was conducted in 29 villages across 8 communes of 4 districts (Chumkiri, Chhouk, Banteay Meas and Dong Tung) of Kompot province. These villages are already part of existing organic rice/low external input rice producer communities. Table 1 provides some general information about the rice producer communities in the villages studied.

Table 1: Rice producer communities studied

No	Name of Community	Name of Commune	Name of District	Number of Members
1	Akpiwat Kaksekam Sakreiy Reang Monorun Khum Sre Cheng	Sre Cheng	Chumkiri	272
2	Krum Phal Leth Kom Rong Sakreiy Reang	Dong Tung	Dong Tung	33
3	Krum Phal Leth Srov Sakreiy Reang Khum Wat Ang Khang Cheung	Wat Ang Khang Cheung and Wat Ang Khang Tbound	Banteay Meas	29
4	Akpiwat Kaksekam Sakreiy Reang Srok Chhouk	Sat Pong, Kraing Sbov, Baniev and Beung Nimol	Chhouk	73

### **3. Formation of the Study Team**

The study team consisted of 7 staff (2 women), including 6 data collectors who are the project staff of the Civil Society and Pro-Poor Market (CSPPM) initiative and 1 team leader who is the project officer of CSPPM. CSPPM is funded by CRS (Catholic Relief Services) from October 2008 to October 2010.

The data collectors were involved in collecting the quantitative and qualitative data from the villages being studied by conducting informant interviews, contacting the local community people and local authorities and organizing focus group discussion at the communities.

The study team members were formed into different small groups for conducting various activities such as informant interviews with rice producers, rice collectors at the village level, stock owners, small and big rice millers, sellers and consumers. In total, the study lasted for about 10 days from 16 to 25 March 2009, and included data collection, data entry and reporting.

### **4. Method of Data Collection**

The methods of data collection were conducted in two different ways: collection of secondary data (existing data) and primary data.

#### **4.1. Secondary data**

The secondary data was collected through individual interviews with several key informants. These included interviews conducted in 4 district agriculture offices, 8 commune councils, and 1 CEDAC staff based in Chhouk district, Kompot province who is involved in supporting organic rice producer groups in the villages being studied. The study team collected such data from the above-mentioned informants as statistical data of rice production (cultivated land, quantity of rice produced for family consumption and sales, irrigation scheme, etc.)

#### **4.2. Primary data**

- Focus group discussions: 4 focus group discussion meetings were organized by the study team with the participation of members of rice producer communities and management committees. The checklist was developed by the study team in order to collect the qualitative information relating to general information of rice production in the studied villages, main actors of the rice market chain, constraints and existing solutions that the rice producer have been confronting, as well as the service providers (microfinance institutions, NGOs, government line agencies, etc.) in the studied villages.
- Individual informant interviews: The study team developed various individual questionnaires for the interviews with key informants as follows:
  - 80 members of rice producer groups
  - 10 rice collectors at the village level
  - 13 stock owners
  - 16 small rice millers
  - 9 big rice millers
  - 16 rice sellers including either wholesalers or retailers
  - 13 sellers who sell cooked rice to consumers
  - 10 consumers

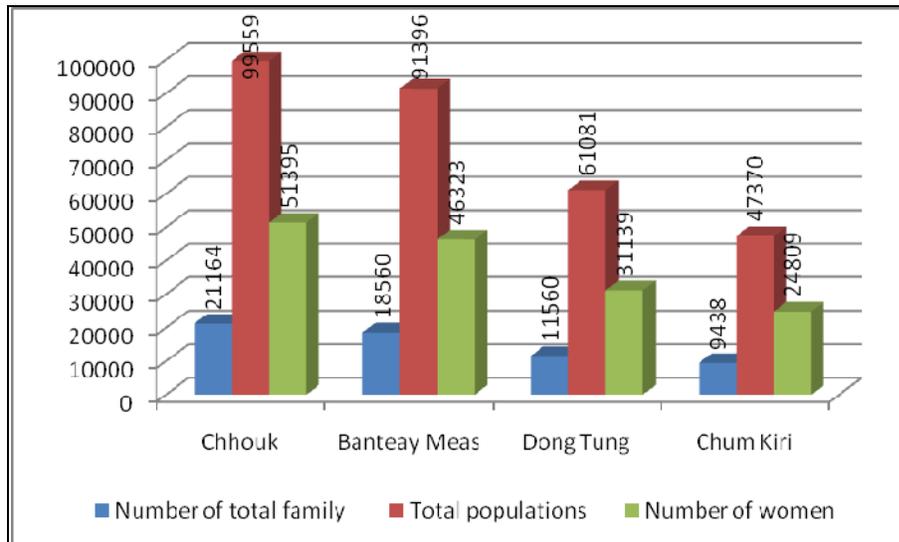
## II. MAIN FINDINGS OF THE STUDY

### 1. General Information about the Areas Studied

There are a total of 60,722 families with a total population of 299,406, including 15,366 women (51.32% of the total population) in the 4 studied districts.

Generally, there are 225 families in one village. On average, there are 5 members per family, of whom 3 members are mainly involved in farming.

Graph 1: Population in each studied district



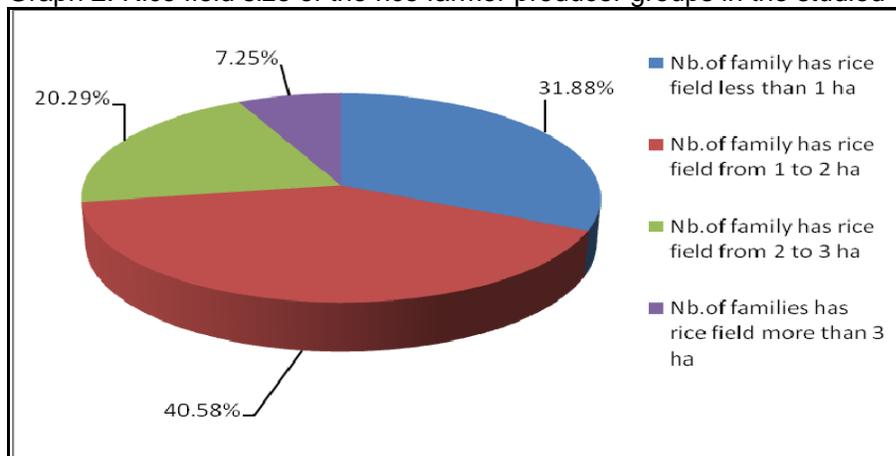
Source: Commune database (2008)

### 2. Rice Production and Its Characteristics

#### 2.1. Rice Field Size of Rice Farmer Producer Groups

It should be noted the two rice farmer producer communities were previously formed through the facilitation of GTZ and the other two rice farmer communities have been recently formed by CEDAC. Up to now, there are in all 4 rice farmer producer communities with 407 farmers who are the members of those rice farmer producer communities.

Graph 2: Rice field size of the rice farmer producer groups in the studied villages



Graph 2 shows the rice field size of the rice farmer producer communities in the villages studied. Based on the results of the individual interviews with members of the rice farmer producers, it is estimated that there are an average of **1.78** hectares (ha) per family. The biggest land for rice cultivation per family is 5.5 ha and the minimum rice field size is 0.3 ha per family. Based on the graph above, most farmers get a rice yield between 1 and 2 t/ha.

## 2.2. Rice Product Features (Varieties)

Based on the quantitative data from individual interviews with rice farmer producers, 21 rice varieties have been used by the community farmers in the studied villages. Among them, there are five popular varieties like Krohom, Damneub, Mliss, Romduol and Krochork Jab. Mliss (Jasmine rice) is the third most popular variety in the villages studied. The names of all rice varieties are presented below:

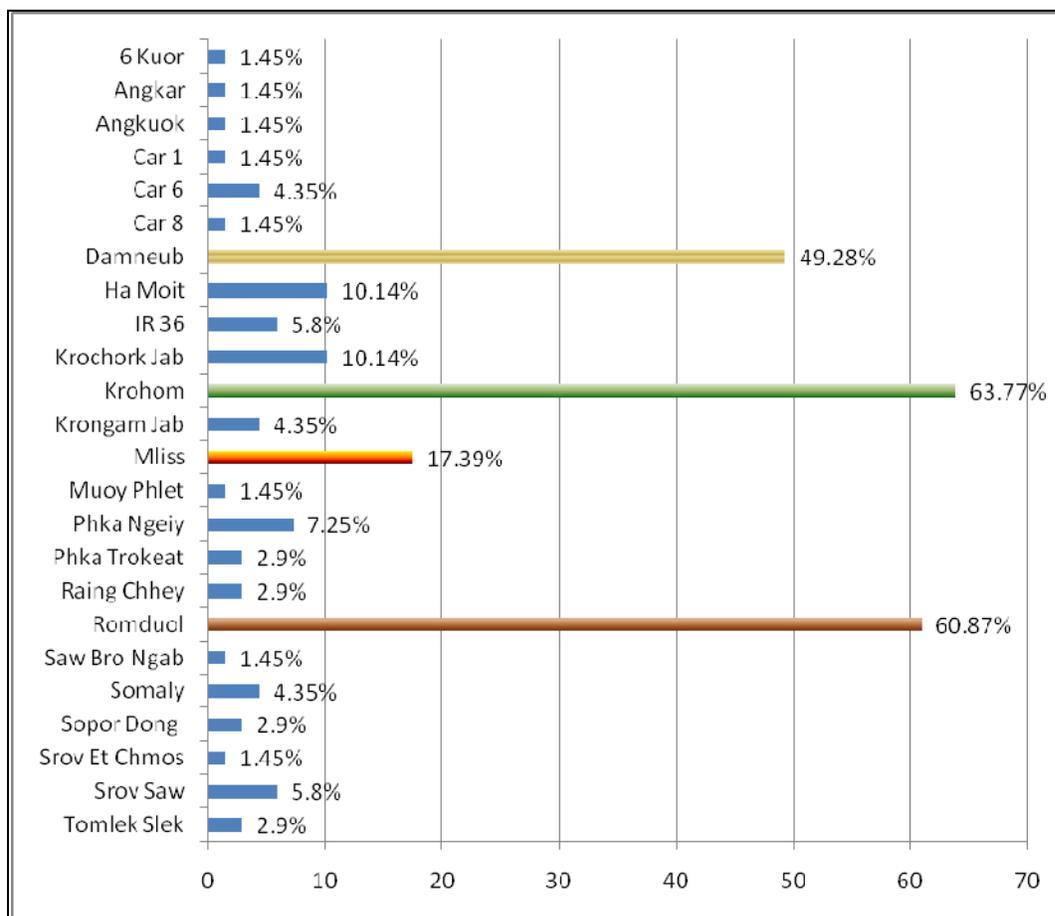
Table 2: Names of rice varieties in the villages studied

N	Rice Varieties	Type of rice varieties			% of cultivated land of each variety to the total rice field of the farmer family			% of farmers who apply each variety (Mean)
		Late Variety	Medium Variety	Early Variety	Max	Min	Mean	
1	Angkuok	✓			N/A	N/A	10	1.45
2	Angkar		✓		N/A	N/A	50	1.45
3	Damneub		✓		20	2	6.67	49.28
4	Car 1		✓		N/A	N/A	20	1.45
5	Car 6	✓			75	55	63.33	4.35
6	Car 8	✓			N/A	N/A	80	1.45
7	Ha Moit				84.49	41.7	60.45	10.14
8	IR 36			✓	N/A	N/A	N/A	5.8
9	Krohom	✓			100	15	62.56	63.77
10	Krongam Jab	✓			40	10	22.91	4.35
11	Krochork Jab		✓		100	70	85	10.14
12	Mliss (jasmine rice)			✓	25	2.5	14.28	17.39
13	Muoy Plet	✓			N/A	N/A	18.1	1.45
14	Pram Muoy Kour		✓		N/A	N/A	90	1.45
15	Phka Trokeat	✓			20	2.5	11.25	2.9
16	Phka Ngeiy		✓		10	2.5	6.25	7.25
17	Romduol			✓	100	5	29.09	60.87
18	Raing Chhey	✓			60	54.17	57	2.9
19	Saw Bro Ngab				N/A	N/A	10	1.45
20	Srov Saw	✓			60	25	41.66	5.8
21	Srov Et Chmos				N/A	N/A	45	1.45
22	Sopor Dong			✓	N/A	N/A	N/A	2.9
23	Somaly		✓		N/A	N/A	N/A	4.35
24	Tomleak Sleak	✓			82.5	30	65.62	2.9

Some 63.77% of the total families in the villages studied use Krohom variety. This variety is grown on 62.56% of the total rice field per family. In other words, it covers an average of 1.11 ha per family.

Only 17.39% of total families in the villages grow Mliss (jasmine rice), devoting about 15% of their total cultivated rice field or on average 0.27 ha per family. Romduol variety is another popular variety grown on about 29.09% of the total rice field per family. Graph 3 below shows that 49.28% of all families in the villages studied grow Damneub, but it covers only 6.67% of the total rice field per family.

Graph 3: Percentage of farmers who grow each variety



Farmers like to grow some varieties because those varieties enable them to harvest a good yield, they fit the soil fertility conditions in their villages, and they are more resistant to pest and drought, etc. In the case of Romduol variety, farmers commit to produce it for market supply especially as they can sell it to CEDAC; previously the majority of the farmers did not grow this (Romduol) variety. It is to note that Rumdul variety is organically produced by cooperating farmer producer groups.

### 2.3. Rice yields

The average yield of rice production in the areas studied is 1.87 t/ha<sup>1</sup>; the maximum is 3.62 t/ha and the minimum is 0.84 t/ha.

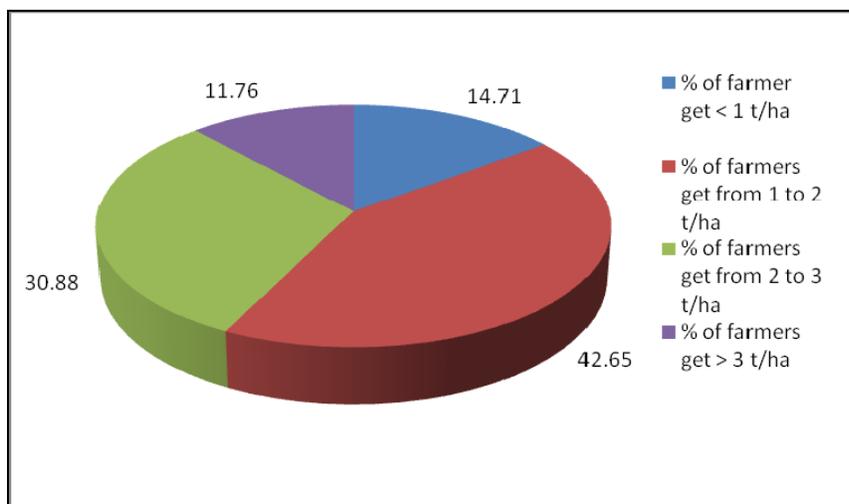
A total of 15.94% of village families lack food for family consumption, especially the families who have smaller rice fields, less than 0.5 ha. In some cases, although the family can produce rice for selling, they still need to buy more rice for family consumption. It seems to be that they intend to produce a particular rice for selling and they also buy other kinds of rice for family consumption in return.

<sup>1</sup> Based on Department of Planning and Statistics of [Ministry of Agriculture, Forestry, and Fisheries](#) (Until: 03 January 2008), the average rice yield of rainy season rice production at the national level is 2.328 tons/ha

Box 1: Total rice harvest of Phann Saream (2008)

Phann Saream is a farmer in Sre Jang village of Chumkiri district, Kompot province. There are 4 members in his family; 3 of them are able to work in farm. The family has 2 ha for rice cultivation with the total harvest of 3400 kg in 2008. Therefore, it means that it is 1.7 t/ha.

Graph 4: Percentage of farmers who get different rice yields



### 3. Demand Patterns

There are several main demand actors in the districts studied. These are wholesalers, retailers, big/small restaurant owners, individual consumers, and CEDAC. Each of actors involved demands different quantity and quality of the product. For instance, CEDAC demands only the organic rice product, like Romdul and Mliss. Currently, the community farmers have been producing organic rice product for selling to CEDAC, so it is a good market opportunity for the farmers to increase rice production and supply capacity to markets. CEDAC plans to buy 500 tons of organic rice (Mliss and Romduol) from the rice farmer communities in Kompot province in 2009. In the case of the normal rice (conventional rice practices), there are demands from collectors at village and communal levels, retailers and wholesalers for domestic supply and export to outside the studied villages.

In 2008, the total rice demand was 9819.09 tons/year<sup>2</sup>. Of this the demand of Mliss was 515.25 tons/year and the demand of Romduol was 147.84 tons/year.

Table 3: Quantity of rice demand in 2008 and 2009

Description	Total quantity (tons/year)	Total quantity of Mliss (tons/year)	Total quantity of Romduol (tons/year)
Total quantity of rice demand in 2008 (tons/year)	9819.09	515.25	147.84
Total quantity of rice demand in 2009 (tons/year)	14 751	862	247

<sup>2</sup> This estimate comes from stock owners and rice millers because these 2 main actors are very relevant to the rice demand in the studied districts. The studied districts cover 4 districts (Chhouk, Dong Tung, Banteay Meas and Chhum Kiri), which include 253 villages across 46 communes.

## Box 2: Rice demand of a stockowner, Song Sophal

Song Sophal is a stockowner in Sat Pong village, Sat Pong commune of Chhouk district. He bought about 566 tons of rice in 2008 from collectors and villagers. He plans to buy rice about 1000 tons for 2009, including 20 tons of Mliss variety. Most of the rice he buys is distributed to traders in Kompot town for exporting to other areas in the country and Vietnam.

Table 4: Quantity of rice bought by each demand actor

Description	Number of each demand actor in the 4 districts studied	Quantity of demand by each actor in 2008 (t/year)			Quantity of demand by each actor in 2009 (t/year)	Quantity of demand growth from 2008 to 2009 (t/year)
		Max	Min	Mean		
Stock owners (t/year)	14	8809	3690	7039	<b>10080</b>	<b>3041</b>
Big rice millers (t/year)	17	4848	1037	2727	<b>4171</b>	<b>1444</b>
CEDAC <sup>3</sup>	1			53.085	<b>500</b>	<b>446.915</b>
				<b>Total</b>	<b>14751</b>	<b>4931.915</b>

The total demand of 14 751 tons/year in 2009 includes the demand for Mliss variety of 474 tons/year (3.33% of the total demand in the studied districts) and 136 tons/year of Romduol variety (0.95% of the total demand in the studied districts).

## 4. Supply Situation

Based on informant interviews with members of rice producer communities, one family can get an average total harvest of **2967** kg per year. The maximum is 6000 kg/year and minimum is 384 kg/year. Additionally, an estimated 86.95%<sup>4</sup> of all families who are members of rice farmer producer communities in the villages studied are able to produce rice (both organic and non-organic rice) for selling. The average quantity is 1369 kg/year for one family, maximum is 2500 kg/family/year and minimum is 110 kg/family/year. Therefore, 46.14% of the total harvested rice is sold from one family per year.

Table 5: Supply of rice from the 29 villages studied

Description	Number
Total membership of rice producer communities	407
Average quantity of sold rice (kg/family/year)	1369
Number of members of rice producer communities who can produce rice for selling	354
Average total quantity of rice sold from the rice producer communities in the studied villages	354 x 1369= <b>484 626 kg/year</b>
Number of members of rice producer communities who sold organic rice to CEDAC <sup>5</sup>	313
Average quantity of organic rice sold to CEDAC (kg/family/year)	169.76 kg
Total quantity of rice sold to CEDAC (kg/year)	<b>53 085 kg/year</b>

Based on the data mentioned above, only 10.95% of the total rice quantity was sold to CEDAC. There are five main actors to whom rice producers supply their rice product: rice collectors at the village or communal level; stock owners; rice millers; food processors; and CEDAC.

<sup>3</sup> CEDAC bought 53.136 tons of organic rice from rice producer communities in Kompot at the end of 2008 and the beginning of 2009

<sup>4</sup> The total members of rice producer communities is 407 families

<sup>5</sup> Based on the individual interview, 76.81% of the total members of rice producer communities sold organic rice to CEDAC

In case of Mliss and Romduol varieties, **239.83 tons** were supplied by members of rice producer communities in the 29 studied villages. Therefore, **22.13%** of total Mliss and Romduol product were sold to CEDAC.

About 70% of the rice farmer producers start to sell their rice a few months after harvesting at the end of the wet season. Normally, families sell rice on average two or three times during the period December to March, though most of them sell in January.

⇒ **Rice Production Cost (kg/ha)**

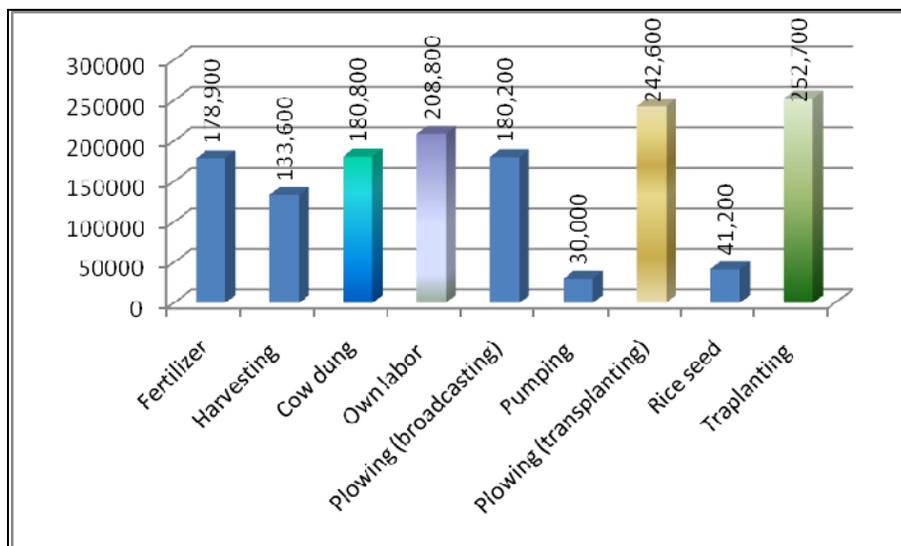
The average production cost of rice cultivation is 880,600 riel/ha (approximately 220 USD/ha). Based on quantitative data from individual interviews with members of rice farmer producer communities, 53.62% of them have been using natural manure for rice cultivation and 37.68% of farmer families in the study villages use chemical fertilizer.

Table 6: Production cost of rice cultivation

Description	Maximum	Minimum	Mean
Total production cost minus own labor cost (riel/ha)	1,392,800	50,000	495,400
Total production cost with the addition of own labor cost (riel/ha)	2,096,000	100,000	880,600

*Note: The total production cost minus own labor cost (riel/ha), includes only the payments in cash that the family expended for rice cultivation such as transplanting cost, chemical fertilizer, harvesting cost, renting cattle for plowing (land preparation), and water pumping. BUT it does not include the own labor cost such as own labor, natural manure, rice seed, and own cattle. The total production cost with addition of own labor cost (riel/ha) includes both sets of costs.*

Graph 5: Average expenses of rice production per hectare



In the data shown in Graph 5, not all of the farmers itemized all of the expenses indicated in the graph. For instance, only 1.45% of the total farmer families in the study villages included the expense of pumping water for rice cultivation.

Table 7: Production cost of rice with the addition of own labor cost (riel/kg)

Description	Maximum	Minimum	Mean
Rice yield (t/ha)	3.62	0.84	1.87
Total production cost with the addition of own labor cost (riel/ha)	2,096,000	100,000	880,600
Total production cost with the addition of own labor cost (riel/kg)	579	119	471

Box 3: Rice production cost of Kong Kek, Talang village

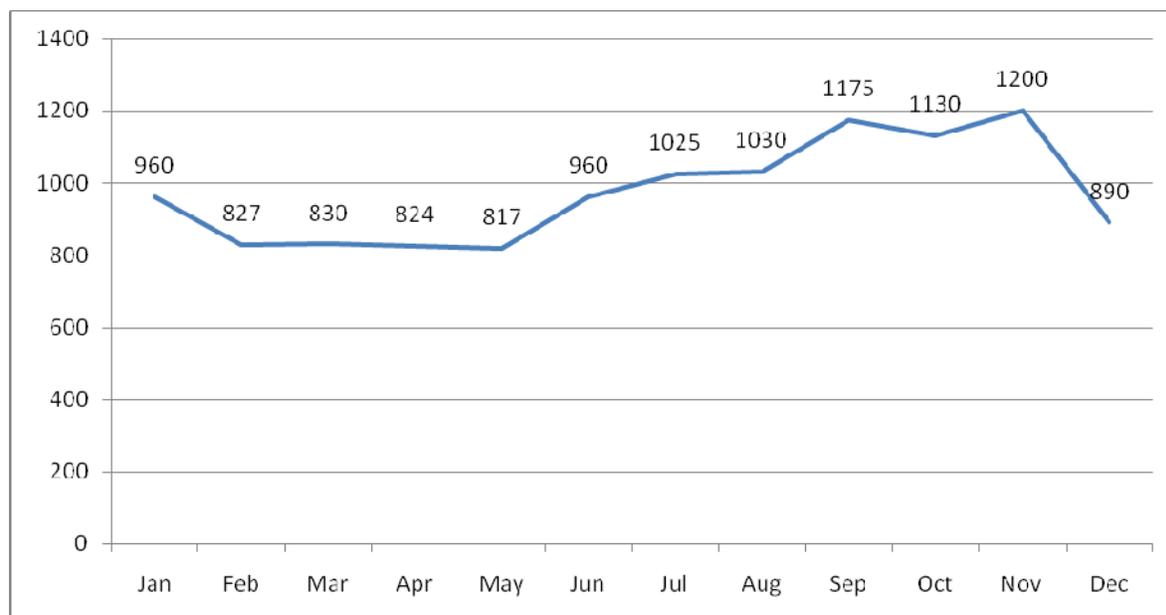
Kong Kek is a rice producer group member in Talang village of Chhouk district; he has arable land of 1 ha for rice cultivation. Last year in 2008, he could harvest 2400 kg from his cultivated land of 1 ha.

The total production cost (with addition of own labor cost) is 815000 riel. Therefore, 815000 riel divided by 2400 kg is equal to approximately 340 riel/kg. He did not spend any money for renting laborers from outside the family to do rice harvesting. With this production cost, he could make a higher profit from his rice production.

5. Price Trend

As noted earlier, most farmer producers sell their rice after harvesting, which is why the price of rice goes down from January to May. Normally, the price gradually increases from June to September because there is no more rice supplied by the community farmers and the demand for rice increases during the period from June to September, especially as farmers who lack rice for family consumption need to buy rice to support the family's need.

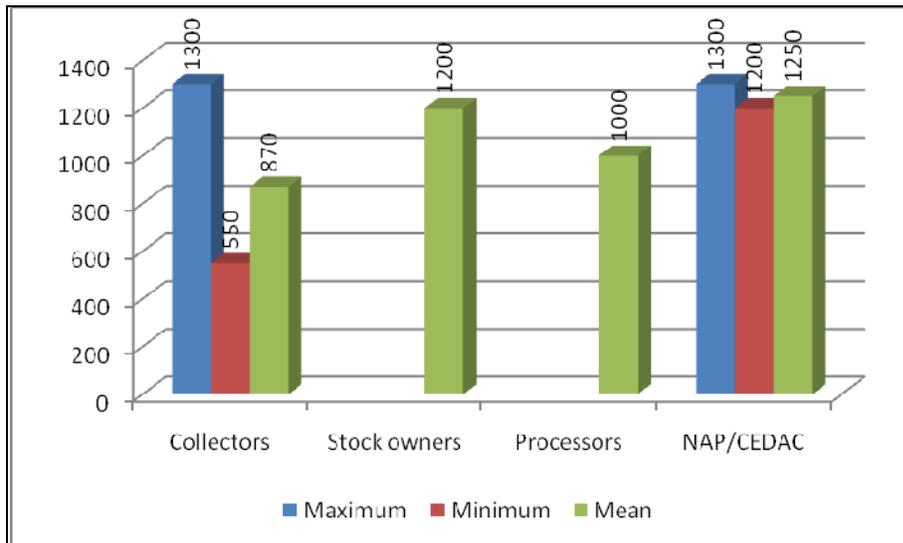
Graph 6: Price trends of rice throughout the year



It should be emphasized that districts located close to important markets have access to better market information than the districts located far from the main markets. Thus, the farmers in the districts close to the main market are able to sell their rice with a better price as they keep in touch

with current market information. Farmers who are distant from the main market and have difficulty getting access to market information confront price cheating by the middlemen/collectors.

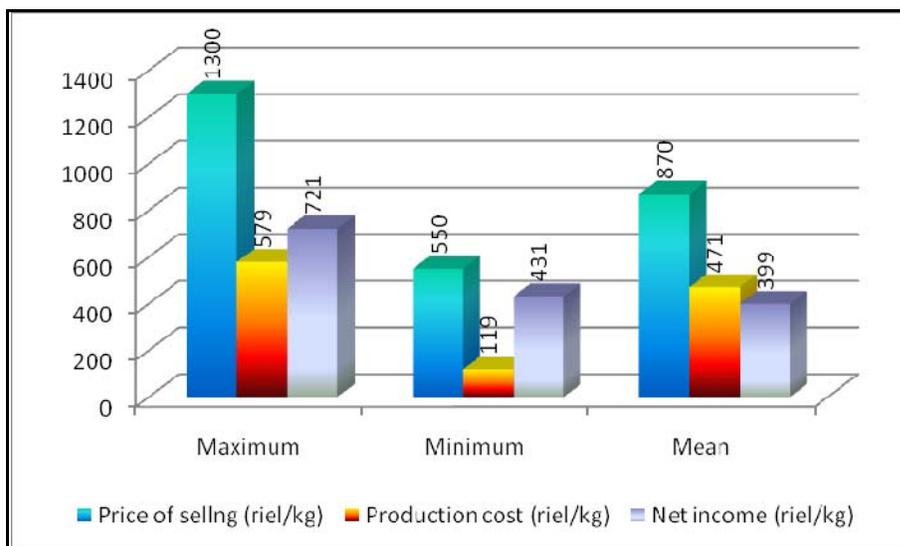
Graph 7: Price of rice bought by each actor (riel/kg)



It should be noted that the members of rice farmer producer communities sold their rice to CEDAC with a better price. The price was ranging from 1200 to 1300 riel/kg in the case of Romduol and Mliss varieties. However, farmers need to follow the criteria required by CEDAC, especially no chemical use. In terms of the price, farmers could get a better market price selling their product to CEDAC and it also contributed to a good market condition for community farmers.

#### ⇒ Margin Analysis

Graph 8: Margin of rice selling to collectors (riel/kg)



In the case of the rice market last year (at the end of 2008 and the beginning of 2009), on average farmers could earn about 399 riel/kg (net income) through selling to collectors. Or, farmers could earn on average about 84.71% if compared to the total production cost per 1 kg.

CEDAC bought organic rice from farmers with a higher price from 1200 to 1300 riel/kg. Therefore, if farmers sell their organic rice to CEDAC their net income is higher. The net income ranged from 729 to 829 riel/kg. In other words, the net income through selling to CEDAC is about 154.77% to 176% if compared with the production cost of only 471 riel/kg.

#### ***6. Actors of Rice Market Chain in the Villages Studied***

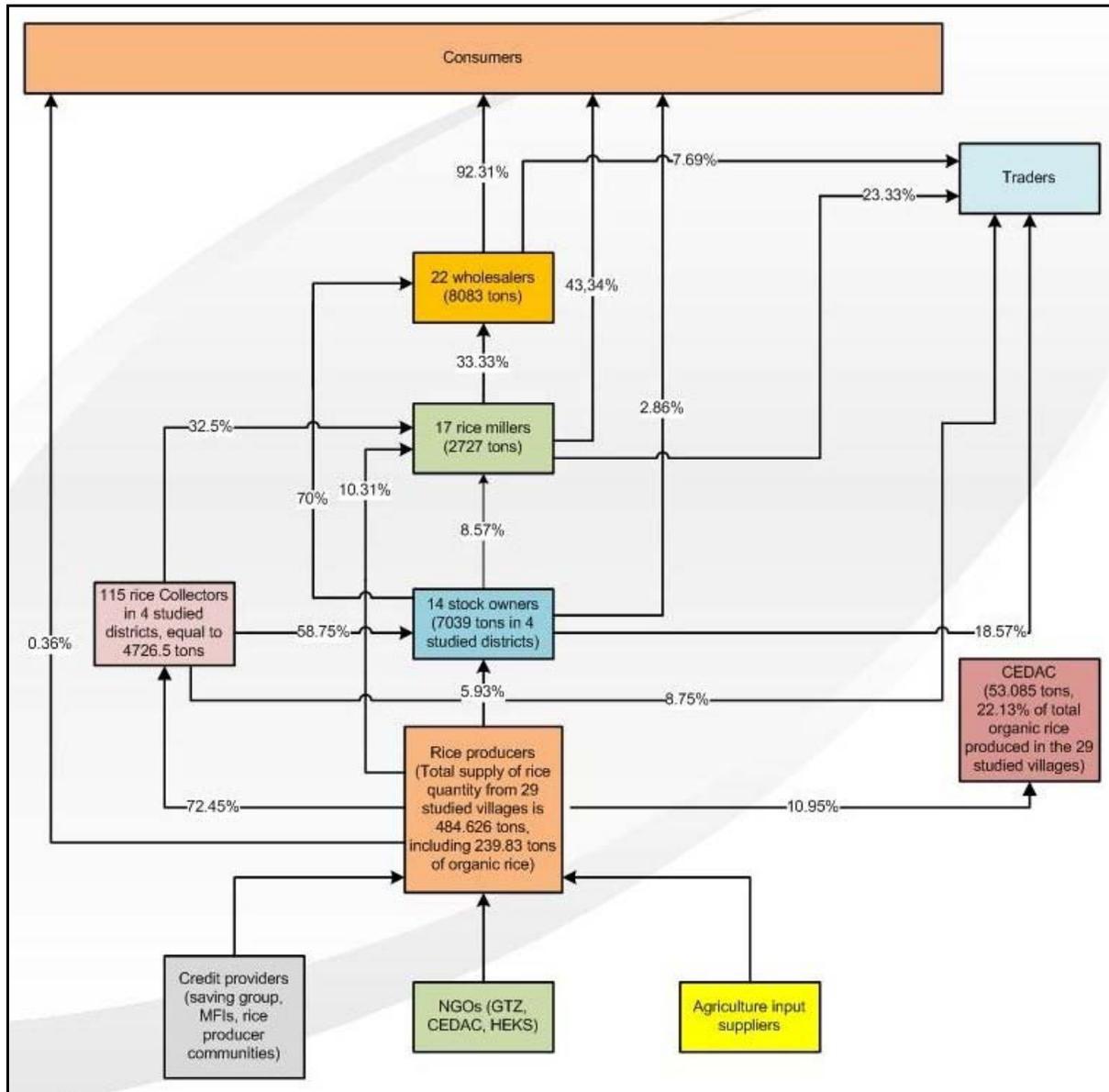
There are several main actors in the rice market chain such as: input suppliers; farmer producers; rice collectors; rice stock owners; rice millers; wholesalers; individual family consumers; and other traders. Farmers are playing a very important role in producing supplies of rice (both organic and non-organic) for the market.

In the case of farmers who are members of rice farmer producer communities under the technical support from CEDAC, they are producing healthy rice products for consumers. At the same time, CEDAC also ensures a good market opportunity for organic rice through linking the product from these farmer groups to the organic rice market. The price is normally higher than the local market price provided by collectors.

The normal rice product which is produced by conventional practices is mostly collected by the collectors at the village and communal levels. Collectors are the catalysts to collect harvested rice from farmers for the rice millers and stock owners. Most of rice products from the community farmers are collected through collectors; it is approximately 72.45% of the total rice volume produced by the community farmers.

The diagram shown below demonstrates the market chain in the villages studied. It especially aims to illustrate the quantity of Mliss and Romduol varieties in the market chain. Mliss and Romdul are good tasty, fragrant smell, soft, etc. Based on the individual interviews with members of rice producer communities, an estimated 239.83 tons of organic rice (Mliss and Romduol) are produced by the rice farmer producer communities. Most of that product is collected by collectors and only a small portion is sold to CEDAC.

Diagram 1: Market Chain of Rice Product in the Villages Studied



Note: Consumers here include villagers, district dwellers, wine producers, snack producers, chicken middlemen in the villages, cooked rice sellers (restaurants),

## 7. Market Infrastructure

There are a total of seven main markets in the districts studied. Those markets are Chhouk Market and Trapaing Kov Market in Chhouk district, Chumkiri market in Chumkiri district,

The main market in the districts studied is Chhouk Market which is located in Chhouk district. Chhouk market is the biggest market and most agriculture products are supplied to Chhouk Market.

In terms of transportation, all of the districts studied are accessible during both the dry season and wet seasons. Even the village road is accessible by lorry.

Table 8: Important markets in the villages studied

Chhouk District	Chumkiri District	Banteay Meas District	Dong Tung District
Chhouk Market	Chumkiri Market	Tram Sasaw Market	Dong Tung Market
Tropaing Kov Market		Touk Meas Market	Thnol Bot Market

### Development Service Providers

There are several development service providers in the villages studied. Among them, GTZ was an active NGO that used to provide agricultural technical assistance to the community farmers. In particular, GTZ was actively involved in forming rice producer communities in order to link those farmer groups to markets.

At the current time, GTZ has phased out activities in the villages included in the study, but CEDAC has been providing the agriculture techniques and marketing support to the rice farmer producer groups in those villages. Based on individual interviews with the farmer producer group members, **73.91** % of members have been reached with capacity building provided by the NGOs (GTZ & CEDAC) and only **20.29%** have received training support from the department and office of agriculture, forestry and fisheries at provincial and district level.

Table 9: NGOs and other development agencies in the villages studied

N	Name of Service providers	Objectives	Key Activities	Finished	Implementing
1	GTZ	Sustainable development	.Supporting to agriculture and farmer producer groups .Rice bank, village road	✓	
2	CEDAC	Promoting Family Ecological Agriculture and rural development	.Capacity building on ecological agriculture .mobilize civil society organizations and strengthen the linkage to local authorities .supporting small farmers to market		✓
3	IFAD/CBRDP	Eradicating rural poverty	.Agriculture .Fish pond .Village road .Drilled well	✓	
4	DPA	Poverty, gender inequality, domestic violence,	.Support for community forestry (CF)		✓
5	FAO	.Promoting agriculture and food security through supporting to MAFF and	.Funding support to MAFF and the provincial department of agriculture, forestry and fisheries,	✓	

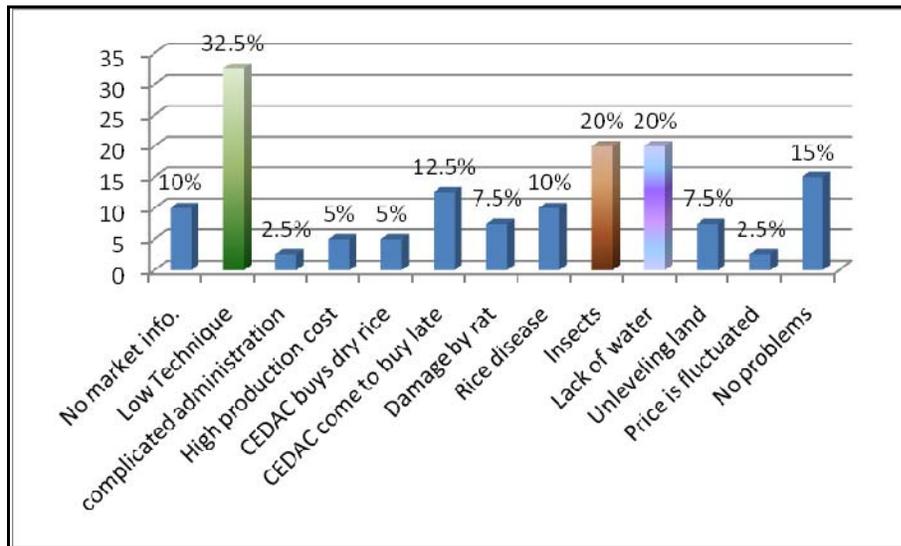
		department of			
6	FHI	Prevent the spread of HIV/AIDS and sexually transmitted infections, quality reproductive health services, Improve the health of women and children,	.Hygienic drinking water (infiltration, opened well) .Targeting poorest families .Agriculture	✓	
7	HEKS	N/A	.Rice bank		✓
8	DAI	Helping societies and economies become more prosperous, fairer and more just, safer, more stable, more efficient, and better governed	.Enterprise		✓
9	Vision Fund	Enterprise support for the poor and their ability to build a business	.Credit service		✓
10	PRASAC	Saving and Credit	.Provide credit services		✓
11	ACLEDA Bank	N/A	.Saving and credit		✓
12	AMRET	To be an outstanding financial institution that improves the living standards of the population and contributes to the economic and social development of Cambodia	.Saving and credit services		✓
13	TPC	Provision of effective and sustainable, client-empowering financial services			✓
14	AMK	to improve their livelihood options through the sustainable delivery of appropriate and viable microfinance services			✓

### III. PROBLEMS RAISED BY THE MEMBERS OF RICE PRODUCER COMMUNITIES

Based on the data collected from informant interviews, **32.5%** of members of rice producer communities need more technical assistance on rice intensification techniques as they expect that they can produce a higher yield on the same cultivated field.

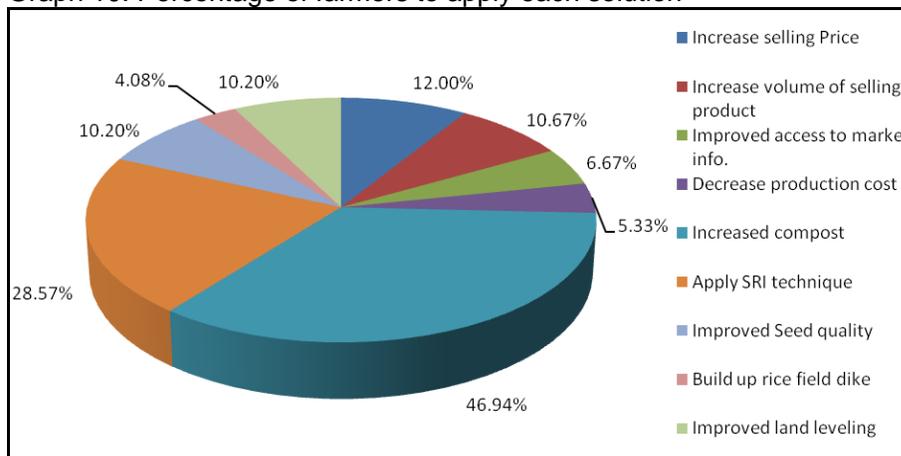
Other important problems raised by the rice producers are lack of water and insect damage to the rice, for which they have no effective prevention method. At the same time, **10%** say they lack market information when they sell their rice products. It is complicated for them to negotiate and determine the selling price. However, another **15%** of rice producer members do not confront any problems. It seems that there were no matters affecting them negatively in term of rice production and market.

Graph 9: Percentage of farmers who confronted problems



To dealing with the problems listed in Graph 9, 46.94% of the members of rice producer communities intend to increase the volume of organic compost applied to their rice field for organic rice production. To increase their benefit, 12% of all members expect to increase the selling price. Almost one third (28.57%) of the producer members would like to improve the technique of SRI.

Graph 10: Percentage of farmers to apply each solution



#### IV. SWOT ANALYSIS (PRODUCTION AND MARKET)

The following is a SWOT analysis of rice production and markets in the villages studied:

Table 10: SWOT analysis (Technical Production and Marketing)

<b>Strengths</b>	<b>Weakness</b>
<ul style="list-style-type: none"> <li>- Most of the members of rice farmer producer communities cultivate rice on about 1.78 ha of their land, so there is potential for them to improve the rice production for market supply.</li> <li>- Farmers have their own rice producer communities that are strong and enable them to access information and technical support from other development agencies.</li> <li>- There are many members in the rice producer communities.</li> <li>- Geographic location offers potential to produce rice.</li> <li>- Farmers have their own rice seed, especially good rice varieties for market such as Romduol, Mliss, etc.</li> <li>- There is a good market price for organic rice.</li> <li>- Inputs for natural compost making are available in the communities so that farmers can produce organic rice that is good for human and environmental health.</li> <li>- The village roads are accessible for marketing activities.</li> </ul>	<ul style="list-style-type: none"> <li>- Farmers have not yet improved very well the techniques of improving rice productivity.</li> <li>- Some farmers have inadequate skills to generate higher rice yields.</li> <li>- Farmers lack market information and market strategies,</li> <li>- Farmers habitually sell their rice immediately after harvesting; the price is cheaper than if they stock it for a while.</li> <li>- Farmers are growing low external input rice production/organic rice on just a small piece of their total cultivated land.</li> <li>- Some of the members of rice producer communities have produced organic rice for selling, but they themselves consume the harvested rice from conventional practices.</li> <li>- Farmers' negotiation skills to negotiate with the collectors are not strong enough.</li> </ul>
<b>Threats</b>	<b>Opportunities</b>
<ul style="list-style-type: none"> <li>- The local consumers are not yet aware of organic rice. Some of them are not able to differentiate between the advantages of organic and non-organic rice for health, the environmental and socially oriented business.</li> <li>- Most of organic rice varieties that farmers have been growing (such as Mliss, Romduol, etc. are susceptible to damage by insects.</li> <li>- Cheating from collectors especially during weighing/scaling.</li> </ul>	<ul style="list-style-type: none"> <li>- There is good opportunity for community farmers to produce organic rice for market supply as CEDAC has been working closely with them on technical assistance and marketing strategy support. It means that there is a good market opportunity for farmers to benefit from the business.</li> <li>- The demand for rice from CEDAC is being gradually increased from year to year</li> <li>- There is a high demand from outside traders especially to export outside.</li> </ul>

## V. CONCLUSION

Based on the results of the study, the following conclusions are drawn:

- Demand for rice, and especially organic rice, is greater than what members of the rice farmer producer communities have been currently supplying. Therefore, it is a good market opportunity for them to enlarge the supply volume to the markets. But the most important point is marketing strategy. The producer groups need to conduct a very good promotion of farmers' product both locally and outside the area.
- Based on the findings about the market chain, the rice millers and stock owners are playing very crucial roles of distributing the supply of rice from farmer producers to outside the study areas.
- The market infrastructure in the area studied is available for business activities. It is especially accessible to the collectors and other traders to carry out their transportation and communication.
- The production cost is likely to be cheaper through the method of ecological-based rice farming, which enables farmers to earn more profit and it will encourage farmers to make more effort in supplying their product to the markets.
- Farmer producers still need more technical assistance in term of rice intensification and technical support on market information and other marketing strategies, including the improvement of negotiation skills, practical management and leadership among the management committees of rice producers in order to ensure that they are adequately qualified in the competitive market.

## VI. RECOMMENDATIONS

Based on the results of this study, the recommendations to support rice farmer producers are as follows:

- Rice farmer producer communities should be supported in terms of the knowledge and techniques of producing good quality rice for the market, especially training on rice intensification techniques in order to increase rice productivity and to achieve a better yield. This includes:
  - Improving the technique of compost making and increasing the volume of compost for organic rice production. Alternatively, farmers should apply green manure and/or cover crops in order to improve the soil fertility.
  - Strengthening the internal control system relating to rice farmer producer communities (organic rice producer groups).
  - Improving the rice field dike and advising farmers about the value of applying organic rice production on the land that is at a higher level to avoid chemicals flowing from rice fields of other farmers using chemicals.
  - Improving seed purification and seed storage among the members of rice producer communities so that they have their own quality seed for organic rice production
- Farmers who are members of rice producer communities should expand the cultivated land for organic rice production as it has potential for market demand. Additionally, the management committee should encourage more farmers to become members of these producer communities. By doing so, the quantity of organic product will be significantly increased to meet the market demand.
- Provide capacity building to the management committee members of the rice farmer producer communities relating to marketing strategies and market information so that the members are able to access the market information and can prepare a good production plan and sell their rice at a competitive, fair price. Additionally, it is good to strengthen management skills of the management committee of rice producer communities relating to preparing contracts with the members.
- Members of rice producer communities should be encouraged to deposit more savings so that the producer communities will have more capital for rice business investment, and especially so that they can use some of that money to buy rice during the harvesting season when the majority of farmers sell their rice.