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ROLES OF AGRICULTURAL COOPERATIVES IN JOINT PRODUCTION- CONSUMPTION LINKAGE MODEL RELATED TO LARGE SCALE RICE FIELDS IN MEKONG DELTA

Hoang Vu Quang

Agriculture Institute of Policy and Strategy for Agriculture and Rural Development,
Ministry of Agriculture and Rural Development of Vietnam
Present Address: 16, Thuy Khue, Tay Ho, Ha Noi, Vietnam

E-mail: hoangvuquang@hotmail.com

ABSTRACT

Agricultural cooperatives (ACs) have an important role in supporting the linkage between their members and trading enterprises. This paper presents a study result of roles of ACs in joint production –consumption linkage model related to large-scale rice field (LSRF) in Mekong Delta of Vietnam. Based on survey of 80 agricultural cooperatives (ACs) in 4 provinces in 2016, the study shows i) ACs participate in some kind of linkage models; ii) ACs have some roles in linkage models and in LSRF; iii) linkage brings interest to cooperatives and rice producers. The linkage with trading partners brings to rice producer a net profit from 9.2 to 12% higher than non-linkage; iv) Cooperatives have still several difficulties for the linkage and in rice production in LSRF; v) Supporting policy is not effective.

Keywords: rice, linkage, production, large-scale rice field, Mekong delta

INTRODUCTION

Agricultural production in Vietnam is characterized by small family households. Seventy percent of family households have annual cropland less than 0.5ha (GSO 2011) and divided into several small plots and dispersed. That causes the difficulties for the mechanization, the application of same production process in order to have big production with homogenous quality. The enterprises do not want to have business with small family households because of the heterogeneous product quality and high transaction cost (ILO 2011).

In order to improve the competitiveness of agricultural products and the income of small family households, in 2013, the Vietnamese government issued the policy promoting the model of production-consumption linkage toward crop products, including rice, related to the application of rice production in large scale rice field (LSRF) (Prime Minister 2013). In this linkage model, the agricultural cooperatives (ACs) play an important role. The ACs help to resolve the existing problem of agricultural production system with small family households and facilitate the linkage between the enterprises and small farmers (ILO 2011). The ACs also help to increase their power in the negotiation with the enterprises (ILO 2011, Grega 2003, Tosun *et al.* 2013) and access to market information. In the value chain, the ACs can implement several activities such as providing input and production services to their members, collecting, transporting, preserving the products, preliminary treatment of products, providing information

and internal loan to members, etc. (Stockbridge *et al.* 2003, Grega 2003). These activities improve importance of ACs to members, assure stable market for the products and increase the income of their members.

This paper presents the role of ACs in the joint production – consumption linkage model related to LSRF in the Mekong delta in Vietnam. Concretely, the paper reviews supporting policy aiming to promote the linkage among stakeholders in rice value chains as it relates to LSRF, introduce the linkage models with the participation of ACs, analyze the role of ACs in production -consumption linkage model, identify the interest of linkage for cooperatives and their members.

METHODOLOGY

The result presented in this paper comes from a survey of 80 agricultural cooperatives implemented in 2016 in four provinces of Mekong Delta of Vietnam as Soc Trang, Bac Lieu, An Giang, Ca Mau. Only agricultural cooperatives of rice producers are chosen for the survey.

Total number of agricultural cooperatives in the survey are 80, that is unequally distributed among four provinces due to the different number of rice producer cooperatives in the provinces. The number of crop cooperatives are very few in the provinces of Ca Mau, and Bac Lieu, so only 10 agricultural cooperatives in each of these provinces are surveyed (this is almost all crop cooperatives in two provinces). Provinces of Soc Trang and An Giang have more rice producer cooperatives, so in each of these provinces, 30 ACs are surveyed.

The ACs are randomly selected on the list of agricultural cooperatives provided by provincial competent authority, but the cooperatives that have the linkage to enterprises or organize the rice production for their members in LSRF model are selected according to priority. The direct interview of members of AC management Board with semi-open questionnaire is applied to collect the data of the cooperatives and opinion of the AC members.

In addition, the information is also collected from meetings, discussion with public agencies at levels of provinces, districts, and communes and from rice trade enterprises (including the enterprises with and without linkages to rice producers).

An AC is considered as having the linkage to enterprise if AC and enterprise sign a contract with agreed conditions in which the enterprise engages to buy the paddy according to contracted conditions. A rice field is called LSRF if its area is not less than 50 ha and composites of adjoining rice plots with same rice variety and same production process. De factor, the area of a LSRF is largely different among provinces, but with an interval of 50-300 ha.

REVIEW OF SUPPORTING POLICY FOR LINKAGE AND LSRF

The government has preferential and supporting policy to enterprises, cooperatives and rice producers when implementing the linkage in joint production – consumption related to LSRF model. This policy consists of:

- i) Exempting or reducing land use tax or land rent when being assigned or rented by State for building processing factory, storehouses, worker's houses, working houses for LSRF projects;
- ii) Prioritizing in the participation into government programs in rice export and stockage;
- iii) Supporting partly the cost for planning, improving rice field, improving roads, interior field irrigation system and electric system;
- iv) Support the cost of technical training courses and guidance for rice producers. The enterprise can receive 50% of this cost while the AC can receive 100%.
- v) Support until 50% of training cost for AC managers;
- vi) Support the cooperative in providing plant protection service. The support can be until 30% for first year and 20% for second year for the costs of pesticide, hired labor and hired machine.
- vii) Support rice producers until 30% of cost to buying certificated rice seed;
- viii) Support 100% cost for the stockage of paddy in enterprise's storehouse in a period of 3 months;
- ix) Support the application of good agricultural practices in rice (VietGAP), including the cost for the certification.
- x) Possible access to preferential credit as low interest rate, and no mortgage. The commercial banks are allowed to provide the loan without mortgage to enterprises and agricultural cooperatives. The loan can achieve until 80% of total budget of LSRF-linkage project.

The potential beneficiaries of this policy are presented in the table below:

Table 1. Promoting policy for stakeholders involved in joint rice production – consumption linkage model related to LSRF

Kind of support	Enterprise	Cooperative	Producer
Exemption or reduction of land use tax or land rent	Yes	Yes	No
Priority in rice export in G2G export contract or stockage program	Yes	Yes	No
Supporting partly cost to improve field infrastructure (road, irrigation, electric systems)	Yes	No	No
Supporting cost of training for rice producers	Yes	Yes	No
Supporting cost for training of cooperative managers	No	Yes	No
Supporting cost of pesticides, hired laborers and machines	No	Yes	No
Supporting cost of certified rice seeds	No	No	Yes
Stocking paddy in silo	No	No	Yes
Support the application of VietGAP	No	Yes	Yes
Possible access to preferential credit	Yes	Yes	No

Source: synthesis from Decision 62/2013 (Government, 2013); Decision No. 1050/QĐ-NHNN (State Bank, 2014); Decree No. 55/2015/NĐ-CP (Government, 2015).

To receive the public support, the LSRF- linkage project has to meet all of following conditions:

- Rice is produced in LSRF and has joint production – consumption linkage;
- Having the signed contract between buyers and rice producers in buying the paddy and the enterprise has to provide input to rice producers (they can have themselves or signed contract with other enterprises to provide input to rice producers);
- Trade enterprise must have the infrastructure for stockage, drying the paddy and has rice production area ensuring at least 50% of their rice need;
- LSRF project is placed in planned rice production zone and approved by competent authority; and
- Linkage project has at least the implementation duration of 5 years

The satisfaction of all above-mentioned conditions is very difficult. None of the enterprises meets all of these conditions. In fact, in surveyed provinces, none of LSRF-linkage project is approved. Consequently, some provinces give the support to cooperatives, and rice producers for rice production only in LSRF, but not linkage with enterprises.

PARTICIPATION OF AGRICULTURAL COOPERATIVES IN LSRF AND JOINT PRODUCTION-CONSUMPTION LINKAGE MODEL

The study shows that 30.3% of surveyed cooperatives applied rice production in LSRF and had joint production – consumption linkage with enterprises; 13.2% of the cooperatives produced the rice in LSRF, but not linkage to enterprises; 26.3% of cooperatives have the linkage to enterprises but not apply LSRF; 30.3% cooperatives do neither LSRF nor linkage to enterprises. In summary, 41.8% cooperatives applied LSRF and 54.4% cooperatives link to enterprises in rice production and consumption.

58.2% cooperatives do not apply LSRF model by several reasons such as: i) rice parcel of cooperative's members are alternated with rice field of non-members (55.6% cooperatives), do it does not meet the criteria of LSRF; ii) Cooperative members do not find out the enterprises that want to engage in a contracted linkage (37.8%); iii) Cooperative members do not want to LSRF because the production process in LSRF is so complicated (31.1%); iv) rice producers do not receive the support from public agencies (20.0%); v) Cooperatives do not know how to apply the LSRF model (15.6%); vi) Members do not acknowledge the interest of LSRF model.

Table 2. Reasons for non-participation of agricultural cooperatives into LSRF model

Unit: % cooperatives

Reason	Total	Ca Mau	Bac Lieu	Soc Trang	An Giang
Members do not want to apply LSRF because of complicated production process	31.1	40.0	16.7	25.0	36.4
Member's rice field is alternated with ones of non-members	55.6	80.0	33.3	66.7	50.0
Do not know how to do LSRF	15.6	40.0	66.7	8.3	0.0
Do not have enterprise signing contract to buy paddy	37.8	40.0	33.3	33.3	40.9
Do not receive public support	20.0	60.0	50.0	8.3	9.1
Do not acknowledge the interest of LSRF	11.1	0.0	0.0	0.0	22.7
Other	15.6	60.0	16.7	0.0	13.6

Note: percentage is calculated only on the number of cooperatives that do not applied LSRF.

Why are cooperatives not engaging in linkages with enterprises? The survey results that 77.4% cooperatives that do not have contracted linkage to enterprises revealed the reason for non-linkage as they do not find out the partners for signing rice buying contract. 25.8% of cooperatives mentioned that the enterprises do not buy the paddies with higher price, so rice producers do not want to link in order to have the flexibility in selling their paddies. Some additional reasons explained include the non-linkage of cooperatives with enterprises such as enterprise's requirement is so complicated, difficult (16.1% cooperatives), the rice quality does not meet the requirement of partners (12.9%), the area of LSRF is small so enterprises do not want to sign the contract (12.9%).

The most important reason for non-participation of cooperatives in the linkage model with enterprise is that the enterprises do not want to link. Some reasons explain the non-interest of trading enterprise in the linkage. First, to have a sustainable linkage, the enterprises have to invest in advance to farmers, so they need an important capital; Second, the enterprises have to invest in the infrastructure as storehouse, factories, renting land, vehicles and machines (Transport means, drying machine, etc.). That needs also a big capital. Third, the enterprises have to recruit additional staff for supporting and supervising the linkage, so they have to bear additional operation cost. Fourth, the enterprises have to buy the paddies with higher price than market price. Fifth, to recompense additional cost related to the linkage, the enterprises have to ask the cooperatives in producing high quality rice, but it is easy to find out the market for high quality rice. In summary, to do linkages, the enterprises need a very big capital, pay additional cost but the enterprises are so difficult to benefit supporting policy of government. The procedure to benefit public support is so complicated and local government themselves do not have enough resources to support the enterprises involved in the linkage.

Table 3. Reasons explaining the non-linkage of cooperatives with enterprises

Unit: % cooperatives

Reason	Total	Ca Mau	Bac Lieu	Soc Trang	An Giang
Cannot find out buying partner to sign contract	77.4	60.0	85.7	72.7	87.5
Small LSRF area, so company does not sign the contract	12.9	40.0	0.0	9.1	12.5
Enterprises do not buy paddy at price higher than market price	25.8	0.0	14.3	18.2	62.5
Rice quality is not meet requirement of enterprises	12.9	60.0	0.0	9.1	0.0
Do not have means to transport paddy to storehouse of enterprise	9.7	0.0	0.0	18.2	12.5
Requirement of enterprise is difficult and complicated	16.1	20.0	14.3	9.1	25.0
Other	12.9	20.0	28.6	9.1	0.0

Note: percentage is calculated only on the number of cooperatives that do not have the linkage with enterprises.

COOPERATIVE'S ROLES IN LSRF AND LINKAGE MODELS

Models of linkage and LSRF with the participation of cooperatives

Linkage model between rice trading company and cooperative

In this model, the company signs the linkage contract with agricultural cooperative (AC) of rice producers. The list of rice producers with their signatures is annexed in the contract. The linkage mechanism and the responsibilities of each of both parties are:

- i) the company invests to the rice producer throughout the cooperative. The advanced investments can be in cash or in kind (rice seeds, fertilizers, plant protection chemicals). In case of in cash, advanced amount equals about 50% of the total cost of rice seeds, fertilizers, plant protection chemicals. The advance is delivered to AC, then the later redistribute to their members;
- ii) the company decides used rice variety and grade of rice seed (usually certificated rice seeds);
- iii) The company gives the guideline of production process and supervises the application of technical practices. The AC is also responsible to supervise technical practices applied by their members in conformity to determined production process; and
- iv) The company buys the paddy at field or at silo at agreed price by both parties. Normally, agreed price is equal to or higher than market price by a prime and determined before some days of the harvesting.

In this linkage model, the LSRF can be applied or not yet. It depends on company need of rice quality and the capacity of organizing LSRF of AC. The AC plays an important role in the linkage, but its limited capacity is an obstacle.

Linkage model between input agent and cooperative

Agricultural input agent, based in villages or communes, signs the contract with cooperative for an input – output trade. The agent buys the paddy of AC members and sells the input to the cooperative. The agent's only interests is

in rice variety and not in the technical process. Therefore, they decided which variety is sowed for every cropping and let the farmers freely in applying the techniques. The agent can buy the paddy at field or at storehouse at agreed price between AC and agent. The price can be fixed at sowing or at buying time. The agent resale purchased paddy to rice trading company.

Doing this linkage, the agent achieves double objectives: i) preventing other agent in providing input to farmers and make profit from selling the input; ii) Making profit from trading paddy. However, in some cases, the agent can suffer financial losses from marketing paddy because the fixed price at sowing is lower than the price at paddy buying time.

In this linkage model, LSRF is applied to assure homogenous rice quality, facilitating the agent in resale. The AC is responsible to distribute the input to their members, supervise technical application of members and assures the member to sell the paddy to input agent.

Cooperative organizes LSRF and do marketing paddy itself

In this model, the AC does not sign the contract with any paddy buyer before sowing. The AC organizes the rice production in LSRF. There are two cases in the model:

- AC organizes the LSRF from the rice field of their members, AC buys the paddy of members, then resells the paddy to other trading partners. The AC only guides and supervises the technical practices of their members.
- AC organizes the LSRF from their collective land. Collective land can be hired from their members or non-members.

The marketing of paddy is not difficult because of high rice quality. However, very few ACs can be capable to apply this model because of their limited capacity on capital, asset, management skill and low performance.

Cooperative's role in rice production in LSRF model

To apply LSRF model in rice production, the cooperative must build collective rice production process with agreement of their members and do this so that their members apply and respect this process. To do that, the cooperatives have to lobby, communicate, guide and supervise their members in whole cropping. The survey indicates that the cooperatives did their w roles well as presented in table 4.

Table 4. Applying collective rice production process by cooperatives

Item	Total	Ca Mau	Bac Lieu	Unit: % cooperative	
				Soc Trang	An Giang
Used same rice variety	79.4	60.0	75.0	88.2	75.0
Applied same rice production process	85.3	100.0	100.0	76.5	87.5
Sowing same period as planned	91.2	80.0	100.0	94.1	87.5
Harvesting rice as planned	94.1	80.0	100.0	94.1	100.0
Rules on using fertilizers, pesticides	29.4	20.0	25.0	29.4	37.5

The agricultural cooperatives provide some services to support their members in the application of LSRF model such as sowing, irrigation and drainage, fertilizing, spraying pesticides and herbicides, harvesting, transportation, providing input, land preparation, etc. The production service that the cooperatives provide the most is irrigation and drainage is provided by 48.5% of the cooperatives (Table 5). Very few cooperatives can provide input (rice seeds, fertilizers, pesticides) and post-harvest services (transport, drying, stockage) to members because of their limited capacity on human resources, capital, and asset. There is a reduction of the power of cooperatives in negotiating with partners and put the burden to companies in linkage activities.

Table 5. Service of cooperative to member for application of LSRF

#	Service	% cooperative provides service
1	Sowing	9.1
2	Irrigation, drainage	48.5
3	Fertilizing	9.1
4	Spraying pesticide	12.1
5	Spraying herbicide	15.2
6	Harvesting	24.2
7	Transporting	9.1

Cooperative's roles in joint production –consumption linkage model

Nearly 60.8% of ACs have the linkage with an enterprise for sale of the paddy of their members. In the linkage, the ACs play an intermediate role between enterprises and household members. The ACs perform a number of roles including negotiating and signing the contracts with partners; receiving investments from buying rice partners and redistribute them to members; Guide and supervise the household members implementing farming processes (technique process, seasonal calendar) (Table 6).

Because of majority of cooperatives do not have transportation vehicle, the enterprises have to buy wet paddy at rice field and transport it to their storehouse. In cases where cooperatives have vehicles and transport paddy of their members to storehouses, the enterprise pays the cooperative the transportation cost.

Table 6. Roles of cooperatives in supporting linkage between household and enterprises

Role	% of cooperatives
Signing of contract with partners	29.0
Receiving the investment from partners and redistributing them to members	16.0
Looking for relevant input to provide to members	8.0
Announcing, guiding members about production process	17.0
Supervising members in respecting the agreed production process	20.0
Identifying the harvesting calendar	24.0
Transporting paddy from rice field to storehouse of partner	3.0

Role of enterprises in the rice production-consumption linkage model

In the joint production-consumption linkage production with the cooperatives, the enterprises play the following roles:

- Buying paddy as indicated in the signed contract. The enterprises usually buy wet paddy at rice field just after harvesting, then transport it to their storehouse and dry it. Normally, the enterprises pledge to buy paddy at market price or higher than market price.

- Advanced investment for the farmers. The enterprise can invest rice seeds, fertilizers, pesticides or money for the farmers so they can buy themselves the input. In order to have homogenous and high quality rice, the enterprise normally invests certificated rice seeds. Therefore, 73% of cooperatives in linkage models receive rice seeds from enterprises. In case of advance in cash, the amount is about until 50% of input cost (seeds, fertilizers, and pesticides). The advanced investment of the enterprises will be deducted when enterprises receive paddy from farmers at the end of rice cropping.
- Support to cooperatives in the form of a small amount to recompense to the responsibility of cooperatives in assuring the implementation of the linkage. Cooperative managers have to mobilize their members, supervise the application of agreed rice production process and assure their members to sell paddy to enterprises. Supporting level is different from one to other firms, but in interval of VND 10-200/paddy kg and depend on requirement level in supervising the application of rice production process. For example, in case of applying GolobalGAP, the enterprise has to support higher amount.
- Send technicians to guide production technique and supervise the farmer in the application of agreed rice production process. This support only happens in case that the enterprise need the rice of high quality or in application of high standard as GlobalGAP, organic.

Table 7. Investments of enterprises to cooperatives in linkage model

Form of investments	Total	Ca Mau	Bac Lieu	Soc Trang	An Giang
Cash advance	10.0	0.0	0.0	0.0	20.0
Supply of rice seed	73.3	100.0	100.0	81.8	60.0
Supply fertilizers	43.3	100.0	50.0	54.5	26.7
Supply pesticide	43.3	100.0	100.0	36.4	33.3
Paying fee for AC for supporting the linkage	26.7	50.0	100.0	18.2	20.0

Received support of cooperatives

When participating in rice production in LSRF and linkage model, the cooperatives receive not only the investment from enterprises, but also from public agencies (Table 8). The cooperatives and farmers receive four kinds of public supports as:

- i) Support of input (seeds, fertilizers, pesticides). However, the percentage of cooperatives receiving input support is very low (less than 15%);
- ii) Technical training of promoted rice production process as one must five reduction¹, three reduction three increase², VietGAP). Guidance of application of production process in practices and Guide measure to prevent and treat pestilent insect and diseases. The most public support is focus on these issues as about 50% of cooperatives received these supports.
- iii) Support for post harvesting activities, but it is also very limited.
- iv) Support in case of happened objective risk as flood, drought, diseases,..

¹ 3 reduction 3 increase: 3 reductions include reduction of used volume of rice seeds, fertilizers and pesticides. 3 increases include increase in rice yield, rice quality and economic effectiveness.

² 1 must 5 reduction: one must is must use certificated rice seed, 5 reductions include the reduction of used volume of rice seed, fertilizer, pesticide, water and reduction of post harvesting loss.

Table 8. Percentage of cooperatives receiving public support for their participation in LSRF and linkage model.

Kind of support	% AC
Rice seeds	14.0
Fertilizers	5.3
Pesticides	1.8
Training on technique practices	52.6
Applying sustainable rice production process (1 must 5 reduction, 3 reduction 3 increase, VietGAP,...)	47.4
Guide measure to prevent and treat pestilent insects and diseases	49.1
Transport paddy from field to storehouse	1.8
Keep paddy in storehouse	1.8
Support in case of happened objective risks (natural disasters, diseases)	15.8
Others	3.5

INTEREST OF LINKAGE TO MEMBERS AND COOPERATIVES

Interest to cooperative's members

The linkage between AC and rice trading enterprise brings several interests to cooperative members such as paddy is stably traded; producers are trained and guided in rice production; rice price and production profit is higher; producers receive advanced investments from enterprise and good quality of input (Table 8).

Table 9. Interest of cooperative's members in linkage with enterprises

Kind of interest	Total	Ca Mau	Bac Lieu	Soc Trang	An Giang
Sustained sale of paddy	81.3	60.0	100.0	88.9	77.3
Rice price is higher than without linkage	33.3	60.0	66.7	33.3	22.7
Higher profit	35.4	80.0	100.0	22.2	27.3
Receiving support of fertilizers, seeds, plant protection chemicals	14.6	20.0	0.0	22.2	9.1
To be guided	45.8	60.0	100.0	55.6	27.3
To be advanced the cash without interest rate	35.4	20.0	33.3	55.6	22.7
To be provided input with ensured quality	39.6	40.0	66.7	55.6	22.7

33.3% of surveyed cooperatives mentioned that rice price is higher than non-linkage. Even the average level of higher is only about VND121/kg of paddy (higher about 2.2%), it is motivated for rice producers and compensate their additional work for respecting agreed rice production process. In several cases, rice producers break the contract by not selling their paddy to enterprises because the later do not invest in advance to producers and do not buy paddy with higher price.

The training, guidance to rice producers help increase rice productivity and reduce production cost, plus higher paddy price brings higher profit to cooperative members in the linkage with enterprises. The survey indicates higher profit of 9.4% in comparison to non-linkage cases.

Table 10: Higher level of paddy price and profit in linkage model in comparison to no linkage

Province	Higher amount of price (VND/kg)	Higher percentage of profit
Ca Mau	150.0	9.3
Bac Lieu	100.0	17.5
Soc Trang	175.0	7.3
An Giang	83.3	7.0
Total	121.4	9.4

Interest to cooperatives

The linkage with enterprise in rice production-buying model brings also several interests to cooperatives. The cooperatives have additional income from commissions paid by rice trading enterprise and input agent. The linkages help improve the cooperatives' role to their members, and improve the capacity of cooperative managers. The linkages require the cooperatives in guiding, supervising the production practices of their members. The cooperative managers are responsible in negotiating with partners or have to look for ways to mobilize the capital or enlarge the

cooperative's services to members. All of these support the cooperative managers improve their capacity throughout "learning by doing" method.

Table 11. Interest of cooperative in linkage with enterprises

Kind of interest	Total	Ca Mau	Bac Lieu	Soc Trang	An Giang
Have income paid by rice trading enterprises for cooperative responsibility in the linkage	47.9	60.0	66.7	27.8	59.1
Have commission paid by input agents	27.1	40.0	66.7	11.1	31.8
Enlarging activities of AC	8.3	20.0	0.0	5.6	9.1
Improved role of AC to their members	68.8	80.0	100.0	88.9	45.5
Capacity of AC managers is improved	54.2	80.0	100.0	50.0	45.5

DIFFICULTIES OF COOPEARTIVES IN LINKAGE MODEL

The ACs also encountered some difficulties in the linkage with rice trading enterprises. The reason is mainly mentioned is that the enterprises do not buy the paddy with higher price than the market price. The next reason is that the farmers do not comply with the contract. The survey results showed that more than 10% of members did not respect their commitment to contracted enterprises. They sell their paddy to non-contracted enterprises and several HHs do not repay for the investment enterprises in advanced production inputs. Twenty-five percent of cooperatives mentioned their difficulty, as they did not receive public support. The complexity of technical process is the difficulty of 8.3% of those surveyed cooperatives. Examples of difficulties mentioned include cases of applying the GlobalGAP or that rice producers are required not to use some pesticides that normally the producers use before the participation of linkage model.

Table 12. Difficulties of cooperatives in the linkage with enterprises

Type of difficulty	Unit: % cooperatives				
	Total	Ca Mau	Bac Lieu	Soc Trang	An Giang
Technique process is complicated	8.3	0.0	0.0	11.1	9.1
Members do not respect signed contract (sell their paddy to non-contracted buyers)	20.8	20.0	0.0	16.7	27.3
Enterprise does not buy paddy at price higher than market price	33.3	0.0	0.0	27.8	50.0
Not be supported	25.0	40.0	66.7	16.7	22.7
Other	8.3	20.0	33.3	5.6	4.5

Note: percentage is calculated only on the number of cooperatives that do not have the linkage with enterprises.

CONCLUSION

The model of rice production-consumption linkage related to LSRF promoted by Vietnamese government aims to improve the competitiveness of Vietnamese rice in the world market throughout higher quality, stabilize rice supply and ensure the income of rice producers. The result of survey of 80 agricultural cooperatives in the Mekong delta region shows that:

- Forty-two percent of cooperatives applied LSRF and 54.4% cooperatives have linkages to enterprises in rice production and consumption. However, only 30.3% of cooperatives applied both rice production in LSRF and joint production – consumption linkage with enterprises.
- Fifty-eight percent of cooperatives do not apply LSRF model. There are several reasons, but two main reasons are that i) rice parcel of cooperative's members are alternated with rice field of non-members (55.6% cooperatives); and ii) Cooperatives do not find out the enterprises that want to engage in a contracted linkage (37.8%).
- Seventy-seven percent of cooperatives that do not have contracted linkage to enterprises said the reason for non-linkage is they do not find out the partners for signing rice-buying contract.
- The rice trading enterprises play a determined role for the participation of agricultural cooperatives in rice production in LSRF and joint production-consumption model. However, several reasons for very limited involvement of trading enterprise in linkage model are that they need a big capital, additional cost to buy paddy, difficulty in finding the market for linked rice while it's very difficult for them to benefit supporting policy of government.
- Sixty-five percent of ACs that they have linkages received investments from these enterprises. The enterprises often advance money or seed rice, fertilizers, pesticides for farmers through ACs. Enterprises would decide the seeds sowed, besides, enterprises have to pay more for ACs a commission from 20VND – 200VND/kg of rice in order to ACs implement the linkage in production under collective rice production process.
- ACs implementing the linkages received support from the State, mainly in the form of training course on applying sustainable farming techniques. However, the rate of ACs received seed rice, fertilizers and pesticides was very low.
- Cooperatives most find it difficult in terms of linkage model with enterprises are as the enterprises do not buy paddy with higher price and cooperative's members do not sell their paddy to contracted enterprises.
- In the linkage with enterprises, the farmers receive several interests as provided ensured and high quality of rice seeds, fertilizers, pesticides; be trained about technical process and guided in practices and stable market for their paddy.
- Implementing production under LSRF associated with the linkage brought higher average profit of about 9% compared to without linkage because of the application of sustainable farming processes that helped reduce manufacturing costs and increase selling prices. In addition to higher profits, 90% of ACs appreciated stabilizing of rice for their members.
- The agricultural cooperatives also have interest in the linkage with enterprises. The cooperatives have more income, improve their role to members, enlarge cooperative's activities, and improve the capacity of cooperative's managers.

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