STUDY PATTERNS OF ASSISTANCE FIELD SCHOOL INTEGRATED CROP MANAGEMENT RICE IN RIAU PROVINCE

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ABSTRACT

Study pattern of Assistance Field School Integrated Crop Management (FS-ICM) Rice in Riau Province was conducted in 2011 focused on acquiring data and information (FS-ICM) attending patterns were effective. Experiment was conducting in nine county region of Riau Province. Stipulating location sample of data mining and farming groups in purposive random sampling method. Primary data collected through focus group discussions (FGD), involved an extension worker, community leaders and participating farmers (FS-ICM) as well as ICM demonstration plot farmer cooperators. Collected data had been validated, and classified regarding clustered topic in order information distributed related to discussion topics. Moreover, the data was interpreted by reference and expertise team. Data was analysed by SWOT analysis method (Strength, Weakness, Opportunity and Threat). The results of internal environmental analysis (ALI), strength variable value was greater than weakness variable value (379> 355). Results of analysis of the external environment (ALE), the chance variable values is smaller than threat variable value (360 <390). Patterns of innovation assistance accomodated SL-PTT on aspects bases on paddy power (potential region, motivation, market access); aspects of weakness bases (Adoption of technology, labor, cost of production); aspects of opportunity bases (Agroecosystems, VUB rice, promotion of innovation SL-PTT); and aspects of threats bases (climate, mentoring systems, technology development).

Keywords: *Accompaniment patterns, FS-ICM rice*

INTRODUCTION

Government efforts to increase rice production to meet the target of 70.6 million tonnes has undertaken various programs, one field school program - an integrated crop management (FS-ICM), which is a strategy that is expected to provide a greater contribution to the increased production of rice, corn and soybeans (Puslitbangtan, 2009). FS-ICM Rice activities in the province Riau has begun to be implemented in 2009, where the assistance of technology by the Assessment for Agricultural Technology (BPTP) Riau totaled 60% of the existing FS-ICM. BPTP Riau was implementation assistance in every area of FS-ICM Rice always liaise with relevant agencies and farmer groups. Integrated crop management (ICM) is an innovative and dynamic approach in an effort to increase production and incomes of farmers through a participatory component assembly technology with farmers (Hendayana, et al, 2009). At a FS-ICM Rice unit contains one acre field laboratory (FL) and each one is used 0.25 ha field laboratory to test varieties of rice or display new varieties of rice.

In 2010 the Assessment for Agricultural Technology (BPTP) has conducted mentoring Riau FS-ICM Rice inhibrida of 40,000 ha of rice and in 2011 also provide guidance FS-ICM Rice inhibrida 42 500 ha of rice, which means that the trend of increased assistance FS-ICM Rice and indicated that through the program SL-PTT can accelerate technological innovation and increase production and income of farmers. In 2010, the FS-ICM Rice Riau province spread across 9 districts with 60% posentase assistance, to the amount of assistance by the Ministry of Agriculture and FS-ICM Rice Pelalawan Riau in the spread amounted to 96 of FL in the district and sub-base Pangkalan Kuras Kuala Kampar,

Bengkalis Regency the 54 of FL were located in the district of Siak Small and Bukit Batu; Kunatan Singingi Regency the 96 of FL were located in the district of Gunung Toar, Singingi, Logas Tanah Darat, Kuantan Hilir, Cirenti, Inoman, Kuantan Mudik, Kuantan Tengah, Pangean, and Benai. Indragiri Hilir Regency 208 of FL; Kampar Regency 120 of FL, Indragiri Hulu Regency 108 of FL; Rokan Hilir Regency 120 of FL and Siak Regency 84 of FL. In each Regency was conducted demonstration plots that the region outside of FS-ICM, with a broad expanse of the same in each of the 2 ha counties / districts. Based on the above description has been carried out the study " Study pattern of Assistance Field School Integrated Crop Management (FS-ICM) Rice in Riau Province**.**

MATERIALS AND METHODS

The experiment was conducted in nine areas of Riau Province FS-ICM, on the Kampar , Rohul, Kuansing, Inhu, Inhil, Rohil, Pelalawan, Siak and Bengkalis in fiscal year 2011. Determination of sample locations and farmers as the primary data source for each district in *pourposive random sampling*. Primary data collection through focus group discussions *(focus group discussion* - FGD), which involve a companion extension agents and farmers participant FS-ICM, and farmer cooperators demontration plot. Determination of sample location data mining and farming groups in *pourposive random sampling*.

Primary data collection through focus group discussions *(focus group discussion* - FGD), which involve a companion extension, community leaders and participating farmers FS-ICM, and farmer cooperators demontration plot with the number of respondents on average twenty people for each area of innovation assistance FS-ICM rice. The collected data is validated, then sorted by topic permasahalan clusters and each cluster is shown in the table to obtain the distribution of information related to the topic discussed. Furthermore, the data is interpreted by reference and expertise of the team. To obtain the formulation of the pattern of innovation assistance FS-ICM was analyzed through a SWOT analysis *(Strength, Weakness, Opportunity and Threat).*

RESULTS AND DISCUSSION

A. Characteristic of Human Resources

In this activity characteristic of human resources are related to age, and experience of rice farming in nine areas of technological innovation assistance. The results of the tabulation of data obtained that the age of the respondent or the farmers involved in the mentoring program innovation FS-ICM in Riau province aged 31-53 years, to detail can be seen in Figure 1.

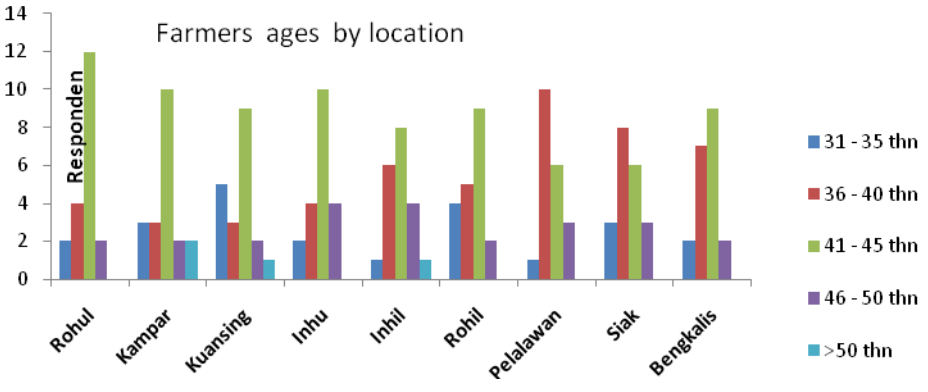

Figure 1. Graph of Farmers ages Location, 2011

From Figure 1 reflected that the program participants FS-ICM farmers in Riau Province, predominantly aged 41-45 years at the location Rokan Hulu, Kampar, Kuansing, Indragiri Hulu,

Indragiri Hilir, Rokan Hilir and Bengkalis. Technological innovation participants aged> 50 years there in Kuansing, Rohil and Siak. A small amounts of rice farming in the FS-ICM always in demand by younger age groups as well as old age. From Figure 1a. also reflected that the age of the farmer cooperators assisting FS-ICM technology innovation in the province of Riau rice into the category of productive age 36-45 years. This indicates that farmers, as the executor of rice pogram FS-ICM have the technical ability and physical properties are expected to adopt productive technologies, particularly rice cultivation technology of new varieties or human resource who participate in mentoring programs FS-ICM is the driving force of social capital and technological innovation assistance . It is the opinion of Abbas *in* siring Soebiyanto (1998) which states the age of active farmers either directly or indirectly with the farmer. Data Assets by rice farming experience in nine regencies the FS-ICM location gained the experience of rice farming by the farmer cooperators ranged 1-30 years. For the details shown in Chart 2.

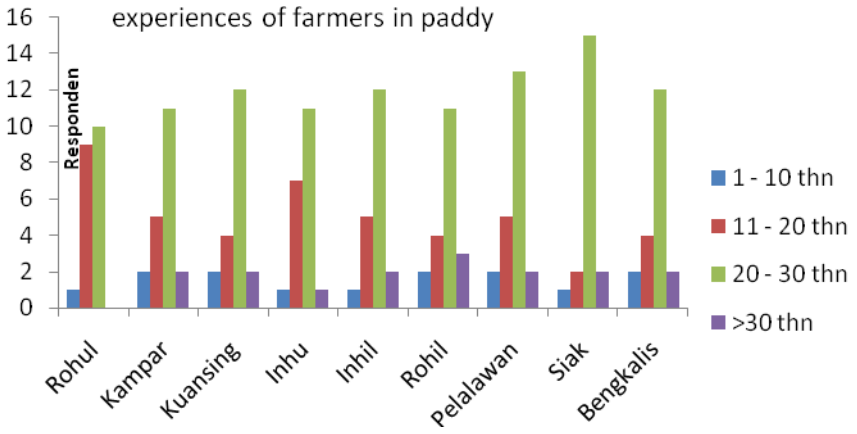

Figure 2. Trying to chart Experience Tani by Location, 2011

From Figure 2 reflected the experiences of farmers in each FS-ICM dominant on rice farming practice of 20-30 years, but rice farming experience is more than 30 years. This indicates that farmers as FS-ICM participants have experienced in paddy rice farming, meaning that farmers already have the maximum technical capacity in the cultivation of rice or as perpetrators of human resources assistance program FS-ICM rice technology in the province of Riau has been experienced with the business rice farmers. Is estimated that farmers in general have the ability to retrieve or determine the decisions in the management of their farm. This is in line with the opinion of Kolb (2001) which states that it is a learning experience that is directly or indirectly related to the activity or business is doing.

B. **Analysis OF Internal Environmental Analysis (A of IE)**

Observation of the internal environment of FS-ICM rice assistance is focused on several aspects namely: 1) aspects of human resources include: level of education, knowledge / skills, motivation and level of technology adoption, 2) Aspects of natural resources: land potential, the potential development of new variety rice, statue of land ownership; 3) Aspects of rice farming: average of land ownership, average of tenure, potential production, value production, profit, 4) Institutional aspects: performance of farmer groups, the performance of supporting institutions and relationships between agencies; 5) aspects of marketing and capital: business management, management new variety rice, the main products and pricing, product and price. The analysis of

internal environment of innovation assistance FS-ICM was found that the weight force is greater than the value of the weight of weakness, indicating that the formulation of the pattern of innovation assistance FS-ICM rice that has been applied in the field has a positive outlook in increasing rice production (389> 365), for the details outlined in Table 1.

Table 1. Analysis of Internal Environmental (A of IE) Mentoring Innovations FS-ICM, 2011

Variables	Power			Weakness			The power rankings	Rank Weakness
	Weight	Score	Value	Weight	Score	Value		
1.Aspek Human Resources	-	-	-	5	4	20	-	-
-Level of education	-	-	-	6	4	24	-	-
-Knowledge/Skill	11	4	**44**	-	-	-	**2**	-
-Motivation	-	-	-	10	5	**50**	-	**1**
-Adoption of technology								
2.Aspek Natural Resources:	10	3	30	-	-	-	-	-
- Teh Potential of new variety	12	5	**60**	-	-	-	**1**	-
-The potential of the region	8	2	16	-	-	-	-	-
- Ownership status								
3. Business aspects of rice	10	4	40	-	-	-	-	-
farming:	8	4	32	-	-	-	-	-
-The average tenure	7	3	21	-	-	-	-	-
-Average land ownership	-	-	-	5	3	15	-	-
- Status of rice-farming	-	-	-	7	4	**28**	-	**3**
- The cultivation techniques of rice	4	4	16	-	-	-	-	-
- Cost of production	-	-	-	6	4	24	-	-
-Production potential	4	4	16	-	-	-	-	-
-The value of production								
-The perceived benefits								
4). Institutional aspects:	-	-	-	7	3	21	-	-
-The performance of farmer	-	-	-	7	3	21	-	-
groups	-	-	-	7	2	10	-	-
- Performance of supporting institutions								
-The working relationship between farmers' organizations								
5). Aspects of business and	6	3	18	-	-	-	-	-
capital:	-	-	-	7	4	28	-	-
-The main product (number, type)	-	-	-	-	-	-	-	-
-The product-side (number, type)	-	-	-	9	4	20	-	-
-Business Management	-	-	-	-	-	-	-	-
- Management of a new variety-	8	5	**40**	-	-	-	**3**	-
rice	-	-	-	10	4	**40**	-	**2**
- Capital access	-	-	-	5	3	27	-	-
- Market access	7	3	21	-	-	-	-	-

- Labor access - Enterprise scale - Rice farm income - Capacity traders	5	4	20	- 9	- 3	- 27	- -	- -
Total	100		379	100		355		

Sources: Primary data from the FS-ICM Riau Province, 2011

From Table 1 reflects that the educational aspects of human resources into the category of weakness, where the average is relatively low formal education (SD) associated with the adoption of technology, especially rice cultivation technology adoption a new variety. Table 1 also indicates that the general level of technology adoption by farmers in the implementation of FS-ICM into the category of low-field, this is in line with the opinion of Babbie (1986) which states that the education level and social influence the ability to absorb technological innovation.

On internal factors that reflected aspects of natural resources have more power than a weakness, it means agroecosystem of Riau Province strongly supports the development of FS-ICM. And manifestations of Law 39/2008 the Agency for Agricultural Research implementation support, encourage all the working technical unit, especially the Assessment of Agricultural Technology (BPTP) has been proactive mentoring Riau FS-ICM.

And institutional aspects of rice farming, have more weaknesses than strengths, which means for the development of rice farming in particular new varieties is needed special attention will be socio-cultural (reference sense) and institutional farm. Existence and institutional capacity of farmers in the region into the category FS-ICM still weak, which was instrumental in the institutional agricultural technology innovation. Institutional farm is functioning in the development of technology, where technological innovation can increase production, it is in line with the opinion and Hirschiy Pappas (1995), which states that the application of technological innovation will result in the appropriate product with business goals.

From Table 1, obtained the value of greater strength than the weakness (23.92: 25.05), meaning that variables internal factors that are owned by the FS-ICM Riau Province is one mentoring patterns of innovation formulation FS-ICM entry category perpadian effective in supporting development in the province of Riau. The results of internal environmental analysis (Aof IE) that innovation assistance FS-ICM rice is in quadrant 1, indicating that FS-ICM assistance at this point in a favorable situation in the acceleration of production and farmers' income is derived dai rice commodity in Riau Province.

C. **Analysis of the External Environment (A of EE)**

The analysis covers the various aspects of the external environment are: 1) Aspects of Government Policy variables include: Porsentase assistance, FS-ICM policy, Distribution of new variety, Label and promotion, and licensing breeders, extension, 2) Geographic Aspects: Climate, site conditions and culture, 3) Aspects of the availability of technology: varieties, cultivation, alsintan, and post-harvest storage, 4) socio-economic aspects: the marketing system, market competition, transportation, partnerships, the needs of consumers, the reputation of farmers, extension assistant, market absorption; 5) market aspects: the development of production, the development of *rice Melling,* inter-regional export opportunities. From the analysis of the external environment of the observed variables are then obtained by weighting the threat is greater than the value of the weight of chance (390> 360), to detail can be seen in Table 2.

Table 2. Analysis of the External Environment (ALE) Mentoring Innovations SL-PTT, 2011

Variables	Chance			Threat				
	Weight	Score	Value	Weight	Score	Value	Ranking Opportunity	Ranking of Threats
1.Aspects of government policy:	5	5	25	-	-	-	-	-
-Development of new	6	3	18	-	-	-	-	-
varieties	10	3	30	-	-	-	-	-
of rice	-	-	-	10	4	40	-	-
-Persentage of assistance	8	4	**32**	-	-	-	**3**	-
-Rice production increase	7	3	21	-	-	-	-	-
-Permitting breeder seed								
-Promotion of innovation FS-ICM								
-Intensification of FS-ICM								
2. Aspects of geographical :								
-Climate	-	-	-	10	5	**50**	**-**	**1**
-Agroecosystem	10	5	**50**	-	-	-	**1**	-
- Location potential of FS-ICM	5	5	25	-	-	-	**-**	-
3. Technology aspects:								
-New Superior Variety	10	5	**50**	-	-	-	**2**	-
-Cultivation	6	5	30	-	-	-	**-**	-
-Mechanization	-	-	-	10	3	30	**-**	-
-Post-Harvest	-	-	-	5	4	20	**-**	-
-Dissemination	-	-	-	5	4	20	**-**	-
4). Socio-economic aspects:								
-Assistance System FS-ICM	-	-	-	10	5	**50**	-	**2**
-Inter-agency partnership	-	-	-	10	4	40	-	-
-Region and culture	-	-	-	10	3	30	-	-
conditions	7	3	21	-	-	-	-	-
-Farmer access	7	3	21	-	-	-	-	-
- Access of co-extension	7	3	21	-	-	-	-	-
- Access of researcher	7	4	28	-	-	-	-	-
-The need for consumer	-	-	-	10	3	30	-	-
-The competitiveness of the market								
5). Competitiveness aspects :								
-Development of Technology	-	-	-	10	4	**40**	-	**3**
-Development of Human	-	-	-	10	4	40	-	-
Resources	5	5	25	-	-	-		
-Production and productivity								
Total	100	-	360	100	-	390	-	-

Sources: Primary data from the FS-ICM Riau Province, 2011

Table 2 reflects that aspect of government policy in the licensing of new varieties of rice seed in the FS-ICM development program is a threat that must be diantisifasi, it is associated with the geographical aspect of the FS-ICM assistance. Climate change or climate conditions of uncertainty is one of the threats in the facilitation of innovation FS-ICM, as well as the availability and dissemination alsintan a threat to innovation FS-ICM assistance. Mentoring system with a BPTP Riau posentase 60%, in partnership with relevant agencies, and cultural conditions of the FS-ICM assistance and market competitiveness in the area of each FS-ICM rice Riau Province is a threat that needs diantisifasi or find a solution. The development of technology and human resources assistance of a threat in the FS-ICM, where the existence of advanced technologies that require expensive applications and human resource needs always tends to increase, for the government in the implementation of FS-ICM assistance by the Center for Agricultural Technology (BPTP) Riau fore need to consider the matter.

Government policy guidance in the pattern of innovation in the agriculture ministry's strategic program in the province of Riau, mentoring to 60% FS-ICM for new variety development of rice in the utilization potential of the region supported by the availability of complementary technologies and access by researchers and extension workers is a policy that is likely to be developed in order to increase production and farmers' income. Rice is a strategic commodity for a livelihood and staple foods most of the people of Riau, therefore need policies that support innovation patterns in facilitation of strategic program through the agriculture ministry and anticipate the opportunities of the existing threats.

Technological aspects concerning alsintan, post-harvest and dissemination is a threat, it is supported by the availability of funds and social culture in each of the Riau region FS-ICM assistance. FS-ICM financing assistance needs to be improved in order to anticipate threats to the development of pattern components pendampinga innovation in the agriculture ministry's strategic program in the province of Riau.

The analysis of the environment that the facilitation of innovation ekstenal FS-ICM by the Assessment for Agricultural Technology (BPTP) Riau faced with external threats and threats of climate and the most basic assistance FS-ICM system is being implemented at this time as well as technological developments. Analysis of the external environment is at kodran four, indicating that FS-ICM assistance available at the time of the actions require improvements in policies, especially regarding policies tupoksi respective agencies involved in agricultural development are synergistic.

D. Pattern of Assistance Innovation

The results of analysis of internal environmental (AIE) and the analysis of the external environment (AEE) is obtained in every aspect of internal and external, regarding what the strengths *(S),* weaknesses *(W),* opportunities *(O)* and threats *(T),* then encapsulated in a formulation of the pattern of innovation assistance arranged in a matrix form, for the details shown in Table 3.

Table 3. Matrix of Patterns of assistance innovation FS-ICM Rice

Interrn / Ekstern	Strength *(S):* . Potential areas . Motivation . Aspects of Market	Weaknesses *(W):* . Adoption of technology . Labor . Production Costs
Opportunities *(O):* . Agroecosystem . New variety . FS-ICM Promotion	Strength formulation with Opportunities *(SO):* .The Potential areas and agroecosystem regions are the strengths and opportunities mentoring FS-ICM program supported to motivation and promotion is an opportunity in the spread of new variety. . A new variety and FS-ICM rice are opportunated for development in every area of Riau Province likely promotion and supported by market	Weaknesses formulation and opportunities *(WO):* .Increase the adoption of technology; supply of labor and the cost of caring FS-ICM should be considered in order to optimize the agroecosystem, new varieties, and promotions. . The Development new varietis on FS-ICM i region faced with labor problems and costs
Threats *(T)* . Climate . System of Mentoring . Development of Technology	The strength formulation with Threats *(ST):* . Potential FS-ICM region are faced with climate, mentoring system FS-ICM and technological developments. . Pattern assistance that have been accessed by farmers, extension workers and researchers are faced with the threat of technological development, for it is necessary for policy in increasing skills and innovation of financial assistance on the pattern of the FS-ICM Brazilians is one of the strategic ministries of agriculture in the province of Riau.	Weaknesses and Threats formulation *(WT):* . It is important to do the empowerment of human resources to improve technology adoption faces the threat of climate . Improve access to employment and mentoring system to anticipate technological developments . Increase the cost of assistance tailored FS-ICM and the development of technology and human resources assistance to the pattern of innovation FS-ICM in Riau Province.

Sources: Primary Data from the FS-ICM Riau Province, 2011

From Table 3 can be formulated that the pattern of assistance FS-ICM innovations that have been done in rice farming areas of Riau Province, for its development needs to be done three strategies are: 1) a strategy of innovation FS-ICM assistance by the Center for Agricultural Technology (BPTP) adapted to the agro-ecosystem Raiu social and cultural rights; 2) The strategy of innovation assistance by the Ministry

of Agriculture and FS-ICM Riau increasing costs of technology adoption and mentoring FS-ICM; 3) The strategy of innovation assistance by FS-ICM Riau which is directly based on the qualifying agricultural areas need to consider the system of assistance and technological developments. For the formulation of the FS-ICM patterns that have been implemented to provide guidance that directly mengakseskan potential, motivation and new varities rice market by considering the system policy guidance, and labor costs.

CONCLUSION

Accompaniment pattern of innovation FS-ICM has been accessed by educators, researchers and farmers in rural areas are faced with the threat of climate, mentoring and development of technological systems. The opportunities development of new vatieties rice and promotion of FS-ICM in an effort to growing breeder seed rice in each of the FS-ICM, adapted to the agro-ecosystem and socio-cultural community. A strategy of pattern assistance of FS-ICM should be directing for potential access, motivation access and market access.

POLICY IMPLICATIONS

The central and local governments need to develop a policy to eliminate the monopoly market; build a better partnership between the relevant agencies and farmers' groups as well as financial assistance policy innovation a strategy in favor of farmers, extension workers and researchers.

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