

Sustainable Farming Vegetable Change in Socio-Economic Assessment and Environment

(Case study in Kalampangan Village, Sebangau District, Palangkaraya City)

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ABSTRACT

Changes in biophysical and socio-economic environment as a result of the productivity of vegetable crops farm farmer is expected to continue to exist to preserve the environment in a sustainable vegetable farm and can contribute positively to changes in social and economic status of farmers, without damaging the natural environment. Optimal farm management and sustainability plays an important role, especially to avoid the risk of failure, considering the constraints of farming vegetables. Thus the objectives of this study were: "Changes in the socio-economic condition of the farmers' adoption of innovations for sustainable vegetable farming and environmental sustainability. The experiment was conducted in the Kalampangan village, Sebangau highway district, Palangkaraya city, Central Kalimantan in 2012. Respondents were vegetable farmers. This study uses a combination approach between quantitative and qualitative research. Quantitative approach (quantitative research) to answer the formulation of economic problems were by surveying the research strategy and statistical data analysis. Research to conduct an analysis of social factors problem formulation was by using a qualitative approach, the technique of collecting data through interviews and observations to vegetable farmers.

KEYWORDS: sustainability change, social, economic and environmental

INTRODUCTION

To achieve a competitive advantage and comparative productivity, agriculture, steps taken toward efficiency by determining commodity has a comparative advantage both in terms of land productivity and income of farmers carried by superiority in growth in biophysical conditions, technological and socio-economic conditions in the village Kalampangan manufacturer as the type other horticultural crops, many vegetable crops in villages Kalampangan have high commercial value. Because vegetables are agricultural products are always in the consumption of vegetables to see the need for the continuous market value vegetable crops.

Mulyanto [1] argues that agriculture is a major sector in the national economy of agricultural development in the broadest sense includes agribusiness, farming, forestry, animal husbandry and fishery. Meanwhile, in the narrow sense, agriculture is defined as farming folk in the form of family farming. To produce food crops and horticultural crops ie vegetables and fruits in order to meet the food and nutrition of the people farming the family as a family farm, to produce food crops such as rice, corn crops, legumes, and potatoes) and plant horticulture, namely vegetables and fruits. Vegetable producing areas in the city of Palangkaraya highways is 80% of the villages where agricultural potential Kalampangan vegetable plants proved to be quite good and wide to reach 400 hectares of vegetable crops with harvested area / population area = 380 ha.

Central Kalimantan provincial capital of Palangkaraya highway with there 561 557 households with a population of 4,047,550 people, it is known from the dissemination of households and population by district / town in Central Kalimantan in 2010, which spread in several districts / cities. Palangkaraya city covers an area that is relatively wide (2.67851 km²), the majority (92.80%) of the area of a forest area, covering an area of settlement only, 4,554 ha (1.70%), dry area of 2,402 ha (0.90%), and field area of 160 ha (0.06%) for plantation area covering an area of 1772.30 ha (0.66%) and there is still 3.88% of the total area that has not been used.

MATERIALS AND METHODS

Characteristics of Respondents

Age of Respondents

Based on the results of the study indicate that respondent of vegetable farmers on average are 40 years old with age range between 20-60 years. Largest age group are in the age range of 40-49 years as many as 18

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people (36%), age range 30-39 years as many as 10 people (20%), and the age range of 50-59 years with > 60 know as much as each of 9 people (18%).

Table 1 the composition of the respondent's age Vegetable farmers in Kalampangan Village, Sebangau Sub District Palangkaraya City in 2012.

Number	Age	Number	Percentage
1	20-29	4	8.00 %
2	30-39	10	20.00 %
3	40-49	18	36.00 %
4	50-59	9	18.00 %
5	>60	9	18.00 %
Total		50	100.00 %

Source : Primary Data (2012)

Age influences on the ability of the farmers to adopt the technology because the age's range of the working age group is where someone always wants to find new things to support their progress. In addition, at an early age while the process of teaching and learning for the community members of farmer groups such as farmers who seek to improve their living standards. Age farmers will affect the physical ability and response to new things in running their farm. According to Kartasapoetra [2], farmers will be hard for the elderly granted notions that can change the way of thinking, ways of working and a way of life. Age farmers will affect the physical ability and response to new things in running their farm. The data in Table 1 shows that the age of the respondents who are the most productive on the range, so are expected to give effect to the successful implementation of new technologies or innovations that can improve cooperation in building a sustainable agriculture.

Respondents Education

Education is the process of developing a person be planned, in order to obtain the changes in the standard of living increases. Education is an important factor in supporting the smooth development. People who have a higher education level will be easy to adopt a new innovation that will accelerate the development process. Instead people who have low levels of education will be difficult to adopt a new innovation so in this case would complicate construction. So the level of education is used as a parameter of human resources and the progress of a region. Educated people tend to think more rationally and generally tend to accept the renewal.

Mardikanto [3] describes a process of mutual education of the human person in his adjustment to the universe. Education can be obtained through formal and non-formal education. Level of farmer education both formal and non-formal will affect the way of thinking that is applied to the rationalization of its business operations and the ability to utilize every opportunity.

Level of education a person can change the mindset, the better reasoning power, so that the longer a person of education will be more rational. In general, farmers will be better educated way thinking, thus enabling them to act more rationally in managing their farm. As stated Soekartawi [4] that those who are highly educated are relatively faster in implementing innovation adoption. Likewise those who are less educated, they are somewhat difficult to implement innovation adoption quickly. Formal education is school-level respondents were taken into account by the respondents of the school system that has been successfully attained by the respondents; the identity of respondents by education level is presented in the table. Farmer education level of respondents in the location of research ranging from elementary school through high school graduation, but most of the 25 people (50%) primary level education, 20 respondents (40%) and 5 junior educated people (10%) such as High school education.

Table 2 Formal Education Level Respondents Vegetable Farmers in Sub District Kalampangan Sebangau Palangkaraya City in 2012

Number	Age	Sum	
		Sum	Percentage
1	Elementary School	25	50.00 %
2	Junior High School	20	40.00 %
3	Senior High School	5	10.00 %
4	Academic/ university	0	0.00 %
Total		100	100.00 %

Source: Primary Data (2012)

Respondents Revenue

Soekartawi [4] stated that high farm income is often nothing to do with the rate of diffusion of agricultural innovations. Willingness to experiment or change in the diffusion of agricultural innovations

quickly as agricultural conditions owned by farmers, it is generally the case that led to higher farm income. So farmers will return the investment capital to further innovation adoption. Her reverse many reality shows that low-income farmers who are slow in adopting innovations.

Research location

The experiment was conducted in the Village District Kalampangan Sebangau Palangkaraya City, with the object of study is a Vegetable Farmer, Siting Research done intentionally (purposive) with consideration of most households in the Village Kalampangan subsistence farmers vegetable research conducted during the three months from February to month of May 2012. Map of location is as in Figure 1.

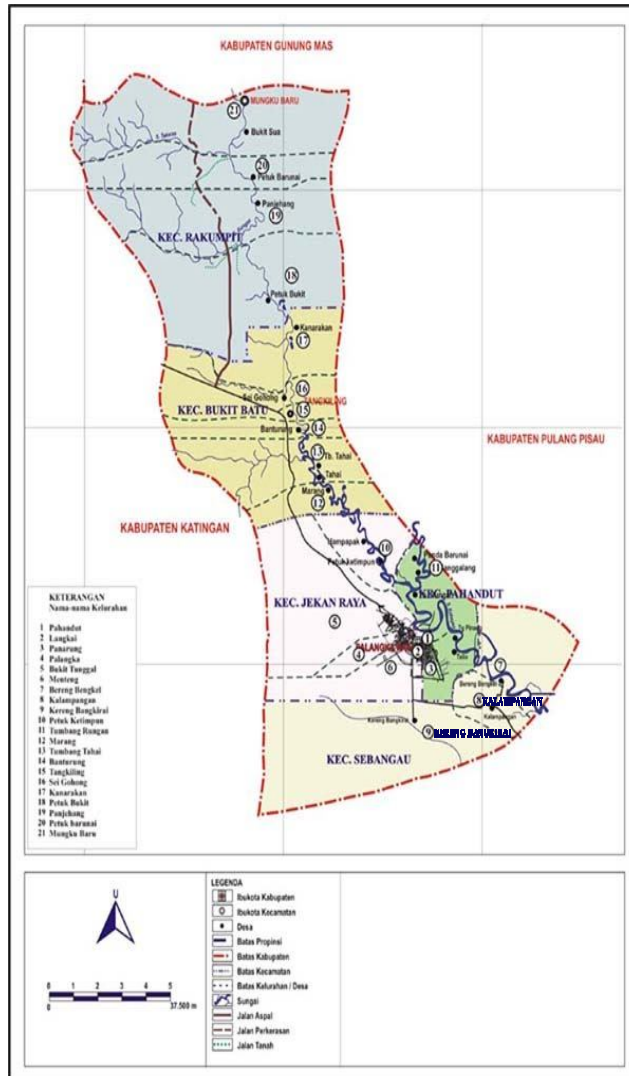


Figure 1 Map of Palangka Raya City

Sampling methods

The method used in determining the respondent is Random cluster sampling. Kalampangan urban village consists of 5 pillars (RW). Of RW who were randomly selected from 2 RW 2 RW respectively randomly selected 5 RT (Neighborhood Association). RT is selected then any decision made by 5 respondents in the sample households, bringing the total respondents was taken as a sample of 50 households.

Data Collection Method

The data collected in this study included primary data and secondary data. Primary data obtained from interviews directly to households with the help of a questionnaire (questionnaires) that had been developed

previously include characteristics of the sample households, production data, concern with social and environmental activities and income of farmers and secondary data obtained from the relevant agency or agencies with this study include the statistical central body Central Kalimantan province and city of Palangka Raya, Kalamangan village, Sub District Sebangau scientific books, and the results of previous studies related to this research.

DATA PROCESSING METHOD

The data obtained from the field and then edited and processed. Quantitative nature of the data processing is done with the aid of a calculator (calculators) or computer (programs excel or SPSS) while its qualitative descriptive study done.

Analysis of the data

In order to analyze the purpose

1. Changes in the social conditions of farmers from the adoption of innovation for sustainability of farming vegetables analyzed the relationship between social indicators of innovation adoption vegetable farming.
2. Changes in economic conditions of the farmers' adoption of innovation for sustainability of farming vegetables analyzed the relationship between economic indicators of innovation adoption vegetable farming.
3. Relationship between the application of soil and water conservation, with the adoption of innovation vegetable farming.

Relationship between Social Factors

Economic Factors and Application of Soil and Water Conservation with Innovation Adoption of Farm Vegetables Based on the research of several factors related to the adoption of innovative farming vegetables vegetable farmers in Kalamangan Village Sabangau Sub District of Sebangau, Palangkaraya city the way the relationship can be seen as in Table 3.

Table 3 Relationship between Social Factors, Economic Factors and Implementation of Soil and Water Conservation with Innovation Adoption Vegetable Farming

Number	Age	Sum	
		Sum	Presentation
1	Social Factor	0.933*	0.279
2	Economy Factor	0.879*	0.279
3	Soil and water conservation	0.939*	0.279

Note: (*) there is a significant relationship between the variables studied with vegetable farming innovation adoption.

Relationship between Social Factors in Farming Innovation Adoption Vegetables

Correlation coefficient between social factors and the adoption of innovation vegetable farming is 0.933 with Spearman rank coefficient table 0.279 95% confidence level. This shows that there is a significant relationship between social factors with the adoption of innovations vegetable farming. The apparent link deviation is due to social factors category are classified tub, in terms of the ability of people in the Village Kalamangan in resolving the problems already at the stage of discussion among fellow farmers and began to dig up information on experts, media issues and parties experienced in finding solutions to problems they face. Besides vegetable farmers in Sub Kalamangan, there have started to evaluate the performance of their farmer groups. This strongly supports the development of new innovations in farmer groups. Communities begin to respond to the problems they tend to adopt new technological innovations which they use to their farming success, in contrast to people who are indifferent to the problems they face, they also tend to not want to accept new innovations because only rely on past knowledge that they have. Rs values indicate a positive relationship between social factors with the transfer of innovation adoption vegetable farming such as the higher community ability, the better the level of adoption of innovation. That is, the absence of active farmers in socializing, discussions and collaboration in solving problems and looking for new information also influence the adoption of new technological innovations. Farmers are active in socializing will apply the findings of new information, expert opinion, facts and group decisions in solving agricultural problems they face. Spearman rank correlation test of the relationship of social factors to the adoption of innovations vegetable farming.

Relationship Between Economic Factors in Farming Innovation Adoption Vegetables

Correlation coefficient between the economic factors of innovation adoption vegetable farming is 0,879 with a value of 0.279 Spearman Rank coefficient table at 95% confidence level. This shows that there is a significant relationship between economic factors in the Village Kalamangan quite good, in the sense of

people's needs for food; clothing and housing are met properly. Fulfillment of economic needs of society influence the adoption of new technological innovations. Willingness to make changes generally lead to increased revenue that met the needs of the economy is also growing. Fulfillment of basic needs of the economy will make farmers better return on investment capital for the next innovation adoption. Improvement in the economic life tends to make farmers want to keep looking for a way to a better life, so that farmers will adopt new technologies into their farming success. As mentioned earlier, one of the conditions receipts of an innovation is economically viable. RS positive value indicates a direct relationship between economic factors in the adoption of innovative farming vegetables. Increasingly unmet economic needs by society are the better the level of adoption of innovation. Farmers who need economic fulfilled will be easier to adopt new innovations because they realize that new technology in the development of farming they tend to give better profits than ever, the need for food, clothing and housing are core needs in life, so that people everywhere will do the best way to meet these needs, even expected to improve their economic class, so that the efforts to increase the standard of living will be more easily adopted by the community. Spearman Rank correlation relationship with the adoption of innovation economics of farming vegetables.

Relationship between Soil and Water

Conservation Implementation with Adoption of Farm Vegetables Innovation Correlation coefficient between the application of soil and water conservation with vegetable farming innovation is 0.939 with a coefficient of 0.279 Spearman Rank table at 95% confidence level. This indicates that a significant relationship exists between the application of soil and water conservation with innovation adoption vegetable farming. Category deviation applying soil and water conservation classified in either category, it shows that farmers in Sub Kalamangan implement ways soil and water conservation for sustainable agriculture. Sustainable agriculture (sustainable agriculture) is the utilization of renewable resources (renewable resources) and non-renewable resources (un-renewable resources), for agricultural production process by pressing the negative environmental impact to a minimum. Sustainability may include: the use of resources, the quality and quantity of production, as well as the environment. Sustainable agricultural production process will be directed to the use of biological products are friendly to the environment.

According cast in Jarnanto [5], an agricultural system that can be called sustainable if it has the following properties:

1. Maintain ecological functions, meaning not damage the ecological agriculture itself
2. Continued economic means to be able to provide a decent value for implementing the farm and no one is exploited. Each party is to get the right fit with the participation
3. Fair means any farm implementation actors to get their rights without being limited and not break anything else.
4. Humane means to uphold the values of humanity, where human dignity upheld including the existing culture.

Flexible which means being able to adapt to the current circumstances, thereby sustainable agriculture is not static but can dynamically accommodate the desires of consumers and producers.

RESULTS AND DISCUSSION

Age, Education, Income of Respondents

The results showed that respondents of vegetable farmers on average are 40 years old with age range between 20-60 years. Education is the process of developing a person be planned, in order to obtain the changes in the standard of living increases. Level of education a person can change the mindset, the better reasoning power, so that the longer a person was educated to the maximum.

Based Sukartawi [4], states that the high farm income is often nothing to do with the rate of diffusion of agricultural innovations willingness to experiment or research in rapid diffusion of agricultural innovations suitable conditions for agriculture are generally owned by the farmer, which is why the farmers' income higher.

Socioeconomic Factors

Among the significant changes experienced by rural communities are already familiar with the means of transportation, communications, technology, already familiar with the market (trade) previously considered foreign by the villagers. Social changes that occurred in the countryside can recognize social values, norms, patterns of organizational behavior, social organization structure, the layers in society, power and authority, social interaction, and so on [6].

Communities whose economies are based on agriculture, family ties are still strong in the community, because based on ties of descent, as well as the spirit of mutual help among the surviving members of the public. Presence with the introduction of agricultural technology to rural industrialization generated a lot of changes in the order of a society. According to Soelaiman [6] the impact of the introduction of technology to the

countryside to the interaction is very important, because through technology, work activity becomes simpler and faster-paced and can be satisfying, changes may also occur in terms of employment and ownership of agricultural land. For rural communities engaged in agriculture, agricultural land is the most important source of livelihood to meet the needs of life and family.

Application of Soil and Water Conservation

Concentration of natural resources is the efficient use of natural resources and treat it based on the law of nature or an act of efforts to maintain the existence of something continuous, continuous good quality and quantity. Soil as a natural resource is a collection of natural bodies on the earth's surface that contains the objects alive and able to support plant growth. The top layer of a cross section of soil usually contains a lot of organic material and dark colored due to the accumulation of organic matter, this layer is the main layer called topsoil. Below the topsoil layer is known as the bottom layer which is also affected by weathering but not as intensive as topsoil. Topsoil is a major area for root growth and nutrient elements and contains a lot of water available to plants. Through measures appropriate processing returns organic matter soil physical conditions modified.

Water is as a natural resource that is important in agriculture and industry in several sites around the world. In agriculture, water shortages are the main obstacle, while the integrity of the water will increase due to population growth and increased agricultural activities, industry, mining and the expansion of settlements, while the provision of water flow is reduced because of the ability of the forest, the earth, and our land.

Factors that affect the degradation of land / land are:

1. Land clearing and excessive logging of forests for domestic purposes.
2. The use of land for farming region / excess returns.
3. Agricultural activities in the use of fertilizers and pesticides excessively.

Land use which does not consider the principles of conservation land and water speed up the process of land degradation are in the upper watershed (DAS).

Efficient level of farming which is illustrated by the Revenue Cost Ratio showed that 100% of farmers respondents had RCR values > 1 which means that they try to include farming in profitable category, where Total Cost (total cost) that must be paid for vegetable farming is smaller than Total Revenue (total revenues). Breakdown of farm income vegetables is described as in Figure 2 below..

Relationship with the land area farmers' income levels were tested using parametric statistics with simple linear regression models. Regression analysis showed that the area of land to provide a linear relationship with the level of income of vegetable farmers regression equation is $income = 646719 + 1178 \times land\ area$ means any land area increase, the income will be increasing as well. Forms of land relations on the level of farmers' income are presented as in Figure 2.

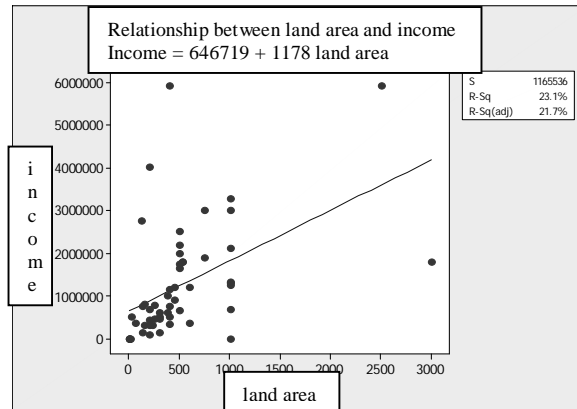


Figure 2 Relationships with the Land Area Farmers' Income Level Vegetables

CONCLUSION

Based on the results of the study on "Analysis of the sustainability of farming vegetables (a study of the socio-economic and environmental change in Kalampangan Village the sub district Sebangau Palangka Raya City, there are several conclusions as follows:

1. The level of sustainability of farming vegetables better, this means that a farm household has a positive attitude and behavior towards sustainable farming.

2. Vegetable farming can contribute to changes in social and economic status of farmers and the economy without damaging the sustainability of the natural environment.
3. Good innovation adoption category with a score of 992 and score ideal acquisition in 1250 in order to get a percentage worth 79.4%, menunjukkan Kalamancangan vegetable farmers in the village have been doing social cooperation in solving their farm.
4. Category adoption of economic factors in both categories in the category with the acquisition of 509 with a score of 750 base score, to obtain a percentage of 81.2%. This suggests that the vegetable farmers had met with both the needs of the economy.
5. Improve farming technology led to increased farm household income. Number of input use internal (organic fertilizer) continues to increase, otherwise the amount of use of external inputs (inorganic fertilizer) is decreasing.

SUGGESTION

Based on the analysis and discussion and conclusion there are a number of policy implications, as follows:

1. The increasing number of vegetables can lead to increased farm household income and increasing the amount of use of internal inputs (organic fertilizer). Therefore, farm households have to kind of maintain that in addition to being concerned about agricultural innovations such as: landscaping technology, specifically the use of local varieties, cultivation techniques of proper fertilization and pest control in a balanced and integrated, and the management of irrigation systems.
2. Vegetable farming at farm household more sustainable as it is for individual farmers increase positive attitudes and behavior in applying the principles of sustainable farming, not only sincere in efforts to achieve maximum production and income, but still maintain the environmental sustainability of farming and natural resources to continue benefit present and future generations.

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