

## The Role of Women in Stabilizing the Production, Food Security and Efficiency of Energy in Households in Sebangau Area, Central Kalimantan

<sup>1\*</sup>Evi Feronika Elbaar, <sup>2</sup>Keppi Sukesi, <sup>2</sup>Mangku Purnomo, and <sup>3</sup>Mahrus Aryadi

<sup>1</sup>Doctoral Program on Study Program of Environmental Resources, University of Brawijaya, Malang, East Java of Indonesia

<sup>1</sup>Lecturer on Faculty of Agriculture, University of Palangka Raya, Central Borneo of Indonesia

<sup>2</sup>Lecturer on Study Program of Environmental Resources, University of Brawijaya, Malang, East Java of Indonesia

<sup>3</sup>Lecturer on Faculty of Forestry, University of Lambung Mangkurat, South Borneo of Indonesia

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### ABSTRACT

The purpose of this research is to analyse the role of women in maintaining stability of production, developing food security, and efficiency of energy consumption in households in Sebangau Area, Central Kalimantan. Sebangau is one area in the HOB. This area is known all over world because it has one of the highest biodiversity richness in the world. Based on qualitative analysis and interview with the stake holders, the researchers found that women had an important role in stabilizing the production, maintaining the food security, and efficiency of energy consumed in the area. In stabilizing the production, women had authority in fertilization management, choosing quality seeds, selecting the weeds, and classifying the harvest. The women instructed their husbands to fish the right type and size of fish which fitted with market demand. By doing it they have significantly contributed to the fish supply stability in the river. Regarding food security, the women cooked families' favourite meals which were practical and efficient. They built food reservation systems, planted food stock in the yard and accessed other food resources from the forest. For energy efficiency, the women substituted kerosene with fire wood and only cooked once a day. Efficiency in using electricity developed the norm and behavior of energy saving in the households. Modernization, commercialization, and the status of Sebangau as an area of conservation have shifted the role of women. All of these variables have changed the work system of women. Considering the importance of women's role in management of resources, it was clear that women were the main actors in managing and determining the sustainability of natural resources in Sebangau

**KEYWORDS:** Women role, Stability, Production, Food Security, Energy, Resource Management, Sebangau Area

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### INTRODUCTION

Stability of production is the most important thing in agriculture business. The stability of business will impact the stability of income and farmers' livelihoods. The condition of agriculture business and results gained by the farmers are not always stable. There is always a dynamic progress in agriculture business, which changes the results gained accordingly. These changes happen because of manipulation of the land by farmers and because of unpredictable conditions of nature itself. But, the stability of production can be worked out through maximizing the inputs and the working systems during production activity. During agricultural production activity, women actually have a significant role. But factors found within the social system in the community often keep women from being able to contribute significantly to production activity. Ojo, Bila, and Iheanaco [1] in their study about accessing agricultural resources and the effect of villages socio economic characteristics for women in Borno State, Nigeria mentioned that women had low accessibility towards production resources such as fertilization materials, chemicals products for agriculture, work force, paid laborers, and land ownership. Some socio economic factors affected access to production resources such as: cooperation membership, educational level, income from agriculture business, contacts extension, income other than that from agriculture business, total of family members, age, farming experience and the width of the land. In relation to the above statement, Njenga and Pinto in their research on agriculture analysis on developing knowledge and leadership skill for women in Africa (2011) found that women provided a significant contribution in increasing productivity of agricultural level on the global labors and in Sub-Sahara Africa (SSA) by 50%. Moreover, in some areas of Africa, women contributed more than 60% of their total time in agricultural activity. However, this activity could not be economically counted in production result because women had low educational background, limited access to the agriculture information and guidance, lack of opportunity to get financial

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\*Corresponding Author: Evi Feronika Elbaar, Doctoral Program on Study Program of Environmental Resources, University of Brawijaya, Malang, East Java of Indonesia & Lecturer on Faculty of Agriculture, University of Palangka Raya, Central Borneo of Indonesia. Email: evi.elbaar@yahoo.co.id

support from fund resources, and decreased ability to buy inputs such as fertilization materials, the best seeds, and mechanical tools (FAOSTAT, 2009 and FAO, 2011) [2]

Agriculture production affects food security in the household. Poverty and food security in farmers' households was debated as a complex problem in various literatures. Household food security is defined as access by all people at all times and enough food for an active healthy life. In terms of food security, it must be considered that food must be available at all times and must be accessible to all people within all households. It is related to the distribution of food, price, and community access for daily needs as well on the ability of each family to fulfill the needs of all family members. Generally, the role of women is managing the household productively and managing food security. In families that had limited resources or were poor, the role of women in stabilizing food security within the households was difficult. Food security within households was maintained best if the food was produced, processed, reserved, and distributed locally. It also must be available continually without being effected by climate or other variations [3]. Women's contribution towards economic and food security has been observed for the last 15 years. Camara, *et al.* [4] Who analyzed the activities and contributions of female farmers on food security and solving problems of poverty in the area of Kindia Guinea explained that in Kindia, the accessibility to food in the village depended on women's daily activities. The female farmers tried to fulfill the need of food and were accountable to make sure the family's basic needs were fulfilled. In another analysis done by Ibnouf [5], he mentioned that the availability and accessibility of food was an important factor in the food security of households. In Sudan, women used traditional knowledge to solve the problem of lack of food security. The women in the villages were accountable to manage and reserve the food, collecting water and wood, and to earn income. They were also responsible for making and preserving food so that it was always available. Their food was preserved by using traditional methods such as drying or fermentation. All of these things contributed to diversification of food in during times when food was hard to find.

Regarding energy, it is one of the most important resources needed in life. Energy, such as electricity, is used as resource for supporting many human activities such as cooking, households tools, transportation and communication, etc. Women mostly use energy resources for domestic works. The energy planning policy in a village must take into considering differences in male and female needs, obstacles, and potential contributions towards socio economic development in villages. It also forces the sustainability of energy investment and services. Today, there are about 2 billion people who still have no access to electricity. Moreover, 3 billion people depend on traditional energy for cooking, heating and other basic needs. The accessibility of both males and females to energy sources help them to meet their basic nutrient needs, which involves the need to cook food. This is because 95% of staple food must be cooked before it can be eaten and used to provide nutrition for humans [6]. Lee [7] wrote about energy consumed by people in South Africa, looking at both historical use and gender perspective. It focused on how the different generations of women in Africa during the apartheid (1948-1994) and post-apartheid consumed various energy producing resources. Lee analyzed data from 25 females in Cape Town Africa from three generations. The result showed a complex and changing view of using traditional materials for energy resources. In this globalization era, and increased in use and access to technology electricity place a significant role in a modern and "easy" lifestyle. Electrical tools have become a basic need for women from modern households. Thus this research, reflected the historical advancement toward electrification in towns of Africa. It also reflected problems related to the dynamic of gender and generation.

## MATERIALS AND METHODS

### Method

The writer used qualitative method to analyze the data. The qualitative method was used for certain time settings in real life situations. The purpose is to investigate and understand: what, why, and how the phenomena happen. So, qualitative research is based on the concept of "going exploring," which includes an in-depth and case-oriented study on several different cases or a single case [8]. The goal of qualitative research is to make the facts understandable, and if possible, (depend on the model) to provide new hypothesis. Qualitative problems must also be limited in space and low in variation. Furthermore, they need to have a deep and unlimited analysis [8].

### Research Location

The location of the research is in the district of Sebangau, Palangka Raya. It is located in Kereng Bangkirai village. The determination of the research location considered the width of the biggest area of Sebangau district. It covered various potential natural resources and management activities. The activities involved the role of families determined by gender, or done together. Besides, geographic conditions in Sebangau area is swamp forest and consisted of many villages. It resulted in work divisions that were divided physically based on gender. The women managed resources and focused on domestic work, which supported the men's role as both main income providers and additional income providers for their families. The condition of Sebangau area was appropriate for research location based on gender perspective.

### Analysis Method

In analyzing the data, the researchers used descriptive method. Descriptive method describes social phenomenon occurring in the community. In other words, the purpose of this research is to describe the conditions during the research. This kind of research reveals a more complete picture of gender roles in communities. Therefore it contributes positively to social science and related problems. The method includes story telling, analysis and classification. Data collection was obtained by the following tools: survey, interview, questionnaires, observation, test; case study, comparative study, time and movement study, quantitative analysis, cooperative and operational study. In summary, descriptive is a method used to explain and comment on available data, such as situation, relation, activities, point of views, and behaviors or it is about progress, impact, or unusual phenomena, arguments, etc [9].

## RESULTS AND DISCUSSION

### The Role of Women in Stabilizing the Production



Figure 1 Selecting Seed for Planting

Women have an important role in the production activity within agriculture businesses in the Sebangau area. In all activities, the women directly participated from land clearing until product marketing. The women dominated these roles because they suited to their skills and work capacity. The main tasks of women in the home were managing household needs, such as preparing meals, taking care of their children, cleaning the house, etc. These activities enabled the women to do farm activities at the same time, which supported the households' food needs.

The women contributed in the following activities: land clearing, planting and taking care of the plants. The women determined the input used for the farm such as selecting seeds and fertilizers and fitting them to the width of the land and the amount needed. In order to take care of the plants, the women picked weeds, watered the land, and fertilized the plants, etc. At harvest time, the women were the ones who selected which products would be used for marketing or consumption.

In fishery activities, the women were indirectly involved in production activities by preparing meals, taking care of fishing equipments, choosing which fish to sell, and then selling fish in the market. Without women's participation, production could decrease because husbands depended on their wives to prepare healthy meals so that they would have energy to do their work.

The women also contributed in deciding type of fish to be caught. They gave suggestion to their husbands as to the right size and type of fish. This related to their role in marketing the products. This role made them sensitive to market demand. For example, they suggested their husbands focus on catching large-sized *Bapuyu* (*Anabas testudineus*) only, because the price of this fish was very high. Because of this, in this area, they only keep large-sized fish. Smaller fish were set free or kept in a certain place until they reached their intended size. Thus, as the women used marketing demand to influence their husbands' fishing practices, they also helped to preserve the ecosystem.

Women were also sometimes involved in catching specific types of fish and/or helped fish during certain seasons of the year. For example, during the rainy season, the number of fish was very high and the water was very deep. The women usually put fish traps in locations near their work. In dry season, the women helped *manyaok saluang* (*Rasbora sp.*) "catch small fish." This type of fish is usually found in the water under

floating houses or homes built on stilts over the river. The women's support in these activities stabilized production in the fishermen's households.

### The Role of Women in Stabilizing the Households Food Security



Figure 2.. Cleaning the fish to be consumed by the Family

The women stabilized the food security through menu management. Choosing of menus was based on efficiency, practical availability, and family favorite meals principles. They also saved expenses because the materials were easy to find. They used available stocks of food in the house, in the yard (farm), in the fish ponds or rivers, or took it from the forest.

In fishermen's families, another task of women was to stabilize the food security in their households. The rivers or fish ponds are the main source of food supply for the fishermen's communities in Sebangau area. When too many fish were caught, the left over fish were fermented or dried. The purposes of doing this was to make preserve the fish for later consumption. Second, the fish could be sold again if they hadn't been sold quickly enough. Third, it gave menu variation for the family. All of these activities added to family income and helped maintain food security.

In relation to food stock, the women kept the main foods, such as rice, salt and oil, in a place called a *blek* (a kind of can) and *bakul* (weaving basket). Salt was used to make dried fish. The women tried to cook based on various menus that were based on easy to find ingredients.

The yard and farm for people in Sebangau area were also used to provide food stock. They planted cassava and used it for family snacks. Cassava could be made into flour. Cakes could be made from this flour. By doing this, it could fulfill food security and food variation within households. Furthermore, the materials were natural and easy to find.

The women also used plants from the forest as food resources for example *singkah*: it is from young rattan (*calamus* sp.), young coconut tree (*Cocos nucifera*), or young palm trees (*Elais guineensis*), then *kalakai* (*Trichlaena paluntris* bedd.), a type of edible fern found in the swamp or peatland area, *ujau* or bambo shoot (*Bambusa* sp.), *lantar* or young root of taro (*Caladium* sp.), various types of mushrooms, and leaves from forest such as *dawen taya*, *dawen bengkel*, all of which were used for food.

### **The Role of Women in Efficiency of Energy in the Households**



Figure 3. Cooking Used Fire Wood and Kerosene Stove

Within the household, the women in Sebangau area used energy to cook and as tools. They used kerosene stoves or dried wood for cooking. Cooking activities were done only when necessary. For fishermen's families, cooking sometimes happened once or twice a day. At breakfast time, the women would cook enough food for the rest of the day. So, it was not necessary to cook for lunch or dinner, they only needed to warm up the food before it was ready to eat.

Electricity was used for lights, electronic equipment, radios, fans, and the television. The women also applied saving energy principle in their households. They reminded family members to turn off the lights or electronic equipment if they were not being used. The women also manipulated their kerosene stoves in order to make them burn kerosene more efficiently as well. They fried fish while toasting the shrimp paste or frying onion.

### **The Impact of Modernization, Commercialization and Determination of Sebangau as a Conservation Area on the Role of Women**

There were positive and negative impacts of modernization on people located in the Sebangau area. Positively, new technological equipment was introduced to help the people, including the women, in their agriculture activities. One example is the hand-tractor. The hand-tractor is used to prepare the land for planting. Without a hand-tractor farmers would need a week or more to prepare the land, but, with the hand-tractor it could now be finished in a day or two. The impact on women is that they did not need to prepare meals and bring them to their husbands to eat in the fields for one to two weeks. Another example was the introduction of water tanks for watering the land. These made women's farming tasks easier and more efficient. The increasing in use of handphones and motorized canoes also affected the way the fishermen did their job, as they made information more readily available and increased the speed of transportation, which saved time.

A negative impact of modernization was that people really began to depend on the technology. Whenever the motorized canoe was broken or there was no signal for their handphones, they were slow to finish their jobs. Other negative impacts were materialism. They had to start spending money to buy gas, pay for handphone pre-paid vouchers, and to pay their electricity bills.

Another impact of commercialization on communities in the Sebangau area is increased individualism. People preferred not to work together as they did a long time ago. Before, time was very valuable. Working together to accomplish the task was their principle. In the beginning of the season for planting the seeds or when harvesting, people worked together, and helped each other to prepare their land. There was no salary payments, they simply prepared food and had meals together. But now, they no longer want to have to prepare food, so they pay the workers a salary instead. The role of women is also not as important. They no longer need to prepare food to be brought to their husbands while they work. Instead, they prefer to buy instant noodles and mineral water for their husbands' meal.

Determination of Sebangau area as a National Park area also affected law and socio economic factors in the community. New governmental rules and interference, applied to the community through related institutions, changed some of the behaviours in the community. For instance, a WWF project in the peatlands in the national park changed the community positively by controlling fishery activities.

The fishery activities were also affected by the hydrology restoration in the project area. The lakes in the area were filled again by fish, which greatly benefited the local communities. Ownership of fishing equipment and amounts were regulated, which protected fish stock in the area. When the fishermen were able to use illegal tools, such as poison or electric power the stocks of fish decreased. Enforced penalties for using

illegal tools or poison has helped increase local fish stock. Another positive impact from the project is less smoke caused by forest fires. The smoke was unhealthy for people and not safe for transportation. Forest fires are now detected and controlled by the department of forestry.

## CONCLUSION

Based on the findings and discussion above, the researchers finally came to the following conclusions: (1) the role of the women was significant in stabilizing production. They were directly involved in farming activities such as, determining the inputs, land clearing, and selecting of product for marketing. Indirectly, they were involved in productivity by supporting their husbands' activities such as giving suggestions and recommendations for fishing activities; (2) women were directly involved in stabilizing food security in the household through four main activities: cooking favorite family meals efficiently and practically using local available ingredients; food stock and preservation by keeping the food in a certain place for a long time; establishing stocks of food in the yard or ponds by planting vegetables and raising fish in the ponds, and by accessing alternative food resources from the forest such as *singkah*, *kalakai*, *lantar*, *sulur*, *dawen taya*, and *dawen bengkel*. (3) Women managed the use of energy efficiently by turning off the electric or electronic equipments if not needed, using fire wood instead of kerosene as a source of energy for cooking, and cooking only once a day in order to save energy (4) Lastly, modernization and commercialization because of conservation area in Sebangau has shifted the role of women in their working system.

Generally, it can be concluded that women were the main actors in natural resources management in Sebangau area, Central Kalimantan. The women role included stabilizing production, maintaining food security, maintaining efficient use of energy in the home, contributing to the protection of natural resources, and supporting principles for sustainable development in order to protect resources for the next generation.

## SUGGESTION

Based on the above discussion, the researchers would like to propose some suggestions as follows: (1) women should have accessibility and control over their activities, therefore stabilizing activities would be maximized; (2) the women should get enough information and training to develop their skills and knowledge to support them in their job; and (3) the women should be given enough facilities (e.g. technological equipments, financial support, etc) to support their activities.

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