# The Role Of Women In Maintaining The Environment Through Vegetable Development In Rural Agriculture Systems

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#### ABSTRACT

This research aims to determine the role of peasant women in maintaining the environment for vegetable farming (kale and spinach unplug) at the Kalampangan sub-district Palangka Raya City. The study was conducted from August 2019 to October 2019. The determination location of this method used purposive and the respondents were 30 female peasant who joined the peasant women group. Descriptive statistical analysis is used to analyze data by describing or describing the collected data as it is without intending to make generalized conclusions or generalizations. Based on the field results of this research, the peasant women have been trying to carry out farming activities by observing environmental aspects, the role could be seen by directly activities through farming activities that are on soil processing activities, planting, harvesting, sorting and packing of production results. And also their role in providing information and understanding also encouragement to the peasant (husband) on the dangers of using anorganic materials on land clearing activities, weed handling, fertilization, and pest control for health and the environment. It supports the ecofeminism theories states that women are closely related to ecology. Women have a special instinct of the environment through the daily activities that have not been realised that it demonstrates the faithful nature of future generations.

Keywords: roles, peasant women, vegetable farming, environment.

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#### INTRODUCTION

Agricultural development is a priority for national economic development in Indonesia which is carry out in the framework of developing Indonesian people as a whole and covering all levels of Indonesian society to improve the welfare of society. Comparatively, Indonesia is superior in abundantly natural resources and human resources in quantitative and quality terms, so that can provide an opportunity to grow the national industry, especially in agro-industry. Even though Indonesia moved from an agrarian country to a developed industrial country, the role of the agricultural sector continues to gives a progress in the industrial sector so that was needed to balanced economic condition between strong industrial fields with strong agricultural support, as well as the availability of sufficient and abundant labor, so that can be competitively utilized (Baso, 2016; Liao et al., 2019; Martin, 2019; Jayne et al., 2019; Kiani et al., 2019).

Sudarta (2010), Wambrauw *et al.* (2019), Elbaar & Limantara (2019), Dunne *et al.* (2020), Mittal (2020), Muhammad *et al.* (2020), Elbaar & Meilantina (2020) states that the role of women in the agricultural sector is indisputable. In crop farming, the division of labor

between men and women is very clear, it is often said that men's work for the activities that use muscles a lot and women's work for activities that take a lot of time. Therefore, women's better access to resources through government programs also provides the opportunities for women to contribute more in productive economic activities. Central Kalimantan is one of the provinces in Indonesia which has the third largest area after Papua and East Kalimantan with an area of 153.564 km2. In 2017, the population of Central Kalimantan was 2.605.274 peoples, consisting of 1.361.715 male residents and 1.243.559 female residents.

In Central Kalimantan, women's involvement in farming has been carried out. This matter of line with the data released by the Central Kalimantan Province by a Statistics Agency through the agricultural census in below:

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Tabel 1. The Number of Farmers by Gender Central Kalimantan Province 2013 dan 2018.

No	Regency/City	2013		2018	
		F	M	F	M
1	Kotawaringin Barat	23.157	6.062	23.424	8.676
2	Kotawaringin Timur	39.807	17.910	36.556	9.789
3	Kapuas	44.144	11.514	49.759	26.090
4	Barito Selatan	17.002	7.970	19.360	8.991
5	Barito Utara	15.433	3.039	16.273	6.099
6	Sukamara	6.931	2.511	6.178	1.727
7	Lamandau	11.357	977	11.040	2.636
8	Seruyan	13.920	1.300	13.691	4.801
9	Katingan	25.251	20.899	20.744	11.107
10	Pulang Pisau	21.927	5.960	20.671	5.482
11	Gunung Mas	13.440	5.973	13.371	8.295
12	Barito Timur	15.051	10.490	15.338	3.539
13	Murung Raya	12.391	1.987	13.567	6.853
14	Palangka Raya	8.056	2.980	5.079	1.344
Central Kalimantan		267.867	99.572	265.051	105.429

Source : Statistics Agency of Central Kalimantan Province, 2019.

Based on the table 1 shows the development of the farmers number, both male and female farmers in Central Kalimantan on 2013 and 2018. Overall in 2013, the number of male farmers were 267.867, decreased number in 2018 to 265.051, while for female farmers in 2013 amounted to 99.572, the number increased to 105.429 in 2018. The data shows that the number of male and female farmers is not small, that was shows the Central Kalimantan region has a large enough potential for agricultural development. This participation is also supported by the role of women as housewives, who are now starting to be involved in the world of work, especially helping their husbands in their work. Not only being involved in their husband's work, some women choose to work fully in an effort to improve and maintaining the family economy. Kalampangan subdistrict was one of the sub-districts located in the city of Palangka Raya as well as an agricultural centre for horticultural crops. In this sub-district, the majority of the people's work as farmers (peasant), some of them become a trader of agricultural products marketed in the surrounding area, some in the City of Palangka Raya. Thus, the importance of cooperation between farmers and farmer women (wives), they were together to carry out farming activities so that the farming cycle is expected to be faster. The role of women farmers is needed as an effort to meet the needs of community consumption and increase family welfare. In addition, women farmers are considered more concerned about the environment than men, so that their role in protecting the environment is very necessary to create sustainable farming.

#### RESEARCH METHODS

The determination of this research area was done purposively with the consideration that Kalampangan sub-district was one of the vegetable productions centres in Palangka Raya City. The total number of respondents in this study were 30 female peasant who are members of the

peasant women groups. The sampling technique used was the snowball sampling technique. The data analysis used in this research is descriptive qualitative. The data that was already in the form of a frequency table were then analysed descriptively, namely by presenting it in a representative narrative form with processed data, so that it was easier to understand. The main purpose of qualitative research was to understood social phenomena or symptoms by focusing more on a complete picture of the phenomena being studied rather than breaking them down into interrelated variables (Koudstaal et al., 2020; Denneson et al., 2020; Dobscha, 2020; Grujičič, 2020; Osawe, 2020; Hofmann et al., 2020). In a hope that was obtained a deeper understanding of the phenomenon then a theory was produced. Because of the different purpose by quantitative research, the data collection procedures and types of qualitative research are also different (Rahardjo, 2010).

#### **RESULTS AND DISCUSSION**

Kalampangan sub-district was an area with a type of peat soil, so that in order to be sustainable, it must be managed in ways that were accordance with the characteristics of the peat lands. Based on the research, it was known that the role of women in efforts to maintaining the environment in vegetable farming activities (kale and spinach pull) is as follows:

a. Land Clearing In this land clearing activities, 18 peasant women have played an active role in protecting the environment through farming activities by clearing land with cutting weeds using tools such as machetes or sickles or by pulling weeds manually. This method was considered friendly to the environment. This was in accordance with the guidelines for sustainable management of horticultural crops on peatlands issued by the Agency for Agricultural Research and Development in 2014, that was the activities of preparing peatlands to be sustainable, it could be done by cutting down weeds and tilling the minimum soil using a tractor, plow, or hoe as deep as 10 cm.



Figure 1. Land clearing activities

Meanwhile, as many as 12 people admitted that land clearing activities were carried out by spraying herbicides on weeds. The dominant spraying activity was carried out by the husband peasant. As many as 12 respondents actually already have knowledge about the dangers of pesticide used, but a pesticide used was continues because it provides benefits on the side of farmers in the form of less time needed for land clearing activities and thus lower costs which will have an impact on the family economy. b. Weed Handling

In terms of handling weeds, peasant women have not played a maximum role, that was because as many as 27

peasant women handle weeds by burning them, which has a negative impact on the environment considering that burning activities can emit CO2 toxic gas which could made a pollute the environment and also disturb the healthy. Meanwhile, as many as 3 peasant women carried out weed handling activities by stacking them or composting them which were considered more environmentally friendly. The role of peasant women in protecting the environment through weed handling activities in farming activities was considered less than optimal because there were 27 peasant women who have not realized the impact of burning activities.



**Figure 2.** Location of the cleared and cultivated garden in the form of a mound, ready for planting vegetables Referring to Government Regulation No. 150/2000 concerning Control of Soil Damage for Biomass Production and the Constitution No. 18/2004 concerning Food Plantation, among others arrange the clearing or preparation of land without burning (PLTB), so the role of peasant women was considered insufficient in their participation to protecting the environment through their farming activities.

#### c. Soil Processing

The role of peasant women in protecting the environment through soil processing activities was to carried out conventional tillage using a tool in the form of a hoe, then to avoid puddles, a mound was made or the application of a shallow drainage system, which was an appropriate method for sustainable peatland management. That was done, so the peatlands for vegetable crops were not flooded during the rainy season and there was enough water available in the dry season. This method indirectly helps in protecting the environment through water management.



**Figure 3**. Weed handling d. Planting

The role of peasant women in planting activities was by sowing or spreading seeds on the prepared beds and making sure that the land to be planted with vegetables was not former plants with the same family. The planting activities by planted a different plant after the harvest period was carried out based on mutual awareness

between peasant and peasant women, although in practice the dominant planting activities was carried out by peasant women. These activities were the result of experiences that have been experienced by both peasant and peasant women, where if they done the planting without changing the planting cycle it can cause pests to become resistant and plant growth to be less good.



**Figure 4.** Planting Activities e. Fertilization

The role of peasant women in protecting the environment through fertilization activities was still less than optimal, where all respondents admitted that fertilization activities were carried out used the chemical fertilizers. The awareness of peasant women about the dangers of using

chemical fertilizers actually already exists, but the activities of using chemical fertilizers was forced to continue, this cannot be separated from the characteristics of peatlands that have minimal macro nutrients (N, P, K), which causes peasant should to used a chemical fertilizers because if the fertilization was only done by an organic fertilizers, that causes stunted plant growth, leaves and stems of plants stiff and hard.



Figure 5. **Fertilization activity** f. Disease Pest Control

In pest control activities, as many as 10 peasant women have played an active role in protecting the environment through farming activities by not using chemical pesticides to eradicate pests and plant diseases, the peasant women consciously choose not to control plant disease pests because of their knowledge and experience during farming. This kind of behaviour certainly has a very positive impact on the environment because it does not cause environmental pollution and does not eradicate organisms that were useful as natural enemies for plant-disturbing organisms. Meanwhile, as many as 20 peasant women was chosen to used pesticides to control pests in their crops. In this case, peasant women were considered less contributing to protected the environment through pest and plant disease control activities considering that

the use of pesticides was the last alternative if the natural methods such as planting tolerant or resistant varieties of pests / diseases, controlling weeds that host pests and diseases, doing crop rotation to break the cycle of pests, planting simultaneously, improving drainage, maintaining natural enemies, maintaining environmental sanitation cannot be done to deal with plant pests.

#### g. Harvesting

The role of peasant women in harvesting activities in an effort to protected the environment could be seen through manual harvesting by pulling plants that were ready for harvest. In this case, harvesting was an activity that friendly to the environment because the work was carried out without the helped of machines that could made a pollution and without the hazardous chemicals. Thus, peasant women have played a role in maintaining the environment through harvesting activities in their farming activities.



**Figure 6.** Vegetable Harvest h. Binding

The role of peasant women in maintaining the environment through sorting / binding activities was carried out in the traditional way, namely cleaning the old leaves that could interfere with the appearance of vegetables by manually picking old yellow and wilted leaves. After cleaning the kale from old and wilted leaves, then tie and wash them using clean water without the use of harmful chemicals that preserve vegetables for not rot easily.

i. Packaging

The role of women farmers in maintaining the environment through packaging activities was not using plastic materials which could have a negative impact on the environment. The packaging was done manually without the use of plastic bags so these activities was considered environmentally friendly. Thus, women farmers in Kalampangan sub-district have played a role in maintaining the environment through vegetable packaging activities in their farming activities.



Figure 7. Binding and packaging activities

Women are agents of change for their surroundings. One of them is in environmental management through rural agricultural systems such as growing vegetables, fruits and other activities. Women have the potential and important roles in managing natural resources and the environment. However, due to the inherent patriarchal culture in Indonesian society, the role of women is more or less marginalized. In a patriarchal culture, women work more in the domestic sector, while men work more in the public sector. Women as household managers, in fact, are more synonymous with jobs such as cleaning the house, washing, caring for children, and so on. These works, if examined further, are quite close to many environmental pollution problems such as household waste. From this alone, it can be seen that women have an important role in environmental management efforts. The research findings are supported by theory Ecofiminism (1993), Vandana Shiva and Maria Mies write that without realizing it, there is a special connection between women and their environment in their daily activities and their interactions with the environment. In a subsistence economy, women generate wealth from their cooperation with nature, where women naturally have their own knowledge and instincts related to the processes that occur in nature. This is called Shiva as an alternative to the mode of knowledge whose orientation is social benefits and the necessities of life. The patriarchal structure supports male domination by comparing two elements that naturally different, but this comparison is not limited between two elements, such heaven/earth, mind/body, male/female, human/animal, spirit/material, spirit/physical, white/colored skin. Women culture/nature. committed to taking an active role in monitoring environmental damage, this research supports research Listerborn (2007), Asteria (2018), Nutsugbodo & Adjei Mensah (2020), Binh (2020), the involvement of citizens in environmental communication activities, especially women's participation, is required in order to resolve environmental conflicts. Although the majority of victims of climate change disasters are women, women are more adaptable than men to environmental change, so that women can become agents of environmental conflict management.A type of women's contribution to the conservation and environmental sustainability by preventing, to greatest extent possible, contamination and harm to ecosystems. Some essential ones that women

should do, such as reducing the use of cosmetics and beauty products that use fossil raw materials, reducing the use of unnecessary detergent, reducing the use of plastic by carrying bags that can be repeatedly used There are three main reasons discussed in ecofeminism, namely empirical, conceptual and symbolic reasons (Agarwal, 1998; Hallen, 1999; Warren, 1994; Eaton and Lorentzen, 2003; Kronlid, 2003; Perkins *et al.*, 2005; Noya, 2013; Ćorić, 2014).

The empirical reason referred to is that environmental instability also affects the role of women in most parts of the world. This is based on the assumption that the burden on women is increasing along with environmental damage. Women are the main actors in caring for children, providing food and health for family members. This task is becoming increasingly difficult to conduct as environmental degradation occurs. The second view considers that women and nature have a conceptual and symbolic relationship in the western worldview. The conceptualistic structure identifies women with femininity, sexuality, earth or nature and materialistic. Meanwhile, men are seen from masculinity, full of the supernatural and a spirit without a body. The third view is epistemology, which discusses women and nature.

Environmental issues affect women directly, then some feminist figures claim that women have greater knowledge and expertise than men about the earth system. So ecofeminism has the view that women occupy a significant position in helping to create a new paradigm of ecology. Thus, women are the most prepared party to solve environmental problems. Women are required to have sufficient knowledge about the environment (Nhamo & Mukonza, 2020). In a family, women have an important role, namely as the first educators for their children. Education and knowledge about the environment can be instilled in children from an early age through women. When an environmentally friendly lifestyle is instilled and implemented in a family, children will get used to protecting their environment. This good habit then develops into an awareness and takes root in the children, so that in the future generations will be formed who care about the environment. From this it can be seen that women have a strategic role to protect and preserve the environment. As well as through their families, women can directly involved through communities or environmental organizations. Women can move to invite women around them to care more and want to participate

in preserving the environment around them. This is considered easier for other women to understand and accept.

This study confirms the important role of women in the activities of vegetable farming management. Female Farmer Respondents also ensure that in every activity, aspects of environmental management and sustainability are prioritized. Through vegetable farming activities, female farmers in Kalampangan contribute to increasing vegetable production, increasing household income, and most importantly that they use their years of knowledge and experience in farming while protecting and maintaining the environment to support the principles of sustainable agriculture.

### CONCLUSION AND RECOMENDATION

Based on the results of research in the field, peasant women have tried to carried out farming activities by paying attention to environmental aspects, their role could be seen from their activities directly through farming activities, namely in soil processing, planting, harvesting, sorting and packaging of production products. And also, it was role in providing information and understanding as well as appeals to peasant (husbands) regarding the dangers of using anorganic materials in land clearing activities, handling weeds, fertilizing, and controlling pests and diseases in doing business for health and the environment. This supports the theory of ecofeminism which states that women are closely related to ecology. Women have a special instinct for the environment through their daily activities which so far have not been realized that this shows a loyal nature to future generations.For peasant women in Kalampangan subdistrict, in a hope that they can improve farming methods that were not friendly to the environment as an effort to maintaining the environment through vegetable farming activities, especially in land clearing activities, handling weeds, controlling pests and fertilizing, in order to create a sustainable farming system. For the government is expected to play an active role in assisting peasant and peasant women to take an active role in maintaining the environment through farming activities.

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