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# Women Roles on Climate Change Adaptation through Agroforestry in West Lampung District, Indonesia

by  
**Christine Wulandari<sup>\*)</sup>, Mahrus Aryadi<sup>\*\*\*)</sup>, and Pitojo Budiono<sup>\*\*)</sup>**

<sup>\*)</sup>Forestry Department, Faculty of Agriculture, Lampung University

<sup>\*\*)</sup>Government Science Department, Faculty of Social and Politic Science, Lampung University

<sup>\*\*\*)</sup>Faculty of Forestry, Lambung Mangkurat University

Email: [chs.wulandari@gmail.com](mailto:chs.wulandari@gmail.com) and [chs\\_wulandari@unila.ac.id](mailto:chs_wulandari@unila.ac.id)

## Abstract

Objectives of this research were to determine the women roles on climate change adaptation through agroforestry in West Lampung District, Indonesia. This research conducted start to January up to March 2013 in Tri Budi Syukur Village, West Lampung District. Based on research analysis found that majority respondents (80,07%) stated have authority to make decision for management of their land included marketing and modification of tillage management and post harvest of non timber forest products (NTFP). Women respondents in study areas have 73.12 or moderate level on their Social Acceptability Index (*Indeks Penerimaan Sosial*) in connection to improve their knowledge, skill and attitude. Its meaning they have good social capital as a basis to increase the capability their role on climate change adaptation through agroforestry management.

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Key words: agroforestry, SAI, climate change, adaptation, women roles

## Introduction.

Up to now, a lot of information related to the causes, impacts and solutions of climate change has not been obtained in a holistic manner by the community, especially by the women. Women is one of the most vulnerable part to the impacts of climate change. Although in the field shows that women are actually the one who have a lot of roles and initiatives to still remains to survive inspite of various crises and the negative impact of climate change (Civil Society Forum for Climate Justice, 2011).

Women have different experiences with men over the impact of climate change because of the position and gender roles that had been attached to women. William and Sutarti (2006), give a restriction definition of gender to distinguish things that is human

biological characteristics with other things related to the socio-cultural. In short, gender is a difference regarding the social functions and roles of men and women which is shaped by the environment we live. Gender is more related with the assumptions and habits which prevail somewhere about how men and women are considered appropriate or not in accordance with the local social and cultural values (Indriatmoko, 2007). Similarly Civil Society Forum for Climate Justice (2011) which states that climate change will have different impacts in each region, generation, age, income, occupation and gender. This means that climate change cannot be seen as a gender-neutral process. Climate change will have more severe impact on women from low class social group (Civil Society Forum for Climate Justice, 2011) including women who live around the forest that had been included as marginalized community groups.

Women who help add the family income by farming called farmer women. They have a greater burden of climate change impacts than women who work in non agricultural sector (Civil Society Forum for Climate Justice, 2011). These women have primary responsibility for collecting water or firewood as well as provide food for their families. According to data in the Indonesian Farmer Union, there are 70-80 percent of workers in the agricultural sector are women (Civil Society Forum for Climate Justice, 2011). The climate change impacts make these women to devote more time to finish their domestic work. Climate change impact that is most perceived by these women is the uncertain changes of weather or seasons since 2005 so that they no longer able to find out the signs of nature if there will be a transition or “pancaroba” (Civil Society Forum for Climate Justice, 2011).

There are at least 11 (eleven) articles in the UNDRIP that is specifically provide guarantees related to women's rights, including the right of economic needs compliance, social health, participation and Free and Prior Informed Consent (FPIC), access to finance, technical assistance, equity between men and women, rights to defend and strengthen the traditional and spiritual relationship with the land affairs, territories and other resources, access and control over the land (Civil Society Forum for Climate Justice, 2011). Thus it has become imperative to all parties both State and UNFCCC to ensure the handling of climate change impacts are able to answer the root of the problems faced by women (Civil Society Forum for Climate Justice, 2011). It should be emphasis

here that the handlings should include women's needs and interest fulfillment of the living sources. This needs to be emphasized because in most discussions of climate change are rarely linking with the needs and interests of women who felt the climate change impacts.

Talking about climate change means that it will discuss about the adaptation and mitigation programs. According to Tebtebba (2008), the climate change mitigation is refer to the reduction of greenhouse gas emissions (GGE), whereas the climate change adaptation is the process of adjusting the ecological system, social or economic towards climate change impacts. Furthermore, the UNFCCC (1999) also defines adaptation as a matter of finding and implementing ways of adaptation towards climate change. In the Minister of Environment Regulation No. 19 Year 2012 on the Climate Village Program noted that adaptation to climate change is the effort made to improve the ability to adapt to the climate change, including climate variability and extreme climate events so that the potential damage from climate change is reduced, opportunities posed by climate change can be utilized, and the consequences of climate change can be addressed. Thus, climate change adaptation refers to adjustment in natural ecosystems or human response to climate change, both of which mitigates the damage and exploits opportunities in utilizing natural resources in a positive way as the response to climate change that is being or will occur.

In fact, all of the above description is true. According to the condition in the field, it is known that women who live around the forest are the most vulnerable one to the impacts of climate change as their burden increases in the daily needs fulfillment that comes from forest resources. Thus it is necessary to have the strategies of climate change adaptation so that the women can still perform their duty as a mother and wife who helps their husband in meeting the daily needs of the house. Based on these conditions it is necessary to conduct a research on the conditions and the role of women in climate change adaptation.

This research was conducted on “Melati” Farmer Women Group (FMG) in West Lampung District, Lampung Province which had been applying agroforestry in their management areas which is as state forests and also in the home garden. This group has been established since 1993 so it has a lot of experience in implementing land

management as the strategies of climate change adaptation. The aims of the research are (1.) Determine the percentage of women who have the right to make a decision in the use of management rights over their land and (2.) Analyze the Social Acceptance Index (SAI) of farmer women to find out their expertise, knowledge and attitude in support of climate change adaptation through agroforestry implementation.

## Method

The research was conducted in “Tri Budi Syukur” Village in January-March 2013. In the research were taken primary data and secondary data relevant to the research sample which is the member of “Melati” Farmer Women Group. The amount of this group member is 63 people (“Melati” Farmer Women Group, 2012). According to the opinion of Arikunto (2006), if the subject is  $\leq 100$  persons, then the samples are taken by the census method or all members are taken as samples. It is also conducted field observations and data and information collections through interviews or Focus Group Discussions (FGD).

The data analysis is using combination between quantitative and qualitative analysis. After all samples completed the questionnaire which was distributed, then conduct a descriptive data analysis. It then calculated the percentage of samples that fill each answer choice listed in the questionnaire. Next, it conducted the calculation of the number of respondents who had an equal right with men to manage their land, both state forests and private forest or yard. To find the SAI is using formula as used by Wulandari *et al.* (2011), as follows:

$$\text{SAI} = (\text{TSP} + \text{TSA} + \text{TSV}) / \text{The highest } (\text{TSP} + \text{TSA} + \text{TSV}) \times 100$$

where :

TSP = Total Score Participation

TSA = Total Score Attitudes

TSV = Total Score Value

## Results and Discussions

The percentage of decision-making, the outpouring of work time and access of product utilizing tend to be more men than women in rural communities in Central Java and West Java (Suharjito *et al.*, 1997) even though they have the same role in managing the garden or land. It is different from what happened in the Ibo community in Nigeria where women have the right over the palm tree (*Nkwu ana*). Women were given the right to benefit from seeds and its sap, planting other crops around the palm plants such as bananas, breadfruit, and others. In addition they also have the right to sell, lend, pledge or give the palm tree to another party (Chinwuba, 1988). Most of women have the right to decide in the land management, similar to the results by Wulandari (2001) in Lampung Province. Based on these results, 75.09% of respondents stated that the wives together with their husbands jointly decided about their land management. Prasetyaningsih (2004) also obtain similar results in his research that the wives decide their land management system together with their husbands. Similarly with the results of this study, it is known that 80.07% of the sample stated that together with their husbands they had the right to decide their home land management in the State Forest and in the home garden. They stated that all of the lands are managed by agroforestry systems.

Equality of rights between men and women is very reasonable because these women do have the ability to be able to help improve their household incomes from the *Sisa Hasil Usaha* (SHU) or annual margin of Farmer Woman Group that are distributed to all members of the group. Based on the Annual Report of the Board that stated in *Anggaran Dasar* (Charter of “Melati” Farmer Women Group), it is known that this Farmer Women Group has had an initial capital of IDR 200,970,750 in 2012 and one of its enterprise is in the form of a convenience shop called “*warung gerabatan*” which already has the variable capital approximately IDR 2,500,000 per month (“Melati” Farmer Women Group, 2012). Even the Chairman of the Bina Wana Community Forest Group who is one of the “Melati” FWG founder stated that this FWG has been able to help their household daily need and also to help meet the needs in the feast, Eid for example. Thus, thanks to the role of the “Melati” FWG members that the household income of “Melati” FWG members can still provide for their family need, although the

impacts of climate change affect to the volume or the amount of non-timber forest products from their land which is managed by agroforestry.

The member of “Melati” FWG applying agroforestry systems in managing the land which is majority planted with coffee. These women do the planting of coffee with other crops, such as palm, *Arenga pinnata*, rubber and other. In addition they also nurture *luwak* (mongoose) so that it could produce the *luwak* (mongoose) coffee which its price is far over the regular coffee. The members are also growing fish, maintaining honey bee, and raising goats. Thus, actually the members of WFG has applied silvopasture, silvofishery, agrorofrestry, and also apiculture (integrating crops and trees with maintaining honey bee) well because everything has been produced and substitute each other and shown to provide additional family income (Wulandari, 2012). It means, the members will still always be able to meet their household needs through the application of all agroforestry technologies and the impact of climate change will not significantly influence to the welfare level of their families (Kurniawati, 2012).

Adaptability of “Melati” FWG members on climate change adaptation is quite good because it does not happen without the influence of factors such as socio-economic, cultural, political, geographical, ecological, and institutions that shape human interaction with the environment (Eriksen, *et al.*, 2011). Based on the field observations, the adaptive capacity of FWG community determines the level of adaptation in addressing climate change impacts and risks. One of the drivers that affect the adaptability to climate change by the members of FWG is that their institution indeed very solid. In addition, as the results of Adger *et al.* (2007), other factors that influence is the social network that has been built by FWG and government structure that support the development of this FWG such as village governments, sub district, district, and province.

This group has been in the Third Champion at the level of Lampung Province in 2012 as appreciation for the expertise of “Melati” FWG in the application of agroforestry. And for the institution, they also received awards such as Inauguration Charter as Advanced Class Group as in 2012 at the province level. These awards prove that this group has indeed been solid and has competent boards to manage group institution and the members are always been an active to play the role for the progress of the group. They already have a high sense of belonging to the existence of their group. It can be said

that boards and members of this group have a good social capital so it is not surprising if the Social Acceptance Index (SAI) of Melati FWG is 73.12 or moderate level. This condition is in accordance with the opinion of the United Nations Task Team (2011) that the adaptation capacity is influenced by many factors of non-climatic and socio-economic such as: health, skills, knowledge, education, social capital, infrastructure, natural resources and financial capital.

Although the SAI of “Melati” FWG has reached moderate level, but it still have to be done the capacity building and the development of climate change adaptation strategies. According to Smith *et al.* (2003), a capacity building of adaptation could reduce vulnerability and promote sustainable development. Capacity building can be done in the form of access to material on the development of agriculture, including marketing information because according to Deressa *et al.* (2008) there is a strong correlation between accesses to information with technologies adoption. In addition, the capacity of “Melati” FWG members can also be increased in terms of financial management, including access to credit if they have good accesses to information (Deressa *et al.*, 2008).

## **Conclusions**

Based on the results, it can be concluded as follows:

- (1.) There are 80.07% of “Melati” FWG members who have the same rights as men in making decision on their land management in the State Forest or Private Forests.
- (2.) Overall “Melati” FWG members have SAI 73.12 (moderate level) so that they have sufficient capacity to adapt to climate change.
- (3) The members of “Melati” FWG still require a capacity building although its institutional was already solid and recognized by other parties, including the government.

## **Recommendations**

- (1) Capacity building related to the quality and quantity of agroforestry product marketing from the management land of “Melati” FWG and also increasing of its marketing network needs to be improved for example by training, internship or workshop by presenting its buyers. Good product marketing and enhanced benefits for the group



will increase the level of climate change adaptation of “Melati” FWG. This condition is similar as stated by Deressa *et al.* (2008) that the availability of credit or financial adequacy positively related to the technologies adoption, including technology in adapting to climate change.

(2) It should be started a strategy development on the management continuity of “Melati” FWG as qualified as current because the boards has been old. In the board management, it should be appointed young board member so that when there is reshuffling of the board management, the young ones are ready to be qualified candidates.

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