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SPOTLIGHT

LESSONS FROM THE GENDERED IMPACTS OF CLIMATE CHANGE ON AGRICULTURE IN ENGA PROVINCE, PAPUA NEW GUINEA

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Key Points

- Climate change is affecting local farmers in the rural areas, especially women farmers.
- Food security of local communities is further threatened by the impacts of climate change.
- Farmers are not aware of the new technologies and approaches to deal with the impacts of climate change on crop production and yield.
- More involvement of women in literacy and agricultural training programs is needed.
- Climate smart agricultural technologies and practices need to be rolled out to local farmers to better equip them with skills and knowledge to deal with impacts of climate change.

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By Evelyn Malala

Climate change is the increase in temperature in the earth's atmosphere which affects global weather patterns. It is a global phenomenon that is affecting many aspects of our lives as humans. In Papua New Guinea (PNG), the effects of climate change can be seen mainly in rising sea levels along the coastal areas and islands and rise in temperature in the Highlands region.

In the agricultural space, climate change affects crop yield and quality which in turn threatens food security. Food security is defined by the Food and Agriculture Organization (FAO) as "a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (World Food Summit, 1996). Food security is affected by the impoverished state of living in rural areas and is further exacerbated by the effects of climate change.

In the Highlands, irregular rainfall and prolonged dry seasons create confusion for farmers and they are not sure on when to plant. Also, harvesting is happening earlier or later than usual. With cash crops like coffee, farmers are harvesting twice in a year; as early as February and sometimes late around December; as opposed to once during May-June (Barnett-Naghshineh, 2015). Higher temperatures also introduce the problem of pests which prompts farmers to use pesticides, and this affects soil quality over time impacting the quality and yield of crops and places financial burden on farmers to purchase and use fertilisers.

At least 70 percent of smallholder farmers living in rural areas grow crops for personal consumption and sell surplus for income (Schmidt et al., 2019). Therefore, local production is vulnerable to the changes in the climate which in turn affect the food security of the population.

Background

Globally, there is evidence of a gender gap in agriculture, meaning that women face more constraints than men in accessing resources, markets, and services (Patil & Babus, 2018). This is also evident in PNG with more women farmers facing these challenges than men because of low literacy and education levels, societal and cultural norms as well as family (household) responsibilities. Women's involvement in agriculture is mostly in food crops and not cash crops, as more emphasis on extension services is put on cash crops where men are mostly involved (Pamphilon & Mikhailovich, 2017; Cahn & Liu, 2008).

Most of the fresh food produced in PNG is by women farmers (Bourke & Harwood, 2009). Women are mostly involved in running the household and taking care of the domestic garden that supplies the house with food and may also be sold for income, whereas men spend more time on cash crops like coffee, cocoa, oil palm and copra. This is slowly beginning to change with a shift in this trend as more men are transitioning to producing and selling food crops in the markets and women moving into cash crop production (Nordhagen et al., 2020).

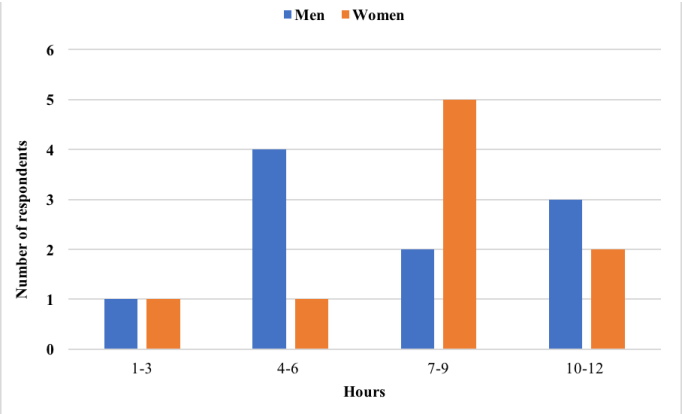
This paper uses the UN Women's data from the gender analysis of the 'Adaptation of Small-Scale Agriculture (ASSA) for improved food security of resilient communities in Papua New Guinea' project in Enga Province. The study was done to collect baseline information about the farmers who would be involved in a project aimed at adopting climate-smart practices to improve agricultural practices and farmer livelihoods. The data was collected through focus group discussions of men and women separately and a mixed group of both men and women. The paper discusses how women and men in Enga Province are dealing with the impacts of climate change on agriculture. It also makes recommendations of actions that can be taken to reduce the negative impacts of climate change, improve production and sustain food security.

Responses from farmers regarding climate change and their farming

The following results are from the survey done in Enga Province. The results are from a sample of 19 respondents: 11 males and eight females, during their focus group discussions.

- Time spent on farming

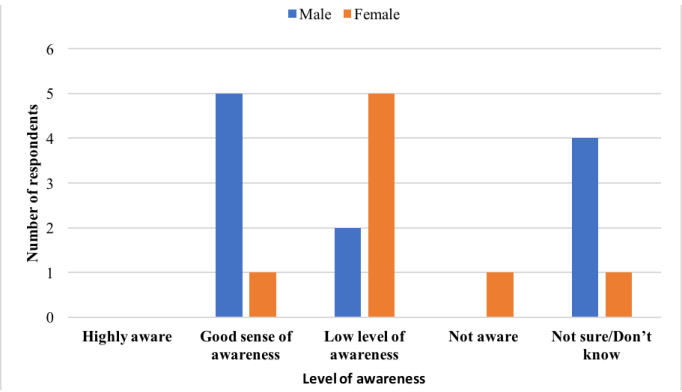
Figure 1: Graph showing time (hours) spent per day on farming by men and women



According to the survey results (Figure 1), women spend a considerable amount of time than men in the gardens, farming and tending to crops for their family's subsistence consumption and for selling. In addition to that, they also have their reproductive household duties of looking after the young or elderly, cooking and cleaning. Women spend considerably more time in the garden, whereas, men usually spend more time on cash crops.

- Level of awareness on climate change and its impact on food crops

Figure 2: Graph showing the level of awareness farmers have on climate change



More women (Figure 2) were less aware of climate change while their male counterparts indicated to have a good sense of awareness. None of the respondents had high awareness and more men than women were not sure about the impacts of climate change on their crops. This low level of awareness can be attributed to the respondents not receiving any training or awareness from extension officers about climate change and its impacts or the inability of participants to attend these programs. The low level of awareness can partly be attributed to low literacy levels and increased household responsibilities.

- Women's access to resilient crops

Figure 3: Graph showing women's responses to access to resilient crop varieties

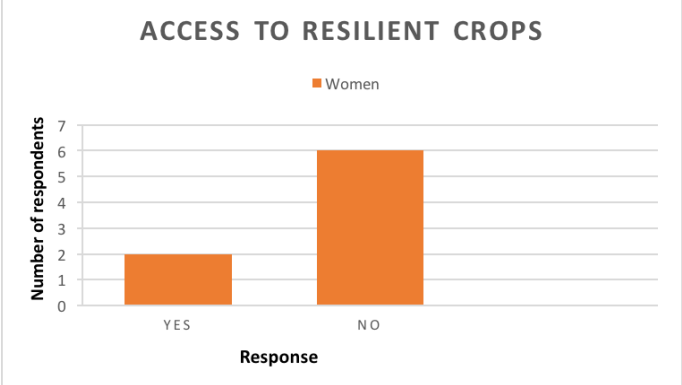


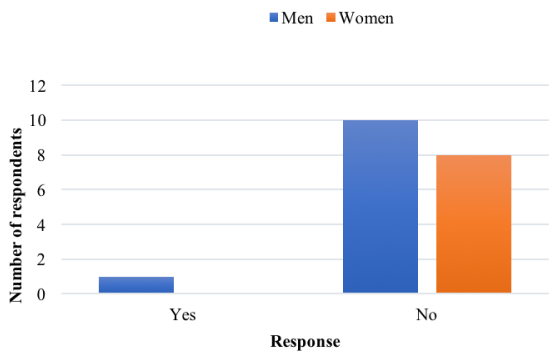
Figure 3 shows the accessibility to resilient crop types by women. The men had no response because the question was directed only to the women. Most of the women had no access to resilient crops with the exception of two respondents who mentioned cassava, taro, sweet potato and coffee as resilient crop types that they have. Planting resilient crop varieties is a method of Climate Smart Agriculture (CSA).

CSA is a set of farming methods designed to increase the resilience and productivity of land affected by climate change. It is quite similar to sustainable agriculture and combines various sustainable methods to tackle the impacts as well as adapting to climate change in farming communities. There are different CSA methods that can be used for different climate risks, the crops involved, local ecosystems and the resources available. For example, in the event of temperature increase (heat stress), methods like planting heat tolerant varieties, mulching, water management, shade house and boundary trees can be used. However, access to those practices, methods, information and technology is lacking in these farming communities.

CSA plays an important role in reducing the gender gap in labour burden for women in agriculture (Khatri-Chetri et al., 2020). For example, using drip irrigation for drought-prone areas to reduce time and labour or plant drought tolerant varieties of crops to ensure quality yield. This can ensure women have more time to concentrate on other responsibilities and also ensure crops are of satisfactory quality to meet the dietary needs of the household.

- Information on new technologies and usage of these technologies

Figure 4: Graph showing responses to access to new agriculture technologies



This graph shows that all women and 10 out of 11 men are not knowledgeable and do not use new agricultural technologies. The respondents noted that this is because new technologies have not been introduced to them and that, there is no awareness, training and support from the government through extension services. Technology in agriculture (Agro-Tech) refers to the use of technology and digital tools to improve efficiency, increase yields, reduce labour costs and promote sustainability.

Examples of agro-tech include simple machinery like tractors or mills; using agricultural biotechnology to create new trait/ variety of crops; using remote sensing and GIS for precision irrigation among others. Information on available technologies and CSA practices has been lacking for the farmers. Most women farmers do not know how to adapt to the impacts of climate change. Hence, they continue to observe the impacts and continue to practise their traditional way of farming and this is contributing to food insecurity in their households and communities. Educational awareness for women farmers on adapting new technologies including CSA approaches is needed.

Recommendations

Given the low level of awareness amongst respondents, there are some recommendations of actions that can be taken to help alleviate the obstacles and negative impacts of climate change. These include the following:

- Adopting climate smart agriculture (CSA) practices can improve productivity, increase yields and contribute to food security. Women should be included in CSA training and awareness programs. There should be gender specific programs to target the awareness and training needs of both women and men, taking into consideration the impacts of climate change on these needs.
- Rolling out literacy programs for women and offering simplified extension services in rural areas can enable people with limited or no education to understand, adopt and grow climate resilient crop varieties. Literacy programs can be carried out by women's groups or church run groups for men and women in rural areas to ensure they have basic literacy skills and knowledge to better understand and implement the newly acquired skills.
- Include women in agricultural/ climate change training and awareness projects.
- Extension services introducing new technologies that ease the impacts of climate change and reduce labour requirements should also be rolled out.

Conclusion

Farmers play an important role in sustaining their households by producing food crops for consumption and marketing to earn an income. However, they face challenges in the agriculture space that are further exacerbated by climate change. Gender specific climate change training and awareness should be done to target women's needs and women should be encouraged to take part in these programs.

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About the Author

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