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**Submission date:** 08-Feb-2023 03:40PM (UTC+0700)

**Submission ID:** 2009209686

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**Word count:** 3851

**Character count:** 20517

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To cite this article: Nurbaya Busthanul *et al* 2020 *IOP Conf. Ser.: Earth Environ. Sci.* **575** 012107

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## Adaptation strategies and social relations of highland farmer communities in Enrekang, South Sulawesi, Indonesia (case: Kaluppini Village)

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**Abstract.** Climate change and weather conditions sometimes force the farmers to make an adaptation for survive. This research aims to determine the strategy of adaptation and social relation of farmers in the Highland area in the village Kaluppini Enrekang District Enrekang District. The data analysis used is a qualitative descriptive analysis. The results showed that the farmers in Kaluppini village had a drought problem and had the effort to get water to shorten the needs of the soil so that farmers move from rice farmers to corn farmers because by planting corn the amount of water that the plant needs is not too much so that the farmers can still cultivate it. To conduct the adaptation strategy farmer utilized social relations in the community that is giving information about word of mouth and still high culture “gotong royong” in the community of Kaluppini village.

### 3 Introduction

Climate and weather conditions are a good example of factors that require on-going adaptation. With climate change, they take on even more significance [1]. Farmers are social beings who, in their lives, cannot escape from other human beings who have a pattern of mutually supportive relationships. This pattern of mutually supportive relationships from year to year has begun to diminish. In rural farming, communities are not separated from social, societal structures. The social structure expressed by Ralph Linton has two concepts: status and role. This concept shows that in a social structure, there is a social position inequality between individuals. While Max Weber said that a society is divided into stratification, namely class, status, and power. Society has its own structure and organization, which is a patterned system of relationships. While culture is a short term for the rules or guidelines of the way of life of a community group or can be regarded as a life that is generally studied among community members, consisting of tools, techniques, social institutions, attitudes, beliefs, motivations, and social values system of society.

Farmers' social, financial, and human assets can mitigate their livelihood risks in agricultural production, while natural and physical assets have the opposite effects. Most farmers chose crop variety adjustment, water and fertilizer management, agricultural finance, and agrotechnical support to deal with livelihood risks. Social, natural, and physical assets have significant and positive effects on farmers' adoption of adaptation strategies, while human and financial assets have relatively weak



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influences [2]. Ongoing global climate change is triggering stronger and different stressors, threatening traditional agricultural practices, and sustainable household livelihoods [3]. Consequently, smallholder farmers, especially in developing countries, are more vulnerable to livelihood risks, which leads to livelihood vulnerability [4], a number of problems faced by farmers today are different from previous issues. The problems faced by farmers are increasingly narrow land, environmental conditions, climate and weather, fertilizer, capital, and marketing. Addressing these conditions, every farmer must perform various adaptation strategies to survive and fulfill daily fundamental needs. Adaptation strategy, which is an adaptation strategy that maintains economic livelihoods, confronts value changes in the community due to outside cultural influences and addresses land issues and residential environment. These strategies are usually obtained after conducting research with in-depth interview techniques, group focus discussions, surveys, and imagery interpretation in both villages. A strategy that is economically sustaining livelihoods related to alternative livelihoods, land lease speculation on agricultural produce, and insurance efforts.

The strategy of adapting each farmer community varies because it has a different living capital. In addition, social capital in the peasant community, especially social relations, has a major role in adaptation strategy and the farmer's family economy. It can be seen from the many networks that are owned by the farmer when in an unbalanced state of crisis. Many of them make use of their networks, such as cooperatives or others to fulfill their life needs or to help them when they are in a state of crisis. The sustainable livelihood framework has been widely used and has become a classic paradigm for the study of household livelihoods. This framework regards farmers as making a living under a certain context of vulnerability, and farmers can improve their livelihoods by using certain assets.

In general, one can be said to have a social relationship if a person or individual is hard to live together for a long period of time so that it forms a pattern so that the pattern of the relationship can be said as a social relation. Mankind, as part of his environment, has a reciprocal relationship in harmony with his environment; in other words, there is balance in interacting. In this continuous interaction, people gain experience of their environment. An overview of her living environment is called environmental imagery. Triharso in Depdikbud 2013, said that his human environment has a set of knowledge that affects his actions in treating natural environments around him as well as farmers who will interact directly with nature around to produce a production of agriculture than the need for adaptation strategy.

Based on the explanation above, this research aims to: (1) identify the strategy adaptation of farmer and (2) identify the utilization of the social relations of the peasant community.

## 2. Material and Method

This study was conducted in the village Kaluppini Enrekang District, Enrekang District. The determination of the location is done by Purposive Sampling, which is the technique of determining the location of data sources with certain considerations [5]. The selection of this location with consideration of Kaluppini village is a Highland area with a majority of the population is still homogeneous (indigenous people). The research time began in August to September 2019.

The population in this research is a highland farming community that is a farmer's household working as rice paddy farmers. The withdrawal of these respondents was made with consideration when the subject was less 100 better; the population taken all as samples, but if more than 100 then it can be taken 10-15% or 20-25% or more. The expected number of samples 100% representing the population is equal to the number of members of the population itself [6].

Data is analyzed in a qualitative approach to enriching data and to better understand the social phenomena researched. A qualitative approach was implemented through in-depth interview techniques to the owner's farmer and informant by using several questions as interview guides and presented in the form of a large daily record.

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### 3. Result and Discussion

#### 3.1. Characteristics of Respondents

According to the Goddess (2018) that man is said to be productive if he has age 15-64 years. Young farmers tend to receive information easily so as to increase the productivity of their efforts. The average age of respondents was 15-55 years, amounting to 4 people with a percentage of 100%. The average level of education of respondents was a high school amounting to 4 people with a percentage of 100%. The average land area of respondents is > 1, amounting to 3 people with a percentage of 75%. The average family coverage of respondents was 4-7 people as much as 2 people with a percentage of 50%. The respondent's work experience is > 20 years totaling 4 people with a percentage of 100%.

#### 3.2. Business pattern agricultural activities in Kaluppini village

3.2.1. Consumption patterns. Consumption patterns can be used as an indicator of community welfare in households. A consumption pattern dominated by food production is a community portrait with low welfare. Instead, the consumption pattern dominated by non-food expenditure is a more prosperous representation of society. The condition of farming in Kaluppini village is actually very promising for its environment, but the irrigation system in this village is insufficient because it still relies on rainfed rain lowland.

The community in Kaluppini village did not consume the harvest, but it sold for 36,000/kg to the pressing merchant. The water source in Kaluppini village is the water from the mountain that is made of pipes to flow into the houses in the village of Kaluppini. In Kaluppini village, there is no water PUMP, wells, and water and electricity in Kaluppini village is PLN.

This difficult water condition that makes society in Kaluppini village should be able to think about how to keep planting because farming is the main work in the village of Kaluppini. The farmers in the village of Kaluppini planted rice in their land, but since the season did not make the farmers often suffer losses. People in Kaluppini village started to plant their land with a crop of white corn crops. Initially, the rice plants and white corn are still interspersed, but the harder the water, so they no longer plant rice and begin to switch to plant white corn. According to the field survey, most farmers have retained the same overall cropping patterns in recent years, but they have changed some of the crops that they cultivate, abandoning some and introducing others. Cultivating more than one crop at a time (multi-cropping) is a promising adaptation strategy for small-scale farmers. While more labor-intensive than single-cropping, multi-cropping has advantages because it is more resistant to pest attacks, allows for a diversified diet and reduces the risk of crop failure [7].

Increasing aridity, more frequent and intense drought, and greater degrees of water scarcity create unique challenges for agriculture. In response to these challenges, which often manifest themselves as lower and more variable surface water supplies, as well as depleted and degraded groundwater supplies, growers tend to seek opportunities to adapt. One option for growers to reduce their exposure to water scarcity and heightened uncertainty is to diversify. Indeed, access to a portfolio of supplies is one way in which water and irrigation districts, as well as individual growers, are responding to the changing landscape of water resource availability. Our results suggest that while lower quality waters, less reliable water, and less water all negatively impact agricultural land values, holding a water portfolio has a positive impact on land values through its role in mitigating the negative aspects of these factors and reducing the sensitivity of agriculture to climate-related factors. Most studies focus on farmers' perceived or anticipated adaptation behaviors, and there is little focus on actual or current behavior and best management practices at the farm level. In addition, adaptation research does not take into account sustainability issues in designing and implementing adaptation measures.

White corn is not very beneficial because of its results. Consumption for oneself is not sold because white corn has no economic value. For the last 3 years, the community in Kaluppini village

has already switched to planting yellow corn because the results are more beneficial than white corn. The yellow corn was sold to collecting merchants who came into the village to buy directly to farmers in the Kaluppini village. So, until now, they still planted yellow corn.

*3.2.2. Production Pattern.* The development of the production pattern of food farming oriented to rice paddy fields seems to provide a sense of safety for farmers because it is more promising, but the switching of this planting pattern makes farmers in Kaluppini village adapt to be able to meet the needs of the farmers in Kaluppini village. When in the village Kaluppini has a difficult their water failed to crop or produce a less maximal so they think to change the commodity that they will grow because if they persist in growing rice, they will only suffer losses. Mitigating drought and water scarcity are time-consuming, difficult to implement, and often requires huge investment. Farming practices should, therefore, adapt to the changing environment. Farmers' decision-making processes on adopting improved technology and irrigation management systems have been extensively studied in the literature [8,9]. The majority of the adaptation studies to date focus on climate change and variability in general [8,10,11]. Studies specifically focusing on adaptation to drought and water scarcity are scarce.

The process of land processing in Kaluppini village cost approximately 2 million-2.5 million rupiahs for 1 Ha land used to buy seeds and yellow corn fertilizer. Fertilizer used by farmers, namely Urea, Phonska (NPK) and ZA. In the vast land of 1 Ha the average fertilizer used Phonska 5 bags, Urea 2 bags, and ZA 5 bags. Phonska fertilizer Price IDR 130,000/bag, Urea price of IDR110.000/bag, and ZA price IDR100,000/bag. In addition to fertilizer production of farmers in the village, Kaluppini is a pesticide in the form of poison grass that usually used more or less 15 liters on an area of 1 Ha. Land tax paid by farmers in Kaluppini village amounted to IDR35.000/Ha in one year. The cost for labor is not required because Kaluppini village is still relying on gotong royong system. The seeds used are BISI 18 because BISI 18 is a good seed with a price of IDR85,000/kg, which is usually used 15kg/Ha. Tools used in the processing of farmers' land are sprayer, hoe, and machetes. The initial price of sprayer IDR500,000 is now IDR900,000. The price of the initial hoe is IDR40,000 is now IDR60,000. Parang starting price of IDR100,000 is now IDR125,000. Farmers in Kaluppini village do not have sickle and tractor because they only need sprayers, hoe, and machetes to avoid their land.

The farmers in the village of Kaluppini joined the farmer group but this farmer group could be said to be less active because the farmer group rarely held a meeting. The benefit of farmers in Kaluppini village following a farmer group is to get free seeds and can buy fertilizer at a lower price. However, the seeds that are distributed by the farmer Group have a quality that is not good so that the farmers in Kaluppini village prefer to buy seedlings themselves instead of using the division seed from farmer groups.

In the processing of yellow corn planting, the tools needed by the farmers only sprayer and hoe, but there are also farmers who only have a sprayer so that farmers borrow to other farmers. Farmers in Kaluppini village use NPK fertilizer, Urea fertilizer, and Za fertilizer. Processing of corn farmland in Kaluppini village is planting, fertilizing, maintenance, and harvesting. Farmers do not do the clothesline because after harvesting farmers directly sell their harvest to the Piner traders. In the process of planting, fertilization, maintenance, and harvesting the most in need of labor is the harvesting process. Harvesting is done by mutual assistance by the people of Kaluppini village in turns.

### *3.3. Social Relations*

According to Spredley and McCurdy in Ramadan, social relations or social relationships are interwoven between individuals lasting in a relatively long time will form a pattern, the pattern of this relationship is also referred to as a pattern of social relations. (Spredley dan McCurdy, 1957 in Ramadhan, 2009). In the pattern of production and consumption patterns in the village, Kaluppini formed a social relationship in the Highland farming community. The relationship between sustainable

agriculture and climate change adaptation could be used to justify more government support for sustainable agriculture policies and programs [1].

Overall, 58% of the farm households adapted their farming to climate change. Changing crop varieties, changing planting dates, planting of shade trees, and changing fertilizers were the main adaptation methods implemented by farm households in the study area. The results from the binary logistic model reveal that education, farm experience, household size, land area, tenancy status, ownership of a tube well, access to market information, information on weather forecasting, and agricultural extension services all influence farmers' choices of adaptation measures. The results also indicate that adaptation to climate change is constrained by several factors such as lack of information, lack of money, resource constraints, and shortage of irrigation water in the study area. The findings of the study suggest the need for greater investment in farmer education and improved institutional setup for climate change adaptation to improve farmers' wellbeing [12].

Initially, the farmers in Kaluppini village cultivated rice fields, but due to the uncertain season and frequent dry water, the rice has begun to be planted so that the harvest is not maximal. Water shortage has happened 5 years until the farmers in Kaluppini village little by little have switched. Initially, still very few farmers are switching because they think the harvest is still more profitable, but there is currently no farmer who planted rice in the village Kaluppini, and this happened already 2 years. Because it is not possible to plant rice; eventually, the farmers planted white corn, but white corn can not be sold so that the harvest farmers only consumed themselves. Then they began to know the yellow corn from the extension that came, so they switched again to the yellow corn because the yellow corn could be sold again. Nowadays, the farmers in Kaluppini village have planted yellow corn. In planting corn, farmers have also been slipped with peanut plants, but they think planting nuts are not beneficial because the crop is not productive, so they no longer intersperse the crops of farmers with peanut plants. Until now, farmers are still planting yellow corn because, until now, this plant is beneficial for farmers in Kaluppini village.

Farmers are more likely to put themselves in a context where they are exposed to vulnerability and livelihood risks, which in turn leads to livelihood vulnerability [13,14]. Therefore, farmers interact with each other to get solutions from the problems they face.

All farmers in Kaluppini village are members of the farmer group, but the farmer group in Kaluppini village is less active because they rarely hold a meeting among farmers. Counseling is also rarely held. It is only held when the farmers ask the presence of extension. The influence of farmer groups on farmers' land in Kaluppini village can be said to be less influential because of the lack of active meetings and socialization. Fertilizers and pesticides can be obtained from farmer groups obtained at a lower price, in addition to fertilizer and pesticide unisex free seed Division by farmer Group. But the quality of the seeds given is not very good, so that the farmers in Kaluppini village bought their own seeds for their land. Good seedlings to use are BISI 18.

#### 4. Conclusion

The form of adaptation of farmers in Enrekang, which is the pattern of crop from rice commodity into yellow corn so that farmers in Enrekang can still fulfill their daily needs. With the form of adaptation conducted by the people in Enrekang will establish social relations.

#### Reference

- [1] Wall E and Smit B 2005 Developing Agritourism in Nova Scotia: Issues and Challenges Developing Agritourism in Nova Scotia: Issues and Challenges *J. Sustain. Agric.* **21** 37–41
- [2] Kuang F, Jin J, He R, Ning J and Wan X 2020 Farmers' livelihood risks, livelihood assets and adaptation strategies in Rugao City, China *J. Environ. Manage.* **264**
- [3] Ventec P.A. Verweija A links open overlay panel V. D L W V J S J W M-M d. 2010 Almond farm profitability under agroecological management in south-eastern Spain: Accounting for externalities and opportunity costs **183**
- [4] Fang Y P, Fan J, Shen M Y and Song M Q 2014 Sensitivity of livelihood strategy to livelihood

- capital in mountain areas: Empirical analysis based on different settlements in the upper reaches of the Minjiang River, China *Ecol. Indic.* **38** 225–35
- [5] Sugiyono S 2017 *Metode Penelitian Kuantitatif, Kualitatif, dan R&D* (Bandung: CV Alfabeta)
- [6] Wiraratha 2005 *Metodologi Penelitian Sosial Ekonomi*. (Yogyakarta: Andi)
- [7] Pradhan N S, Sijapati S and Bajracharya S R 2015 Farmers' responses to climate change impact on water availability: insights from the Indrawati Basin in Nepal *Int. J. Water Resour. Dev.* **31** 269–83
- [8] Gebrehiwot T and Van Der Veen A 2013 Farm level adaptation to climate change: The case of farmer's in the ethiopian highlands *Environ. Manage.* **52** 29–44
- [9] Mertz O, Mbow C, Reenberg A and Diouf A 2009 Farmers' perceptions of climate change and agricultural adaptation strategies in rural sahel *Environ. Manage.* **43** 804–16
- [10] Tessema Y A, Aweke C S and Endris G S 2013 Understanding the process of adaptation to climate change by small-holder farmers: the case of east Hararghe Zone, Ethiopia *Agric. Food Econ.* **1** 1–17
- [11] Bryan E, Deressa T T, Gbetibouo G A and Ringler C 2009 Adaptation to climate change in Ethiopia and South Africa: options and constraints *Environ. Sci. Policy* **12** 413–26
- [12] Abid and Bilal M 2015 Farmers' perceptions of and adaptation strategies to climate change and their determinants: the case of Punjab province, Pakistan. *Earth Syst. Dyn. Discuss.* **6** 225–43
- [13] Alam G M, Alam K and Musthaq S 2016 Influence of Institutional access and social capital on adaptation decision: empirical evidence from hazard-prone rural households in Bangladesh *Ecol. Econ.* **130** 243–51
- [14] Qasim S, Khan A N, Shrestha R P and Qasim M 2015 Risk perception of the people in the food prone Khyber Paktunkhawa Province of Pakistan *J Disaster Risk Reduct* **14** 373–8

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