

Variety of Rural Women's Capital Against Climate Change in the Midst of Subordination

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Abstract

Climate change causes the emergence of various phenomena in social life. This phenomenon has a tendency to increase uncertainty over the fulfilment of food, clean water needs, health, to the household economy in various communities in rural Indonesia. Women and children are the vulnerable groups who bear more of the burden of climate change. In reality, women are indirectly required to be able to strategize to meet family needs in the midst of the vulnerability of life due to climate change. The strong patriarchal pressure on Indonesian society makes the role of women often invisible and not taken into account in seeking household resilience, especially in rural and coastal areas. This paper aims to identify the characteristics and raise the story of rural and coastal women in Indonesia in the face of climate change. Another thing identified in this study is the variety of strategies used by women, as well as the challenges of subordination they experience. This study was conducted using a literature study method as well as collecting qualitative field findings on the experiences of women facing climate change in various regions in Indonesia. This study draws on the literature from 2010 to 2020 and compares it with field findings on the experiences of women in rural and coastal areas in Java and East Nusa Tenggara in the period 2019 – 2022. The results show that rural and coastal women are proven to continue to carry out various adaptation strategies that tends to be dominated by social capital in facing the challenges of climate change even though its role is not taken into account as a struggle within the community.

Keywords: rural, women, climate change, coastal, capital

Introduction

Every generation that is born into the world faces its own crisis. For the current generation, one of the major crises faced is climate change. According to the Directorate General of Climate Change Control of the Ministry of Environment and Forestry of the Republic of Indonesia (2017), climate change refers to significant changes to climate, air temperature, and rain fall ranging from decades to millions of years. This is due to the increasing concentration of carbon dioxide and other gases in the atmosphere, which causes the greenhouse effect. Furthermore, climate change can also be defined as a significant change in the average state of the climate or its variability over a long period (decades or longer). The impacts of climate change are profound and can be found in many aspects of life. Decreased water quality, reduced water quantity, habitat alteration, species extinction, decreased forest quality and quantity, increased greenhouse gases, reduced agricultural areas, and decreased agricultural productivity are just a few examples of the massive impacts.

Meanwhile, the United Nations (UN) (2022) states that climate change is a long-term change in temperature and weather patterns. Essentially, these shifts occur naturally, as can be observed through variations in the solar cycle. However, with the growth of industrialisation that began in the 1800s, human activity became one of the causes of this crisis. The burning of fossil fuels such as coal, oil, and gas, which are widely used around the world, produces greenhouse gas emissions that act like a blanket around the earth, generating solar heat and raising temperatures.

Earth has been 1.1°C warmer in the last ten years than it was in the 1800s, with the warmest on record from 2011 to 2020. If not addressed, the impact of disasters such as droughts and floods will be more severe, especially on vulnerable groups. In this regard, the UN said that small islanders and population of developing countries can be categorised as vulnerable groups. Climate change impacts, such as sea level rise and saltwater intrusion, have intensified to the point that entire communities have had to relocate. In addition, prolonged droughts

can lead to famine in some vulnerable regions. In the future, the number of “climate refugees” is expected to increase (UN 2022).

Then, when examined more deeply, in vulnerable groups scattered around the world, women are the ones who are most affected. From a socio-economic perspective, women generally experience subordination, which is an assessment or assumption that a role performed by one sex is inferior to another (KPPPA 2022). Climate change exacerbates this position. Not only subordination, women also experience gender injustice, which results in different vulnerabilities when facing climate change. Therefore, the Ministry of Women's Empowerment and Child Protection (Kementerian Pemberdayaan Perempuan dan Perlindungan Anak/ KPPPA) of the Republic of Indonesia published General Guidelines for Gender-Responsive Climate Change Adaptation/CCA (Adaptasi Perubahan Iklim /API). These Guidelines, published in 2015, contain strategies for gender integration in CCA, CCA programmes that include sectoral programmes and core activities, as well as governance ranging from organisation, mechanisms, and monitoring and evaluation of CCA. Through this Guidelines, KPPPA emphasises that in terms of potential environmental crises due to climate change, social relations between men and women become unequal due to the different experiences of men and women during and after the climate change crisis. This gender inequality creates various forms of gender injustice, one of which is the double burden. For example, in agricultural communities, unpredictable weather causes crop failure. To be able to continue supporting their families, women farmers will look for other sources of income in their home areas and continue taking care of domestic work while men farmers migrate to find other jobs. Moreover, climate change that causes natural disasters will cause damage to infrastructures and laws and increase competition for food and other resources. When these natural disasters hit communities where discrimination against women still exists, women become more vulnerable and can become victims of disasters that lead to death.

Among the impacts of climate change, food and clean water crises are threats felt by vulnerable groups, especially women and children. Food crisis has increased childhood malnutrition and maternal and child mortality rates. Meanwhile, clean water crisis also contributes to child mortality rate of 34.6% in third world countries. About 5 million children die each year from diarrhoeal diseases due to clean water crisis.

Nevertheless, the experiences of women outlined in previous studies show the resilience of women in their efforts to respond to various problems that arise due to the effects of climate change. This condition then gave birth to the term women as “agents of change” (Oxfam Canada in Latifa A. & Fitranita 2013).

Women in rural and coastal areas experience multiple impacts due to climate change. A study conducted by Arham & Adiwibowo (2022), for example, states that the impact of climate change in 2019 in Java Island was very significant, especially with regard to food supply. Some of the variables that have changed significantly include: increased air temperature, changes in rainfall, and extreme climates that cause drought. Some coastal communities in Java also felt the impacts of climate change in the form of abrasion and tidal flooding due to sea level rise (Sunarti & Apriliasari 2015). Akbar et al. (2017) state that due to climate change, fishing accidents at sea have increased and are closely related to poverty in fishing communities.

According to Kaho (2021), in his presentation on climate change and disaster in East Nusa Tenggara in the period 2020 to 2021, there was a significant increase in disaster risks at various points in East Nusa Tenggara due to global temperature rise. These disaster risks include floods, droughts, and forest fires. Basically, East Nusa Tenggara is relatively drier than other parts of Indonesia. However, climate change has significantly shifted the number of wet and dry months, resulting in significant and even extreme impacts on food provision and disasters.

Thus, this research aims to elaborate the impacts of climate change on women in rural and coastal areas in Java and East Nusa Tenggara from the perspective of ecofeminism and various social capital. This paper aims to identify the characteristics and stories of Indonesian rural and coastal women in addressing climate change. Other issues identified in this research include various strategies used by women, as well as the challenges of subordination experienced.

Research Methodology

This research draws on literatures from 2010 to 2020 and compares them with field data on women's experiences in rural and coastal areas in Java and East Nusa Tenggara in the period 2019-2022. The results show that rural and coastal women are proven to continue to carry out various adaptation strategies that tend to be dominated by social capital in facing the challenges of

climate change even though their role is not taken into account as a struggle in the community.

This research uses a literature study method from reliable sources as well as a set of field data collected from several communities in Java and East Nusa Tenggara. There are eleven literatures that were referred to in the literature study method. These eleven literatures were published between 2010 and 2020. Each piece of literature was analysed in relation to subordination to similarities in the patterns.

The field data come from qualitative experiences of Tapawallabadi women's group in Waingapu City, East Sumba, NTT and the Karangantu coastal fishing community, Kasemen District, Serang City, Banten Province. The data on these field experiences were collected during 2019-2022. The selection of locations was done incidentally, in conjunction with the implementation of other activities related to exploring community experiences of their food fulfilment and climate challenges. The data collected focuses on women's experiences in dealing with climate change over the last 4 years until 2022. Data was collected through in-depth interviews with 5 key informants for each research location. The selection of key informants was done purposively by considering the representation of women in the community who are facing climate change challenges in fulfilling family food.

Climate Change Indications in Java and NTT

Since 1900, Indonesia has experienced a 0.3°C increase in temperature accompanied by a two to three percent decrease in annual rainfall over the last hundred years (Hulme & Sheard in Latifa & Fitranita 2013). However, the decrease in rainfall differs between regions. In southern part of Indonesia, there is a decrease in rainfall (such as in Java, Lampung, South Sumatra, South Sulawesi, and Nusa Tenggara), while an increase in rainfall can be found in northern part of Indonesia (such as in most of Kalimantan and North Sulawesi (Boer & Faqih in Latifa & Fitranita 2013).

The Centre for Population and Research - Indonesian Institute of Sciences (Pusat Penelitian dan Kependudukan-Lembaga Ilmu Pengetahuan Indonesia/ PPK-LIPI) states that in 2010-2011, agricultural and fisheries areas in Lamongan Regency were vulnerable to climate change. The condition felt by the community in the fisheries area is that the season is unpredictable, making it difficult for fisherfolks to determine when to go to sea. As a result, the frequency of fishing decreases

and the catch decreases. Women respond to this situation by engaging in productive spaces, although in the end the choice to deal with the lack of household income leads to a double burden: a domestic role that is not diminished, coupled with a productive role that is also carried out.

Meanwhile, in agricultural areas, erratic seasons make it difficult for farmers to determine the planting season for rice and secondary crops. Various types of diseases such as rice blast also arise and result in rice decreased rice production (Latifa & Fitranita 2013). Some male farmers then decide to seek other livelihoods, one of which is to become migrant workers or TKI (Tenaga Kerja Indonesia). From interviews conducted by Latifa & Fitranita (2013), it was found that farmers who go outside the region to earn a living do not regularly send money to their wives. To cope with this condition, farmers' wives are forced to find ways to survive. Unlike men, women tend to stay and continue living in their home areas by strategising in the form of finding alternative income.

Furthermore, Latifa and Fitranita (2013) reveal that due to changes in rainfall patterns, Lombok Island was hit by drought and extreme rainfall in 2010 and 2011. As a result, cocoa and tobacco plantation sectors, which are the main commodities in this region, have declined dramatically. Ramadhani and Hubeis (2020) say that food crop agriculture and horticulture belong to the sub-sectors that are most vulnerable to changes in rainfall patterns because horticultural crops are generally annual crops that are relatively sensitive to excess and lack of water. This vulnerability is strongly related to land use systems, soil properties, cropping patterns, soil management technology, water, crops, and varieties.

Natural disasters due to climate change have also hit Gekbrong Village, Gekbrong Sub-district, Cianjur District, West Java Province. In 2007, the village experienced landslides and in 2012, a major flood washed away three junior high school students. This tragedy encouraged farmers in Gekbrong Village to carry out climate change adaptation and mitigation movements. This initiative inspired many parties, and Gekbrong Village was appointed as the only village in West Java worthy of being a pilot village in climate change adaptation and mitigation efforts by the Ministry of Environment and Forestry in 2013 (Ramadhani & Hubeis 2020).

Mustangin (Al-Farisi et al. 2020) examine the climate crisis, gender, and vulnerability of women farmers in Karanganyar Regency, Central Java Province. Referring

to the regency's climate vulnerability profile and disaster trends, Karanganyar area is among the affected areas. The observations of the BMKG Climatological Station Semarang in collaboration with PUSLITBANG FP-UNS Jumantono Climatological Station show that Karanganyar Regency experienced an increase in the average temperature trend of 0.017% per year and an increase in rainfall trend of 0.03% per year. This phenomenon has affected farming households not only physically but also socially. When examined further, the affected groups include farmer, women, female-headed households, children, people with disabilities, and informal workers.

Indications of climate change are also found in Larangan Village, Candi Sub-district, Sidoarjo District, East Java Province. Darmawati (2019) suggests five indicators of climate change in Larangan Village, namely irregular rainfall patterns, increased air temperature, changes in water availability in the dry season, and damage to cultivated plants. The impact of irregular rain patterns is that the rainfall is unpredictable and delayed from the expected start of the rainy month. Meanwhile, the increase in air temperature results in hotter temperatures and can trigger extreme hot weather. In terms of changes in water availability in the dry season, the impact felt by communities is the decline in water quality and well water containing iron. The last indicator is damage to cultivated plants, causing pests and damage to cultivated plants.

The study conducted by Arifah et al. (2021) tells that the frequency and intensity of extreme weather causing drought and flooding will threaten the stability of food fulfilment and the household economy. Climate change is causing uncertainty in livelihoods, resulting in declining purchasing power and household consumption. Therefore, women farmers are forced to provide food with less nutrition than normal. In times of crisis, women and girls are forced to reduce their intake so that male family members can continue to eat normal portions because they are considered the 'main breadwinners' (Arifah et al. 2021).

Stories of Subordination and Climate Change Adaptation Strategies

Subordination, which is a form of gender injustice, is an important issue that must be addressed. Gender injustice itself, according to Fakhri (2013), can occur in various forms of injustice such as marginalisation or the process of economic impoverishment, subordination or insignificance in political decisions, stereotype formation or through negative labelling, violence, longer and more workloads (burden), and socialisation of gender

role ideology. In subordination related to the impacts of climate change, the condition of women workers is of particular concern. Fakhri (2013) divides human rights of women workers into two perspective frameworks, namely based on conditional and structural characteristics. Conditional analysis of women workers discusses the plight of workers as a whole (male and female workers) in terms of physical conditions, minimum wage, wage discrimination between male and female workers, working conditions concerning occupational safety, and the right to organise. Structural analysis looks at women's labour rights from the perspective of women workers' position within the overall structure of social formation.

Women have different experiences from men and in gender mainstreaming thinking, one of the causes of inequality between men and women is the failure to understand the different experiences, aspirations, and needs of men and women's roles in development. The levelling of experiences has led to discriminatory policies, stigma, and violence that marginalise both men and women in the context of development (Wasti 2017). At one point, subordination became a daily situation faced by Indonesian women.

The significant role of women is also largely overlooked because the patriarchal construction in society places women's work in the domestic, social, and productive spheres as part of women's responsibilities. Ironically, this negation of women's roles, work, and labour is even preached from religious pulpits (Mulia 2022). In the end, the legitimisation of the idea that women are relegated to the shadows of men is firmly rooted in Indonesian society.

The subordination of women does not necessarily stop women in rural Indonesia from taking a role in supporting communities to face the challenges of climate change. Although on the one hand, it shows how deep the subordination has been, when women no longer know that they are subordinated. Here are some of the experiences of women from two regions in Indonesia and their strategies for dealing with climate change and the subordination they experience. The field data in this paper will further narrate how women's subordination makes development policies to deal with climate change biased.

Mothers' Groups and Hunger Season in East Sumba Regency

East Sumba is one of the districts in East Nusa Tenggara that feels the impact of climate change quite significantly. This situation is exacerbated by the history

of changes in consumption patterns experienced by the people of East Sumba during the New Order period, when the food regime at that time encouraged rice to become the main food commodity. East Sumba has a very different agroecosystem from other rice-producing regions in Indonesia, such as Java, Bali, and Sulawesi, so intensive rice cultivation will require many ecological interventions. Locations that have sufficient suitability for rice cultivation are also very limited and tend to cluster in a few areas (Banjarnahor & Simanjuntak 2016; Killa 2021).

In addition to experiencing 'ethnicisation', East Sumba, as recorded by the People's Coalition for Food Sovereignty (Koalisi Rakyat untuk Kedaulatan Pangan/KRKP) in 2013, also experienced a massive locust infestation that migrated from Australia to the North. Upon reaching NTT, particularly the village of Mbatakapidu, thousands of locusts (*migratory locusta*; *locusta migratoria*) destroyed hundreds of hectares of cornfields that were nearing harvest time. At that time, a severe famine hit the village.

Mbatakapidu Village is an illustration of the hunger situation that has hit the majority of villages in East Sumba. According to KRKP (2013), the Mbatakapidu village government in 2010 then encouraged villagers to replant vacant lands and yards with a variety of tubers, which are basically a source of local carbohydrates. During this period, Tapawallabadi Women Farmers Group (KWT) was formed as a forum for women of the village to work on replanting local carbohydrates. This group later became one of the pioneers of resistance efforts in Mbatakapidu Village.

According to the mothers (Mama), who are members of Tapawallabadi group in interviews conducted in 2019, before almost the entire East Sumba community made rice the main food crop in around 1998, Sumba community had a source of carbohydrates obtained from tubers and secondary crops such as corn. These food crops were cultivated in family-owned fields and yards. Before the change in consumption patterns, women who were culturally constructed for domestic roles could more freely serve food for their families by harvesting tubers and crops from their gardens, or those that had been stored in the house from previous harvests.

The situation changed when rice was introduced as the main source of carbohydrates: the cultivation of tubers in East Sumba declined, replaced by secondary crops and partly by field rice, which tends to have a higher probability of crop failure than tubers. The domestication of tubers was replaced by secondary crops and tubers were left to grow wild in the forest.

When it is hungry season, we go into the forest to dig yams until we get them. It is very hard to find sweet potatoes. We then clean them in the river for days before eating...only now we are planting sweet potatoes in our yard. We will take them when we are hungry. People say El-Nino delays the rain, resulting in many crop failures. Then there is no money to buy food (Mama F, 2019, October interview).

Climate change has made the arrival of rain and dry seasons uncertain, causing crop failure to occur frequently in East Sumba (Oru 2013). Women who are charged with domestic activities must then look for alternative food sources to the forest to dig wild tubers. This situation puts an additional burden on women to provide food for their families. Just like the role of women, this local source of carbohydrates starting to be subordinated to a 'second-class' food source, which is only sought after during critical situations. This situation is the result of thinking about solving food problems that do not see women and their role in decision-making; when decision-makers both at the government and donors level made rice as a shortcut to solving food problems in East Sumba.

This *gali ganyong*, even if there is no rain, is still good in the soil. This is what we eat. It is strong. Just leave it in the ground. When you need it, you can dig it up. On average, we at Tapawallabadi plant this near the house. Let me show you how to dig it (Mama F, 2019, October interview).

One of the strategies carried out by the mothers in East Sumba is to form groups, which seek productive activities through groups, such as weaving, attending training, taking care of food gardens, and other activities. Tapawallabadi as a women's group in East Sumba has become one of the spaces for women, who were initially constructed to only play domestic roles, to have space to show their existence. Through this group, women's work in seeking family food and efforts to strengthen financial capital through group savings are recognised by many parties.

Many of my daily activities involve weaving. In the morning, after finishing the housework, I roll the yarn. After that, I prepare lunch, then roll the yarn again. In the afternoon, I feed the pigs and water the garden. Then, I continue to roll the yarn, prepare dinner, and rest (Mama Y, 2019, December interview).

Now, the women's group will be informed of everything. We get a lot of training calls. Any member can join. In the group, there is also a saving account. Although it is not much, it can be used when the children want to go to school, or when there is a party (Mama K, 2020, February interview).

Through the group, the mothers build social capital among women who would otherwise be invisible and unconsidered to emerge in public spaces. This social capital then paves the way for increased human capital through the opportunity to gain the confidence to learn new skills and knowledge that would otherwise be denied to these 'unseen' women. These two capitals then encourage the growth of financial and physical capital. Social capital becomes a solution to get around the low natural capital that has already declined as a result of the subordination experienced by women in East Sumba.

Mending (*Mewiwil*)' Hope against the Tide: Stories of Women in Serang City

Unlike the mothers in East Sumba, the women-wives of crab fishermen in Karangantu, Serang City, Banten Province become family workers for their husbands who are known as crab fishermen. Almost all of their time is spent on *mewiwil* or fixing the crab nets that their husbands will use to go out to sea to catch crabs. Every day, in addition to doing domestic chores, the wives of the crab fishermen will hold nylon threads and *wiwil* tools to fix broken or detached net connections.

When I am fixing the nets (*ngewiwil*), I forget about time. After cooking and taking care of the house, I will go back to *ngewiwil*. I will do it until late at night... I am helping my husband. If I am not here, he will not be able to do it. For crabs, we need a lot of nets. If you want to catch a lot of crabs, you need more nets (Mrs N-wife of a crab fisherman, 2022, August interview).

In addition to helping with *mewiwil*, the wives of crab fishermen act as intermediaries for their husbands (fishermen) to sell their crab catches to the boss. The boss is a financier or middleman, who takes the catch of Karangantu fishermen, for further processing. The relationship between the fishermen's wives and the boss is a patron-client relationship. The wives can borrow or request for new nets or ask for other financial favours from the boss, and in return, they are morally bound to always sell their catches to the boss at a predetermined price. Usually, the price set by the boss is always below the market price.

Yes, the boss' price is different (lower) from the market price. But I always sell to the boss... yes. I am the one who sells. My husband is already at sea. I will contact the boss... for example, if I need a net, I just say. When my child is sick, I will also tell the boss: please lend me money, boss... my child is sick, like that. Yes, if the price falls, we get even less. But later we can still borrow from the boss (Mrs R-wife of a crab fisherman, 2022, September interview).

Women play an important role in ensuring that the catch is sold to the wider market. The same situation also occurs in the results of Latifa & Fitranita's study (2013), which tells that although women are said to bear the brunt and are the group that suffers the most from climate change, this group also has a high capability to survive and to support their households when there is a drastic decrease in income. The interviews show that it is women who will generally neglect the fulfilment of their needs in favour of prioritising the needs of the family in the face of climate stress.

The women here *ngewiwil*. If not, I do not know how to cover the capital. *Ngewiwil* is all-day long work (Mrs N-wife of a crab fisherman, 2022, August interview).

The role played by the fishermen's wives is quite significant. However, again, their story is not far from the story of subordination. No government programmes or assistance are directly addressed to fishermen's wives as they are 'invisible' and only serve as family labour (Jumiati 2018, Darmawan et al. 2021). Law No. 7/2016 on the Protection and Empowerment of Fishermen, Fish Raisers, and Salt Farmers, for example, does not specifically mention what kind of protection the state provides to fisherwomen or women involved in fishing households. The discussion of women appears in Chapter V on the Implementation of Empowerment, which states in Article 45 that empowerment of fishermen, "... pays attention to the involvement and role of women in the fishermen households, fish raiser households, and salt farmer households...". Women's work in post-harvest processing of small fish and fishermen's bycatch is often claimed as their participation in government programmes. In fact, the efforts of these women are their initiatives, which may be part of the tactics or strategies chosen to support the fulfilment of family needs. This claim is also not accompanied by incentives that can be utilised to develop women's capital, whether financial, human, social, physical or natural.

Training? I do not think there is any. There are also women who are part of Joint Business Group (Kelompok Usaha Bersama/KUB), but I do not know what their activities are. As for the crab, we just sell it directly to the boss, we do not process it (Mrs R-wife of a crab fisherman, 2022, August interview).

This situation is similar to the argument of Dewy & Umar (2020) and Dewy et al. (2012) that criticises national climate policies for not being gender-responsive. The understanding of gender and climate change in both national ministries and local governments is still weak.

Women are only seen as a vulnerable group that is the target of adaptation climate action, so gender and the word 'women' are only embedded to add strength to the narrative of the programme. Another criticism is that government policy budgeting is not gender responsive. There is no budget available to conduct gender impact studies of existing climate policies, engage gender experts, and make efforts to reduce vulnerability and gender inequality due to climate change and climate change responses.

Mayastuti & Sari (2016) in their study suggest that as the most vulnerable group to climate change, women are often underestimated as decision makers in the domestic and public spheres. Vulnerability and non-neutrality of government policies towards women's rights must be addressed through the implementation of climate change adaptation education.

If my husband goes, I just pray a lot. It feels like it is getting more and more unpredictable when it rains and when it does not. Usually when it rains, my husband does not go. But sometimes when it rains, he catches a lot. That is the point of being a sea person. You have to deal with the waves. I do not go to the sea, I just stay here. I take care of the house and the household (Mrs R-wife of a crab fisherman, 2022, August interview).

The issue of climate change is not new to the wives of Karangantu crab fishermen. They are accustomed to utilising strategies to save and manage their financial capital as best as possible. The uncertainty of fishing activities has become an everyday concern for fishermen and their families, including the women. When the fishermen (husbands) or their sons come home from fishing with little or no results, these women will use their social capital, namely patron-client relations with the boss to cope with their needs with the 'moral debt' that is constantly maintained. In this context, the relationship with the boss becomes a safety net for fishermen's wives to survive during lean times.

When we catch more, we have a lot, but when we catch less, we have nothing. We borrow from the boss. Sometimes we need to save, but that is how it is, it is hard to save as fishermen (Mrs N- wife of a crab fisherman, 2022, September interview).

Climate change for crab fishermen's wives is part of their natural capital. The sea that gives and the sea that 'does not' give. There are times when these women have enough and even more financial capital. There are also times when the uncertainty of the weather leads to periods of scarcity (*paceklik*) that require women to 'step

up' and strategise, mobilising their social capital to ensure their family's needs are met. Although never taken into account - because they are not considered fishermen - these fishermen's wives have a very significant role in maintaining the dynamics of the survival of the Karangantu coastal community.

Ecofeminism and Various Women's Capitals against Climate Change

The issue of subordination related to climate change can be explained by the theory of ecofeminism, which is a theory and ethical movement that breaks down anthropocentrism. Anthropocentrism tends to prioritise humans over nature. Ecofeminism also challenges androcentrism, which is a male-centred ethical theory. Based on this, it can be said that the domination of men over nature and women has led to a severe ecological crisis and humanitarian crisis. Therefore, ecofeminism emerges as a movement identified with women who have a special task to do in difficult times due to the destruction of nature (Shiva & Mies 2014).

The idea of ecofeminism began to be discussed since around 1974, then developed when Shiva (1989) in her writing states that women were able to mobilise defence for the environment. Sundberg (2015) further states that ecological issues cannot be separated from their relationship with political economy and vice versa. All three are interconnected and founded on gender relations between men and women, particularly pointing to the relationship between women's oppression and the exploitation of nature.

In the Indonesian context, Indirastuti & Pratiwi's (2019) article shows that interventions in dryland ecosystems in Kalimantan have essentially displaced women from their living space. This can be seen from the difficulty of obtaining water and food sources. As a result, women are forced to take over the role of head of the family because men migrate and experience subordination in the form of not always being recognised for their role as head of the family. Women also experience impoverishment because they lose their independence and have to work as palm oil labourers.

The perspective of subordination in the perspective of ecofeminism in this paper is elaborated in relation to the capital owned by women, especially women in rural Indonesia in order to deal with climate change. Ellis (1999) states that there are at least five categories of capital owned by rural households in an effort to fulfil their needs, namely: human capital, financial capital, natural capital,

social capital, and physical capital. Household resilience strategies are inseparable from the combination of these capitals. Human capital, for example, is capital owned by individuals or groups that are human resources such as labour and certain skills in meeting needs. Examples of human capital are agricultural labour and the ability to identify food and medicine owned by women in the community.

Financial capital is the ownership of a number of assets related to finance and used to fulfil needs, such as money, savings, and loans. In the context of rural areas and women, this capital can take the form of money, jewellery, savings (Lawalu & Goba 2020) and inheritance from parents that can be cashed in to meet family needs or desires. Women in some villages, for example, are traditionally provided for by their parents when they settle down. This provision is either in the form of gold, jewellery or livestock that can be inherited on or cashed in in times of need.

Natural capital is human access to surrounding biotic and abiotic factors that provide benefits for access and even ownership of this capital. In the rural context, the availability of springs that can be accessed by women around their residence for daily needs or the shade of forests or coastal areas that are rich in food sources around their residence (Situmeang et al. 2019), can be classified in the natural capital group.

Social capital is a combination of social relations that allows individuals or groups to have shared power. There are many theories about social capital, such as Coleman (1988) and Siisiäinen (2020), which link the actions and behaviour of actors in social structures based on the social capital that exists. In the context of women's experiences, this social capital can be in the form of relationships in extended families, gathering (*arisan*), the existence of women's groups, and so on, which become a safety net for fulfilling food and other life needs (Puspitasari 2015; Mozumdar 2017; Handayani 2019; Osei & Zhuang 2020). Social capital is based on trust and organises social networks between actors who are members of it.

The last capital is physical capital. This capital is in the form of physical buildings that facilitate the fulfilment of daily needs, such as infrastructures. Some examples include roads, waterways, green open spaces, dams, agricultural lands (Purwaningsih 2021), and

other physical buildings that become tools or means of supporting the fulfilment of individual or community needs. In the rural context, for example, there are farm roads that make it easier for women to carry out on-farm activities, waterways, village street lighting, and meeting rooms that can be used for gatherings.

The experiences of the women in East Sumba Regency and the fisherwomen in Karangantu, Serang City reflect the experiences of Indonesian women in dealing with climate change. Their bargaining position, which tends to stagnate in the shadow of men, means that the contribution and variety of capital combined in order to deal with climate change tends not to be taken into account. Changes in the ecosystem of local food crops in East Sumba, which make food production vulnerable in the face of climate change, force women to bear a double burden and do not get recognition that they are the ones who ultimately sustain household life. This absence of recognition is reflected in ecological interventions that do not involve the mothers in development decision-making. The mothers make their own way through the capital they have access to. The movement carried out by these mothers is part of the ecofeminism movement that makes women work to fight climate change and is exacerbated by government policies that fail to manage agroecosystems.

The women wives of fishermen in Karangantu are also key actors who manage the majority of household capital to survive the uncertainty of the coming of the high and low seasons. The time and energy they put into *mewiwil* is seen as unpaid family labour even though the majority of their time is spent on *mewiwil*. Without women's help in *mewiwil*, fishermen (men) would not be able to prepare their crab nets in time to go to sea when the weather is favourable.

The strategies employed by the fishermen's wives reflect how ecofeminism becomes a living practice. In a form that is different from what the mothers do, the fishermen's wives understand the rhythm of nature - due to their closeness to domestic work and nature - in providing 'more' and 'less' catches. Fishermen's wives do not use group platforms as a vehicle for their resistance. They manage to mobilise the capital they have around their community to make ends meet in uncertain times due to climate change.

Table 1. Women’s community capital to tackle climate change

Capital	Capital owned & Strategy	
	Case of East Sumba Regency ²	Case of Karangantu, Serang City ³
Human	Weaving skills and knowledge. Improving skills through training in women’s groups.	<i>Mewiwil</i> skills. Human resources tend not to experience capacity building, and there is no communal strengthening of human capital.
Financial	Crating group’s savings.	Keeping a little bit of the surplus from fishing during <i>along</i> (harvest time) in the form of savings for the lean period.
Nature	Availability of germplasm of local food crops that are relatively resistant to climate change. Planting yards and going into the forests as locations of local food reserves for the hungry season.	The sea provides catchable crabs for fishermen’s household income, despite catch fluctuations due to climate change.
Social	Joining Tapawallabadi women’s group.	Maintaining patron-client ties with boss (collector); utilising kinship ties as a safety net.
Physical	There is no physical capital directly related to mitigating climate change impacts.	There is no physical capital directly related to mitigating climate change impacts.

Source: processed by the authors from primary data

In addition, the various cases of rural women’s capital that have been mentioned can also be examined through several points of the Sustainable Development Goals (SDGs), namely no poverty, zero hunger, gender equality, and climate action. The efforts of women who often look for other sources of income amidst climate uncertainty aim to release themselves and their families from poverty (no poverty). However, this condition leaves women with a double burden because women tend to stay in their original homes to take care of children between jobs while men tend to look for new sources of income in other areas when their main source of income can no longer be relied on due to climate change. This double burden is a problem that is difficult to eliminate given the understanding of the community that still considers that taking care of the family is the main task of women and has not implemented the division of tasks between men and women.

Furthermore, in the second point of the SDGs, namely zero hunger, women in the cases mentioned in the paper are trying to find alternative sources of income to prevent their families - especially young children - from starving. Rural women who do not get regular income from their husbands who work outside the city must find ways so that the income from alternative livelihoods is enough to buy basic daily food. The next SDGs point is the fifth SDGs point that emphasises on gender equality. As a major theme of this research, gender equality is an ideal

condition that must be achieved in order for women to be free from the double burden. There are many things that a woman must sacrifice in order for her family to survive amidst climate uncertainty that affects sources of livelihood. Therefore, the community’s understanding of a good division of roles in the family, especially in taking care of children, must receive more serious attention from the government so that women do not always have to experience subordination.

The last point in the SDGs that is closely related to rural women’s capital is the thirteenth point that emphasises on climate action. The climate crisis in the 21st century is one of the main environmental issues that requires cooperation between countries. Various schemes to reduce global warming have been formulated, but in reality, the needs of industry always trump the interests of the environment. As people who are very vulnerable to the climate crisis, rural women must get an additional safety net from the government so that their main living needs and those of their families are still met.

Based on the experiences of rural women, both in the agricultural and coastal contexts, it is clear that the role of women is closely related to efforts to mobilise the various capitals they have to face the challenges of climate change as a result of ecosystem interventions in the name of development. Efforts to preserve local food by the mothers is an ecofeminism movement gathered in a social group. Meanwhile, fishermen’s wives in Karangantu

mobilise the capital they can access in the fishing community. These two approaches have contributed significantly to the efforts to achieve the SDGs on poverty alleviation, zero hunger, and gender equality through safe spaces for women to gather strength together in groups and communities.

Closing

Climate change has blatantly impacted rural areas in Indonesia. This phenomenon has affected farming households not only physically but also socially as can be seen in the experiences of women in rural Java and East Nusa Tenggara in facing the challenges of climate change. In this paper, the struggle of ecofeminism is inseparable from the context of ecosystem, political and economic interventions that do not place women equally as actors who play a significant role through the management of various capitals - as well as the most vulnerable group to the impacts of climate change due to gender construction.

The subordination of rural women in Indonesia is a real situation that occurs to date. Patriarchal-biased climate change responses only exacerbate the subordination experienced by women. Women in East Sumba deal with climate change and fight subordination to patriarchal decisions in the development mindset by strengthening social capital through strengthening women's groups. The stories of fishermen's wives in Banten show that the subordination they experience is not a barrier to taking a strategic role in dealing with weather uncertainty. The wives of crab fishermen have a significant role with the utilisation of social capital, although they are less likely to be considered and have access to strengthening financial capital, human capital, and physical capital.

The reflection obtained from the stories of women facing climate change that give an overview of the context of inland agricultural communities and the context of coastal communities is that subordination is one of the root causes of decision-making in development strategies to deal with biased climate change. In the end, development decisions that marginalise and do not consider the situation of women only complicate the fulfilment of household needs in rural areas.

The experiences of rural women from the various studies described above, both in agricultural and coastal ecosystems, show that a fundamental improvement is needed in the understanding that the contribution of women's roles in supporting communities to deal with climate change is very significant. The absence of gender-

responsive climate mitigation and management plans, as well as the organisation of gender-based educational spaces in the face of climate change need to be initiated.

References

- Al Farisi, M.S. & Alfirdaus, L.K. 2020. Krisis Iklim, Gender, dan Kerentanan: Potret Perempuan Petani di Kabupaten Karanganyar, Jawa Tengah. *Journal of Politic and Government Studies*, 9(04), pp. 369—385. <https://ejournal3.undip.ac.id/index.php/jpgs/article/view/28856>.
- Akbar, T. et al. 2017. "Nelayan, Lingkungan, dan Perubahan Iklim (Studi Terhadap Kondisi Sosial Ekonomi Pesisir di Kabupaten Malang)", *WAHANA*. 68. 10.36456/wahana.v68i1.630.
- Arifah et al. 2021. "Dampak Perubahan Iklim dan Ketahanan Pangan Rumah Tangga: Sebuah Analisis Gender", *Prosiding Seminar Nasional Politeknik Pertanian Negeri Pangkajene Kepulauan*. Accessed on 13 October 2022. <https://ojs.polipangkep.ac.id/index.php/proppnp/issue/view/4>.
- Arham, I. & Adiwibowo, S. 2022. "Pengaruh Kemarau Panjang 2019 Sebagai Indikasi Perubahan Iklim Terhadap Kesejahteraan Rumah Tangga Petani Padi Desa Tenajar Kidul, Indramayu", *Jurnal Sains Komunikasi dan Pengembangan Masyarakat [JSKPM]*, 6(1), pp.86-100. <https://doi.org/10.29244/jskpm.v6i1.960>.
- Banjarnahor, D. & Simanjuntak, B.H. 2016. "Evaluasi Kesesuaian Lahan Sumba Tengah untuk Tanaman Pangan serta Perancangan Pola Tanamnya yang Spesifik Lokasi", *Jurnal Bumi Lestari*, Volume 16 No. 2, Agustus 2016, pp. 108—118.
- Coleman, J.S. 1988. "Social Capital in the Creation of Human Capital", *American Journal of Sociology*, 94, S95—S120. <http://www.jstor.org/stable/2780243>.
- Darmawan et al. 2021. "Partisipasi Nelayan dalam Memanfaatkan Pengolahan Kerang Hijau di Desa Tanggul Karangantu Banten", *Prosiding Seminar Nasional Publikasi Hasil- Hasil Penelitian dan Pengabdian Masyarakat Universitas Muhammadiyah Serang Volume 4*. Accessed on 13 October 2022. <https://prosiding.unimus.ac.id/index.php/semnas/article/download/849/858>.
- Darmawati, E.S. 2019. *Strategi Perempuan dalam Menghadapi Perubahan Iklim Melalui Program Kawasan Rumah Pangan Lestari (KRPL) di Desa Larangan, Kecamatan Candi, Kabupaten Sidoarjo*, Universitas Brawijaya, Malang.
- Dewy, P. & Umar, R. 2020. "Kebijakan Iklim Nasional (Masih Tetap) Belum Responsif Gender", *Aksi! For gender, social and ecological justice*. Accessed on 13 October 2022. <https://aksiforjustice.org/files/report/2022/May/629042531680e.pdf>.
- Dewy, P. et al. 2012. *Inisiatif Perempuan Menghadapi Skema Kebijakan Iklim*, Solidaritas Perempuan, Jakarta.
- Direktorat Jenderal Pengendalian Perubahan Iklim 2017, "Tentang Perubahan Iklim", *Kementerian Lingkungan Hidup dan Kehutanan Republik Indonesia*. Accessed on 13 October 2022. <http://ditjenppi.menlhk.go.id/kcpi/>.
- Ellis, F. 1999. "Rural Livelihoods and Diversity in Developing Countries: Evidence and Policy Implications", *Natural Resource Perspective*, Number 40, https://www.researchgate.net/publication/42765249_

Rural_Livelihood_Diversity_in_Developing_Countries_Evidence_and_Policy_Implications.

Fakih, M. 2013. *Analisis Gender dan Transformasi Sosial*, Pustaka Pelajar, Yogyakarta.

Handayani, B.L. 2019, "Memperkuat Modal Sosial Perempuan Dalam Menghadapi Bencana", *Journal Of Urban Sociology* 1, 16. Doi:10.30742/Jus.V1i1.561.

Indirastuti, C. & Pratiwi, A. 2019, "Ketika Lahan Basah Meringing: Kajian Ekologi Politik Feminis Degradasi Ekosistem Gambut di Kalimantan Tengah dan Selatan", *Jurnal Perempuan* Vol. 24 No. 4, November, DOI:10.34309/jp.v25i1.412.

Jumiati, I.E. 2018. "Analisis Evaluasi Program Pemberdayaan Nelayan Tangkap di Pelabuhan Perikanan Nusantara (PPN) Karangantu Kota Serang", *Journal Of Indonesian Public Administration And Governance Studies (JIPAGS)*, Volume 2 Nomor 1 Januari 2018, pp. 42—59.

Kaho, N.R. 2021. "Perubahan Iklim, Bencana & Nusa Tenggara Timur", *ResearchGate*. Accessed on 13 October 2022. https://www.researchgate.net/profile/Norman_Riwu_Kaho/publication/320700787_Dampak_Perubahan_Iklim_bagi_Pertanian_Di_Provinsi_Nusa_Tenggara_Timur_Alternatif_Solusi_Adaptasi_Melalui_Sintesis_Informasi/links/59f5aaf0458515547c21e385/Dampak-Perubahan-Iklim-bagi-Pertanian-Di-Provinsi-Nusa-Tenggara-Timur-Alternatif-Solusi-Adaptasi-Melalui-Sintesis-Informasi.

Killa, Y. 2021. "Identifikasi kesesuaian lahan tanaman pangan di Kecamatan Ngaha Ori Anggu, Kabupaten Sumba Timur", *Agrovigor: Jurnal Agroekoteknologi*, 14(2), pp. 138-144. doi:<https://doi.org/10.21107/agrovigor.v14i2.9069>.

Koalisi Rakyat untuk Kedaulatan Pangan 2013, *Desa Mandiri Pangan Menuju Desa Sejahtera: Model Partisipasi dan Kolaborasi Mewujudkan Kedaulatan Pangan (tidak diterbitkan)*.

KPPPA. 2022. "Glosary Ketidakadilan Gender", *Kementerian Pemberdayaan Perempuan dan Perlindungan Anak Republik Indonesia*, Accessed on 13 October 2022. <https://www.kemenpppa.go.id/index.php/page/view/23>.

KPPPA. 2015. *Pedoman Umum Adaptasi Perubahan Iklim yang Responsif Gender*, Kementerian Pemberdayaan Perempuan dan Perlindungan Anak, Jakarta.

Latifa, A. & Fitranita 2013. "Strategi Bertahan Hidup Perempuan dalam Menghadapi Dampak Perubahan Iklim", *Jurnal Kependudukan Indonesia*, Vol. 8 No. 1, pp. 53—63.

Lawalu, E.M. & Goba, M.K. 2020. "Partisipasi Perempuan Pedagang Kaki Lima dalam Meningkatkan Ekonomi Rumah Tangga Sebelum dan Setelah Adanya Covid-19", *Jurnal Ekonomi Pembangunan*, Vol. 5(3), pp. 21—30. <http://jurnal.unimor.ac.id/JEP/article/view/658/397>.

Mayastuti, A. & Sari, D. 2016. "Membangun Ketahanan Masyarakat Berbasis Gender Melalui Adaptasi Perubahan Iklim", *JOLSIC: Journal of Law, Society, and Islamic Civilization*, Vol. 4 No. 2: Oktober. DOI: 10.20961/jolsic.v4i2.50494.

Mulia, M. 2022. "Feminisme Islam di Indonesia: Refleksi, Aksi, dan Praxis", *Jurnal Perempuan* Vol. 27 No. 2, Agustus 2022, pp. 167—178.

Mozumdar, L. et al. 2017. "Relevance of social capital in women's business performance in Bangladesh", *Journal of the Bangladesh*

Agricultural University, Vol. 15, pp. 87—94. DOI:10.3329/jbau.v15i1.33533.

Oru, S. 2013. "Ketahanan Pangan Dan Strategi Livelihood Masyarakat Desa Prai Paha", *Skripsi*, Program Studi Ilmu Ekonomi Fakultas Ekonomika dan Bisnis Universitas Kristen Satya Wacana Salatiga.

Osei, C.D. & Zhuang, J. 2020. "Rural Poverty Alleviation Strategies and Social Capital Link: The Mediation Role of Women Entrepreneurship and Social Innovation", *SAGE Open*, Volume 10, Issue 2, April-June 2020. DOI:10.1177/2158244020925504.

PBB. 2022. "Apa Itu Perubahan Iklim?", *Perserikatan Bangsa Bangsa Indonesia*, Accessed on 13 October 2022, <https://indonesia.un.org/id/172909-apa-itu-perubahan-iklim>.

Purwaningsih, V.T. 2021, "Perempuan dan Kesejahteraan Rumah Tangga Sektor Informal di Indonesia", *Jurnal Ekonomi Indonesia*, 10(1), pp. 43—54. <https://doi.org/10.52813/jei.v10i1.61>.

Puspitasari, D.C. 2015, "Modal Sosial Perempuan Dalam Peran Penguatan Ekonomi Keluarga", *Jurnal Pemikiran Sosiologi* 1, 69. DOI:10.22146/jps.v1i2.23445.

Ramadhani, F. & Hubeis, A. 2020, "Analisis Gender dalam Upaya Adaptasi dan Mitigasi Perubahan Iklim Rumah Tangga Pertanian", *Jurnal Sains Komunikasi dan Pengembangan Masyarakat*, Vol. 4 No. 2, pp. 155—166.

Shiva, V. & Mies, M. 2014. *Ecofeminism*, Zed Books, New York.

Shiva, V. 1988, *Staying Alive: Women, Ecology and Survival in India*, Indraprastha Press, New Delhi.

Siisiäinen, M. & Martti 2000, "Two Concepts of Social Capital: Bourdieu vs. Putnam", *The University of Zurich*, Accessed on 13 October 2022. <https://www.suz.uzh.ch/dam/jcr:ffffff-df42-7cac-ffff-ffffbdccdaaa/siisiainen.pdf>.

Situmeang, W.H. et al. 2019. "Reality Of Gender Relations: The Role And Position Of Workers In The Maritime And Fisheries Sector", *Jurnal Partisipatoris*, 1(2), pp. 107—116. DOI: 10.22219/Jp.V1i2.8571.

Sundberg, J. 2015. "Feminist Political Ecology", *The International Encyclopedia of Geography*, Wiley- Blackwell & Association of American Geographers.

Sunarti, S. & Apriliasari, N. 2015. "Dampak Perubahan Iklim Terhadap Permukiman Pesisir di Kelurahan Demaan Kabupaten Jepara", *TATALOKA*, Volume 17, Nomor 4, November, pp. 248—256. DOI: 17.248.10.14710/tataloka.17.4.248-256.

Wiasti, N.M. 2017. "Mencermati Permasalahan Gender dan Pengarusutamaan Gender (PUG)", *Jurnal Sunari Penjor* Vol. 1 No. 1. September 2017.

End Notes

- 1 A term used by the Karangantu fishing community. Defined as the activity of repairing damaged nets after being used to catch crabs or fish.
- 2 Primary data collected in 2019-2020.
- 3 Primary data collected in 2022.

