

## Climate Vulnerability Literacy and Adaptive Capacity Through the Climatepreneurship Strategy in Bilato Village

Moch. Rio Pambudi<sup>\*1</sup>, Syahrizal Koem<sup>2</sup>, Rakhmat Jaya Lahay<sup>3</sup>

<sup>1,2,3</sup> Geography Education Study Program, Faculty of Mathematics and Natural Sciences,  
Universitas Negeri Gorontalo

\*e-mail: mochriopambudi@ung.ac.id<sup>1</sup>, s.koem@ung.ac.id<sup>2</sup>, rjlahay@ung.ac.id<sup>3</sup>

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### Abstract

*The reality of climate change has an impact on people's lives. People need to pay attention to climate change that is happening. Climate change that occurs needs to be anticipated early on. With climate change, people need to increase their sensitivity to disaster threats. Bilato Village is located in a coastal area vulnerable to climate change's effects. The Bilato village community impacts the livelihood system due to climate change. The aim of holding the outreach is so that the Bilato village community adapts to climate change's impacts by utilizing existing natural resources besides fishing and salt. The subject of community service is the villagers of Bilato. The community service method is carried out in three ways: observation, interviews, and Focus Group Discussion (FGD). The three findings of community service include a) how to reduce the impact of climate change, b) the village government's efforts to deal with climate change, and c) the fate of fishermen affected by climate change. Based on the results, it can be concluded that climate vulnerability and adaptive capacity with the climatepreneurship strategy of socialization participants understand climate change.*

**Keywords:** *Climatepreneurship; Adaptive Capacity; Climate Vulnerability Literacy*

### 1. INTRODUCTION

The reality of climate change has an impact on people's lives. Society needs to pay attention to climate change that is happening. Unnoticed climate change will impact ecosystems (Lahay et al., 2020). The impact of climate change can cause disaster in people's lives (Koem et al., 2021). Disasters due to climate change include drought, which can trigger a shortage of water supply and forest fires. Erratic weather causes high rainfall intensity, which can cause floods and landslides (Ismail et al., 2020; Nugroho et al., 2019). Therefore, participation in this reality is determined, among other things, by the ecosystem's condition and the people's ability. Climate change that occurs needs to be anticipated early. Anticipation of climate change aims to minimize. Although humans do not feel the impact of climate change, it can cause significant ecological changes (Budiastuti, 2020). To anticipate climate change, it is necessary to increase the community's adaptive capacity, and it is essential to respond to the reality of climate change.

With climate change, people need to increase their sensitivity to disaster threats. Communities, especially youth, need to improve their adaptive capacity to become more resilient and take on roles when disasters occur and when disasters occur (Koem & Akase, 2022). The impacts of climate change resulting in natural disasters concern the community and youth (Rizka Luthfia et al., 2019). Communities need to increase their knowledge of adaptive capacity by increasing their understanding of disaster response (Koem, 2019). Thus the disaster caused by climate change can be anticipated by the community. Climate change can lead to a scarcity of necessities for survival (Fate et al., 2022). Climate change is a complex one and rapidly creates urgent subsistence needs that require understanding the factors that enable people to reap the economic benefits of adaptation and mitigation efforts. Food scarcity caused by climate change due to variable rainfall intensity causes crop failure (Hilman et al., 2019; Perdinan et al., 2018). Furthermore, the role of the community in adaptation and mitigation initiatives will increase knowledge to understand climate change and its impacts and take appropriate actions to achieve sustainable climate change.

Bilato Village is located in a coastal area vulnerable to climate change's effects. Administrative location of Bilato village, Bilato District, Gorontalo Regency. The astronomical site of Bilato village is

22° 37' 44" E to 122° 41' 9" E and 0° 30' 55" N to 0° 33' 49" N. The impact experienced by the Bilato village community due to climate change is the livelihood system. The livelihoods of Bilato people are mostly fishermen. Fishermen in Bilato village find it difficult to go to sea because of the unpredictable and unpredictable weather. Stormy weather will pose a high risk if used for fishing (Dewiyanti et al., 2019). In addition to the impact felt by fishermen, it is also felt by salt and fish farmers. The climate change that salt farmers feel is a shift in seasons; the dry season usually occurs for six months. It is unpredictable, so salt farmers find it difficult to work on their land. Fish farmers feel that unpredictable climate change causes crop failure (Alvarez-Fernandez et al., 2019). Thus, all elements of the Bilato village community feel the vulnerability of climate change.

To deal with the problems of climate change that the people of Bilato village feel by using the Climatepreneurship strategy. Climatepreneurship is an adaptation strategy to the impacts of climate change which consists of climate-smart activities that utilize locally available resources for economic empowerment and improve the social status of rural community groups (Akinbami, 2021). Community adaptation actions with the Climatepreneurship strategy, the community can take advantage of natural resources that have economic value that can be realized in coastal areas besides relying on the sea and salt. Based on the problem of the impact of climate change felt by the people of Bilato village, a socialization of climate vulnerability and adaptive capacity was carried out with the climatepreneurship strategy. The aim of the outreach is so that the people of Bilato village can face the impacts of climate change by utilizing existing natural resources besides fishing and salt.

## 2. METHOD

This community service is carried out in Bilato Village. Administrative location of Bilato village, Bilato District, Gorontalo Regency (Figure 1). The astronomical location of Bilato village is 122° 37' 44" E to 122° 41' 9" E and 0° 30' 55" N to 0° 33' 49" N. Geographical condition of Bilato village. The subject of community service is the villagers of Bilato. The residents of Bilato village who are the subjects include all elements of society, starting from village officials, fishermen, salt farmers, and residents affected by climate change. Overall, 46 residents participated in the socialization of climate vulnerability and adaptive capacity with the climatepreneurship strategy.

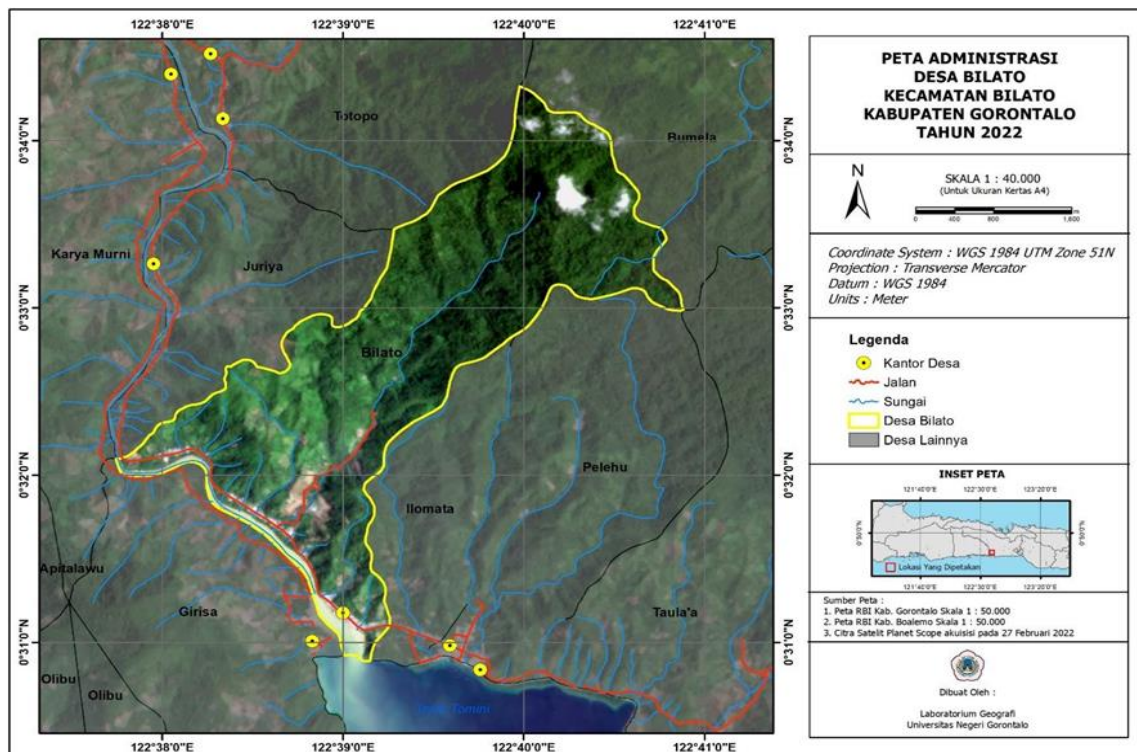


Figure 1. Community Service Locations

The material presented concerns climate vulnerability and adaptive capacity with the climatepreneurship strategy. There are three ways to use the community service method: observation, interviews, and Focus Group Discussion (FGD). Before socialization activities, observations were made to find out the condition of coastal communities and how they changed due to climate change. In-depth interviews to find out what people think about climate change, how it affects the physical and social environment, and what people are doing to deal with the risks of climate change.

### 3. RESULTS AND DISCUSSION

Community service activities were held in collaboration with all elements of the Bilato village community. This community service activity specifically discusses climate vulnerability and adaptive capacity with the climatepreneurship strategy among the Bilato village community. The result of the community service is that the people of Bilato village are still unaware of the impact of climate change. Three findings in community service have been implemented. The three community service findings include a) how to reduce the impact of climate change, b) the village government's strategy for tackling climate change, and c) the fate of fishermen affected by climate change. The three findings will be discussed in the following paragraphs.

The first finding is how to reduce the impact of climate change by increasing the community's adaptive capacity. To increase the community's adaptive capacity, it is necessary to know the impact of climate change. Natural disasters such as floods and landslides can occur due to the effects of climate change (Made et al., 2018). The most obvious impact in Bilato village was landslides because some areas had slopes without vegetation. Thus, how to increase the adaptive capacity of the community needs to know the impacts that occur. The community's adaptive capacity behavior needs to be practiced in everyday life. Communities must be able to adapt or change their behavior to better cope with current and future climate change pressures (Koem et al., 2019). The behavior that needs to be changed is awareness to protect the environment. Examples of behavior in protecting the environment by not cutting down trees in mountainous areas so that deforestation does not occur, which can trigger landslides and floods.

Obstacles in implementing community adaptive capacity behaviors are low awareness of climate change. In general, the people of Bilato village are not aware of the impact of climate change. The climate change phenomenon is not an urgent problem for the people of Bilato village. The impact that is felt does not occur directly, so the community thinks it is not an urgent problem. Indirectly, the community, especially fishermen, felt the impact, namely a decrease in fish catches.



**Figure 2. Socialization of Climate Vulnerability and Adaptive Capacity**

Source: Documentation of Thematic KKN 2022

The two results of the village government's efforts to tackle climate change. The efforts of the Bilato village government by conducting counseling. Counseling is carried out by increasing public awareness of climate change. In addition, the village government also carries out programs to minimize the impact of climate change by carrying out afforestation in landslide-prone areas (Zunnuraeni & Zuhairi, 2018). Thus the efforts of the Bilato village government to tackle climate change with counseling and afforestation programs.

The third finding is the fate of fishermen affected by climate change. The fate of fishermen is unable to go out to sea to find fish due to unpredictable weather. Climate change impacts the activities of fishermen in Bilato Village due to changes in the fishing season and disruption of the wind season. The impact is reduced due to particular difficulties in watersheds, unique difficulties in the fishing season, increased risk of going to sea and reduced fishermen's income. Thus fishermen feel a significant impact of climate change.

Climate change is putting pressure on fishermen, especially when it comes to the weather when they want to go to sea. Because the weather is unpredictable, the ability to catch fish must be more significant to reach a wider area and further distances. This is to avoid sudden bad weather somewhere. With the help of technology-enabled fishing tools and methods, fishermen can adapt even more. The provincial and district governments of Gorontalo have provided fishermen with boats and fishing gear as part of a program to help them catch more fish and earn more money.

This can help fishermen learn more about how to adapt to the Climatepreneurship strategy. Resource management is closely related to how community action plans affect an individual's ability to adapt. The ability of people to adapt to climate change depends on how well they can use their resources. Residents try to get around the problem of climate change in several places by following a similar pattern. To deal with climate change, fishermen need to have other livelihoods. Other livelihoods can help fishermen's economic conditions when not at sea (Ulfa, 2018). Fishermen can do other jobs such as farming, construction workers, coconut picking workers, and so on. Thus other livelihoods can help the fishermen's economy.



**Figure 3. Question and Answer Session**

Source: Documentation of Thematic KKN 2022

The series of material delivery activities demonstrated the achievement of the objectives marked by the increased insight of the Bilato village community in dealing with climate change. Communities can adapt to the Climatepreneurship strategy, especially fishermen. Knowledge about climate vulnerability also needs to be aware of by the Bilato village community. The achievement of activity objectives needs to be supplemented with a follow-up plan. Follow-up plans can be carried out, including; a) the village government assisting, b) reforestation to minimize the impact of climate change and c) preserving some of the fishermen's catch for sale when the weather is uncertain. Thus a follow-up plan can be carried out after the socialization activity.

#### 4. CONCLUSION

Based on the results, it can be concluded that climate vulnerability and adaptive capacity with the climatepreneurship strategy of socialization participants can help understand climate change. The advantages of the activities of participants were very enthusiastic about following the material from start to finish. Lack of activities, most people are not aware of the impact of climate change. For further development, the community can practice climatepreneurship strategies daily, especially for fishermen.

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