

THE IMPACT OF THE FOOD CRISIS AND CLIMATE CHANGE ON THE LIVES OF LOCAL COMMUNITIES

Fitriani¹⁾, Hesty Tambajong²⁾, Ransta L Lekatompessy³⁾, Fransin A Kontu³⁾, Imelda C Laode²⁾

¹⁾Association of Professor, Public Administration, Faculty of Sosicial Science and Politic Science, Musamus University, Merauke, Indonesia

²⁾Lector, Public Administration, Faculty of Social Science and Politic Science, Musamus University, Merauke, Indonesia

³⁾Expert Assistant, Public Administration, Faculty of Social Science and Politic Science, Musamus University, Merauke, Indonesia

Correspondence author's: Fitriani

Email: fitriani310878@gmail.com

Submit: 10 November 2023. Revised: 22 November 2023. Accepted: Desember 2023

DOI : <https://doi.org/10.22487/agroland.v0i0.1957>

ABSTRACT

The food crisis and climate change have become two critical challenges facing the lives of local communities in various parts of the world. This research aims to analyze and understand the impact of the food crisis and climate change on local communities and how they adapt to these increasingly complex conditions. This study uses a qualitative approach by collecting data through in-depth interviews, participatory observation, and document analysis. The research sites involve several communities in areas that are exposed differently to food crises and climate change. The results of the study show that the food crisis and climate change are seriously affecting the daily lives of local people. Decreasing food availability, shifting weather patterns, and natural disasters further exacerbate their social and economic conditions. Local communities experience difficulties in meeting basic needs such as food, clean water and proper housing. In addition, climate change also has an impact on the agricultural sector which is the main source of livelihood for local communities. Traditional cropping patterns are no longer suited to unstable weather, and pest attacks and drought often destroy crop yields. This has resulted in reduced incomes and greater dependence on government assistance or humanitarian organizations. However, this study also identified several adaptation efforts made by local communities to deal with the food crisis and climate change. Some communities have changed cropping patterns and are cultivating crop varieties that are more resistant to climate change. The community is also actively developing local resources such as fish ponds and food processing to reduce dependence on imported food. In facing this challenge, inter-community cooperation and support from the government and international institutions are key in increasing food security and adaptation to climate change. Increasing access to sustainable agricultural technologies and financial assistance for local communities can strengthen competitiveness and reduce inequalities in the face of the

impacts of the food crisis and climate change. In conclusion, this research highlights the importance of an in-depth understanding of the impact of the food crisis and climate change on local communities and adaptation efforts that can be made to strengthen their resilience. The increasing complexity of these challenges demands collective action from all parties involved to achieve sustainability and prosperity for local communities in the era of globalization and climate change.

Keywords: Climate Change, Food Crisis, Local Community.

INTRODUCTION

Food is an essential but scarce resource in many parts of the world. This crisis also leads to a food security crisis. Extreme weather makes it difficult for farmers to grow food crops. Local food production and climate change are closely related. In recent years, many natural events have been felt by the community related to erratic weather changes, especially for farmers, they have complained about the arrival of the rainy and dry seasons which are difficult to predict, thus disrupting the planting season and production. In addition, pest attacks such as wareng also attack in various places which are very detrimental to many farmers. Climate change has the impact of water scarcity, crop failure and rising food prices. The food crisis and climate change have a very significant impact on the lives of local people and can extend to various aspects of life. A food crisis occurs when an adequate supply of food cannot be met, usually due to factors such as agricultural production instability, conflict, high prices, or other factors. Climate change is caused by human activities that trigger an increase in greenhouse gases in the atmosphere, causing the Earth's average temperature to increase. These two issues are often interrelated. Food crises can be exacerbated by climate change affecting agricultural productivity, while climate change can also exacerbate food instability by creating unpredictable weather conditions. Therefore, it is important to analyze more deeply and find strategies to reduce the negative impact of these two problems on the lives of local people.

RESEARCH METHODS

This study aims to analyze and understand the impact of the food crisis and climate change on local communities and how they adapt to these increasingly complex conditions. This study uses a qualitative approach by collecting data through in-depth interviews, participatory observation, and document analysis. The research location involved several communities in areas exposed to food crises and climate change differently. The qualitative approach was chosen because it allows researchers to explore and understand the impacts of the food crisis and climate change on local communities. The collected qualitative data will be analyzed using an interactive analysis approach (Sugiyono, 2011). This implies that the process involved in qualitative data analysis is interactive and continuous until completion and data saturation. Data reduction, data presentation, and preparation of data conclusions and verification are the steps in data analysis. This will help in understanding the impacts of the food crisis and climate change on local communities. By using a qualitative approach, this research is expected to provide in-depth insight into the impact of the food crisis and climate change on local communities and how they adapt to these increasingly complex conditions.

RESULTS AND DISCUSSION

The definition of food is anything that comes from biological sources and water, whether processed or not processed, which is intended as food or drink for

human consumption including food additives, food raw materials, and other materials used in the process of preparing, processing, and/or manufacture of food or drink, as stated in Law No. 7 of 1996. food security is a condition of fulfilling food for every household which is reflected in the availability of adequate food both in quantity and quality, safe, equitable and affordable. Food security can be realized if at the macro level, at all times, sufficient food is available in sufficient quantities, in good quality, safe, equitable and affordable, while at the micro level, if each household is able to consume sufficient, safe, nutritious and according to its choice of food at any time. Productive and healthy life. Indonesia's efforts to address food security issues are experiencing problems, especially the availability of food which is far lower than the total demand for food. This is due to (1) the population growth rate in 2021 is 1.22%, in 2022 it is 1.17 and in 2023 it is 1.13%, (2) economic growth in 2021 is 3.69%, in 2022 is 5.31% and in 2023 it is 5.03% (first quarter), (3) people's purchasing power in 2021 is 1.87%, in 2022 it is 5.51%, and in 2023 it is 3.08% (July) (www.bps.go.id).

On the other hand, the phenomenon of climate change which is currently taking place is also affecting the problem of food security in Indonesia. The results of research by Boer and Subbiah (Boer R and A.R. Subbiah, 2005) reported that from 1844 to 2009 there had been 47 and 38 El-Nino and La-Nina events respectively which caused drought and floods and disrupted national rice production. Based on data from BNPB, the trend of an increase in the number of natural disasters has increased by up to 82% from 2010 to 2022. An increase in average temperature anomalies both at the global and national levels has led to an increase in the frequency of disaster events, especially hydrometeorological disasters. Data from BNPB for five months at the beginning of 2023, there have been 1,675 disaster events which were dominated by

hydrometeorological disasters by 99.1%, with details of 92.5% being wet hydrometeorological disasters and 6.6% being dry hydrometeorological disasters, the rest being geological and volcanic disasters. Wet hydrometeorological disaster, the main root of the problem is urbanization which puts pressure on the downstream environment, and land conversion both systematically and illegally, which reduces the absorption capacity, both carbon and water from upstream to downstream. Urbanization can increase greenhouse gas emissions in the form of exhaust fumes from vehicles, factories and others, resulting in unhealthy air quality. Whereas land use change usually causes a reduction in vegetation which reduces the ability of nature to absorb carbon and increases vulnerability to floods and landslides because water is not absorbed optimally. The impact of climate change does not only occur upstream, an increase in global temperatures triggers a trend of rising sea levels (rob floods). Apart from wet hydrometeorology, dry hydrometeorological disasters (karhutla) often occur in several regions in Indonesia, thus affecting air temperature.

The agricultural sector is the most affected by climate change, especially food crops. Climate change has caused a decrease in productivity and production of food crops due to increased air temperature, floods, drought due to reduced rainfall, intensity of pest and disease attacks, and decreased quality of agricultural products. Putra and Indradewa (2011) explain that an increase in air temperature in the atmosphere will be followed by a decrease in corn and soybean production, and reduced yields of rice and legume crops will potentially increase the decline in national production. Based on BPS data that there has been a decrease in the amount of paddy production, in 2020 it was 54.64 million GKG, in 2021 it fell to 54.41 million tons of GKG, and in 2022 it was 31.54 million tons of GKG. Corn production in 2020 was 29.02 million tons, in 2021 it was 23 million tons, and in 2022

it was 23.1 million tons. Soybean production in 2020 was 290,784 tons, and in 2021 it was 215,019 tons. The data illustrates that there has been a decline in food production, so that it becomes a problem for local people who depend on their livelihood as farmers, besides that it will have a big impact on Indonesian society as a whole.

The results of the study show that the food crisis and climate change have a serious impact on the daily lives of local people. The impact of the food crisis on local communities includes:

1. Public Health: Malnutrition and malnutrition have become serious problems due to the food crisis. Local people are vulnerable to disease and health problems due to lack of proper nutrition.
2. Economy: A food crisis can cause spikes in food prices, resulting in economic hardship for people who depend on agriculture or the food sector. This can trigger poverty and unemployment.
3. Food Security: Uncertainty in food supply can reduce people's food security, which means they do not have stable and reliable access to sufficient food sources.
4. Education : Food crises can force children to work or help find food, disrupting their access to education and hindering the development of their potential.

The impacts of climate change on local communities include:

1. Agriculture and Forestry: Changes in rainfall patterns and extreme temperatures can disrupt agricultural production and threaten forest sustainability. Failed harvests can result in scarcity of food and raw materials.
2. Natural Disasters: The increasing frequency and intensity of natural disasters such as floods, droughts, storms, and landslides can damage infrastructure, destroy homes, and force people to flee.

3. Public Health: Increasing temperature and changing ecosystems can affect the spread of vector diseases such as malaria and dengue fever. Local people may experience a higher risk of these diseases.
4. Resilience of Water Resources: Climate change can affect the water cycle, resulting in droughts or floods. Local communities that depend on natural water resources may face difficulties in meeting their needs for clean water.

The dwindling food availability causes a food crisis and will affect the wheels of the Indonesian economy. The food crisis causes scarcity which will result in prices continuing to soar. Prices that continue to soar will trigger conflict and affect the wheels of politics. The impact will cause high levels of hunger. In 2020, Indonesia's population will experience the third highest hunger in the ASEAN region (Southeast Asia). Apart from hunger, another impact of Indonesia's food crisis is its dependence on imports. Currently, Indonesia is importing rice with a total of 1.14 million tonnes of rice per year (Rizaty, 2021). Apart from rice, it also imported 5.53 million tonnes of sugar and 2.26 million tonnes of soybeans. If this is not immediately anticipated by the government, it is not impossible that Indonesia will experience the same thing that has happened to other countries that are experiencing a food crisis. Meanwhile, Indonesia is predicted to experience a crisis considering the population which will become 270 million people by 2020 and seeing the events that occurred in Indonesia regarding the scarcity of soybeans in early 2021, as well as imports of rice and sugar as well as other food commodities (BPS, 2008).

Strategies that can be carried out to overcome the impacts of climate change and anomalies, especially in the management of agricultural resources, are to apply short, medium and long term strategies (Nurdin, 2011), which are as follows:

Short Term Strategy

- a. Minimum tillage to reduce evaporation due to exposed soil surface.
- b. Determination of planting time is based on valid climate elements data and longer data series.
- c. Efficient use of water by calculating the water needs of plants every growing season.
- d. Grouping plants in a landscape based on the same water needs, so that irrigation can be grouped according to plant needs.
- e. Determination of the right cropping pattern for flat or sloping areas.
- f. Accelerate the planting time so that the vegetative and generative phases of the plant's water needs can be met.
- g. Application of intercropping and rotational cropping systems based on the water requirements of each plant.
- h. Selection of superior plant varieties that are tolerant to drought stress and short-lived in anticipation of the El-Nino phenomenon.
- i. Monitoring pest and disease attacks which generally occur during the long rainy season and changing season.
- j. Use of wind breaks to reduce wind speed thereby reducing water loss through evapotranspiration from the soil surface and plants.
- k. Provision of locally available mulch and organic matter to reduce evapotranspiration and maintain soil moisture and increase soil fertility.
- l. Application of soil and water conservation techniques that currently can be directly carried out by farmers, such as making rorak, water storage tanks, dead ends, water holding holes and others.

Medium Term Strategy.

- a. Continuous monitoring of the phenomenon of changes in climate elements, especially rainfall, air temperature and humidity.
- b. Repair and maintenance of existing irrigation facilities and infrastructure.
- c. Increased development of technical irrigation networks, especially in areas

where water sources are available, but many crop failures due to water shortages.

- d. Application of soil and water conservation techniques, such as check dams and ponds in drought-prone areas.
- e. Formation of water management and beneficiary institutions.
- f. Empowering farmers through coaching and mentoring to deal with changes and climate anomalies in agricultural businesses.

Long Term Strategy

- a. Planning for the development of the agricultural sector in a more integrated, systematic and comprehensive manner by considering various aspects related to the performance of the agricultural sector, especially the agro-climatological aspect.
- b. Participatory community involvement in every agricultural development plan.
- c. Patterns of good coordination between government agencies, especially those directly related to the agricultural sector through synchronization and harmonization of work programs.
- d. Regular and continuous monitoring of areas frequently affected by disasters due to climate change and anomalies.
- e. Reforestation and rehabilitation of land and forests with a watershed (DAS) approach.
- f. Utilization of technology to assist climate change prediction efforts to reduce the risk of crop failure, such as down scaling analysis models and general circulation models.
- g. Dissemination of climate and weather information in a fast, accurate and actual manner.
- h. Development of agricultural infrastructure facilities and infrastructure that require handling by the government, such as weirs and reservoirs.

In addition, what must be considered is the form of production diversification that can be developed to support food

security, including: (1). Horizontal diversification, namely developing superior commodity farming as a "core of business" and developing other commodity farming as a complementary business to optimize the utilization of natural resources, capital, and family labor and minimize the risk of business failure. (2). Regional diversification, namely developing location-specific superior agricultural commodities in a wide area according to the suitability of the agro-ecosystem conditions, thereby encouraging the development of agricultural production centers in various regions and encouraging the development of inter-regional trade.

The next thing that should rarely be considered is related to local agricultural wisdom in determining planting time based on astrology which is then combined with climate data and information. Other local agricultural wisdom is found in NTT which is directly related to soil and water conservation (*kebekolo*) which is a row of wood or branches arranged or stacked across a slope. This pile of wood/branches serves to hold down soil that has been eroded by surface runoff, so that soil erosion can be minimized.

The last thing is government policies that are pro-agriculture which is supported by Las's statement (Las I., et. al., 2011) that development policies that are not pro-agriculture will disrupt the stability of food security, worsen environmental quality, and have a negative impact on economic, social and political stability. Policies that are in favor of agriculture are:

- 1) Providing subsidies to farmers in the upstream areas to build erosion control, such as terraces and other land conservation techniques,
- 2) Provision of tax subsidies to farmers in the upstream area, by imposing that downstream area farmers pay more taxes (PBB) than upstream farmers as a form of balance in the use of land resources in a fair and wise manner.
- 3) Determination of policies at the district and/or provincial level regarding conservation-based management of

agricultural land along with its technical guidelines so that various parties are aware of the legal system and governance of agricultural land use. One of the obstacles in managing agricultural land is overlapping interests in land management. Therefore, in an effort to increase the welfare of farmers, while maintaining food security, cross-institutional synchronization and coordination needs to be carried out to ensure the implementation of agricultural development programs.

CONCLUSION

Declining food availability, shifting weather patterns, and natural disasters further exacerbate their social and economic conditions. Local communities experience difficulties in meeting basic needs such as food, clean water and proper housing. In addition, climate change also has an impact on the agricultural sector which is the main source of livelihood for the local community. Traditional cropping patterns are no longer suited to unstable weather, and pest attacks and drought often damage crop yields. This has resulted in reduced incomes and greater dependence on government aid or humanitarian organizations. However, this study also identified several adaptation efforts made by local communities to deal with the food crisis and climate change. Some communities have changed cropping patterns and cultivated plant varieties that are more resistant to climate change. The community is also actively developing local resources such as fish ponds and food processing to reduce dependence on imported food. In facing these challenges, inter-community cooperation and support from the government and international institutions are key in increasing food security and climate change adaptation. Increasing access to sustainable agricultural technologies and financial assistance for local communities can strengthen competitiveness and reduce inequality in dealing with the impacts of

the food crisis and climate change. In conclusion, this research highlights the importance of in-depth understanding of the impacts of the food crisis and climate change on local communities and adaptation efforts that can be made to strengthen their resilience. The increasing complexity of these challenges demands collective action from all parties involved to achieve sustainability and prosperity for local communities in the era of globalization and climate change.

REFERENCES

- Badan Pusat Statistik, 2008. pp. 335–58, 2017. doi: 10.1055/s-2008- 1040325.
- Boer, R. and A.R. Subbiah. 2005. Agriculture drought in Indonesia. p. 330-344. In V. S. Boken, A.P. Cracknell, and R.L. Heathcote (Eds.). *Monitoring and Predicting Agricultural Drought: A global study*. Oxford Univ. Press.
- Las, I., A. Pramudia, E. Runtunuwu, dan P. Setyanto. 2011. Antisipasi perubahan iklim dalam mengamankan produksi beras nasional. *Jurnal Pengembangan Inovasi Pertanian* 4(1): 76-86.
- Nuridin. 2011. Antisipasi Perubahan Iklim untuk melanjutkan Ketahanan Pangan. *Jurnal Dialog Kebijakan Publik* Edisi 4 November 2011.
- Rizaty. 2021. Tingkat Kelaparan Indonesia Peringkat Tiga Tertinggi di Asia Tenggara-pada-2021. datadoks, 2021. <https://databoks.katadata.co.id/datapublish/2021/11/01/tingkatkelaparan-indonesia-peringkat-tiga-tertinggi-di-asia-tenggara-pada-2021>
- Sugiyono. 2011. *Metode Penelitian Pendidikan*. Bandung: Alfabeta.