

EFFORT OVERCOME IMPACT CHANGE CLIMATE AND SUPPORTING MONEY DEVELOPMENT ECONOMY SUSTAINABLE

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ABSTRACT

The issue of climate change and global warming has now become a concern for all countries in the world. Handling climate change and sustainable development is part of the Sustainable Development Goals (SDGs). This article is a review that examines various challenges in efforts to overcome climate change and support sustainable development. From several references, data was obtained that most countries have felt the impact of climate change and global warming. Under these conditions, various efforts and policies were carried out to overcome the impacts caused. Starting from the application of the circular economy concept which is considered an anti-synthesis of linear economic activities, reducing the use of fossil fuels to carbon tax policies. However, all these policies must of course also be understood and supported by all parties. Not only the government but must involve all elements of the private sector, entrepreneurs and also the community. There is a need for awareness and participation of all parties so that the impacts of climate change can be overcome and sustainable development can be implemented. This effort is not only for the current generation but for future generations.

Keywords: Climate Change, Global Warming, Sustainable Economy.

INTRODUCTION

Environmental damage is currently the most frequently discussed issue in all countries in the world. Climate change and global warming are conditions that indicate this damage. Global warming itself is the process of increasing the average temperature of the earth's atmosphere, sea and land. The various consequences resulting from global warming are the disappearance of glaciers, the extinction of various types of animals and also the effect on agricultural products (Buleleng District Environmental Service, 2019). Currently, several countries are feeling the very significant impact of global warming and environmental damage, such as the heat wave that occurred in India. The air temperature in the country reaches the range of 45-50 °C (Prihatini, 2022). In Kuwait, the air temperature is even more extreme, reaching 63 °C. In the city of Mosquera in Colombia, there is very severe environmental pollution. The Balsillas River is full of foul-smelling foam resulting from the disposal of detergent waste (Putri, 2022). These two things prove how big the impact of environmental damage is.

Several countries have taken various efforts and policies to reduce the impact of global warming. At the international level, several countries have implemented this policy, this is in line with the objectives of the Sustainable Development Goals (SDGs) declaration. SDGs are a continuation of the Millennium Development Goals (MDGs), namely the sustainable development agenda with 17 goals, which are then divided into 169 targets. All targets are planned to be achieved by 2030, where each one is interconnected and influences each other. The 17 SDGs goals are: no poverty, no hunger, healthy and prosperous life, quality education, gender equality, clean water and adequate

sanitation, clean and affordable energy, decent work and economic growth, industry, innovation and infrastructure, reduced inequality, cities and sustainable settlements, responsible consumption and production, handling climate change, ocean ecosystems, land ecosystems, peace, justice and strong institutions, partnerships to achieve goals.

The issues of global warming and sustainable economic development are closely related to the SDGs goals. Indonesia is a country that is blessed with a strategic geographic location and this adds to its demographic bonus. With the current environmental conditions, Indonesia is of course also trying to overcome environmental damage. As a country with a large population, Indonesia of course also experiences various kinds of challenges and obstacles in its implementation. Several legislative regulations and their derivatives have been created and begun to be implemented to resolve environmental issues that already exist and have an impact on various sectors, especially the economic sector. However, this is certainly not as easy as imagined. Coordination and cooperation between stakeholders and the entire community is needed, so that the vision, mission and goals for overcoming global warming and sustainable development can be implemented according to the planned targets. Therefore, the author wants to discuss the challenges in facing the issue of climate change and its relationship to sustainable economic development

RESULT AND DISCUSSION

a. Change Climate

The climatic conditions of one country will be different from other countries. This is determined by the geographical, astronomical and topographical location of a country. Climate itself can be interpreted as the average weather conditions or atmospheric conditions at a certain time. Climate is the conclusion of changes in the values of weather elements in the long term a place or region from day to day, from month to month. Climate can also be interpreted as the weather conditions in a place or region (Handoko, 1995). Climate is a component of the ecosystem and an inseparable part of living things. Climate is closely related to the average weather conditions in a particular area over a long period of time (Husairi, 2008). The climate condition at a certain time is often called an anomaly. In general, in this world there are four types climate namely:

b. Climate tropical

This climate is generally found in countries that are located close to the equator. This climate is often referred to as a solar climate, because these countries always get sunlight all year round. Regionally, countries with tropical climates are in Southeast Asia, South Asia, Central Africa, Central America and the Middle East. Characteristics of a tropical climate: found in areas between 23.5 ° north latitude and 23.5 ° south latitude, high average temperature, high rainfall, sunlight all year round and relatively low air pressure and changes regularly.

c. Sub tropical climate

In general, this climate is divided into two, namely Mediterranean where it rains in winter and dry summer. Meanwhile, China's climate is rainy in summer and dry in winter. The characteristics of this climate are: found in areas located between 23.5o to 40o north latitude and south latitude, often referred to as a transition between tropical and temperate climates, the average air temperature in summer is not too hot and not too hot. cold in winter, has four seasons namely summer, autumn, winter and spring. Sub-tropical climates can be found in countries such as Australia, South Africa, North Korea, South Korea, China, Japan, Chile, Turkey, Iran, Iraq and Egypt.

d. Climate currently

Temperate climates are generally found in countries located between 40° to 66.5° north latitude and south latitude. Temperate climate is divided into four, namely west coast marine climate, desert climate, steppe climate, and humid continental climate with different characters. The characteristics of a temperate climate are: air pressure that often changes, sudden storms often occur and there is a lot of cyclonic air movement. This climate is generally found in European regions such as France, Germany, England, Austria, Spain, Poland, Ireland, Switzerland, Ukraine, Romania and the United States.

e. Climate cold

This climate is found in regions at the poles of the earth in both the northern and southern hemispheres. Its characteristics: the region is located above 66.5° north latitude and south latitude, in winter it is often at extreme temperatures, in summer the temperature is only cool and not too hot, it has an ice climate and a tundra climate, in summer the air is cool only lasts a short time and the winter climate of the tundra lasts a long time. There is eternal snow due to low temperatures (Winarno et al., 2019)

Economic Development Sustainable

Sustainable development is a development concept that does not only focus on meeting current needs, and without reducing, sacrificing and destroying the environment. This is done so that future generations will still have a suitable environment to live in. The sustainable development process can be seen from the development of land, cities, businesses and communities which aims to meet current needs without sacrificing meeting the needs of future generations. This concept has experienced two revolutions, namely in the 1960s to 1970s and the second revolution which occurred around 1987 under the leadership of Norwegian Prime Minister Gro Harlem Brundtland (Suparmoko, 2020). The Sustainable Development Goals contain a development pattern that includes 3 main pillars of social, economic and environmental development as well as legal and governance pillars. The problem of natural resource and environmental crises can be interpreted as a governance crisis that can make the economy unsustainable (Satria, 2020). The fact is that dominant economic development without integrating it with ecological maintenance has significant consequences for environmental damage. As an effort to integrate economic and ecological development, an approach called ecological modernization was created with the assumption of reducing waste and pollution through technological improvements, improving pro-ecological regulations and markets as well as greening social and corporate values and their practices. Some examples of ecological modernization movements are the implementation of car free days, anti-plastic bags and the earth hour campaign

Several conditions that must be met in implementing sustainable development are managing natural resources wisely, paying attention to the disposal of waste from the processing of these resources, utilizing natural resources

natural resources with environmentally friendly technology and using natural resources efficiently. One factor that can influence the implementation of a sustainable economy is that there are still pros and cons in society. One of the supporting factors is the availability of abundant natural resources, qualified human resources in the field of development, legal certainty, level of community participation and awareness. The principles that must be implemented in a sustainable economy are efficiency, mobility, accessibility, safety and comfort, community participation, limiting emissions, natural resources, habitat and ecosystems. These principles are grouped into economic, social and environmental aspects to prevent various kinds of pollution from occurring due to pollution, loss of water catchment areas and loss of green open land.

For Indonesia itself, sustainable economic development is economic activity that focuses on shared prosperity. It is profitable for consumers and producers but also does not

have a major negative impact on the environment. As an agricultural country, Indonesia tries to implement agricultural land use that is considered to be in accordance with sustainable development goals, namely only planting land with one type of plant, providing fertilizer so that the land is fertile, intercropping, maintaining soil fertility by rotating plant types .

Sustainable Development Policy

Global warming and extreme weather as a result of environmental damage have been felt in all countries in the world. Each country has made various efforts to overcome this impact. Sustainable development is a new paradigm in development with diverse concepts. The World Commission on Environment and Development defines sustainable development as a concept that brings together economic development that takes into account the sustainability aspects of that development. Meanwhile, the National Development Planning Agency (Bappenas) states that the goal of sustainable development is development that improves community welfare, sustainability of community social life, maintaining environmental quality and ensuring justice and the implementation of governance that is able to maintain the quality of life (Ginting, Ari Muliarta; Rivani, Edmira ; Rasbin; Budiayanti, 2019). As quoted from the article by the Green Development Innovation Foundation (2020), at the 2005 World Summit, it stated three important components that are related and mutually encourage each other in the implementation of sustainable development, namely economic development, social development and environmental protection. Sugandhy, Aca and Hakim (2007) the UN environmental program has five main objectives, namely helping the poor who have no other choice to survive other than destroying the environment, development with independence accompanied by environmental support, cost effective development, improving the health environment and providing clean water. as well as a decent place to live .

The government must take into consideration the balance of development with the environment so that future generations do not reap the impacts of development in the present. One implementation of sustainable development is development that is environmentally friendly. Several factors that are considered to support the implementation of sustainable development are the availability of natural resources, human resources, legal certainty, level of participation and public awareness. Meanwhile, the inhibiting factors are natural phenomena, erratic weather, rainfall, and a lack of insight into sustainable development . Through a press release from the Coordinating Ministry for Economic Affairs No. HM.4.6/150/SET.M.EKON.3/06/2021 dated 15 June 2021, the Indonesian government will remain committed to implementing sustainable development in accordance with the 2020-2024 RPJMN regulations which have determined sustainable development as one aspect that has a goal access to fair and inclusive development, as well as protecting the environment (Bureau of Communications, Information Services and Conferences 2021). Page the show a strong commitment from the government to continue implementing development sustainable Because with exists implementation the expected will can increase quality life from generation to generation Which will come. Development economy sustainable Also must nature holistic And No nature indivisibility because it must be implemented in its entirety, across sectors, across regions and across generations. There is a need for harmonization in the implementation of sustainable development, Where synergized between development economy (profit), development social (people), And environmental (planet) preservation. If element it runs in balance, harmony And inclusive definitely development economy sustainable will can materialized.

The Intergovernmental Panel on Climate Change (IPCC) and the United Nations Framework Convention on Climate Change (UNFCCC) state several evidences and

dangers caused by climate change in the form of changes in rainfall patterns, rising air temperatures, increasing water levels, and increasingly extreme weather conditions. (Rejekiningrum, 2014). This condition has indeed been felt by the entire population of the earth, the direct impact is also in the form of changes in the hydrological cycle, quantity and quality of water on earth. Humans are the ones who have a big influence on climate change and global warming. The damage that occurred was catastrophic, where the impact also affected health, social, economic aspects and also the entire ecosystem on earth (Harmoni, 2005). Apart from social, economic and health impacts, other impacts caused by climate change and global warming are in the agricultural, forestry, infrastructure, energy, transportation and tourism sectors (Ainurrohmah, Silfia; Sudarti, 2022). Some of the impacts on health caused by global climate warming, such as heat waves and very extreme winters, are direct impacts, while the indirect impacts are environmental-based diseases such as malnutrition and infectious diseases through consumed water (Khoiron, 2009). In the long and extreme summer season, apart from high temperatures, another problem faced is of course related to the availability of clean water suitable for consumption, especially in highland areas where the availability of clean water is very limited. This is certainly a threat, a management and planning process is needed regarding the management and availability of water resources (Hukom, Edison; Limantara, Lily Montarcih; Andawayanti, 2012). Several efforts that can be made as a form of self-protection against climate change are mitigation efforts, these efforts aim to minimize the causes and impacts that may arise. Next are adaptation efforts which aim to reduce risks to health, especially extraordinary events. Be alert to climate change trends, changes in behavior and also changes in health service patterns (Raksanagara, Ardini; Arisanti, Nita; Rinawan, 2015).

The results of research by Kusumawardhani & Gernowo (2015) state that in the last 30 years rainfall and air temperature have always increased every year. The average increase in air temperature is around 0.014 °C or 0.051% per year. Rainfall also continues to increase every year, the increase is around 1579.86 mm every year. High rainfall intensity is also correlated with high incidences of disease, especially Dengue Hemorrhagic Fever (DBD) (Sembiring, Wulan sari Rasna Giri; Setyaningtyas, Dian Eka; Wahyudin, 2017). High rainfall in tropical areas is caused by convection processes and the formation of hot clouds. If the air conditions are unstable, experience increases and high humidity will result in an increase in the amount of annual rain with very varied intensity, frequency and distribution (Pabaik, Intan; Ihsan, Nasrul; Arsyad, 2015). This means that weather changes are very extreme. High intensity rain often causes flooding and extreme heat often results in heat waves, drought and forest fires. Efforts that the community can make are by replanting deforested forest areas, not cutting down forests, and planting mangroves. To prevent flooding by not throwing rubbish into the river, clean up the river basin which often experiences shallowing due to the large amount of rubbish thrown into the river. To reduce global warming, you can start by not burning rubbish, reducing the use of air conditioning such as air conditioning (AC) and not burning land, especially during the dry season because it can result in widespread land fires and also the occurrence of smog. The presence of smog will of course also have an impact on air pollution, health problems such as acute respiratory infections (ARI) and will also disrupt flight activities. As a vast archipelagic country, Indonesia's geographic condition is certainly vulnerable to all risks arising from climate change and global warming. The existence of a storm will of course have a big impact on sea transportation and rising sea water will also threaten the biodiversity in Indonesia's seas (Sofian, Ibnu; Supangat, Agus; Fitriyanto, MS; Kurniawan, 2011). Of course, adaptation strategies are needed which include strategies for

protection, accommodation, exposure and recovery from the impacts caused .

One of the obstacles in efforts to overcome the impacts of climate change is the lack of knowledge of several related parties about natural phenomena that occur as a result of global warming. Even though many leaders of countries in the world have declared efforts to improve the environment to overcome global warming (Sarkawi, 2011). It is very necessary to provide outreach to the community so that people understand and realize the importance of preserving the environment by understanding the various impacts it causes. Because improving the environment is not only for us now but also for our children and grandchildren in the future. Another effort that can be made is to provide understanding from an early age to the younger generation, such as implementing an environmental development school program (Ardansyah, 2021). Apart from trying to reduce the amount of waste or waste products , one of the other efforts that can be taken is implementing a carbon tax. Carbon tax is a tax on the use of petroleum, natural gas and coal. The use of these fuels will produce greenhouse gases which trap heat in the earth and cause negative externalities for the environment in the form of global warming .

Apart from that, the government also makes regulations to reduce the impact of climate change, namely by implementing a carbon tax. Many countries have imposed levies on carbon in the form of taxes or excise as a form of concern about climate change as a result of the increasing number of carbon emissions which have the effect of producing greenhouse gases (Sutartib, 2021). According to the Ministry of Finance (2021), carbon tax comes from the Law on Harmonization of Tax Regulations (HPP) with the addition of a series of fiscal policies that are used as a tool to control climate change .

According to the HPP law, the carbon tax rate is set at a minimum of IDR 30.00 per kilogram of carbon dioxide equivalent or a unit of the same value as the carbon tax imposed on carbon emissions that have a negative impact on the environment. The copy of the HPP Law states that those who are subject to carbon tax are individuals or entities who purchase goods containing carbon and/or carry out activities that produce carbon emissions. Meanwhile, carbon emissions themselves are greenhouse gases that trap heat in the earth and cause negative externalities for the environment in the form of global warming. The main purpose of implementing taxes . carbon is to change the behavior of economic actors and switch to green economic activities that produce less carbon. By 2030, the government has a target of reducing greenhouse gas emissions by 29% on its own and 41% internationally. Another scheme in this policy is limiting emissions or cap and tax on the imposition of tax if emissions are released through an emissions test. The emission test itself is a testing effort to determine engine performance and the level of combustion efficiency in motor vehicle engines .

Some ways that are considered to reduce greenhouse gas emissions from daily activities are, implementing energy efficiency, for example turning off lights and other electronic devices that are not in use, reducing private motorized vehicles, to save energy and reduce air pollution, make it a habit to take public transportation or ride bicycles, reducing the use of drinking water in bottled bottles and straws because they are made from plastic and will increase the volume of waste, reduce organic waste and reduce the use of paper .

CONCLUSION

Based on the description above, it can be concluded that the public still has minimal knowledge regarding the issue of climate change and its impacts, even though climate change has a clear impact on daily activities and even the work carried out by the community. Therefore, outreach regarding climate change must continue to be carried out

among the public, both from the government and the private sector, who care about the impacts of environmental change. From the government side, regulations can be made that are more environmentally friendly, support climate change and environmental issues, and are sustainable in all sectors, especially from an economic perspective. There needs to be awareness and involvement of all parties in efforts to overcome climate change and also support sustainable economic growth. The stakeholders are not only the government, ministries or related institutions, but also all private sectors, social institutions and also the entire population of the earth. Efforts to overcome climate change and sustainable economic development are certainly not only beneficial for the current generation but for future generations in the future.

REFERENCE

- Ardansyah. (2021). Evaluation of the Implementation of the Environmental Development Program at State Middle Schools in Bandar Lampung. *Lampung Balitbangda Journal*, 9(3), 257–270.
- Asmariadi, Adi; Fauzella, DS (2021). Agility Funding: A Manifesto for Regional Governments in Facing a Disruptive Environment. *Lampung Balitbangda Journal*, 9(2), 115–124.
- Bureau of Communications, Information Services and Courts. (2021). The Government remains committed to implementing sustainable development amidst the pandemic. Press Release Number HM.4.6/150/SET.M.EKON.3/06/2021 dated 15 June 2021. Coordinating Ministry for Economic Affairs.
- Dewarani, S. (2019). Get to Know Green House Gases Closer. P2kLH DLHK DIY. District LH Department. Buleleng (2019). Global warming. District Environmental Service.
- Buleleng. <https://doi.org/https://dlh.bulelengkab.go.id/information/detail/article/global-heating-global-warming-76>
- Ginting, Ari Mulianta; Rivani, Edmira; Rasbin; Budiyaniti, E. (2019). Development of Sustainable Development Policy in Indonesia (MZ Hamzah (Ed.); 1st ed.). Indonesian Obor Library Foundation.