



TECHNIUM
SOCIAL SCIENCES JOURNAL

Vol. 33, 2022

**A new decade
for social changes**

www.techniumscience.com

ISSN 2668-7798



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Community Resilience to Disaster and Climate Change to Support Sustainable Development In and After The Covid-19 Pandemic

Anggiat Purba

Disaster Management Study Program of the Republic of Indonesia Defense University, Sentul IPSC Area, Tangkil Village, Cietureup District, Bogor, 16810, Indonesia.

anggiatpurba007@gmail.com

I Dewa Ketut Kerta Widana

Disaster Management Study Program of the Republic of Indonesia Defense University, Sentul IPSC Area, Tangkil Village, Cietureup District, Bogor, 16810, Indonesia.

dkwidana@gmail.com

Siswo Hadi Sumantri

Peace and Conflict Resolution Study Program of the Republic of Indonesia Defense University, Sentul IPSC Area, Tangkil Village, Cietureup District, Bogor, 16810, Indonesia.

siswohs1@gmail.com

Anwar Kurniadi

Disaster Management Study Program of the Republic of Indonesia Defense University, Sentul IPSC Area, Tangkil Village, Cietureup District, Bogor, 16810, Indonesia.

Anwarmoker68@gmail.com

Ersha Mayori

The Republic of Indonesia Defense University, Sentul IPSC Area, Tangkil Village, Cietureup District, Bogor, 16810, Indonesia

ershamayori888@gmail.com

Abstract. Countries all over the world are busy looking for the best way to reduce global warming caused by climate change. Based on the report from the World Economic Forum in 2021, the probability of the highest levels in the next ten years are extreme weather, climate control failures, and environmental damage is increasing due to human actions or anthropogenic factors. Global warming and climate change will increasingly be felt by life on earth. The phenomena of El Niño, La Niña, cyclonic storms, floods, landslides, droughts, tidal waves and rising sea levels cause tidal waves that are closely related to global warming and climate change. In the midst of the world facing climate change, the world community is also facing disasters due to the Covid-19 pandemic, which has caused many human casualties, and a wide impact on social, political and economic life. This article discusses community resilience to climate change to support sustainable development during and after the Covid-19 pandemic. This study uses a qualitative approach with a descriptive method. Qualitative methods rely on text and visual data, while data collection techniques are carried out through observation, interviews, literature studies, and focus group discussions (FGD) through zoom meetings. The result is: the world community has paid serious attention and efforts to deal with and adapt to climate change and minimize its impacts. Many risk reduction efforts have been carried out, starting at the local, national, regional and even global levels, including efforts to overcome the Covid-19 pandemic with the New-normal model of life and increasing vaccination achievements for herd immunity. These efforts require the support of all parties, starting from increasing individual awareness to the international level. Overall, the effort to reduce disaster risk is to build community resilience against all forms of disaster risk threats and sustainable development. Resilience in the face of disasters will save people and invest in the welfare of humanity at large.

Keywords. *Community resilience, Disasters, Climate Change, Sustainable Development, Covid-19 Pandemic*

1. Introduction

Various countries around the world are busy looking for the best way to cause global warming due to climate change. Based on a report from the World Economic Forum in 2021, the highest probability in the next ten years will be extreme weather, climate control failure, and environmental damage caused by humans. Seeing this causes experts and state actors in the world to focus on the impacts of climate change and natural disasters. According to reports from the Intergovernmental Panel on Climate Change (IPCC) in 2014, it is known that a heat wave will occur more frequently and for longer periods of time until extreme rainfall will hit some areas of the world [1].

In recent years the number of disasters caused by water has increased significantly, which can be seen in Figure one, and on the other hand, disasters caused by land disasters such as earthquakes are almost unchanged, but the number of occurrences of hydrological disasters (floods), meteorological disasters (cyclones) has increased significantly, climatological disasters (drought) have more than tripled since 1980 [2]. This is supported by data released by the BMKG from 2010 to 2019 showing that the most occurrences of hydrometrological disasters are floods followed by landslides, cyclones, forest and land fires and droughts. With this condition, the number of economic losses continues to increase from year to year caused by an increase in water disasters which are strongly influenced by climate change [3]

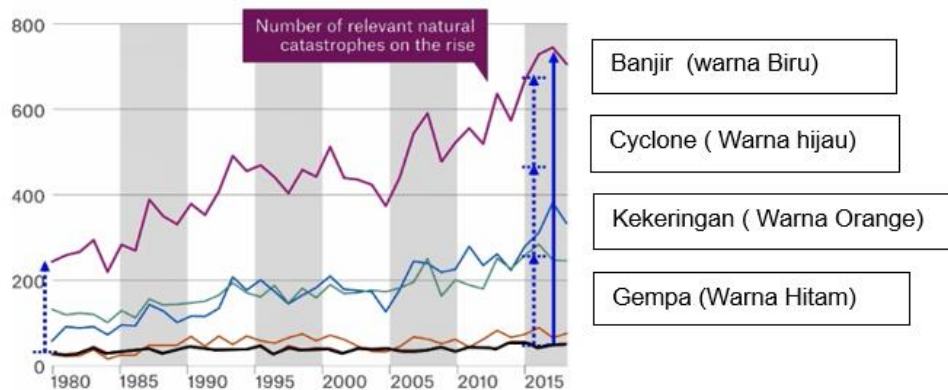


Figure 1. Graph of water disasters around the world from 1980-2018
Source: Toshio Koike (2022)

The National Disaster Management Agency in 2002 released data that throughout 2021, there were 3,115 natural disasters recorded. From these disasters, it was recorded that floods dominated occurrences (1,310 incidents), tornadoes (814 incidents) and landslides (633 incidents). The losses caused by these natural disasters throughout 2021 ranged from more than 8.6 million people who suffered and were displaced and 676 people died. The amount of infrastructure affected by the disaster included more than 142 thousand houses and 3,700 public facilities which included education, health, offices, roads and bridges [4].

The Covid-19 pandemic emerged at a time of extreme climate change. Even though we don't get a solution to reduce the rate of climate change, new problems emerge that require ecological and social carrying capacity. On the other hand, the emergence of the Covid-19 pandemic has resulted in a good air quality ratio, an increase of 11.4% over the same time the previous year in 337 cities in China in a report submitted by the Ministry of China's Ecology and Environment. In Europe (Northern Italy), satellite images show nitrogen dioxide emissions (NO₂) fading away. The same phenomenon occurs in Spain and England. Fact shows that there is a big and very fast change, due to a sudden threat and due to the existence of this Covid-19 virus. On the other hand, there are social problems where the emergence of the Covid-19 pandemic had an impact on millions of people who have lost their jobs and are at risk with their future. Economic activity has stopped, the stock of necessities for life continues to decline, while carbon emissions are also falling. A high-carbon, zero-carbon sustainable economy campaign. What people want all this time can be supported by the Covid-19 pandemic. We actually hope that the global pandemic that has currently taking human lives should not be a solution to restore a pollution-free environment.

When a disaster occurs and causes economic losses and casualties, social functions will decline and recover for a long time. Evacuation can prevent a decline in social functions, including human life. Responding appropriately and quickly will greatly reduce unexpected risks. Build Back Better will be useful for building communities with higher disaster mitigation. Pre-Disaster Actions can also reduce disaster risk significantly. It is important to effectively combine a large number of observations, data estimates and social and economic information for easy sharing with the public. The government issues recommendations and instructions in a timely manner in collaboration with relevant parties. Reducing economic losses caused by disasters caused by this climate should be built on fundamental disaster resilience so that sustainable development can be obtained.

2. Literature Review

2.1 Climate Change

Climate can be defined simply as the weather of an area which includes temperature, rainfall, sunlight, wind, and humidity [5]. Climate Change is understood as an identifiable change in climatic conditions (for example, using statistical tests) with a change in average and/or vulnerabilities of the property/nature and which can persist over a sufficiently long period of time, usually decades or more. Another definition of climate change is a change in weather from time to time, either due to natural variability or as a result of human activities [6]. Therefore, after years of skepticism, the reality of climate change is accepted globally as a result of years of human development activities.

According to sustainable science researchers from Lund University in Sweden [7], limiting the amount of carbon emissions from transportation seems to fall in countries that have policies limiting their activities outside the home. The use of vehicles and the use of aircraft are the biggest contributors to the emissions from transportation elements, of which 72 % are greenhouse gas effects and 11% of emissions gases. At the time of the pandemic, there was a decrease in emissions to 23% of total global carbon emissions. During the pandemic and activity policies in the home alone, these emissions will remain low.

The IPCC also concludes that 90% of greenhouse gases produced by humans, such as carbon dioxide, methane, and nitrous oxide, in the last 50 years, represent a drastic increase in the earth's temperature. Before the industrial era, human activities did not emit many greenhouse gases, but population growth, deforestation, the livestock industry, and the use of fossil fuels caused greenhouse gases in the atmosphere to increase and contributed to global warming. Research that has been carried out by experts over the last few decades shows that the planet Earth is getting hotter and the Earth's climate system is changing directly related to greenhouse gases produced by human activities [8]

2.2 Community Resilience and Sustainable Development

Community resilience to disasters is the ability to manage disasters, through the adaptation process, maintain basic functions in society that determine the sustainability of life, as well as the ability to recover to its original state [9]. Community resilience to disasters can be seen from the following indicators: (a) Community capacity that can reduce the impact on risk/damage through mitigation or adaptation; (b) Capacity to maintain self-recovery function after a disaster event. This includes the resilience/resilience that is created because of the community's capacity and character that supports community resilience [10].

Strengthening community resilience in facing disasters, several steps have been taken in disaster management based on Law Number 24 of 2007 concerning Disaster Management, including: a. Providing protection for the community from disaster threats, b. Harmonizing existing laws and regulations, c. Ensure the implementation of disaster management in a planned, integrated, coordinated, and comprehensive manner, d. Respect local culture, e. Build public participation and private sector partnerships, f. Encourage the spirit of gotong royong, solidarity, and generosity to create peace in society, nation and state country.

The concept of sustainable development, according to [11], defines ensuring dignified living conditions related to human rights by creating and maintaining a wide range of alternative access in planning a lifestyle. The principle of justice between present and future generations must be taken into account in the use of environmental, economic and social resources. Comprehensive safeguards for biodiversity and genetic diversity should also be considered. In

principle, sustainable development is a process of continuous change in it. Various activities such as resource exploitation, investment direction, technological development orientation, and institutional change are on a path that is in line with increasing present and future potential in fulfilling human needs and aspirations. So the goals of economic and social development as well as resilience in the face of disasters must be pursued with sustainability.

2.3 Disaster Risk Reduction due to Climate Change

Disaster Risk Reduction (DRR), according to UNISDR published in 2009, defines DRR as the concept and practice of reducing disaster risk through systematic efforts to analyze and manage the causal factors of disasters, increasing exposure to threats, reducing human and property vulnerabilities, land management and increasing and increasing preparedness for adverse events. To be able to implement DRR, it must be supported by the main components, which include : 1) Awareness of and risk assessment; 2) Development of knowledge in the form of education, training, research, and information; 3) Increasing commitment to policies and institutional frameworks, including the community; 4) Environmental management, land use, urban planning, protection of critical facilities, application of science and technology, partnerships and networks, financial instruments; and 5) Good use of EWS [12].

Reducing the risks posed by climate change can be done through mitigation and adaptation. Mitigation and adaptation is a complementary approach in reducing the impact of disasters caused by climate change. They interact with one another and reduce risks at different timescales. The benefits of adaptation can already be realized in overcoming current risk and can be realized in the future in risk reduction. Adaptation has the potential to reduce the impact of climate change over the next few decades, while mitigation has relatively little effect on the outcomes caused by climate change over a given timetable.

Recognizing the increasing importance of disaster risk reduction, in 2005, disaster management began to shift towards disaster risk management in line with the Hyogo Frame Work (HFA) for 2005-2015 and Sendai Frame Work for Disaster Risk Reduction (SFDRR) for 2015-2030. The disaster risk management paradigm has evolved even further with the goal of sustainable development and a paradigm related to climate change adaptation. With the increasingly complex space for disaster management, to deal with disasters quickly and appropriately, understand the impacts of climate change, as well as social inclusion and protection, in 2020, Indonesia began to change its approach from disaster management to focus on disaster resilience [13].

3. Research Method

The research method used in this research is qualitative. Qualitative research begins with assumptions and interpretive/theoretical frameworks that shape or influence the study of research problems related to the meaning influenced by individuals or groups in a problem. In this study, the design used was descriptive-analytical. Researchers emphasize notes with detailed, complete, and in-depth sentence descriptions that describe the current situation to support data presentation [14]. Therefore, in general, qualitative research is often referred to as a descriptive qualitative approach. Researchers try to analyze the data in various shades according to the original form as when recorded or collected. This study describes the data submitted by the subject from the parties related to the research topic. In deciding the research subject, we used purposive sampling, meaning that the informant as an informant mastered the topic related to the research to be discussed. The informants in this study were Dr. Toshio Koike; International Center for Water Hazards and Risk Management (ICHARM) Public Works

Research Institute (PWRI) Japan.

Data collection was carried out in this study using Focus group Discussion (FGD) techniques, observation, and document review. The data in this study was sourced from primary data and secondary data. Primary data in this study were obtained through FGD using virtual zoom meeting and observation. The secondary data of this research was obtained through previous relevant literature studies, photos, documents, and data from the internet. This research uses data analysis techniques with interactive models. This analysis technique is carried out continuously as long as the data collection in the field until the data obtained is saturated. The interactive model data analysis technique consists of data collection, condensation, presentation and conclusion [15].

4. Result and Discussion

4.1. *The World's Changing Climate*

The Intergovernmental Panel on Climate Change (IPCC), in its 4th assessment report in 2007 from observations, showed an increase in global temperature and an increase in sea level, as well as a decrease in snow cover in the northern hemisphere. From these observations it can be concluded that there is no doubt about the warming of the climate system. In its 5th IPCC assessment report in 2014, there is a 7-year difference from the 4th report showing a decrease in sea area in summer in the Arctic Ocean, and the amount of heat stored in the upper oceans is also increasing. The global warming data can be seen with the following indications as presented by Toshio Koike in 2022:

a. Atmosphere: The combination of global average land and sea surface temperatures, data calculated with a linear trend in 20 years during the period 1980-2012 shows a warming of 0.85 °C (0.65 °C to 1.06 °C) and the data were collected independently. In the period 1850-1900 there was an average total temperature increase of 0.78 °C (0.72 °C -1.85 °C). From these data, it shows that almost the whole world has experienced surface warming.

b. Oceans: Warming of the oceans dominates the increase in energy stored in the ocean's climate system, and stores about 90% of the energy accumulated from 1971 to 2010 and about 1% stored in the atmosphere. On a global scale, the greatest ocean warming occurs in the surface area, and the top 75 m warms by 0.11 [0.09 to 0.13] °C per decade during the period 1971 to 2010. It is almost certain that the upper ocean (0–700 m) warmed from 1971 to 2010, and most likely warmed between the 1870s and 1971. It is possible that the oceans warmed from 700 to 2000 m from 1957 to 2009.

c. Cryosphere: Data shows that in the last two decades, the Greenland and Antarctic ice pads have experienced thinning. Glaciers continue to decline in almost all of the world. The Northern Hemisphere's spring snow cover continues to decrease.

d. Level: During the period 1901–2010, the global mean sea level rose 0.19 (0.17 to 0.21) M. From the observations made, it shows that the rate of sea level rise since the mid-19th century has been greater than the average level for the previous two millennia.

4.2. *Causes of Climate Change*

An increase in greenhouse gas concentrations will lead to anthropogenic climate change, or 'global warming'. The gases produced by these greenhouses will cause heat to be trapped in our atmosphere as a result of the radiation escaping into space being blocked. Major greenhouse gases such as carbon dioxide (CO₂) are produced when fossil fuels, such as coal and oil, are burned. In the industrial revolution, the use of fossil fuels is increasing rapidly.

Emissions resulting from burning fossil fuels coupled with various changes in agriculture and land use, the level of greenhouse gases in the atmosphere has increased. Sharply. From the observations made, the concentration of CO₂ in the atmosphere has increased by about a third, from 280 parts per million (ppm) in 1750 to 368 ppm in 2000 [16].

Greenhouse gas concentrations will be responded to by the atmosphere with an increase in average temperature. The data obtained shows that the global average surface temperature has increased by about 0.6 degrees in the last century, with land areas warming faster than the oceans. The surface of the Northern Hemisphere is known to have had a greater increase in average surface temperature in the last century. Globally, the 1990s are predicted to be the hottest decade in the IPCC last millennium [16]. There is fairly strong evidence to suggest that this observed warming of the atmosphere's surface can be associated with greenhouse gas emissions produced by human activities. The current scientific consensus is that 'most warming' over the last 50 years is caused by human activities' IPCC [17]. Global climate change occurs as a result of greenhouse gas emissions and most of these emissions have been in the atmosphere in the last few decades. This climate change will continue. In addition to this, emissions produced by human activities will continue to increase, so it is unlikely for gas stability to occur in the atmosphere in the near future.

4.3. Mechanism of High Rainfall in Climate Change

The mechanism of how the energy from the sun is distributed between the earth's surface and the atmosphere around it, then returns to outer space can be seen in figure two. From the figure it is assumed that 100 solar energy, 50 of which reaches the earth's surface, which consists of continents and oceans, 47 parts are absorbed by the earth's surface and warms the earth's surface. This absorbed energy goes through 3 processes and returns to space. The process can be explained as follows:

a. Radiation process: Upward radiation is generated depending on the temperature of the ground surface, which amounts to 109 plus 5 to 114. Of that number, 5 returns directly to space and the rest is absorbed by the atmosphere and warms the atmosphere. The warm atmosphere radiates downwards and upwards depending on the temperature. A downward radiation of 96, which means a reduction in the earth's surface to 114, is reduced by 96 to 18, which effectively leaves the surface.

b. Sensible heat process: The wind blows over the warm surface of the land, the land surface becomes cold and the air becomes warm. This hot air will rise and warm the atmosphere above.

c. Latent heat: When water evaporates into a gas called water vapor, it takes heat so the surrounding temperature drops. When air containing water vapor is lifted into the sky where the temperature is low, it will condense and produce heat and then warm the surrounding atmosphere. At that time, clouds will form and clouds consist of small water droplets. This is rain where cloud particles collide with each other and fall into a cloud. Big water drops. The energy carried up reaches 24. More than half of the sun's energy is absorbed by the earth's surface. Water is transported to the atmosphere by the water cycle where water from the ground surface evaporates into gas and is transported to the sky into clouds and then becomes rain and falls by gravity.

In this way, the absorbed solar energy on the earth's surface is carried into the atmosphere by these three processes to form the earth's climate. From this description, we know how important water is in its formation, where climate change will greatly affect the ongoing water disasters.

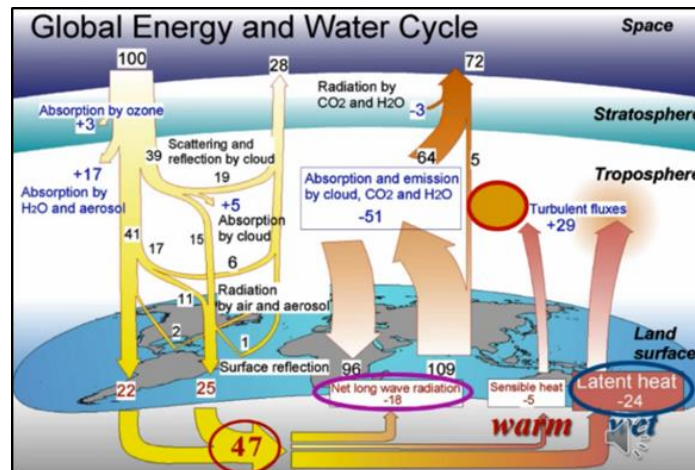


Figure 2. Global Energy and the Water Cycle
Source: Toshio Koike (2022)

The mechanism of climate change in the explanation by Pratama (2019) is described as follows: when sunlight hits the atmosphere and the earth's surface, about 70% of the energy remains on earth, absorbed by the soil, oceans, plants and other objects. The remaining 30% is reflected back through clouds, rain and other reflective surfaces. 70 % of the heat absorbed by the earth is not always on the earth, because this will result in heat that continues to accumulate, making the earth a fireball. It is also known that objects around the planet that absorb sunlight often re-radiate the heat it absorbs. Some of the heat goes into space, stays there and will be reflected back below the earth's surface when it hits substances in the atmosphere, such as carbon dioxide, methane gas and water vapor. The heat reflected from the atmosphere causes the earth's surface to remain warmer than it is in outer space. The greenhouse effect is an event where more energy is absorbed than is reflected back into space.

The influence of these climatic conditions results in global warming which, in the end, causes more water to evaporate into the air, which, of course, will result in increased rainfall. Along with the increase in rain and humidity globally, the United States Aeronautics and Space Administration, known as NASA, stated that global warming is causing more extreme changes in the earth's weather and climate. It appears that the pattern of rainfall that often changes makes it difficult to predict the rain that will fall, causing flooding in one place, but in another place there is a drought [19].

4.4 Disaster Resilience and Sustainable Development

Relevant climate change on extreme impacts and disasters are grouped into the following three categories : 1) Extreme atmospheric weather and climate variables (temperature, rain, wind); 2) Extreme weather and climate phenomena that occur in several variables such as (rainy season, El Niño, extratropical cyclones, and other variability); 3) Impacts on the natural physical environment (drought, flooding, extreme sea level rise, wave, and coastal impacts, as well as other physical impacts, including cryosphere - related impacts, landslides, and a storm of sand and dust [20].

Will directly result in the melting of the ice sheet and this is not only local in the northern hemisphere, but also affects the equator as part of the centrifugal force of the earth's rotation.

This sea level rise is expected to have an impact in 2080. Millions of people will be affected by floods every year. The biggest risk is the densely populated lowlands with low adaptability, especially those in the big deltas in Asia and people on small islands, including Indonesia. It is difficult to adapt to coastal areas in developing countries due to their limited adaptability [21].

If you look at history, more than 80% of human victims were in low-income and low-middle-income countries. More than economic losses occur in high- and middle-income countries. The United Nations stated that the ratio of economic losses caused by climate-related disasters in recent years was very large in low-income and low-middle-income countries. In the foreword of the UN's 2030 agenda setting the goals for sustainable development, it states the commitment to take the urgent and bold and transformative steps needed to move the world on a sustainable and resilient path, and also to press for the transition to a sustainable and resilient society. Figure three shows the economic losses affected by climate-related disasters, which shows that the highest percentage is in the low and low-middle income groups. Meanwhile, Cross Cultural Competence, especially in the military profession as stated by Selmeski is the ability to understand quickly-accurately and appropriately-effectively to interact with individuals from different cultures to achieve the desired results. According to Selmeski, Cross-Cultural Competence can be improved through experience, training, education and self-development [13].

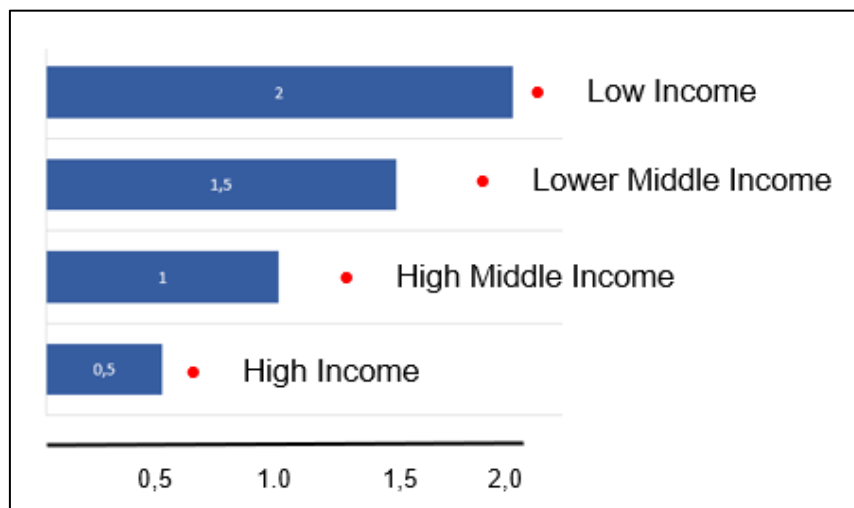


Figure 3. Economic Losses caused by climate-related disasters in percentase, (1988-2017)
Source: Toshio Koike (2022)

If a disaster occurs as described above, social functions will decline and recover in a long time. Evacuation can prevent a decline in social functions, including human life. By responding appropriately, risks can be reduced. Build Back Better will be useful for building communities with higher disaster mitigation. Pre-Disaster Actions can also reduce disaster risk significantly. It is important to effectively combine large amounts of observations, data estimates, social and economic information for easy sharing with the public. The government issues recommendations and instructions in a timely manner in collaboration with relevant parties. Furthermore, it is necessary to create a cycle to reduce disaster risk by processing such data and information in land planning and management and social capital investment, thus promoting economic and social development. However, in climate change, there is still uncertainty and it is not easy to reflect scientific understanding in social decision making.

Reducing economic losses caused by disasters caused by this climate should be built on

fundamental disaster resilience so that sustainable development can be obtained. In this context, people around the world have the right to a system of government that can see thoroughly the interaction between people, the earth and prosperity, not only now, but also the climate of the future. With increasing knowledge, experts such as that of the IPCC have estimated to what extent system-wide risk in the future. However if the risks are interconnected, the solutions can expect. As an example, ecosystem regeneration through reforestation in the catchment area can have a positive multiplier effect by reducing erosion and flood exposure, providing water supplies, sequestering carbon and improving local livelihoods. Similar synergies can be seen in the actions listed in the Sendai Framework, Paris Agreement and SDGs of Agenda 2030. Leveraging efficiencies across systems is very important to speed up development in countries where resources are limited. The government needs to put more effort into comprehensive planning, to improve risk governance by working across sectors and at different levels to get this positive effect multiplier. Good examples include efforts to co-design future waterways for both clean water sources, agriculture water sources (irrigation), and resilience, which brings the co-benefits of reducing economic losses from climate change and implementing in development more resilient infrastructure [22].

To increase disaster resilience and sustainable development in order to reduce economic losses and loss of life, it is appropriate for all parties to work together to form a platform that can be used as a strong foundation for the achievement of community prosperity. Taking into account the characteristics of climate change, in Indonesia there are five institutions, such as PUPR, BNPB, BMKG, KLHK, and the Ministry of Agrarian Affairs that can work together to build a platform . If this cooperation occurs, improving the quality of life can be achieved by strengthening the function of water, food availability, and energy availability, so as to create stability and development can run well, in particular, to improve flood control, the use of water, reduce disaster risk and promote sustainable reconstruction recovery earlier. Sustainable development goals also aim to revitalize social infrastructure facilities, build a foundation in scientific knowledge-based decision-making and build high-quality infrastructure and foster practical communities.

4.5 Climate Change during the Covid-19 Pandemic

The Covid-19 pandemic emerged at a time of extreme climate change. Even though we don't get a solution to reduce the rate of climate change, new problems emerge that require ecological and social carrying capacity. On the other hand, the emergence of the Covid-19 pandemic has resulted in a good air quality ratio, an increase of 11.4% over the same time the previous year in 337 cities in China in a report submitted by the Ministry of China's Ecology and Environment. In Europe (Northern Italy), satellite images show nitrogen dioxide emissions (NO₂) fading away. The same phenomenon occurs in Spain and England. Fact shows that there is a big and very fast change, due to a sudden threat and due to the existence of this Covid-19 virus. On the other hand, there are social problems where the emergence of the Covid-19 pandemic had an impact on millions of people who have lost their jobs and are at risk with their future. Economic activity has stopped, the stock of necessities for life continues to decline, while carbon emissions are also falling. A high-carbon, zero-carbon sustainable economy campaign. What people want all this time can be supported by the Covid-19 pandemic. We actually hope that the global pandemic that has taken human life should not be a solution to restore a pollution-free environment [23].

A research brief review of brief and strategic issues [24], mentions that restrictions on human activities during the Covid-19 pandemic and the cessation of various economic

activities, including several industrial sectors, have contributed to reducing global emissions. This will have little effect on global warming. The Center for Energy and Clean Air Research (CREA) reported that the world's CO₂ emissions were recorded to have decreased by 17% due to the Covid-19 quarantine implemented in various countries. Nearly half (43%) of global emission reductions during the peak of lockdowns came from the transportation and industrial sectors, particularly motor vehicles and commercial manufacturing plants. During the pandemic and when people worked from home, there is an increase in urban air quality. The data shown by images from the NASA Earth Observatory satellite show NO₂ pollution in Wuhan, China has decreased sharply. Air pollution levels in New York were reduced by 50%, air quality in China rose 11.4 %, and NO₂ emissions also decreased in Italy, Spain, and the UK [25]. Regarding Indonesia's condition, CREA said that the maximum emission reduction reached 18.2 %. The level of NO₂ gas in Jakarta fell by about 40% from the gas level in the year before the Covid-19 pandemic.

5. Conclusion and Recommendation

Reports made by the Intergovernmental Panel on Climate Change (IPCC) about rising global temperatures and rising sea levels and the thinning of snow in the Northern Hemisphere have become a serious concern for mankind. This event is a strong indication of global warming and global climate change. One of the factors causing global warming and extreme climate change is the increasing concentration of greenhouse gases. Greenhouse gases are not only natural processes such as volcanic eruptions, forest fires, and the rest of the respiration of humans and animals, but they are even worse because they are produced by human or anthropogenic activities, namely burning using fossil fuels and industrial activities. This is what causes heat from the earth to be trapped in the atmosphere and reflected back to the earth. Global warming and climate change will increasingly be felt by life on earth. The phenomenon of elnina, laminae, cyclonic storms, floods, landslides, droughts, and tidal waves, as well as rising sea levels have caused tidal flooding to become increasingly frequent. It is closely related to global warming and climate change. In the midst of the world facing risks and impacts due to climate change, the world community is also facing a disaster due to the Covid-19 pandemic which has claimed many human lives, social, political, and economic impacts in general. Therefore, serious efforts are needed to deal with it in order to adapt to climate change and minimize its impact.

Many risk reduction efforts have been carried out starting at the local, national, regional, and even global levels. Overcoming the Covid-19 pandemic with the new-normal model of life and increasing vaccination achievements to realize community immunity. These efforts must be supported by all parties, starting with increasing individual awareness about the phenomenon and its impact on life on earth where we live. The ultimate goal of all disaster risk reduction efforts is to build community resilience against all forms of disaster risk threats and to support sustainable development. Resilience in the face of disasters will save people and become an investment for prosperity, one of which is maintaining the economy and sustainable development for the welfare of mankind. To achieve this, the international community has gained a strong awareness that disaster is a shared business. Therefore, strong cooperation is needed by all parties to overcome common problems. One clear evidence is the existence of the Global Platform for Disaster Risk Reduction (GPDRR) forum which took place successfully in Bali on 23-28 May 2022. The attention and concern of the global community for cooperation in overcoming the problems of global warming and climate change as well as the Covid-19 pandemic, is also reflected in the 2022 G20 Presidency which carries the theme "Recover

Together, Recover Stronger”. This is very relevant to realizing community resilience and sustainable development.

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