

Forum:	Group of Twenty(G20)
Agenda:	One measure to mitigate consequences of climate change caused by economies development on a global scale
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Introduction

Economic development stands for the economic processes that are taken by nations for the well-being of people. It aims at improvements on various aspects, such as enhancing living standards and increasing income levels. Simultaneously, it also focuses on providing better access to essential services such as education, healthcare, and infrastructure. Since 1960, remarkable economic development has occurred on a global scale. Marked by a substantial increase in Gross Domestic Product (GDP) and industrial output across many nations. For instance, global GDP has grown from approximately \$1.3 trillion in 1960 to over \$10.5 trillion in 2024. This rapid development has been driven by industrialization, urbanization, and advancements in technology.

The connection between climate change and economic development is very complex. In some respects, economic development, especially through industrialization and urbanization, has had a significant effect on climate change by contributing to an increase in greenhouse gas emissions. As many countries focus on economic development, energy consumption and resource extraction have increased in remarkable numbers. Consequently, this has resulted in environmental degradation by exacerbating climate issues. Therefore, the challenge lies in finding a sustainable path that allows for economic development while mitigating climate change.

Addressing the critical issue of climate change is significant, particularly focusing on effective measures to mitigate its consequences from the rapid economic development experienced globally. The United Nations Framework Convention on Climate Change (UNFCCC) highlights the urgent need for a comprehensive strategy to combat climate change that poses a significant threat. Climate change can lead to a further shortage of important natural resources in humans' diets, such as drinking water, meat, and vegetables. Natural resources will face difficulties with sustaining and growing under increasing global temperatures. Moreover, as climate change is the one of the most significant consequence of economies development on a global scale, there is intensive connection between climate change and economies development. This recognizes the role of environment protection law in addressing this connection between climate change and economies development.

According to the United Nations Framework Convention on Climate Change (UNFCCC), the urgency for comprehensive strategies is underscored by the fact that human activities have driven atmospheric CO₂ levels to over 410 parts per million, the highest in at least 800,000 years. The current problem forms around the various effects of climate change aggravated by industrialization and

urbanization. Economic developments throughout industrialization and urbanization have caused a 60% increase in global greenhouse gas emissions since 1990. Consequently, this directly became a cause of environmental issues throughout the world, such as rising global temperatures, extreme weather events, and rising sea levels. These environmental issues will be reflected in daily human life in a future. For example, rising sea levels will result from increase in the increase in global. Rising sea levels lead to habitat loss, threatening coastal communities and increasing the risk of flooding and storm surges, which have a significant impact on both ecosystems and human populations.

Key Terms

Economic Development - Economic Development is programs, policies or activities that seek to improve the economic well-being and quality of life for a community. It creates new job opportunities and facilitating an improved quality of people's life.

Gross domestic product (GDP) - The standard measure of the value added created through the production of goods and services in a country during a certain period.

Industrialization - Industrialization is the development of industries in a country or region on a wide scale. This causes various impacts on human society, such as significant increase in human population, expansion of the cities, improved access to food, and a growing demand for raw materials.

Urbanization - Urbanization is the process of making an area more urban. This gives a significant effect on environments including deforestation, habitat loss, and the extraction of freshwater.

Climate Change - Climate change is a long-term shifts in temperatures and weather patterns. As an example, water scarcity, severe fires, rising sea levels, and melting polar ice could be mentioned. Climate change is a change in Earth's climate as well. This could be a change in location of rain and snow usually fall. Generally, Earth requires long period of times to change the climate.

Greenhouse Gas - Greenhouse gases are gases in the earth's atmosphere that trap heat. It is formed with carbon dioxide, methane, ozone, nitrous oxide, chlorofluorocarbons, and water vapor. Earth releases heat back into the air, but some of the heat is trapped by the greenhouse gases in the atmosphere. As a result, remaining temperature causes global warming.

Global Warming - Global warming is increase of temperature of Earth's surface observed since the pre-industrial period. This is caused by human activities, including primarily fossil fuel burning, which increases heat-trapping greenhouse gas levels in Earth's atmosphere.

General Overview

As climate change has had a significant impact on ecosystems, economies, and communities on a global scale, it has become one of the biggest challenges to be solved nowadays. With environmental

issues regarding rising global temperatures and frequent changes in weather, the impacts of climate change have become a crucial problem to be solved.

Recent reports from the Intergovernmental Panel on Climate Change, (IPCC) highlight the urgent need for collective action to reduce greenhouse gas emissions and mitigate the effects of climate change. This report states that global temperatures have risen by approximately 1.5°C since the pre-industrial time. Recent report from IPCC indicates that without significant action, global temperature will rise by 2°C as early as 2030. They also predict that a rise in global temperature by 2°C will have catastrophic implications for ecosystems, economies, and human health.

Major countries involved:

Brazil

Brazil is known for significant deforestation due to economic development, especially in the Amazon rainforest. Amazon is often referred to as the "lungs of the planet", which shows significance of it. However, because of deforestation due to agriculture, carbon emissions have increased in remarkable numbers. Therefore, Brazil has made commitments to balance economic development and a sustainable environment. However, unfortunately, this still remains a challenge to be solved.

China

China is one of the largest greenhouse gases emitters in the world. This is due to heavy reliance on coal for energy and rapid industrialization of the country. China's economic growth has allowed millions of people to be out of poverty. However, it has also caused significant environmental degradation on a global scale. The Chinese government is constantly investing in renewable energy by aiming to peak carbon emissions before 2030. Furthermore, they are willing to achieve carbon neutrality by 2060.

European Union:

Historically, the European Union (EU) has contributed to greenhouse gas emissions. As many EU member states were part of the first industrialization, they were at the center of high levels of emissions during the 19th and 20th centuries. Therefore, the EU tried to take a significant role in solving problems regarding climate change that are caused by economic development in various aspects.

India

India is one of the largest emitters of greenhouse gases as well. This is because of the rapid urbanization and economic growth of the country. Currently, India has faced significant challenges in balancing energy demands and environmental sustainability. The government is focusing on developing renewable energy by aiming for noticeable growth in solar and wind energy capacity.

Russia

Currently, Russia is one of the largest fossil fuel producers. This is a consequence of oil and gas extraction, which causes significant greenhouse gas emissions. Even though Russia has potential for renewable energy development, their current economic structure leads them to constant use of fossil fuels.

United States

Throughout history, the United States has been one of the largest greenhouse gas emitters. Most of the carbon emissions from the United States are caused by sectors such as transportation, electricity generation, and industry. Even though the United States is one of the largest greenhouse gas emitters, the country has contributed to international climate agreements to reduce carbon footprints.

Recently, the country has put efforts into focusing on reducing greenhouse gas emissions through green technologies and renewable energy. Through green technologies, the country aims to investigate clean energy technologies. This includes solar, wind, and energy efficiency improvements. At the same time, in aspects of renewable energy, the United States aims to shift towards renewable energy sources, with developing abilities in terms of solar and wind energy production.

Major parties involved:

International Monetary Fund (IMF)

The International Monetary Fund (IMF) is an international financial institution established in 1944. This institution aims to establish stable and well-grown global economics by providing various assistance, such as monetary cooperation, financial stability, and facilitating international trade. Over 190 countries from all around the world are involved with the IMF, and they play a significant role in ways such as surveillance, financial assistance, and capacity development. First, regarding surveilling, the IMF monitors trends in the global economies to provide advanced advice to promote economic stability and development. Also, the IMF often provides financial assistance to member countries as well. For instance, the IMF has provided a bailout package totaling approximately €110 billion to stabilize the Greek economy. Most importantly, the IMF designs effective economic policies to assist in strengthening the capacity of member countries.

Intergovernmental Panel on Climate Change (IPCC)

The Intergovernmental Panel on Climate Change (IPCC) is an organization established by the United Nations in 1988 to investigate objective and effective information on climate change. IPCC sets its priority as providing a better assessment of the scientific knowledge

regarding climate change and its impacts in various aspects and potential adaptation and mitigation strategies. Its activities in various aspects raise awareness about climate change impacts and the urgent need for action to mitigate and adapt to its effects. The IPCC includes 195 member countries throughout the world, which participate in its work through government representatives.

United Nations Environment Programme (UNEP)

The United Nations Environment Programme (UNEP) is an UN-based organization that was established in 1972. This organization aims to manage the environmental activities and assist countries with implementing environmentally sustainable policies through multiple methods. For instance, they promote sustainable development through reliable environmental practices. Also, they address global environmental issues, such as climate change, biodiversity loss, and different pollutions. Furthermore, it supports countries with constructing their own environmental laws.

United Nations Development Programme (UNDP)

The United Nations Development Programme (UNDP) is an UN-based organization that was established in 1965. This organization aims to reduce the number of poverty and inequalities. In order to achieve its own goal, it provides technical assistance to allow countries to implement their developing programs. While taking actions, they focus on various factors such as governance, gender equality, climate change, and sustainable economic growth.

Timeline of Events

You must include short sentences to explain the timeline. Please follow the format specified below:

Date	Description of event
1900	During the 1900, the industrial revolution that started at late 18 th centry have accelerated. It led the widespread of industrialization, urbanization, and increase of fossil fuel consumptions. During this period, the world has started to emit significant amount of greenhouse gas.
1922	In 1922, human soceity have presented a resaerch in indicating the increased level of carbon dioxide in the atmosphere, which could lead the world to the rise in global temperatures. This investigatement have provided significant base regarding climate sciecne.

1956

In 1956, Dr. Gilbert Plass have published his research paper that shows the potential effects of rising carbon dioxide concentration on Earth's temperature. Dr. Gilbert Plass's research is the first analyze on statistics regarding to greenhouse effect. This research has encouraged human society to be awared on the topic of climate change.

1965

In 1965, The U.S. Governement have released a report to warn an issue on climante change that are caused by carbon dioxdde emissions through fossil fuels consumptions. The report has strongly emphasized the importance of further resaerch and awareness.

1972

In 1972, the first United Nations Conference on the topic of Human Environment has held at Stockholm. This results in the Stockholm Declaration, which empahsizes the importance of cooperation of the world to protect the environment. This conference has seted the basic guideline for future environment treaties.

1988

In 1988, UN has established a major party call The Intergovernmental Panel on Climate Change (IPCC). The IPCC is created to provide a comprehensive infromation from experts to policymakers to assist with making effective policies.

1992

In 1992, the Earth Summit in Rio de Janeiro leads to the adoption of the UNFCCC (United Nations Framework Convention on Climate Change). This remarkable treaty encourages signatory countries to work collaboratively to reduce the impacts from climate change by recognizing the responsibility of developed nations.

1997

In 1997, the Kyoto Protocal had adopted in Kyoto, Japan. This protocal aims to establish legal binding on developed countries to reduce greenhouse gas emissions. This agreement aims to emphasize that industrialization of the nations have a responsibility for climate change because of their economic activities.

2001

In 2001, the IPCC has released its Third Assessment Report. The report asserts that economic activities taken by humans are significantly contributing to climate change. It emphasizes the urgent need for the world to reduce emissions.

2007

In 2007, the IPCC has released its Fourth Assessment Report. They reinforce their previous report, by emphasizing the role of human activities in climate change. This report urges immediate actions on greenhouse gas emissions to reduce prevent further climate change.

2015

In 2015, The Paris Agreement is adopted at COP21 in Paris. This agreement aims to limit global warming rate to below 2 degrees Celsius above the pre-industrial period. The agreement urges countries to set and be involved to Nationally Determined Contributions (NDCs) to reduce emissions.

2021

In 2021, COP26 is held in Glasgow. Countries are encouraged to intensify their climate commitments. Discussions held during this conference centers around transitioning to sustainable economic practices, financing for developing nations, and acknowledging the importance of reducing emissions from fossil fuels.

UN Involvement, Relevant Resolutions, Treaties and Events

- Stockholm Declaration, which is presented at the United Nations Conference on Human Environment in 1972, established key principles for international environmental governance. It highlights the rights to a healthy environment and the need for global cooperation to address environmental issues, laying the groundwork for future climate initiatives and integrating environmental considerations into national policy.
- The UNFCCC is established in 1992 at the Earth Summit in Rio de Janeiro, the United Nations Framework Convention on Climate Change (UNFCCC) is an important framework for international cooperation to combat climate change. The convention describes the efforts of developed countries to reduce greenhouse gas emissions while supporting developing countries.

The UNFCCC promotes the annual Conference of the Parties (COP) to help countries negotiate and update climate commitments.

- The third and fourth assessment reports of the Intergovernmental Panel on Climate Change (IPCC) are significant contributions of the United Nations to understanding climate change. These reports provide a comprehensive assessment of the scientific, technological, and socioeconomic aspects of climate change, highlighting its relationship with economic development. These reports highlight the urgent need for action, reinforcing the findings of early research and urging policymakers to prioritize climate initiatives.

Possible Solutions

The world is increasingly struggling with climate change issues, and it has become clear that economic development plays an important role in exacerbating environmental degradation. Rapid industrialization and resource consumption are closely related to economic growth, which leads to increased greenhouse gas emissions and depletion of natural resources. These dynamics pose an urgent dilemma: while economic development is essential for improving living standards, it often comes with significant environmental costs.

Given these pressing challenges, it is imperative to pursue solutions that balance economic growth and sustainability. These include the transition to renewable energy sources, improved energy efficiency, and the promotion of sustainable agricultural practices. It is also important to incorporate environmental considerations into economic planning and policy decisions so that development does not compromise ecological integrity.

Global cooperation is essential because climate change is a transnational issue that transcends borders. Innovative approaches such as investing in green technology, carbon pricing, and promoting circular economies can help to mitigate climate impacts while also increasing economic resilience. By addressing the complex interactions between climate change and economic development, we can create a more sustainable future that benefits both people and the planet. This should take several forms:

Acknowledgement on the existing treaties

The international acknowledgement is very critical for the effectiveness of climate treaties about economic development. Agreements such as the Paris Agreement depend on the different circumstances of each country and the recognition of historical responsibility for greenhouse gas emissions in developed countries. This especially promotes trust and cooperation with developing countries facing severe climate impacts despite their minimal contributions. Integrating the perspectives of stakeholders, including Indigenous communities, enhances the inclusiveness and effectiveness of these treaties. By incorporating traditional ecological knowledge, treaties can facilitate a

culturally sensitive approach to climate action. Ultimately, recognition within these frameworks strengthens cooperation and accountability, strengthening a shared commitment to a sustainable future.

Recognizing Indigenous Knowledge

Acknowledge and integrate the traditional ecological knowledge of Indigenous communities to establish climate action strategies. This can promote sustainable land-use practices that are effective in strengthening biodiversity conservation and mitigating climate change. Establish formal partnerships with Indigenous organizations to ensure their voices are incorporated into the policy-making process. This recognition can strengthen community resilience and promote more effective climate solutions.

Further research to understand cause and effects

Further research is essential to comprehensively understand the causes and effects of climate change resulting from economic development. By investigating the intricate relationships between industrial activities, resource consumption, and environmental degradation, researchers can identify key drivers of greenhouse gas emissions. This knowledge can inform targeted policies that promote sustainable practices and reduce climate impacts. Additionally, understanding the socio-economic dimensions of climate change will help develop equitable solutions that address the needs of vulnerable populations affected by these changes.

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