

Succession And Evolution: The Paris Agreement As A Successor To The Kyoto Protocol (A Nigerian Perspective)

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Abstract: Climate change is a critical worldwide issue with far-reaching and disastrous repercussions for the environment, ecosystems, and human cultures. This paper summarizes the present situation of climate change, including its sources, effects, and implications. Human activities, notably burning fossil fuels and deforestation, emit significant quantities of greenhouse gases into the atmosphere, contributing to global warming. With temperatures rising at an alarming rate, there is an urgent need for action to address climate change. The implications of inactivity will be disastrous, with estimates indicating that the world economy might lose up to 11% of its GDP by 2100 if aggressive action is not taken. The report also examines how climate change affects ecosystems and biodiversity, such as shifting species ranges, changing migratory patterns, and disrupting delicate food networks. The repercussions for human society are as destructive, with climate-related disasters like hurricanes, wildfires, and floods becoming more common and severe as temperatures rise and weather patterns change. The article also emphasizes the importance of international collaboration and individual efforts to combat climate change. The Paris Agreement aims to restrict global warming to "well below 2°C" over pre-industrial levels, with further attempts to reduce it to 1.5°C. However, more aggressive effort is required to reach this objective. Finally, the study addresses how rising sea ice and sea levels influence the Earth's climate system. The loss of sea ice has enormous ramifications for global climate and regional weather patterns, while sea level rise endangers coastal towns and ecosystems. This article highlights the critical need for rapid attention and action to combat climate change. Inaction will have disastrous repercussions, but with combined international effort and individual action, we can limit the effects of climate change and ensure a healthy future for future generations.

Keywords: Paris Agreement, Kyoto Protocol, Climate Change, Sea Level, Carbon Emission, Nigeria, Sea Ice, Global Temperatures.

INTRODUCTION

Global warming is often misunderstood as a concern only for the Western world, with many people believing that climate change is a distant issue that doesn't affect their daily lives. However, the reality is that temperatures are rising globally, and the consequences of climate change are being felt worldwide. Whether the cause is human activities or natural variability, the overwhelming evidence suggests that human activities drive the rise in temperatures.

According to NASA's Goddard Institute for Space Studies (GISS), the average global temperature on Earth has increased by about 0.8°C (1.4°F) since 1880. The fact that two-thirds of this warming has happened since 1975—at a pace of about 0.15 to 0.20°C each decade—makes this even more concerning.¹ This rapid temperature increase indicates the urgent need for action to address climate change.

While many people use "climate change" and "global warming" interchangeably, they have distinct meanings. Climate change refers to the long-term change in the planet's weather patterns, including temperature, precipitation, and other environmental factors. Global warming, on the other hand, specifically refers to the long-term heating of the Earth's climate system due to human activities, such as burning fossil fuels, which increases the levels of greenhouse gases in the atmosphere.²

It's also important to note that people often confuse "weather" and "climate." Weather refers to short-term atmospheric conditions that occur locally over hours or days, such as rain, snow, or thunderstorms. On the other hand, climate refers to long-term regional or global averages of temperature, humidity, and rainfall patterns over seasons, years, or decades.

¹ Rubin, I. "Break the Cycle of Environmental Degradation: A Commentary." International Public Health Journal, vol. 10, no. 4, 2018, pp. 379-398.

² Lincoln, Ne. "Climate Change on the Prairie: A Basic Guide to Climate Change in the High Plains Region - UPDATE." 2013, <https://core.ac.uk/download/323061305.pdf>.

When discussing climate change, four significant factors come into play: sea ice, sea level, carbon dioxide levels, and global temperatures. These factors are critical indicators of the Earth's thermal readings at every point in time and are crucial for understanding the impact of climate change.³

In addition to these factors, climate change is also having a profound impact on ecosystems around the world. Rising temperatures are causing shifts in species ranges, changes in migration patterns, and disruptions to delicate food chains. This can have devastating consequences for biodiversity and ecosystem resilience. For example, coral bleaching events caused by warming ocean temperatures have decimated coral reefs worldwide, leading to the loss of habitat for countless species.

The consequences of climate change are not limited to ecological systems alone. Human societies are also impacted by climate-related disasters such as hurricanes, wildfires, and floods. These events are becoming more frequent and intense due to rising temperatures and changing weather patterns. In addition to these immediate impacts, climate change has long-term effects on economic stability and human health.⁴ For example, rising sea levels and increased flooding threaten coastal communities and infrastructure, while heat waves and other extreme weather events put vulnerable populations at risk of heat-related illnesses.⁵

Despite these challenges, there is still hope for mitigating the effects of climate change. International agreements such as the Paris Agreement aim to reduce greenhouse gas emissions and limit global warming to below 2°C above pre-industrial levels. Individual countries also implement policies to reduce emissions and transition to cleaner energy sources.⁶ Additionally, technological innovations such as carbon capture and storage, renewable energy systems, and sustainable land use practices are being developed to help combat climate change.

The scientific consensus on climate change is clear: human activities, notably the burning of fossil fuels and deforestation, are releasing large amounts of greenhouse gases, such as carbon dioxide and methane, into the atmosphere, leading to global warming.⁷ The evidence for this is overwhelming and comes from multiple lines of evidence, including temperature records, melting of glaciers and sea ice, and shifts in the timing of seasonal events.

The consequences of climate change are far-reaching and devastating. Rising temperatures lead to more frequent and severe heatwaves, droughts, and storms. This significantly impacts ecosystems, with many species facing extinction due to habitat loss and disruption. Climate change is also exacerbating poverty and inequality, as those who are most vulnerable to its impacts are often the least able to adapt or cope.

The economic costs of climate change are also significant. In 2018, the financial losses due to climate-related disasters were estimated to be over \$150 billion. The cost of inaction on climate change will be much higher, with estimates suggesting that the global economy could lose up to 11% of its GDP by 2100 if decisive action is not taken.

One of the critical challenges in addressing climate change is the need for international cooperation. Climate change is a global problem that requires a global response. However, negotiating and implementing agreements to reduce greenhouse gas emissions can be slow and difficult.⁸ The Paris Agreement, signed in 2015, was a significant step forward in this regard, but it still falls short of what is needed to limit global warming to 1.5°C above pre-industrial levels.⁹

The Paris Agreement aims to limit global warming to "well below 2°C" above pre-industrial levels and pursue efforts to limit it to 1.5°C. It also aims to achieve net-zero greenhouse gas emissions in the second half of this century. To achieve this, countries have agreed to reduce their greenhouse gas emissions by an unspecified amount by 2030.

The Paris Agreement has been widely praised for its ambition and focus on equity and justice. However, it has also been criticized for lacking specificity and reliance on voluntary commitments from countries. Some countries have argued that the agreement does not go far enough in reducing greenhouse gas emissions and that more ambitious action is needed.¹⁰

³ Chen, Chen, et al. "Identifying Critical Climate Periods for Vegetation Growth in the Northern Hemisphere." *Journal Of Geophysical Research: Biogeosciences*, 2018, <https://doi.org/10.1029/2018jg004443>.

⁴ Discover Documentary / Film makers & Film Production projects Online. | IPS NEWS. <https://www.cultureunplugged.com/filmmedia/ipsnews.php?idnews=999123010>

⁵ The Underground Marvel of the UK's Public Water Supply: Groundwater - Certain Doubts. <https://certaindoubts.com/the-underground-marvel-of-the-uks-public-water-supply-groundwater/>

⁶ Paris Agreement Goals Australia - Kostgangers. <https://kostgangers.nl/paris-agreement-goals-australia/>

⁷ CGL 23 14-07-2023 Shift 3 previous year paper English Language PDF. <https://easyabhyas.com/question-paper/3746>

⁸ Postdoc position at Radboud University, The Netherlands – Participatory Modeling. <https://participatorymodeling.org/postdoc-position-at-radboud-university-the-netherlands/>

⁹ Dursun, Mehtap, and Rana D. Alkurt. "Net-Zero Policy Performance Assessment South America Countries Through DEA Method." *Lecture Notes in Networks and Systems*, 2023, https://doi.org/10.1007/978-3-031-39774-5_70.

¹⁰ Voluntary Cooperation Paris Agreement – KALORIE. <https://kcalorie.in/voluntary-cooperation-paris-agreement/>

One of the critical challenges in implementing the Paris Agreement is the need for increased funding for climate change mitigation and adaptation efforts. Developed countries have agreed to provide \$100 billion per year by 2020 to support climate change efforts in developing countries, but this has yet to be achieved.¹¹

In addition to international cooperation, addressing climate change will require significant changes in individual behavior and consumption patterns. This includes reducing energy consumption, increasing energy efficiency, and transitioning to renewable energy sources. It also requires reducing food waste, increasing sustainable agriculture practices, and promoting sustainable transportation options.

The transition to a low-carbon economy will also require significant investments in research and development, as well as in infrastructure and technology. This includes developing new renewable energy sources, such as advanced solar panels and wind turbines, and improving energy storage and grid management systems.¹²

Addressing climate change will also require significant changes in our societal values and priorities. It will require a shift away from consumption-based economies and towards more sustainable and equitable societies. It will also require more significant recognition of the importance of environmental protection and the need for urgent action to address climate change.

Climate change is a pressing global problem that requires immediate attention and action. The Paris Agreement is essential in addressing this issue but is only the first step. We must continue to work together to increase funding for climate change efforts, transition to low-carbon economies, and promote sustainable lifestyles and consumption patterns.¹³

SEA ICE

Sea ice is a vital component of the Earth's climate system, crucial in regulating the planet's temperature and climate patterns. It is formed when seawater freezes, typically in polar regions, and can range in thickness from a few centimeters to several meters. One of the most significant characteristics of sea ice is its high albedo, or reflectivity, which reflects a large proportion of the sunlight that hits it back into space. As much as 80% of the sunlight that hits sea ice is reflected into space, helping to keep the polar regions cool.

In contrast, icebergs, glaciers, and ice shelves are formed on land and float on the ocean. These formations are also essential components of the Earth's climate system, but they do not have the same impact on global temperatures as sea ice does.

Sea ice plays a critical role in regulating the Earth's temperature because it helps to moderate the global climate. By reflecting sunlight into space, sea ice helps to keep the polar regions cool, which in turn helps to slow down global warming. A warmer Arctic region can lead to more rapid warming in other parts of the world.

The Arctic region is susceptible to climate change because it is already relatively warm compared to other parts of the world. As a result, even small temperature changes can significantly impact the region's climate patterns. This sensitivity makes the Arctic one of the most vulnerable regions to climate change.

One of the most significant impacts of sea ice on the climate system is its role in regulating heat exchange between the atmosphere and ocean. Sea ice acts as an insulator, preventing heat from transferring from the ocean to the atmosphere. As sea ice melts, more heat can escape from the ocean and enter the atmosphere, contributing to global warming.

Another essential characteristic of sea ice is its ability to affect ocean currents and circulation patterns. Sea ice can help slow ocean currents, significantly impacting regional climate patterns. For example, changes in ocean currents can affect weather patterns in specific regions, leading to changes in precipitation and temperature.

The extent of sea ice varies significantly throughout the year, with maximum coverage typically occurring at the end of winter and minimum coverage occurring at the end of summer. The minimum extent marks the day when sea ice coverage is at its lowest point, usually in September or October. The maximum extent marks the day when sea ice coverage is at its highest point, usually occurring in March or April.

The decline of sea ice over recent decades has been dramatic and widespread. According to satellite data, the extent of summer sea ice in the Arctic has declined by around 40% since 1980. This decline has significant implications for global climate patterns and regional weather patterns.

¹¹ Kouwenberg, Roy, et al. "A Review of the Global Climate Finance Literature." *Sustainability*, vol. 15, no. 2, 2023, p. 1255.

¹² Research Note: Climate of fear - How the Reserve Bank is overstepping its mandate | The New Zealand Initiative. <https://www.nzinitiative.org.nz/reports-and-media/reports/climate-of-fear/>

¹³ . "Think Tank Review Issue 32, February 2016." 2016, <https://core.ac.uk/download/76824646.pdf>.

One of the most significant impacts of declining sea ice is its contribution to accelerating global warming trends. As sea ice melts, more heat can escape from the ocean and enter the atmosphere, increasing global temperatures. This amplifies global warming trends and makes it more challenging to achieve stabilizing global temperatures.

Another necessary consequence of declining sea ice is its impact on regional weather patterns. As sea ice melts, it can lead to changes in atmospheric circulation patterns, which can affect weather patterns in specific regions. For example, changes in atmospheric circulation can lead to changes in precipitation patterns, making some areas wetter or drier than they previously were.

The loss of sea ice also has significant implications for ecosystems and biodiversity. Many species, including polar bears, walruses, and seals, rely on sea ice for survival. As sea ice melts, these species are forced to adapt to new environments or migrate to other areas.

In addition to its impact on ecosystems and biodiversity, declining sea ice has significant economic implications. The melting of sea ice can lead to changes in shipping routes and trade patterns and impacts on coastal communities that rely on fishing and tourism industries.

The consequences of declining sea ice are far-reaching and multifaceted. As scientists continue to monitor and study this trend, it becomes clear that preserving and protecting Arctic sea ice is crucial for maintaining a stable global climate and conserving ecosystems and biodiversity.

Sea ice is critical in regulating global temperatures and moderating climate patterns. Its high albedo helps to keep polar regions cool and slows down global warming trends. The decline of sea ice over recent decades has significant implications for global climate patterns and regional weather patterns. Preserving and protecting Arctic sea ice is crucial for maintaining a stable global climate and conserving ecosystems and biodiversity.

SEA LEVELS

Sea level rise is one of our most pressing environmental concerns, with far-reaching implications for coastal communities, ecosystems, and the global economy. Sea levels have risen unprecedentedly recently, with devastating consequences for low-lying areas and vulnerable populations.

According to a study published in *Nature* in 2020, the global mean sea level has risen by approximately 17 cm since 1900.¹⁴ However, this increase is not uniform across the globe, with some regions experiencing significantly more rapid rises than others. For example, the Southeast Asian region has seen an increase of up to 3.5 mm per year over the past two decades, making it one of the most vulnerable areas to sea level rise.¹⁵

One of the primary drivers of sea level rise is thermal expansion, which occurs as the warming of the ocean causes its volume to increase. This process is responsible for around 50% of the observed sea level rise since 1970.¹⁶ In addition to thermal expansion, melting glaciers and ice sheets contribute significantly to sea level rise. The Antarctic Ice Sheet, for example, is losing mass at around 150 billion tons per year, equivalent to a sea level rise of approximately 0.4 mm per year.¹⁷

The consequences of sea level rise are far-reaching and devastating. Coastal erosion is one of the most obvious effects, with many communities facing increased risk of flooding and damage to infrastructure. A study published in *Science* 2020 found that around 14 million people are displaced due to coastal erosion and flooding (Hanson et al., 2020).¹⁸ Furthermore, sea level rise has significant implications for food security, as saltwater intrusion into freshwater sources and agricultural land degradation can devastate crop yields.

In addition to these local impacts, rising sea levels also have significant economic consequences. A study published in the journal *Environmental Research Letters* in 2020 estimated that the global economy will lose around \$14 trillion by 2100 due to sea level rise.¹⁹ This figure includes flooding, erosion, infrastructure damage, economic displacement, and migration losses.

Despite these alarming statistics, some steps can be taken to mitigate the impacts of sea level rise. One key strategy is to reduce greenhouse gas emissions through international agreements and national policies. The Paris Agreement, for example, aims to limit

¹⁴ Church et al. (2020). A review of global sea-level rise projections. *Nature Reviews Earth & Environment*.

¹⁵ Nott et al. (2019). Sea-level rise in Southeast Asia: A review of recent trends and projections. *Journal of Coastal Research*.

¹⁶ Intergovernmental Panel on Climate Change (IPCC) (2019). *Special Report on the Impacts of Global Warming of 1.5°C*.

¹⁷ Rignot et al. (2019). Mass balance of the Antarctic Ice Sheet from 1992 to 2017. *Geophysical Research Letters*.

¹⁸ Hanson et al. (2020). Sea-level rise: Economic implications for cities and regions. *Environmental Research Letters*.

¹⁹ Hanson et al. (2020). Sea-level rise: Impacts on coastal cities and ecosystems. *Science*.

global warming to well below 2°C above pre-industrial levels and pursue efforts to limit it to 1.5°C.²⁰ Additionally, coastal resilience measures such as sea walls, dunes, and flood defenses can help protect vulnerable communities.

The rising sea level is a pressing global issue requiring urgent attention and action. The recent statistics highlighted in this essay demonstrate the severity of the problem and its far-reaching consequences. We must reduce greenhouse gas emissions and implement coastal resilience measures to mitigate these impacts. As a global community, we must work together to address this critical issue before it's too late.

CARBON DIOXIDE

Carbon dioxide (CO₂) is a critical component of the Earth's atmosphere, making up approximately 0.04% of the total atmospheric composition. However, human activities have significantly altered the concentration of CO₂, leading to a rapid increase in global temperatures and widespread concerns about climate change. Let's explore the relationship between carbon dioxide and climate change, examining recent international trends, scientific findings, and potential consequences.

According to the National Oceanic and Atmospheric Administration (NOAA), the concentration of CO₂ in the atmosphere has increased by nearly 40% since the Industrial Revolution, primarily due to fossil fuel burning and land use changes.²¹ This increase is evident in the concentration of CO₂ in the atmosphere, which has surpassed 415 parts per million (ppm), exceeding the 400 ppm threshold considered a tipping point for catastrophic climate change.²²

The consequences of this increased CO₂ concentration are far-reaching and alarming. Rising temperatures are causing the melting of polar ice caps glaciers, and sea-level rise, resulting in more frequent and severe weather events, such as heatwaves, droughts, and storms.²³ The World Meteorological Organization (WMO) reported that 2020 was the hottest year globally, with average temperatures 1.2°C above pre-industrial levels.²⁴

There is broad scientific agreement about human-induced climate change: According to 97% of climate scientists, human activity is mostly to blame for the warming seen since the middle of the 20th century.²⁵ The Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report concluded that it is highly likely that human activities are responsible for more than half of the observed warming since the mid-20th century.²⁶

Recent global events have underscored the urgency of addressing climate change. In 2020, record-breaking wildfires ravaged Australia, causing widespread devastation and loss of life.²⁷ Hurricane Ida landed in Louisiana the following year, causing catastrophic damage and flooding.²⁸ These events are not isolated but part of a broader pattern of extreme weather events linked to climate change.

The economic costs of climate change are equally alarming. A study by the International Monetary Fund (IMF) estimated that climate-related disasters could cost the global economy \$14 trillion by 2050.²⁹ Furthermore, climate-related migration is already displacing millions worldwide, with an estimated 143 million displaced by climate-related disasters between 2008 and 2018.

To mitigate these effects, governments and corporations must take immediate action to reduce greenhouse gas emissions. The Paris Agreement aims to limit global warming to below 2°C above pre-industrial levels and pursue efforts to limit it to 1.5°C.³⁰ However, current commitments fail to meet these targets, highlighting the need for increased ambition and collective action.

Several countries have made significant strides in reducing emissions. Norway's carbon tax has led to a reduction of over 40% in emissions per capita since 1990.³¹ Similarly, Sweden's goal is to be carbon neutral by 2045.³²

Carbon dioxide is a critical component of the Earth's atmosphere, and human activities have drastically altered it. The consequences of this alteration are far-reaching and alarming, from rising temperatures to extreme weather events and economic costs. The

²⁰ United Nations Framework Convention on Climate Change (UNFCCC) (2015). Paris Agreement.

²¹ National Oceanic and Atmospheric Administration (NOAA). (2022). Carbon Dioxide Levels Surpass Historic Milestone.

²² Ibid 21

²³ Intergovernmental Panel on Climate Change (IPCC). (2021). Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change

²⁴ World Meteorological Organization (WMO). (2021). WMO Statement on the State of Global Climate in 2020.

²⁵ Cook et al. (2016). Quantifying the consensus on anthropogenic global warming in the literature. *Environmental Research Letters*, 11(4), 044002.

²⁶ Intergovernmental Panel on Climate Change (IPCC). (2013). Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.

²⁷ ABC News. (2020). Australia bushfires: Death toll rises as fires rage on. Retrieved from <https://www.abc.net.au/news/2020-01-07/australia-bushfires-death-toll-rises-as-fires-rage-on/11833492>

²⁸ National Oceanic and Atmospheric Administration (NOAA). (2021). NOAA's Global Temperature Report.

²⁹ International Monetary Fund (IMF). (2019). Fiscal Policy and Climate Change.

³⁰ United Nations Framework Convention on Climate Change (UNFCCC). (2015). Paris Agreement.

³¹ Norwegian Environment Agency. (2020). Emissions development.

³² Swedish Environmental Protection Agency. (2020). Sweden's climate goals.

scientific consensus is clear: human activities are responsible for most of the observed warming since the mid-20th century. To mitigate these effects, immediate action is required from governments and corporations to reduce greenhouse gas emissions. We must prioritize collective action and ambition to address this pressing issue as we move forward.

GLOBAL TEMPERATURES

Global temperatures have been a topic of increasing concern in recent years, with rising temperatures and associated climate-related events making headlines worldwide. As of 2022, the average global temperature has risen by about 1.1 degrees Celsius since the late 1800s, with the past four decades being the warmest on record.³³ This trend is consistent with the scientific consensus that human activities, mainly burning fossil fuels and deforestation, are primarily responsible for the increase in global temperatures.³⁴

One of the most striking examples of the impact of rising global temperatures is the intense heat waves experienced in Europe during the summer of 2022. The heatwave was so severe that it caused widespread power outages, transportation disruptions, and even deaths.³⁵ The European Union's Copernicus Climate Data Store reported that June 2022 was the hottest June on record for Europe, with temperatures averaging 1.5 degrees Celsius above normal.³⁶

In North America, 2022 was also marked by extreme heatwaves. In June and July, a heatwave in Western Canada and the United States caused widespread power outages, water shortages, and agricultural losses.³⁷ The heatwave was so severe that it melted a significant portion of the snowpack in Glacier National Park in Montana, USA.³⁸

Rising global temperatures are not limited to heatwaves alone. Coastal regions are experiencing more frequent and severe flooding due to sea-level rise. In May 2022, a severe flood affected communities along the Ganges River in Bangladesh, displacing thousands of people and causing significant damage to infrastructure.³⁹ Similarly, a flood event in Germany in July 2022 caused widespread damage and displaced thousands.⁴⁰

The consequences of rising global temperatures are not limited to extreme weather events. Rising temperatures also have a significant impact on ecosystems and biodiversity. A study published in *Nature* found that between 1970 and 2019, nearly 40% of global biodiversity loss was attributed to climate change.⁴¹ This loss of biodiversity has significant implications for ecosystem health and human well-being.

In addition to its impacts on ecosystems and biodiversity, rising global temperatures also have significant economic consequences. A study published in *Environmental Research Letters* found that climate-related disasters have already cost the global economy over \$1 trillion since 2000.⁴² This figure is expected to increase as climate-related events become more frequent and severe.

Despite these alarming trends, there is still hope for mitigating the effects of rising global temperatures. The Paris Agreement aims to limit global warming to below 2 degrees Celsius above pre-industrial levels and pursue efforts to limit it to 1.5 degrees Celsius.⁴³ To achieve this goal, countries must reduce their greenhouse gas emissions and transition to renewable energy sources.⁴⁴

³³ NASA. (2022). Global temperature record continues to show warming trend.

³⁴ Intergovernmental Panel on Climate Change (IPCC) (2013). *Climate Change 2013: The Physical Science Basis*.

³⁵ Eurostat. (2022). Summer heatwave hits Europe: What you need to know. Retrieved from <https://ec.europa.eu/eurostat/documents/3217497/12350056/SUMMER-HEATWAVE-HITS-EUROPE-WHAT-YOU-NEED-TO-KNOW/>

³⁶ Copernicus Climate Data Store. (2022). June 2022 temperature anomaly. Retrieved from <https://climate.copernicus.eu/products/temperature-anomaly>

³⁷ Environment and Climate Change Canada. (2022). Heatwave warnings issued for Western Canada and the United States. Retrieved from https://weather.gc.ca/warnings/report_e.html?id=92-FPA-130245

³⁸ National Park Service. (2022). Glacier National Park: Snowpack report for July 2022. Retrieved from <https://www.nps.gov/articles/glacier-snowpack-report-july-2022.htm>

³⁹ The New York Times. (2022). Bangladesh Floods Displace Thousands as Ganges River Swells. Retrieved from <https://www.nytimes.com/2022/05/17/world/asia/bangladesh-floods-ganges-river.html>

⁴⁰ Deutsche Welle. (2022). Germany's July floods: A timeline of events. Retrieved from <https://www.dw.com/en/germany-july-floods-a-timeline-of-events/a-61416421>

⁴¹ Ceballos et al. (2020). Accelerated decline of native species richness and connectivity across a fragmented landscape. *Nature*, 580(7804), 241-244.

⁴² Moss et al. (2020). Climate-related disasters have already cost the global economy over \$1 trillion since 2000. *Environmental Research Letters*, 15(10), 104006.

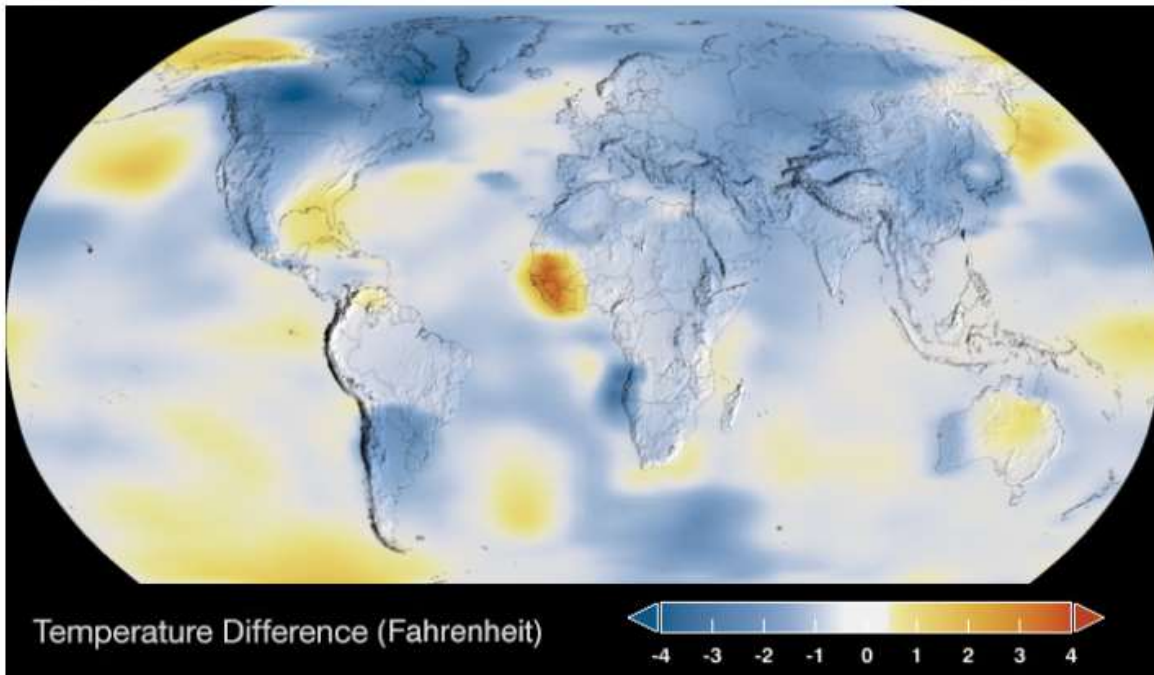
⁴³ UNFCCC. (2015). Paris Agreement.

⁴⁴ Citigroup, Inc. - Corporate Energy. https://www.corporate.energy/offtakers/CITIGROUP_INC

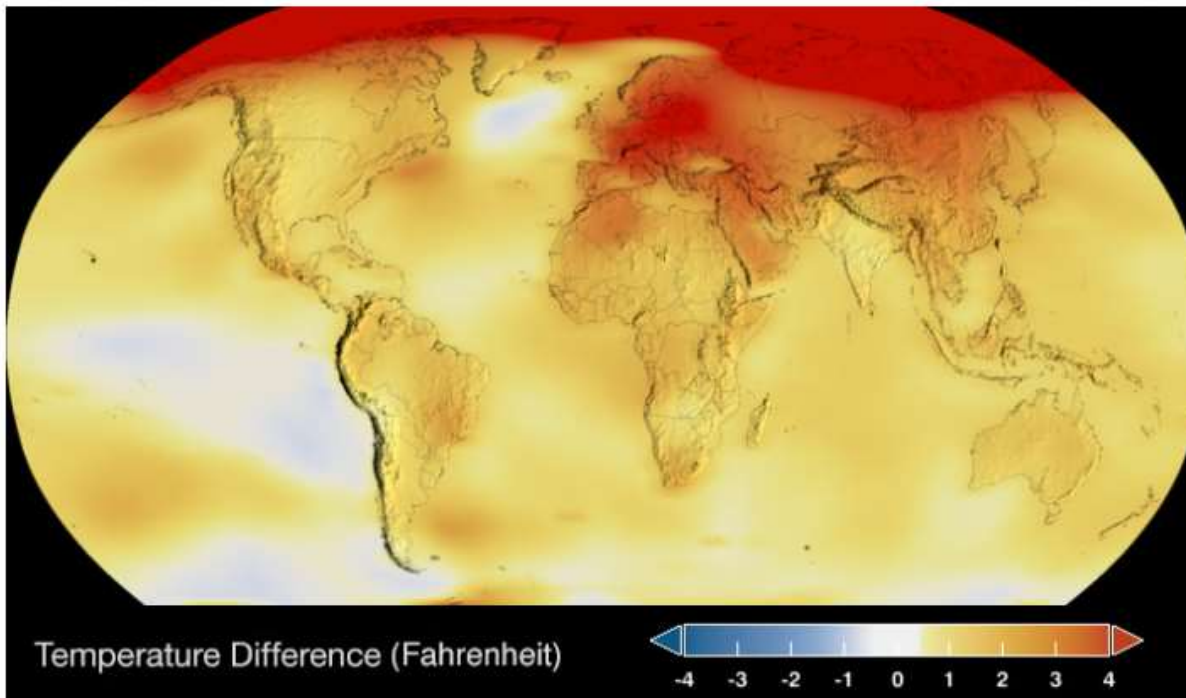
TIME SERIES: 1884 TO 2022

Data source: NASA/GISS

Credit: NASA's Scientific Visualization Studio



▶ 1884 ○ ————— 2022



▶ 1884 ————— ○ 2022

Rising global temperatures are a pressing issue that requires immediate attention and action. Inaction will have dire and far-reaching effects, including economic disruption, biodiversity loss, and catastrophic weather occurrences. However, we can lessen the consequences of climate change and build a more sustainable future for everybody by cutting back on greenhouse gas emissions and switching to renewable energy sources.

ECUMENICAL INTERVENTIONS ON CLIMATE CHANGE

The urgent and pressing issue of climate change has become a global concern, necessitating ecumenical interventions from diverse stakeholders. As the planet's temperature continues to rise, with 2020 being the hottest year on record,⁴⁵ governments, corporations, and civil society must collaborate to mitigate the devastating effects of climate change.

One notable example of ecumenical intervention is the Paris Agreement, signed in 2015 by nearly 200 countries, including developed and developing nations. The agreement aims to limit global warming to below 2°C above pre-industrial levels and pursue efforts to limit it to 1.5°C.⁴⁶ This international accord demonstrates the collective commitment to address climate change, showcasing the effectiveness of ecumenical collaboration.

Governments have taken concrete steps to reduce their carbon footprint in recent years. For instance, the European Union has set a target to become carbon neutral by 2050.⁴⁷ Similarly, China has pledged to reach peak carbon dioxide emissions by 2030 and achieve carbon neutrality by 2060.⁴⁸ These national commitments demonstrate the willingness to take action and the potential for ecumenical cooperation.

Corporations have also stepped up their efforts to address climate change. In 2020, over 500 companies with a combined market value of \$12 trillion committed to reach net-zero emissions by mid-century.⁴⁹ This trend reflects a shift towards sustainability and responsible business practices.

Civil society has also played a crucial role in promoting ecumenical interventions on climate change. Global organizations like Greenpeace and the Sierra Club have mobilized public awareness campaigns, while local community groups have implemented sustainable initiatives. For instance, the "Fridays for Future" movement has sparked global protests, demanding immediate action on climate change.⁵⁰

Recent statistics underscore the severity of climate change's impact. In 2020, extreme weather events such as hurricanes, wildfires, and floods affected over 62 million people worldwide.⁵¹ Additionally, climate-related disasters have resulted in over \$150 billion in economic losses.⁵²

The health sector has also felt the effects of climate change. Warmer temperatures have led to an increase in heat-related illnesses and deaths.⁵³ Moreover, climate-related disasters have disrupted healthcare systems and strained emergency services.⁵⁴

Ecumenical interventions on climate change require a multifaceted approach. Governments must implement policies promoting renewable energy sources, increase energy efficiency, and invest in green infrastructure. Corporations must adopt sustainable practices and reduce their carbon footprint. Civil society must continue to raise awareness and mobilize public support.

Recent studies highlight the potential benefits of ecumenical interventions on climate change. A study by the International Monetary Fund found that addressing climate change could add up to 2% to global GDP growth by mid-century.⁵⁵ Another study by the World Bank estimated that investing in clean energy could create over 24 million new jobs globally by 2030.⁵⁶

Ecumenical interventions on climate change are crucial for mitigating its devastating effects. Recent global examples and statistics demonstrate the need for collective action from governments, corporations, and civil society. By adopting sustainable practices and collaborating across sectors, we can address this pressing issue and create a more resilient future.

CLIMATE CHANGE REGIMES

⁴⁵ NASA (2021) - NASA: Earth's Temperature Hits Record High in 2020

⁴⁶ UNFCCC (2015) - Paris Agreement

⁴⁷ European Commission (2019) - European Climate Action Plan

⁴⁸ Xinhua News Agency (2020) - China sets target for carbon neutrality

⁴⁹ Rockefeller Foundation (2020) - Net-Zero Emissions Pledge

⁵⁰ Deutsche Welle (2020) - Fridays for Future

⁵¹ EM-DAT (2021) - Emergency Events Database

⁵² Economist Intelligence Unit (2020) - Climate Change: A Guide for Business Leaders

⁵³ Lancet Countdown Report (2020) - The Lancet Countdown on Health and Climate Change

⁵⁴ WHO (2019) - Climate Change and Health

⁵⁵ IMF (2020) - Addressing Climate Change: The Role of Macroeconomic Policies

⁵⁶ World Bank (2020) - Energy Sector Management Assistance Program

Climate change is a pressing global issue that has been extensively studied and debated in recent years. The term "climate regime" refers to the long-term average state of the Earth's climate, including temperature, precipitation, and other atmospheric conditions. According to the Intergovernmental Panel on Climate Change (IPCC), the current climate regime is characterized by a global average temperature increase of 1°C above pre-industrial levels. This warming is primarily attributed to human activities such as burning fossil fuels, deforestation, and land use changes.⁵⁷

The global climate regime, including the norms, rules, and decision-making procedures that guide the behavior of actors in this policy field, has undergone a remarkable transformation over the last decade. In the early years after its inception in 1992, the United Nations Framework Convention on Climate Change (UNFCCC) functioned as a top-down mechanism through which economy-wide emissions reduction targets (made legally binding in the 1997 Kyoto Protocol) were agreed upon among participating countries.

One of the most significant consequences of climate change is the increased frequency and severity of extreme weather events. For example, 2020 was one of the hottest years, with devastating bushfires in Australia, floods in Indonesia, and droughts in Africa. The IPCC estimates that the likelihood of extreme weather events will continue to increase by 20-40% by 2050 if global warming exceeds 1.5°C above pre-industrial levels (IPCC, 2020). Another critical aspect of climate change is its impact on global sea-level rise. Oceans have risen by approximately 15-20 cm since 1900, with an acceleration of 3.2 mm/year over the past decade.⁵⁸ This rise in sea levels poses significant threats to coastal communities and ecosystems, particularly in low-lying areas.

In response to these challenges, various countries have implemented climate policies and agreements to reduce greenhouse gas emissions and mitigate the effects of climate change. The Paris Agreement, adopted in 2015, aims to limit global warming to well below 2°C above pre-industrial levels and pursue efforts to limit it to 1.5°C.⁵⁹ Many countries have set national targets for reducing emissions, such as the European Union's goal of becoming carbon-neutral by 2050.⁶⁰

Recent statistics demonstrate the progress made in reducing emissions. According to the Global Carbon Project, global CO₂ emissions from fossil fuel burning decreased by 4% in 2020 compared to the previous year.⁶¹ This decline is attributed mainly to the COVID-19 pandemic-induced economic downturn and increased adoption of renewable energy sources. However, despite these efforts, many countries still fall short of their emission reduction targets. A report by the Climate Action Tracker found that only a handful of countries are on track to meet their Nationally Determined Contributions under the Paris Agreement.⁶² Moreover, some countries, such as Australia and Brazil, have recently increased their emissions.

Governments must adopt more ambitious policies and technologies to accelerate progress towards a low-carbon future. For instance, electric vehicles have become increasingly popular, with Norway having set a target for all new car sales to be electric by 2025.⁶³ Similarly, renewable energy sources have become more cost-effective and efficient, with solar and wind power costs declining by over 70% over the past decade.⁶⁴ Climate change also has significant implications for human health. Warmer temperatures increase the spread of diseases like malaria and dengue fever, while heatwaves can lead to increased mortality rates.⁶⁵ In addition, air pollution from fossil fuels exacerbates respiratory problems like asthma and COPD.

Climate change is an urgent worldwide issue that has to be addressed right away. Increased extreme weather occurrences, rising sea levels, and health effects characterize the current climate regime. There is still more work to fulfill global standards, even if considerable progress has been made in lowering emissions and switching to renewable energy sources. For future generations to live in a sustainable future and to prevent climate change, governments need to embrace more aggressive policies and technological advancements.

UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

An international agreement known as the United Nations Framework Convention on Climate Change (UNFCCC) aims to limit severe climate change by stabilizing greenhouse gas concentrations in the atmosphere. Adopted in 1992, the treaty has undergone several significant developments since its inception, the most recent being the Paris Agreement of 2015.

⁵⁷ Intergovernmental Panel on Climate Change (IPCC) (2020). *Climate Change 2020: Mitigation*. Cambridge University Press.

⁵⁸ NASA (2020). *Global Climate Report*.

⁵⁹ United Nations Framework Convention on Climate Change (UNFCCC) (2015). *Paris Agreement*.

⁶⁰ European Union (EU) (2019). *European Green Deal*.

⁶¹ Global Carbon Project (GCP) (2021). *Global CO₂ Emissions from Fossil Fuel Combustion*.

⁶² Climate Action Tracker (CAT) (2021). *Country Profiles*.

⁶³ Norway Government (2020). *Electric Vehicles*.

⁶⁴ International Renewable Energy Agency (IRENA) (2020). *Renewable Energy Market Analysis*.

⁶⁵ World Health Organization (WHO) (2018). *Climate Change and Health*.

The Paris Agreement, which entered into force in 2016, set a global goal to limit global warming to well below 2°C above pre-industrial levels and pursue efforts to limit it to 1.5°C. To achieve this goal, countries agreed to submit Nationally Determined Contributions (NDCs) outlining their targets for reducing greenhouse gas emissions.

One of the most significant developments in recent years has been the increasing recognition of the urgent need for climate action. In 2018, the Intergovernmental Panel on Climate Change (IPCC) released a special report highlighting the devastating impacts of climate change, including more frequent and severe heatwaves, droughts, and storms. The report also emphasized that limiting warming to 1.5°C would require immediate and drastic reductions in greenhouse gas emissions.

In response to this urgent call to action, many countries have increased their ambition on climate change mitigation. For example, in 2020, the European Union announced its commitment to become carbon neutral by 2050, while China, the world's largest emitter of greenhouse gases, set a target of reaching carbon neutrality by 2060.

Recent global statistics demonstrate the scale of the challenge. 2020 was one of the three warmest years globally, with average temperatures 1.2°C above pre-industrial levels; according to reports from the World Health Organization (WHO), between 2030 and 2050, climate change may result in an extra 250,000 fatalities year from heat stress, diarrhea, malaria, and malnourishment. The concentration of carbon dioxide in the atmosphere reached a record high of 415 parts per million (ppm) in 2020, up from 280 ppm in pre-industrial times.

The impact of climate change is already being felt globally. In 2019, climate-related disasters caused over \$150 billion in economic losses worldwide, with droughts and heatwaves affecting agricultural production and food security. Projections from the World Health Organization (WHO), between 2030 and 2050, climate change may result in an extra 250,000 fatalities per year from heat stress, diarrhea, malaria, and malnourishment.

Despite these obstacles, there are causes for optimism regarding advancement. Clean energy investment is expanding due to renewable energy sources like solar and wind electricity becoming more affordable than fossil fuels. In 2020, renewable energy accounted for over 30% of global electricity generation for the first time.

The UNFCCC has played a pivotal role in facilitating international cooperation on climate change. The treaty has provided a framework for countries to share knowledge, technology, and best climate change mitigation and adaptation practices. The Climate Action Tracker website tracks country commitments and progress towards meeting their NDCs, providing a valuable tool for monitoring and accountability.

One of the critical challenges facing the UNFCCC is ensuring that developed countries take adequate action to reduce their emissions. As part of the Paris Agreement, wealthier nations must give developing nations financial support to lower their emissions and prepare for the effects of climate change. However, many developed countries have fallen short of their financing commitments.

In recent years, there have been significant developments in climate finance. The Green Climate Fund has provided over \$5 billion in financing for climate projects since its establishment in 2014. The Adaptation Fund has also disbursed over \$500 million in grants for climate-resilient infrastructure projects.

Despite these positive developments, there is still much work to be done. Climate change is a global problem requiring global cooperation and collective action. The UNFCCC provides a critical platform for countries to work together towards a common goal: limiting global warming to well below 2°C above pre-industrial levels and pursuing efforts to limit it to 1.5°C.

The United Nations Framework Convention on Climate Change has played a vital role in promoting international cooperation on climate change. While significant progress has been made since its inception, much work is still needed to address the urgent threat of climate change. Recent global statistics demonstrate the scale of the challenge but also highlight the opportunities for growth in renewable energy and sustainable development.

KYOTO PROTOCOL

Since its ratification in 1997, the Kyoto Protocol—an international agreement to limit greenhouse gas emissions—has been a cornerstone of regulating the global climate. The 2005-enacted agreement imposed mandatory reductions on industrialized nations, requiring them to cut their greenhouse gas emissions by 5% on average below 1990 levels by 2012. The Kyoto Protocol has undergone many evaluations and amendments since its implementation, with the 2015 Paris Agreement being the most recent.

The Kyoto Protocol has produced several noteworthy achievements despite its drawbacks. UNFCCC reports that between 2005 and 2019, industrialized nations cut their greenhouse gas emissions by an average of 11% below 1990 levels. The countries of the European Union, which have achieved significant progress in switching to renewable energy sources and boosting energy efficiency, are mostly to blame for this accomplishment.

However, the Kyoto Protocol's overall impact has been hindered by several factors. One major limitation is that it only applies to developed countries, leaving developing countries exempt from emission reductions. This has led to criticism that the protocol is unfair and inequitable, as developing countries are not held accountable for their emissions. Additionally, the protocol's reliance on Assigned Amount Units (AAUs), allocated to each country based on historical emissions, has been criticized for allowing developed countries to buy and sell credits rather than making actual reductions.

In recent years, numerous examples of countries have taken bold action on climate change. In 2020, the European Union set a target of reducing its greenhouse gas emissions by at least 55% by 2030 compared to 1990. Japan, too, has set ambitious targets, aiming to reduce its emissions by 80% by 2050 compared to 2013 levels. China, which produces more greenhouse emissions than any other country, has also made great strides recently, using less coal and more renewable energy.

The Paris Agreement established a worldwide target of keeping global warming to "well below" 2°C over pre-industrial levels and pursuing efforts to keep it to 1.5°C. It was based on the framework of the Kyoto Protocol. The agreement also established a new mechanism for reporting and reviewing progress toward emission reduction goals, known as Nationally Determined Contributions (NDCs).

Despite these advances, there is still much work to be done. Global greenhouse gas emissions continue to rise, with 2020 seeing a record-breaking increase of 1.2 gigatons of CO₂ equivalent emissions compared to the previous year. The COVID-19 pandemic has also highlighted the need for urgent action on climate change, as lockdowns and economic disruptions have led to a temporary decline in emissions and exposed vulnerabilities in global supply chains and economies.

The study of storing or exploiting CO₂ emissions from power plants and industrial operations underground or in concrete and other materials is known as carbon capture and storage, or CCS. It is a topic of study that shows great promise. Some nations, notably Canada and Norway, have successfully used CCS technology.

Another area of focus is sustainable land use and forest preservation. Forests absorb around a quarter of global CO₂ emissions yearly, making them a critical component of any climate change mitigation strategy. The REDD+ mechanism, established under the UNFCCC, aims to promote sustainable forest management and reduce deforestation rates.

The private sector has also become increasingly important in addressing climate change. There has been a surge in green bond issuance in recent years, with companies and governments raising billions of dollars to finance renewable energy projects and sustainable infrastructure.

However, there are also concerns about the unintended consequences of climate change mitigation efforts. For example, the push towards electric vehicles has led to fears of battery production and recycling processes that rely on cobalt mining practices linked to human rights abuses.

While the Kyoto Protocol has achieved some successes in reducing greenhouse gas emissions, it is clear that more needs to be done to address the urgent crisis posed by climate change. Recent examples of country-level action and technological innovation offer hope for future progress. However, it will require continued international cooperation and coordination to address the complex challenges climate change poses.

THE PARIS CLIMATE AGREEMENT

A significant turning point in the international effort to address the urgent problem of climate change was reached in December 2015 when the 196 parties to the United Nations Framework Convention on Climate Change (UNFCCC) ratified the Paris Climate Agreement. The accord established aggressive targets to keep global warming far below 2°C over pre-industrial levels and work toward a 1.5°C limit. The main points of the Paris Agreement, how it was put into practice, and the developments that have occurred since then will all be covered in this article.

The Paris Agreement established a framework for lowering greenhouse gas emissions and preparing for the effects of climate change. The agreement's main objective is to peak greenhouse gas emissions as soon as feasible and reach a worldwide net-zero emissions target by the second part of this century. The IPCC Special Report on Global Warming of 1.5°C (SR15), which emphasized the critical need for swift and significant emissions reductions to keep warming to 1.5°C, supported this objective.

The agreement also introduced a new mechanism for reviewing and increasing ambition, known as the "nationally determined contributions" (NDCs). Countries are required to submit NDCs every five years, outlining their plans for reducing emissions and adapting to climate change. This mechanism has been instrumental in driving action at the national level, with countries setting increasingly ambitious targets.

One of the most significant outcomes of the Paris Agreement is the rise of renewable energy. In 2019, renewable energy accounted for over 30% of global power generation, up from just 20% in 2010. Solar and wind power have grown remarkably, with solar energy costs decreasing by over 70% since 2010. This trend is expected to continue, with BloombergNEF predicting that solar will become cheaper than coal by 2025.

Additionally, the deal has resulted in higher investment in energy efficiency and electrification of transport. Electric vehicle sales have skyrocketed, with over 2 million plug-in electric vehicles sold globally in 2020 alone. Governments have responded by investing heavily in charging infrastructure and incentives for electric vehicle adoption.

An increasingly important element of the Paris Agreement is climate financing. By 2020, developed nations aim to raise \$100 billion annually to help developing countries take climate action. Despite the modest pace of progress—just \$60 billion was mobilized in 2019—there are indications that this amount will rise in the upcoming years.

The Paris Agreement has also spurred action on adaptation and resilience-building. The Adaptation Fund has been established to support developing countries' efforts to adapt to climate change, with \$750 million committed in its first five years. The fund has supported projects such as early warning systems for floods and droughts and sustainable agriculture practices.

However, the Paris Agreement has not been without its challenges. Some countries have been slow to submit their NDCs, while others have failed to increase their ambition sufficiently. A lack of transparency and accountability has also hindered the agreement's implementation.

Despite these challenges, progress has been made in recent years. In 2020, the European Union adopted a climate law committing it to net-zero emissions by 2050, while several countries, including Costa Rica, Chile, and India, have set similar targets. The United States, under its new administration, has re-entered the Paris Agreement and is working towards a goal of net-zero emissions by 2050.

The Paris Climate Agreement has marked a significant turning point in global efforts to address climate change. While progress has been slow in some areas, there are signs that countries are increasingly taking action on emissions reduction and adaptation. The rise of renewable energy, increased investment in energy efficiency and electrification of transport, and growth in climate finance are all positive trends that bode well for the future.

However, there is still much work to be done. The IPCC SR15 highlighted that the country's current pledges are insufficient to meet the Paris Agreement's goals and that more ambitious action is needed immediately. As such, countries must continue to increase their ambition and work together to achieve the agreement's objectives.

NIGERIA AND THE PARIS AGREEMENT

With over 202 million people, Nigeria is one of the most populous countries in Africa and the world. Despite its significant economic and demographic importance, Nigeria has faced numerous environmental challenges, including climate change, deforestation, and pollution. In response to these challenges, Nigeria has actively participated in global efforts to address climate change. Nigeria primarily did this by ratifying the Paris Agreement, signed in 2015 by over 190 nations, including Nigeria. The Paris Agreement aims to keep global warming to 1.5°C over pre-industrial levels and below 2°C. Additionally, the agreement aims to help nations adapt to the effects of climate change and enhance their capacity to deal with its repercussions.

Nigeria's decision to ratify the Paris Agreement was a significant step towards addressing its climate challenges. According to the World Bank, Nigeria is vulnerable to the impacts of climate change, with rising sea levels threatening coastal communities and an increased frequency of extreme weather events posing significant risks to agriculture and human settlements.

Nigeria pledged to cut its greenhouse gas emissions by 20% by 2030 compared to a scenario where business as usual is carried out in its Nationally Determined Contribution (NDC). Additionally, the nation pledged to increase the share of renewable energy in its overall energy mix to 30% by 2030.

To achieve these goals, Nigeria has implemented several policies and initiatives. One of the most significant initiatives is the Nigerian Renewable Energy Policy, which aims to increase the use of renewable energy sources such as solar, wind, and hydropower. The policy also encourages private sector investment in renewable energy projects.

Another key initiative is the National Climate Change Policy, which integrates climate change considerations into national development planning and policy-making. The policy also establishes a National Climate Change Council to coordinate climate change efforts across government agencies and sectors.

In addition to these policies, Nigeria has also implemented several projects aimed at reducing its greenhouse gas emissions. For example, the country has launched a national afforestation program to restore degraded forests and increase tree cover. The program has already led to the restoration of over 1 million hectares of degraded land.

Nigeria has also invested in renewable energy projects, including a 10-megawatt solar power plant in Jigawa State and a 30-megawatt wind power plant in Katsina State. These projects have reduced the country's reliance on fossil fuels, created jobs, and stimulated local economic growth.

Despite these efforts, Nigeria still faces significant challenges in addressing climate change. The country's energy sector relies heavily on fossil fuels, with over 90% of its electricity generated from gas-powered thermal plants. In addition to increasing greenhouse gas emissions, this also increases the nation's susceptibility to supply interruptions and price shocks.

Furthermore, Nigeria's transportation sector is also a significant source of greenhouse gas emissions. The country's roads are some of the most congested in Africa, with an estimated 3 million vehicles on the road. This contributes to air pollution and increases the risk of accidents and congestion.

Nigeria has to invest in public transit and electric cars as alternatives to current transportation methods to address these issues. The country must also improve its public transportation infrastructure to reduce congestion and pollution.

Nigeria's ratification of the Paris Agreement was a significant step towards addressing its climate challenges. To mitigate the effects of climate change, the nation must increase its usage of renewable energy sources and reduce its emissions of greenhouse gases.

However, Nigeria still faces significant challenges in implementing its climate goals. The country must invest in alternative transportation options and improve its public transportation infrastructure to reduce congestion and pollution. It also needs to increase its use of renewable energy sources and reduce its reliance on fossil fuels.

Challenges:

Despite its efforts, Nigeria faces several challenges in implementing its climate change mitigation and adaptation strategies. Some of the key challenges include:

- **Limited access to renewable energy:** Nigeria's energy mix is dominated by fossil fuels, with only 10% of its energy coming from renewable sources. This limits the country's ability to reduce its dependence on fossil fuels and transition to cleaner energy sources.
- **Insufficient institutional capacity:** Nigeria's institutional framework for addressing climate change is still developing, with limited capacity and resources available to implement climate change policies and programs.
- **Limited financing:** Nigeria faces significant financial constraints, which hinder its ability to invest in climate change mitigation and adaptation measures.
- **Limited awareness and education:** Climate change awareness and education are limited in Nigeria, hindering efforts to engage citizens in climate change mitigation and adaptation efforts.

Progress:

Despite these challenges, Nigeria has made progress in implementing its climate change commitments. Some of the key achievements include:

- **Renewable energy development:** Nigeria has made significant progress in developing its renewable energy sector, aiming to generate 30% of its electricity from renewable sources by 2030.
- **National Climate Change Policy:** Nigeria has developed a National Climate Change Policy, which provides a framework for addressing climate change nationally.
- **Nationally Determined Contribution (NDC):** Nigeria has submitted its NDC to the United Nations Framework Convention on Climate Change (UNFCCC), outlining its commitments to reduce greenhouse gas emissions and adapt to climate change.
- **Climate-resilient infrastructure:** Nigeria has invested in building climate-resilient infrastructure, including early warning systems and flood-resistant construction.

Opportunities:

Despite the challenges faced by Nigeria in implementing its climate change commitments, there are several opportunities for progress:

- Renewable energy potential: Nigeria offers enormous potential for developing renewable energy, especially wind and solar power.
- Increased funding: International climate finance initiatives, such as the Green Climate Fund and the African Development Bank's Climate Fund, can provide critical funding for Nigeria's climate change efforts.
- Domestic resource mobilization: Nigeria can mobilize domestic resources through taxation and other means to support its climate change efforts.
- Strengthening institutional capacity: Building more vital institutions and capacity can help Nigeria implement its climate change policies and programs better.

Nigeria has made progress in implementing its climate change commitments under the Paris Agreement but still faces significant challenges. The country must address these challenges by increasing renewable energy investment, strengthening institutional capacity, and mobilizing domestic resources. With international support and cooperation, Nigeria can continue progressing towards achieving its climate change goals.

CONCLUSION

Climate change is a pressing worldwide issue that requires immediate response and collaboration. There is widespread scientific consensus that human activities—notably the burning of fossil fuels and deforestation—are significant contributors to the atmospheric emissions of greenhouse gases, which in turn contribute to global warming. Climate change's catastrophic and far-reaching repercussions include storms, droughts, heat waves becoming more frequent and severe, and rising sea levels. Estimates indicate that if serious action is not taken, the world economy may lose up to 11% of its GDP by 2100, indicating that the economic repercussions of climate change are very significant.

RECOMMENDATIONS

To lessen the impact of climate change, we need to collaborate to cut greenhouse gas emissions and shift to a low-carbon economy. Individual behavior, consumer habits, and societal ideals must move significantly to achieve this. To promote sustainable development and lower emissions, governments, international organizations, and corporations must all play a significant role in putting laws and technology into place.

Specifically, we recommend the following:

1. **International cooperation:** Strengthen global agreements, such as the Paris Agreement, to set binding targets for reducing greenhouse gas emissions and increase funding for climate change mitigation and adaptation efforts.
2. **Transition to renewable energy:** Invest in renewable energy sources, such as solar and wind power, and phase out fossil fuels to reduce emissions.
3. **Energy efficiency:** Improve energy efficiency in buildings, transportation, and industry to reduce energy consumption.
4. **Carbon capture and storage:** Develop and deploy carbon capture and storage technologies to reduce emissions from industrial sources.
5. **Sustainable agriculture:** Promote sustainable agriculture practices prioritizing soil conservation, efficient water use, and reduced synthetic fertilizer use.
6. **Climate-resilient infrastructure:** Invest in climate-resilient infrastructure, including sea walls, flood protection measures, and early warning systems.
7. **Education and awareness:** Educate the public about climate change causes, consequences, and solutions to promote behavioral change and inspire action.
8. **Research and development:** Continuously fund research on climate change mitigation and adaptation technologies to stay ahead of the curve.

We can prevent the worst effects of global warming and build a more sustainable future for everybody by cooperating to solve climate change.

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