THE IMPACT OF CLIMATE CHANGE ON INTERNATIONAL SECURITY: A CASE STUDY OF THE ARCTIC REGION

BY

KIRORO DAVID EDAFE

DEPARTMENT OF HISTORY AND INTERNATIONAL STUDIES,

FACULTY OF ART,

UNIVERSITY OF BENIN,

BENIN CITY.

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CERTIFICATION

This is to certify that this project was carried out by **KIRORO DAVID EDAFE** in the Department of history and international studies, University of Benin, under my supervision

Dr C. O. Edigin Date
(Project supervisor)

Prof. Jacinta Nwaka Date
(Head of Department)

DEDICATION

This Project is dedicated to Almighty God, who is the source of my being and the wings on whom I soar.

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CHAPTER ONE

CLIMATE CHANGE AND INTERNATIONAL SECURITY: A CASE STUDY OF THE ARCTIC REGION

INTRODUCTION

Over the years, scholars have proposed several theories to explain how the international system works. Among these, two of the most commonly discussed and widely accepted perspectives are realism and idealism.[1] These theories offer distinct views on the nature of international relations. Realists argue that the greatest threat to a state, especially one that lacks power, is not abstract forces, but other states within the international system. They believe the absence of a central authority or global government leaves each state to fend for itself, creating a constant risk of conflict and insecurity.[2] In contrast, idealists present a different outlook. They argue that warfare between states is not only avoidable but also unwise.

According to this view, even if a state were to dominate or destroy others, it would still be vulnerable and alone in a system it cannot survive in isolation. Idealists emphasize that threats to peace are not always visible or conventional. They identify broader, often invisible challenges, such as climate change.[3] They view them as far greater long-term threats to global stability. In response to such concerns, idealist-influenced institutions like the United Nations and other international bodies have increasingly prioritized environmental issues and continue to develop strategies to address the growing danger posed by climate change. Before examining the security threats linked to climate change, especially in the Arctic, it is important to understand what climate change means. Climate change refers to a long-term shift in global temperatures and weather patterns, largely caused by human activities such as the burning of fossil fuels like coal, oil, and gas.[4]

Under normal conditions, the Earth is protected by an atmosphere that functions like a blanket, helping to regulate temperature by trapping just the right amount of the sun's heat. This balance

allows life to thrive. Without the atmosphere, the Earth would experience extreme temperature swings, scorching heat during the day (like in space) and freezing cold at night, as there would be nothing to hold the heat in. The atmosphere, which is made up of gases like oxygen, nitrogen, and carbon dioxide, keeps the planet's temperature within a livable range.[5] However, with the rise of industrialization came an increase in the use of fossil fuels for transportation, electricity, and manufacturing. When these fuels are burned, they release large amounts of greenhouse gases (particularly carbon dioxide), into the atmosphere. These gases make the atmospheric "blanket" thicker, trapping more heat than usual and causing the Earth's average temperature to rise. This process is known as global warming, and it is a major component of climate change.[6]

Climate change however, involves more than just global warming. It also includes wide-ranging and severe changes in global weather patterns. These include stronger and more frequent storms, longer periods of drought, unpredictable rainfall, melting glaciers, rising sea levels, and shifts in climate zones.[7] One of the most feared effects of climate change is its impact on agriculture. Unpredictable weather makes it difficult for farmers to plan and grow crops, which leads to food shortages, hunger, and malnutrition in many vulnerable regions. In addition, climate change worsens water scarcity in already dry areas and contributes to health problems by increasing the spread of diseases like malaria into new regions where they were once uncommon.[8] As these issues grow more severe, the pressure on governments, international organizations, and local communities to respond effectively also increases.

Among all the regions affected by climate change, the Arctic is experiencing some of the most dramatic and alarming changes. The Arctic is located at the northernmost part of the Earth and surrounds the North Pole.[9] It includes parts of several countries, such as Canada, Russia, the United States (Alaska), Norway, Greenland (part of the Kingdom of Denmark), Sweden, Finland, and Iceland. The region is known for its harshly cold climate, large areas of snow and ice, floating sea ice,

and distinctive wildlife including polar bears, seals, walruses, and Arctic foxes.[10] It is also home to Indigenous communities who have lived in balance with the environment for generations.

Due to climate change, especially global warming, the Arctic is heating up about four times faster than the global average. This phenomenon is known as Arctic amplification.[11] As the ice melts, it reveals darker ocean water and land beneath, which absorb more sunlight rather than reflecting it like ice does. This extra heat causes even more ice to melt, creating a vicious cycle of warming and melting. The loss of Arctic ice has serious global consequences. One of the most direct impacts is the rise in sea levels, which threatens to flood coastal cities and small island nations around the world.[12]

Countries of the world are showing more interest in the Arctic because the melting ice is making it easier to reach valuable natural resources like oil, gas, and minerals. New sea routes are also opening up, which can make global trade faster and cheaper. The region is becoming more important for military and political reasons too, as countries want to protect their interests. Both Arctic and non-Arctic countries now see the Arctic as a place of opportunity, competition, and concern for the future. In the following sections, we will explore the growing impact of global warming on the Arctic's already fragile weather systems and environment, as well as the strategies being developed to reduce the long-term threat of climate change in the region and beyond.

Aim and objectives

The aim of the study is to examine the effect of the international politics on the Arctic region. The objectives of the research include;

1. Examine the history of climate change in the Arctic region
2. Explore the effect of climate change on the international politics of the Arctic region
3. Examine the effect of climate change on the interstate relations in the region
4. Examine Of climate change on the trade and human population in the region.

Scope of the Study

The scope of the study will cover the period from 2007-2020. The study focuses on the period from 2007 to 2025 because it marks an important time when climate change became a serious global issue and affected the international security in the Arctic. The study focuses on how climate change has affected international security in the Arctic between 2007 and 2025. It examines the melting ice, rising interest in Arctic resources, and increased geopolitical activity by major powers. This period captures key environmental and political changes that have turned the Arctic into a region of both cooperation and competition.

Research Methodology

This adopts the historical methodology of research, It obtains data from both primary and secondary sources.

Primary Sources

Primary sources such as archival materials were utilized to support and enrich the findings of this research.

Secondary Sources

Secondary sources like books, journal articles, newspapers and online materials were used to obtain information about the subject matter.

Literature Review

In the course of this research, we will examine some works written previously that will be of great importance and benefit to this work. The first to be reviewed is the article by L. Streletskiy and N. Shiklomanov, "Assessment of the cost of climate change impacts on critical infrastructure in the circumpolar Arctic",[13] This work conducts a comprehensive analysis of how climate change is

financially burdening and physically threatening the vital infrastructure spread across the Arctic region. It closely examines how rising temperatures, melting permafrost, coastal erosion, and changing seasons, problems made worse by global climate change, are damaging important infrastructure that people in the Arctic rely on for daily life and economic activities. These include roads, bridges, airports, pipelines, oil and gas platforms, power lines, and buildings, all of which were often originally constructed under the assumption of stable, frozen ground and predictable weather patterns.[14]

Additionally, the work addresses long-term implications for regional development, energy extraction, transportation logistics, and Indigenous settlements, emphasizing the urgency of adaptation measures and investment in climate-resilient engineering designs. It also serves as a wake-up call for policymakers, stressing that the economic cost of inaction or delayed response to Arctic infrastructure vulnerability could be exponentially higher in the coming decades. Although the work will be of great significance to this research it fails to examine the historical perspective on global warming In the Artic region, the void of which will be filled by this research

D. Rothkopf, in his work "Is a green world a safe world? not necessarily",[15] questions the common belief that going green automatically brings global peace and security. He explains that while switching to clean energy is important, it can also cause serious political and economic problems. For example, moving away from oil and gas could harm countries that depend on them for income, possibly leading to unrest and weakened governments. At the same time, the growing demand for things like solar panels and electric cars could increase global competition for rare minerals like lithium and cobalt, which are mostly found in unstable regions. This could lead to power struggles, economic pressure, or even conflict. Rothkopf also points out that richer countries may benefit more from green technologies, while poorer nations struggle to keep up due to lack of money and resources.[16]

He also warns that climate change could also push many people to leave their homes, causing tensions at borders and increasing fear or hostility in some places. Overall, he argues that while protecting the environment is crucial, it doesn't automatically make the world safer, unless countries also work together to manage the political and economic changes that come with it. The study however fails to examine comprehensively the effects of climate change on the artic region. This study hopes to achieve this.

Moreso, The work by G. V. Alekseev, "Climate change in the Arctic: causes and mechanisms",[17] explains in detail the science behind how and why the Arctic is warming so quickly. Alekseev breaks down the natural and human-made factors that are driving this rapid change. He explains a process called Arctic amplification, where things like melting sea ice, reduced snow cover, and the dark ocean absorbing more heat instead of reflecting it, all work together to make the Arctic heat up faster than other parts of the world. The study also looks at how greenhouse gases like carbon dioxide and methane are changing the Earth's climate, with especially strong effects in the Arctic because of its unique environment.[18]

Alekseev further examines how wind patterns, ocean currents, and pressure systems also play a role in speeding up Arctic warming. Using scientific data, climate models, and records of past climate changes, he shows how these processes have developed over time and what might happen in the future. The work makes it clear that changes in the Arctic don't stay in the Arctic, they affect the whole world by raising sea levels, changing weather patterns, and possibly pushing the global climate toward dangerous tipping points. It however fails to give an historical perspective on global warming In the Artic region, the void of which will be filled by this research.

Torben Koenigk and Jeffrey R. Key, in their work "Climate Change in the Arctic",[19] give a broad and detailed look at how climate change is affecting the Arctic in many ways. They examine rising temperatures, melting sea ice, retreating glaciers, and thawing permafrost, changes that are

happening much faster in the Arctic than in other parts of the world. These changes are harming Arctic wildlife and destroying the natural homes of animals like polar bears, walruses, and migratory birds. The authors also look at how climate change is affecting people, especially Indigenous groups like the Inuit and Sámi, whose traditional ways of life are being disrupted by vanishing hunting areas, changing weather, and damaged infrastructure. In addition, the work explores how melting ice is opening up new sea routes and making Arctic energy resources more accessible, leading to increased global interest and competition.[20] The authors stress the need for stronger international cooperation to manage these changes and protect the region. They call for action that respects both the environment and the rights of local communities, while also supporting responsible economic development. The research although will be of great help in the furtherance of this research, it however fails to examine the impact of climate change on international diplomacy in the Arctic Region, the void of which will be filled by this research.

The work by Peter Schwartz and Doug Randall, "An Abrupt Climate Change Scenario and Its Implications for National Security",[21] describes a possible future where climate change happens suddenly and severely, not gradually. They imagine a situation where major changes in ocean circulation, especially the shutdown of the system that helps balance temperatures in the North Atlantic, cause serious climate problems in parts of the world. In this scenario, places like North America and Europe become much colder, while Asia and Africa suffer from droughts, and weather everywhere becomes more extreme and unpredictable. The authors explain how this kind of sudden change could lead to big security problems, such as less food, water shortages, mass migration, and even conflict over limited resources. They warn that climate change can make existing problems in weak countries worse and even affect stronger nations by forcing them into crisis mode. The report urges national security agencies to include climate risks in their planning.[22] It also warns that ignoring these risks could lead to state collapse, border conflicts, and the use of military force during humanitarian disasters. Overall, the work shows that climate change is not just about the

environment, it's also a serious threat to peace and global security. This work however fails to examine the causes of climate change in the Artic region as well as assess international cooperation and governance in the Arctic, the void of which will be filled by this research.

Finally, Mohammed Saaida's work, "The Effect of Climate Change on International Security",[23] explores how climate change is becoming a serious threat to peace and stability around the world. It explains how rising global temperatures, extreme weather events, sea-level rise, droughts, and natural disasters can lead to problems like food and water shortages, forced migration, and competition over resources. These problems can increase tensions within and between countries, especially in regions that are already fragile or politically unstable.[24] The work examines how climate change can make existing conflicts worse and even trigger new ones, showing how environmental issues are now closely linked to national defense, global cooperation, and international peacekeeping. Overall, it highlights the urgent need for world leaders and security institutions to take climate change seriously as a growing global security challenge. This work however fails to assess in details Global Warming in the Arctic Region, the void of which will undisputably be filled by this research.

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CHAPTER TWO

CLIMATE CHANGE AND INTERNATIONAL RELATIONS

INTRODUCTION

The problem the earth faces on a daily basis creates concern for both the individual man and the whole mankind put together. Although significant travels and explorations have and are still being made in other planets in order to reduce the number of men on earth, life as we know of it now is still muchly dependent on earth and so it is important we do all we can to reduce the hardship placed on earth and this is where climate change comes to play. Climate change isn't a new phenomenon, but it is one of the fastest growing threat face by the world today and if nothing is done to quell it's growing disastrous capabilities, life might end even before we know it.[1] Climate change refers to the long-term changes in global or regional climate patterns, especially the rise in average global temperatures over the past century.[2]

While the Earth's climate has changed naturally over time (due to volcanic eruptions, solar activity, etc.), the current rate and scale of change is largely caused by human activity. The primary cause of modern climate change is the increase in greenhouse gases (GHGs) like carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) in the Earth's atmosphere.[3] These gases trap heat from the sun, a process called the greenhouse effect, and lead to warming of the planet (Earth specifically). The increase in these substance on the earths atmosphere is primarily caused by the activities of men. Humans cause climate change mainly through everyday activities that release harmful gases into the atmosphere. One of the biggest causes is the burning of fossil fuels like coal, oil, and gas. We burn these fuels to produce electricity, run cars, power factories, and heat our homes.[4] When we do this, we release large amounts of carbon dioxide (CO_2) into the air. This gas traps heat from the sun and makes the Earth warmer, a process known as the greenhouse effect. Another major cause is deforestation. Trees naturally absorb CO_2 from the air, but when we cut them

down for farming, construction, or wood, we lose that protection. Even worse, the carbon stored in those trees is released back into the atmosphere, adding to the problem.[5]

Furthermore, Farming also plays a big role in climate change, especially livestock farming. Animals like cows and sheep release methane, a greenhouse gas that is even more powerful than carbon dioxide. Certain types of rice farming and the overuse of fertilizers also release harmful gases into the air. Industrial activities such as manufacturing cement, steel, plastics, and chemicals contribute further by releasing more greenhouse gases and pollutants.[6] Lastly, our wasteful lifestyles, which includes the use of too many plastics, y handle, and we continue to consume resources faster than nature can recover.[7]

The dangers of climate change is so great that it has affected every every aspect of international relations. These environmental issue has now become central to foreign policies of Nations in the world as well as global politics. Governments around the world are now including climate-related matters in their foreign policy decisions because climate change affects things like national security, economic stability, and migration.[8] For example, extreme weather events, rising sea levels, and resource shortages caused by climate change can lead to conflicts or humanitarian crises, which require international cooperation to solve. This is why climate change has become central to global governance. Organizations such as the United Nations and the Intergovernmental Panel on Climate Change (IPCC) are now key players in coordinating climate action across countries.[9] The United Nations was established in 1945, shortly after World War II, to promote peace, cooperation, and development among countries. Over the past 79 years, it has expanded its role to include major environmental concerns. One of the key ways of doing this is organizing climate conferences, such as the Conference of the Parties (COP) meetings, where countries come together to make decisions on reducing greenhouse gas emissions.[10]

The Intergovernmental Panel on Climate Change-IPCC was created in 1988 by the UN and the World Meteorological Organization. For the past 36 years, it has provided scientific research and assessments about climate change, including its causes, impacts, and possible solutions. The reports released by the IPCC guide world leaders and shape international climate policies.[11] Together, these two organizations have played an important role for decades in helping countries understand climate change and work together to fight it. These organizations aren't alone in their fight against climate change. State actors, who are the principal players in the international arena are also critical in the fight against climate change. All states are main decision-makers in international climate agreements and policies. For example, countries like the United States, China, and Nigeria send representatives to global climate conferences, where they negotiate and commit to reducing carbon emissions. Through their internal policies as well as their external actions they help to fight against these environmental issues.[12] On the other hand, non-state actors are groups or individuals that are not official parts of any government, meaning they aren't states but they still influence happenings in the international system and definitely they also still influence climate policies.[13]

In today's global effort to fight climate change, both state actors and non-state actors play very important roles. State actors are mainly governments and national leaders who create policies, negotiate treaties, and represent their countries in global meetings. They are the ones who sign international agreements like the Paris Climate Accord and make decisions about laws and funding for climate action. On the other hand, non-state actors include international organizations such as the United Nations and the IPCC, environmental NGOs like Greenpeace, scientists, research institutions, private companies, and even individuals or activists like Greta Thunberg. These groups do not make official government policies, but they influence them in powerful ways.[14] For example, non-state actors often raise public awareness about climate issues, push governments to act faster, provide expert research and technical advice, and sometimes fund or create new green technologies. They also help monitor whether countries are keeping their promises on climate action.

Together, both state and non-state actors help shape the direction and progress of climate diplomacy, that is, how countries and groups work together to solve climate problems. This teamwork is very important because climate change is now considered a major environmental security threat. Drought, floods, heatwaves, and rising sea levels can cause serious problems like food shortages, forced migration, and even war. So, when state and non-state actors cooperate, they are not just protecting the environment, they are also helping to protect human lives, prevent conflicts, and keep global peace and stability. That's why climate change is no longer just an environmental issue; it is now a key part of global politics and international relations.[15]

It should be noted however that not all countries react the same way to environmental challenges such as climate change. Just as culture, ideas and values influence individual actions even when both individuals are faced with the same challenges, so also does the perception and ideology of a country determines how she reacts to climate change. The reaction of countries to this increasing danger tallies with the various international relations theories that exist. We will examine each of them and see how they influence how countries see and respond to climate change. Beginning with Realism. It is one of the most popular theories in international relations. Realism as a theory states that countries care mainly about their own safety and survival. They will only take action if they feel threatened. So, a country may not care much about climate change unless it sees that rising sea levels, drought, floods, or lack of resources could affect its people, economy, or security. So realist countries don't tend to respond much to international cooperation about climate change, because they don't see climate changes a significant threat, not until it becomes a direct threat through which it directly affects their citizens and this alone will now make them take action.[16] Realists believes that countries are always competing for power and so they don't trust each other much, they don't also like to depend on other nations when solving problems, even big ones like climate change. A classic example is north Korea under the realist leader Kin Jong-un.

North Korea under Kim Jong-un is not considered passionate about climate change. The country remains highly secretive and isolated, and its government places more focus on military development, regime survival, and self-reliance (known as Juche ideology) than on environmental concerns. While North Korea has acknowledged environmental problems within its borders, such as deforestation, flooding, and drought, these are mostly addressed in relation to their effect on food supply and internal stability. The government does not make climate change a major part of its public policy or foreign relations. It also avoids active participation in international climate agreements and rarely cooperates with global organizations.[17] North Korea is also not a prominent participant in climate forums like the United Nations Climate Change Conferences or in the Paris Agreement. Overall, under Kim Jong-un (a die-hard realist), North Korea has shown little interest in global climate diplomacy and is not known for prioritizing climate change in its national agenda.

Furthermore, liberalism says something different. It believes that countries can cooperate and work together peacefully to solve global problems. Climate change affects everyone, so liberalism encourages countries to join hands, sign agreements, and form international groups.[18] That's why we have organizations like the United Nations (UN) and the Intergovernmental Panel on Climate Change (IPCC). These groups help countries talk, share knowledge, set goals like reducing pollution, and monitor each other's progress. Liberalism sees laws, rules, and teamwork as important tools to fix global problems like climate change. A country under a lonralist leader such as The United States under Joe Biden was actively involved in climate change gatherings and the need for international cooperation to tackle such global issue.[19]

This is because this theory opines that what will a country gain if he conquers the whole world and exist alone, it also believes that there are more weightier threats in the international system all of which are unseen and these threats are even worse than the threat posed by powerful states in the international system. Furthermore, there is constructivism, which explains that countries act based on their beliefs, ideas, and identity.[20] For example, if a country believes that protecting the planet is a

moral duty, it will take climate action, even if it's costly. Countries like Sweden or New Zealand care deeply about the environment because their people believe it's the right thing to do. Also, if climate activism becomes popular among citizens, the government might feel pressure to act. So, with constructivism, it's not just about money or safety, it's also about values and what people think is important.[21]

There are other theories that can help us understand climate behaviors, and they include; Marxist or critical theory looks at how power and money affect the world. It says that rich countries and big companies are mainly focused on making money, even if it hurts the planet.[22] These powerful groups are usually the ones who cause the most pollution, through their factories, industries, and use of fossil fuels. But even though they cause most of the damage, it is the poorer countries that suffer the worst effects, like droughts, floods, and food shortages. This theory also points out that some rich companies move their factories to poor countries because the environmental laws there are weak or not enforced. That means these poorer countries get more pollution and health problems just because the companies want to save money. Marxist theory says that climate change is not just about the weather, it's also about how unfair the world is. It's part of a bigger problem where rich and powerful countries take advantage of weaker ones.[23] So, countries that believe in this theory often see climate change as one of the many results of an unequal and unjust global system, where the strong keep getting stronger while the weak suffer more.

Moreso, Green theory is an approach in international relations that places the environment and nature at the center of global discussions. Unlike other theories that focus mostly on power, security, or money, green theory says we need to completely change the way we think about the world if we want to protect the planet. It argues that our current way of life, where countries keep pushing for economic growth, industrial development, and endless consumption, is not sustainable.[24] This constant focus on making more money and using more resources is what's harming the environment the most. Green theorists says instead of seeing nature as something to use and control, we should

see it as something to care for and live in harmony with. That means switching to clean, renewable energy like solar and wind, using fewer harmful materials, reducing pollution, and changing our ideas about what development really means. It also encourages local farming, less waste, and more community-centered ways of living.[25]

From this view, climate change is not just a technical or political issue,it is a deep moral and lifestyle issue. So, for countries or people who follow this theory, saving the planet means rethinking everything from how we build our cities to how we trade, travel, and even eat. Green theory calls for a radical shift in both personal behavior and global policies in order to create a more balanced and eco-friendly future. Although no country officially calls itself a "green theorist," some countries behave in ways that reflect the ideas behind Green Theory. A good example is Bhutan. Unlike most nations that focus on economic growth and GDP, Bhutan uses a different measure called "Gross National Happiness" to guide its development. This means the country places more value on well-being, cultural preservation, and environmental protection than on just making money.[26] Bhutan is also known for being carbon-negative, which means it removes more carbon dioxide from the atmosphere than it produces, largely because of its thick forest cover. In fact, Bhutan's constitution requires that at least 60% of its land must always remain forested. The country also relies on clean energy, especially hydropower, and avoids the kind of heavy industrial development that harms the environment. These practices show how committed Bhutan is to the environment and world at large

Conclusion

In conclusion, climate change has become a major issue in international relations, influencing how countries and global actors behave and cooperate. Through the lens of theories like realism, liberalism, constructivism, Marxism, and Green Theory, we can better understand the different motivations behind climate action or inaction. While some nations act out of self-interest or shared

goals, others respond based on beliefs, identity, or deeper concerns about inequality and the health of the planet. Both state and non-state actors, including governments, international organizations, NGOs, and individuals, play important roles in shaping climate diplomacy and pushing for solutions. As climate change continues to affect global security, development, and power dynamics, it is clear that addressing it requires not just political will, but also a rethinking of how the world interacts, grows, and protects the environment.

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CHAPTER THREE

GLOBAL WARMING IN THE ARCTIC REGION: A HISTORICAL PERSPECTIVE

INTRODUCTION

The Arctic was once thought of as a faraway land that people could hardly reach, covered with endless ice and snow. But in recent years, it has become one of the clearest and most debated examples of climate change. What used to seem like a frozen land that would never change is now melting, shifting, and showing how delicate it really is. This change is not only about the environment, it also affects animals that live on the ice, the people whose lives depend on the land and sea, and even the way countries act toward one another.[1] Scientists were the first to notice that temperatures were rising and that the ice was melting faster than before. Their research showed that the Arctic was warming more quickly than the rest of the world, and this made it clear that something serious was happening. At the same time, world leaders began creating agreements to fight climate change, but these plans often did not give enough attention to the special problems the Arctic faced.[2]

As the ice kept melting, the Arctic started to matter more to the whole world, not only because of the environment but also for other reasons. When the sea ice broke apart, new water routes began to open. Ships could now travel through these shorter paths, which saved time and money compared to older, longer routes. At the same time, the melting ice made it easier for countries and companies to reach oil, gas, and other valuable resources that were hidden under the frozen seabed. Because of these changes, the Arctic became more than just a cold, empty land. It turned into a place where many countries wanted to protect their interests and gain advantages. They began competing over trade routes, energy resources, and even control of certain areas. This means that the Arctic today is not only about ice and animals, it has become a key region where the problems of climate change, the needs of nature, the lives of people, and the struggles of politics and power all come together.[3] In

this chapter we will be examining the historical background of the global warming in the Artic region.

The study of how the Arctic climate was changing started to gain real attention in the middle of the 20th century. Before that, explorers, sailors, and traders who traveled through the region had already noticed strange patterns in the weather and ice. For example, in the 1920s and 1930s, records from meteorologists showed that parts of the Arctic, especially near the North Atlantic, were warming faster than expected.[4] Norwegian scientists even wrote about winters becoming milder and sea ice shrinking in size. However, at that time, people believed these changes were only part of natural shifts in the Earth's climate, not something caused by humans. Scientists thought the warming would not last long and that the Arctic would return to its normal frozen state.[5]

Things began to change in the 1970s and 1980s, when climate science became more advanced. Researchers started to link the warming of the Arctic to greenhouse gases produced by human activities, such as burning coal, oil, and gas. What made the difference was new technology, especially satellites. Satellites allowed scientists to watch the Arctic from space and measure the ice every year with much greater accuracy than before. This showed that the ice was not only shrinking but disappearing at a much faster rate than anyone had imagined. Reports from important scientific organizations like NASA and NOAA made it clear that summer sea ice was retreating quickly. These studies also revealed that the Arctic was warming at about twice the speed of the rest of the world.[6] Scientists later gave this special process a name: Arctic amplification.

The situation became even more serious in 1990, when the Intergovernmental Panel on Climate Change (IPCC) released its first major report. This report officially warned the world that the Arctic was one of the most at-risk regions on Earth. It explained that the Arctic's ice plays an important role in controlling the planet's temperature because it reflects sunlight back into space. This effect is called the albedo effect. But when the ice melts, the dark ocean water beneath it absorbs more heat

instead of reflecting it, which causes the region to warm even faster. This creates a dangerous cycle, more warming leads to more melting, and more melting leads to even more warming.[7] The IPCC highlighted that the Arctic would serve as a kind of "early warning system" for the whole planet, because the changes happening there would show how serious climate change was becoming everywhere else.

In the last few decades of the 20th century and the early years of the 21st century, the Arctic began to change at a speed that shocked scientists. For many years, people had thought of the Arctic as a place of permanent ice, but new tools like satellites started to tell a different story. Satellites, which could look down from space and take constant measurements, showed that the ice was not just melting a little, it was disappearing steadily year after year. Both the size of the ice (its extent) and its thickness were shrinking. The thick, older ice that had lasted for many years, known as multi-year ice, was melting even faster than the younger, thinner ice that normally comes and goes with the seasons.[8] This was deeply worrying, because multi-year ice is stronger and more stable, and once it melts, it takes a long time to come back. By comparing records from 1979 to the early 2000s, scientists found that the Arctic had already lost about 40 percent of its summer ice cover.

One of the most important years in this story was 2007. This is because in that year, the Arctic reached its lowest sea ice minimum ever recorded up to that time. In other words, there was less ice in the Arctic at the end of summer 2007 than in any year scientists had measured before.[9] The drop was so dramatic that it surprised even experts who had been warning about climate change. The event caught the attention of the global community because it was a visible sign of how fast the Arctic was warming and how serious the situation had become. What had once seemed like a slow, distant problem was now happening in real time, with visible and measurable impacts. The melting of Arctic ice also brought big changes to the natural world. Animals that depend on ice to survive were among the first to feel the effects. Polar bears, for example, use sea ice as platforms to hunt seals, their main source of food. As the ice melted, they had to swim longer distances, waste more

energy, and sometimes starve because they could not catch enough prey. Walruses, which rest on ice between feeding trips, were forced to crowd onto land in dangerous numbers, leading to deadly stampedes. Seals, which use ice as a place to give birth and raise their pups, also lost safe areas, making their young more vulnerable to predators and harsh weather. These changes showed that the melting ice was not just about rising temperatures, it was destroying entire food chains and putting species at risk of extinction.[10]

The crisis did not only affect animals. Indigenous peoples who live across Alaska, Canada, Greenland, and Russia also faced serious challenges. For centuries, their way of life had been closely connected to the ice and the animals that live there. They hunted seals, whales, and fish, traveled across frozen routes, and built cultural traditions around the cycles of the Arctic environment. But as the ice melted and the weather became less predictable, hunting became more dangerous, and food became harder to find. In some areas, thinning ice made travel unsafe, cutting people off from resources and other communities.[11] This showed that climate change was not just a scientific issue or an environmental problem, it was also a human problem, deeply tied to culture, health, and survival. Another major effect of the warming Arctic was the damage to the land itself. Permafrost, which is the frozen ground (soil) that covers much of the Arctic, began to melt at an increasing rate. When permafrost melts, the soil becomes unstable, causing roads, houses, and pipelines to crack or collapse. Entire villages near the coast began to face severe erosion, where the land was literally eaten away by rising seas and stronger waves. Some communities were forced to move, leaving behind places where their families had lived for generations.[12] At the same time, the weather in the Arctic became harder to predict. Storms grew stronger, seasons shifted, and patterns that people had relied on for centuries changed rapidly, making daily life more difficult and dangerous. The Arctic's transformation in just a few decades showed the world how quickly climate change can affect both nature and society, making it a warning sign for the entire planet.[13]

As the sea ice in the Arctic continued to melt two routes in particular became very important: the Northern Sea Route along the coast of Russia and the Northwest Passage through the Canadian Arctic islands. These routes are much shorter than traditional shipping routes that pass through the Suez Canal or around Africa. For example, a ship traveling from Europe to Asia can save thousands of kilometers and many days of travel if it uses these Arctic passages instead of the long southern routes. This means less fuel, less money spent, and faster delivery of goods. For global trade, this was seen as a huge opportunity, and countries with access to the Arctic started paying more attention to the region.[14] But the Arctic was not just about shipping. The melting ice also made it easier to reach valuable resources hidden under the seabed. In 2008, the U.S. Geological Survey estimated that the Arctic could contain as much as 13 percent of the world's undiscovered oil and 30 percent of its undiscovered natural gas. These are massive numbers, considering how much the world depends on oil and gas for energy. To put it simply, the Arctic could become one of the biggest untapped sources of energy on Earth. This discovery changed the way people looked at the region. What had once been thought of as a frozen wasteland with little value was now seen as a potential goldmine for energy companies and governments.[15]

This shift encouraged renewed interest and competition among the five countries that border the Arctic Ocean, which are Russia, the United States, Canada, Norway, and Denmark. These countries, often called Arctic littoral states, began to strengthen their presence in the region. Russia expanded its icebreaker fleet and built new bases. Canada asserted control over the Northwest Passage. The United States increased research and patrols in Alaska. Norway pushed forward with offshore drilling in the Barents Sea, while Denmark showed greater interest in Greenland's resources. Each country wanted to secure a share of the Arctic's growing economic promise.[16] However, this rush for resources and trade also came with risks. On one hand, climate change was exposing how fragile the Arctic environment truly is, ecosystems were being disrupted, animals were losing habitats, and indigenous communities were facing hardship. On the other hand, the very same melting that

revealed these problems also made the region more valuable for shipping and energy. This made the region not only an environmental concern but also a place of geopolitical importance, where questions of trade, energy security, and international competition became tightly connected with the fight against climate change.[17]

As regards it's environmental concerns, people around the world began to notice how fast the climate was changing, and different international efforts were created to try and slow down global warming. However, these efforts have not always worked the same way, and their results have been mixed. The first big attempt was the Kyoto Protocol of 1997, which was the first legal agreement that asked rich, industrialized countries to cut down on the amount of harmful gases, known as greenhouse gases, that they released into the air. These gases, such as carbon dioxide, trap heat in the atmosphere and make the earth hotter. While the Kyoto Protocol was a very important step because it showed that countries were ready to work together, it did not focus directly on the Arctic, which is one of the most fragile parts of the world when it comes to climate change.[18] The agreement had no special plan for how to deal with the unique problems of the Arctic, and soon its power became weaker because some big polluting countries, especially the United States, pulled out of the deal. Since these countries did not take part, the emissions of greenhouse gases continued at a high rate, and the warming of the Arctic went on without much control during that period.

As time went on later, the world came together again in 2015 to sign the Paris Agreement, which was seen as a fresh effort with stronger goals. The Paris Agreement aimed to make sure the earth's temperature did not rise more than 2°C above what it was before the industrial revolution, and if possible, to keep it even lower at around 1.5°C.[19] For the Arctic, this difference is very serious. If global warming could be held at 1.5°C, then summer sea ice in the Arctic might still survive from time to time, even if it would not be as strong as before. But if the warming goes up to 2°C or higher, scientists believe the Arctic would experience summers without ice almost every year. This would change the entire environment of the Arctic, affecting animals, plants, and people who depend on the

ice. While the Paris Agreement sounded very ambitious and hopeful, it still faced big problems. It did not have strong punishments for countries that failed to meet their promises, and many countries did not reduce emissions as much as they should have. This meant that even though the Paris Agreement was an improvement compared to Kyoto, the Arctic was still left exposed to more and more danger as the ice continued to melt and the temperatures kept rising.[20]

At the same time, there have been some regional frameworks made just for the Arctic. The most important of these is the Arctic Council, which was created in 1996. The Council brings together countries that are located around the Arctic, such as Russia, the United States, Canada, Norway, and Denmark (through Greenland), and also includes Indigenous peoples from the region. Its main purpose is to help these countries work together on issues like protecting the environment, encouraging sustainable development, and making sure the Arctic remains safe for both nature and people. The Council has done useful work, especially by making countries sit at the same table and cooperate rather than fight. However, the Arctic Council has its own weaknesses. It does not have the power to force countries to follow rules, because decisions are made by consensus, meaning all members must agree before anything happens. This makes it very hard to tackle difficult problems like military activity, oil drilling, or strict rules on cutting greenhouse gases.[21] For this reason, the Arctic Council often depends on bigger global agreements, like the Kyoto Protocol and the Paris Agreement, to handle the large-scale climate challenges. Unfortunately, since both global and regional systems are not strong enough, the Arctic continues to warm much faster than the rest of the world, and this shows that while there are efforts to help, they are still not enough to protect this very fragile region.

Also, it is important to note that the warming of the Arctic has not only affected the environment but has also brought back old arguments about who owns what parts of the region, who controls the resources there, and who has the right to make decisions. Since the middle of the 20th century, countries that share borders with the Arctic have been making matching claims to areas under the sea,

especially places thought to have a lot of oil, gas, and minerals, like the Lomonosov Ridge.[22] To give some order to these kinds of disputes, the United Nations created the Law of the Sea (UNCLOS) in 1982, which set rules for how far countries could claim into the sea and how they could extend control over their continental shelves. However, as the ice covering the Arctic began to melt more quickly, these issues became much more urgent because resources that were once locked under thick ice are now becoming easier to reach. A famous example happened in 2007 when Russia planted a titanium flag on the seabed directly under the North Pole, an action meant to show its claim over that part of the Arctic. This move sparked attention and competition, and in the years that followed, other countries like Canada, Denmark, and Norway also submitted their own claims to the UN Commission on the Limits of the Continental Shelf, each wanting to prove that parts of the seabed rightfully belonged to them.[23]

While this growing competition has not yet led to full-scale wars or open military battles, it has definitely made the Arctic more tense and heavily guarded. Many of these countries have increased their military presence in the region, building bases, sending ships, and strengthening patrols to make sure their interests are protected. This whole situation shows how global warming has turned the Arctic from a faraway, frozen land that few cared about into an area full of international rivalry, economic opportunity, and political tension. At the same time, it highlights a double problem for the world: not only must countries work together to slow down climate change and protect the fragile environment, but they must also figure out how to peacefully handle the growing competition between powerful nations that want control over Arctic territory and resources.

Conclusion

In summary, the story of global warming in the Arctic shows a big change: it started with small signs of warming in the early 20th century and has now become clear that the Arctic is like a

warning signal for the whole world's climate. The fast warming there shows how closely nature and human life are connected. The melting ice and damaged ecosystems are not just Arctic problems, they are global warnings of what climate change can cause. At the same time, the Arctic is now important for trade, oil, gas, and politics, which makes working together more difficult. Climate agreements have tried to reduce emissions, but their weaknesses are felt strongly in the Arctic, where even small temperature increases can threaten animals, native communities, and world peace.

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CHAPTER FOUR

IMPACT OF CLIMATE CHANGE ON INTERNATIONAL DIPLOMACY IN THE ARCTIC REGION

INTRODUCTION

The Arctic has long been recognized as a region rich in natural resources, containing vast reserves of oil, natural gas, and valuable minerals. For many years, these resources remained out of reach because thick sheets of ice made extraction both dangerous and extremely expensive.[1] With the impact of climate change, however, the Arctic is now experiencing new levels of ice melt, transforming what was once an inaccessible zone. This change in the environment has made it easier and cheaper to reach deposits that were once locked under ice. Because of this, the Arctic is now seen as a new place for making money and finding resources. The idea that these resources could help meet the world's growing need for energy has attracted interest from both nearby Arctic countries and nations far away. What was once thought of as a faraway frozen land is now viewed as an important area in world politics and economic planning.[2]

The chance to control these resources has started a kind of competition, where countries and companies hurry to take their share in a rapidly changing region. For countries that share the Arctic coastline, such as Russia, Norway, Canada, and the United States, resource extraction is closely tied to national economic growth and security strategies.[3] Russia, for instance, considers the Arctic central to its future energy development and has already launched large-scale oil and gas projects in the region. Norway also sees the Arctic as vital for keeping its position as a steady supplier of energy to Europe, making work in the region a key part of its economy. Canada and the United States have taken a more cautious approach compared to Russia and Norway, moving more slowly to commit large investments because of high costs, environmental concerns, and political debates at home. Yet

both countries know that avoiding the Arctic completely would put them at a disadvantage, since other nations would gain control of resources and new trade routes.[4]

For this reason, even though they act with care, they still see the need to invest in Arctic development in order to remain competitive. The race is not only among countries inside the Arctic circle. China, for instance, has called itself a "near-Arctic state" and takes part in research and business projects in the region. It argues that the Arctic belongs to the world and should not be controlled only by the countries that have land there. This wide interest shows that the Arctic is becoming important both as a source of wealth and as a place where countries compete for global power.[5] The competition for Arctic resources has also created difficult legal and political challenges, especially because melting ice has opened up new sea routes that connect major economies.

New shipping routes (Northern Sea Route, Northwest Passage)

One of the most important effects of melting Arctic ice is the creation of faster shipping routes. The Northern Sea Route, which runs along the northern coast of Russia, reduces the distance between Europe and Asia by several thousand kilometers compared to the Suez Canal, saving both time and fuel. In the same way, the Northwest Passage, which cuts through Canada's Arctic waters, is becoming easier to use during summer months when the ice melts.[6] These shorter routes give shipping companies new ways to link different parts of the world and make global trade cheaper and quicker. But while they provide opportunities, they also bring new diplomatic and political disputes, as countries argue over who has the right to control them.[7]

Russia insists that the Northern Sea Route belongs to it and that foreign ships must ask for permission and obey Russian rules. Canada has taken the same stand with the Northwest Passage, claiming it as part of its internal waters. On the other hand, the United States and several European countries argue that both routes are international straits that all nations should be able to use freely. This disagreement has created strong political tension, since many countries see free movement of

ships as a right that must not be restricted. As a result, the question of who controls Arctic waters has become one of the most debated issues in world politics today.[8]

Geopolitical tensions and militarization

Apart from trade, the new Arctic sea routes also carry major importance for security and power. A country that controls them can shape world shipping patterns, gain large financial advantages, and also strengthen its political and military influence. Because of this, the struggle is not only happening in talks and negotiations but also directly in the Arctic itself. Countries are expanding their presence by using coast guards, building icebreaker ships, and even carrying out military patrols. Russia, which owns the largest share of the Arctic coastline, has gone further by reopening old Soviet-era military bases, establishing new ones, and expanding its fleet of icebreakers.[9] Moscow says these steps are necessary to protect its economic interests and ensure safe passage along the Northern Sea Route. However, other countries view them as aggressive and worry about Russia's long-term goals.

In response, the United States and its NATO allies have started paying more attention to security in the Arctic. The U.S. has added more military forces in Alaska, and NATO has carried out joint training exercises with Norway and other partners in the region.[10] Canada has also stressed the need to protect its northern lands by improving its systems for watching the area and by sending more patrols. Even though no actual war has happened, the increased presence of military activities has created an atmosphere of tension and distrust, where every country carefully observes the actions of the others. This growing military presence in the Arctic shows how changes in the environment, caused by melting ice and climate change, have gone beyond nature alone. They have now become a global security issue that strongly influences the plans and strategies of the world's most powerful nations.[11]

Cooperative frameworks (Arctic Council)

Even though there is rivalry and tension in the Arctic, cooperation has not completely disappeared. One of the most important channels for dialogue is the Arctic Council, which was created in 1996. This body brings together the eight countries that have territory in the Arctic, which are; Russia, Canada, the United States, Norway, Denmark (through Greenland), Iceland, Sweden, and Finland, alongside permanent representatives of indigenous communities who live in the region.[12] The Council mainly focuses on issues like protecting the environment, encouraging sustainable growth, and supporting scientific studies. But it intentionally avoids military or defense topics, this is because, by keeping talks on non-military matters, the Council has helped reduce direct clashes and build trust among members.[13] Over time, it has also led to important agreements that make the Arctic safer and more cooperative. For example, countries have agreed on rules for handling oil spills, better plans for search and rescue, and ways to work together on scientific research. These agreements show that even though countries compete, they still understand the need to follow common rules to deal with common challenges. The Council has also strengthened the idea that cooperation does not necessarily weaken the state's sovereignty, since states can still protect their own interests while joining efforts to find solutions to mutual challenges.[14]

At the same time, the Arctic Council has limitations, this is because it does not touch on military or territorial disputes, it cannot fully address some of the most sensitive issues in the region. For example, during times of high political conflict, such as when relations between Russia and Western nations are tense, the ability of the Council to function effectively is weakened. Nevertheless, it remains an important platform for dialogue and a tool for keeping communication open among states. It shows that diplomacy, even though it cannot solve every problem, is still a useful way to manage the risks created by melting ice and climate change in the Arctic.[15] Through encouragement of discussions and joint actions, the Council keeps the possibility of peaceful solutions alive, in a region that could otherwise become dominated by rivalry and mistrust.

Indigenous rights and voices

The native peoples of the Arctic, such as the Inuit, Saami, and Chukchi, have lived in the far north for hundreds of years, depending on the land, sea ice, and animals for food and survival. Their daily life is deeply tied to hunting, fishing, and traditional cultural practices. Today, however, climate change is putting their way of life in serious danger. Melting ice makes it harder to reach traditional hunting grounds, while changing weather patterns affect the animals they depend on. At the same time, new shipping routes and industrial projects bring new risks like pollution, oil spills, and damage to the environment.[16] These changes threaten not only their economy but also their culture and traditions that have been passed down for generations. Because of these challenges, indigenous groups are no longer just silent observers; they have become active voices in international talks about the Arctic's future. Through the Arctic Council, they have been given a unique position as "permanent participants." This status allows them to take part in discussions on issues such as protecting the environment, planning development projects, and supporting scientific research. Their inclusion is important because it shows that Arctic cooperation is not only about powerful states and governments but also about the people who actually live in the region and experience its changes every day.[17]

Also, Indigenous leaders often stress that development in the Arctic must be balanced with sustainability. They argue that economic progress should not come at the cost of destroying the environment or erasing local cultures. Their voices remind the world that decisions made in boardrooms and government meetings have real effects on communities that depend directly on the Arctic for survival. But even with this recognition, indigenous communities face many struggles. Their rights and priorities often clash with the interests of governments and large corporations. While governments focus on securing energy supplies and protecting national interests, and companies push for profits from oil, gas, and mining, indigenous groups worry about the long-term damage these activities can cause to the environment and their way of life. This tension forces them to

carefully balance between joining global diplomacy and defending their traditional practices. Even so, indigenous groups remain a powerful reminder that the Arctic is not just about territory, money, or resources, it is also about people, cultures, and human survival.[18]

Environmental protection and scientific cooperation

This human perspective connects directly to the wider issue of environmental change in the Arctic. Climate change is more visible here than in almost any other part of the world. The fast melting of ice, the rise in sea levels, and the threat to animals like polar bears, seals, and fish clearly show that urgent action is needed. Indigenous concerns about sustainability therefore reinforce the global call for environmental protection, since the problems are too large for any single country or community to solve alone. Protecting the Arctic environment has become one of the main topics in international diplomacy, as governments now recognize that damage in the region has consequences for the entire planet.[19] For this reason, states and organizations frequently meet to discuss how to reduce harm, safeguard fragile ecosystems, and at the same time find ways to balance responsible development with resource use.

One of the strongest areas of cooperation has been in science. Scientists from many different countries travel to the Arctic to study melting ice, changes in ocean movement, and the variety of plants and animals that live there. They share data and results, which helps the world understand climate change more clearly. This scientific teamwork has been supported by international agreements, which make it easier for researchers to work side by side. What makes this important is that science has continued even when politics between the same countries has been tense. In other words, science has provided neutral ground, where cooperation does not stop just because governments are in conflict.[20]

Evaluation of diplomacy

Even with these developments, diplomacy on the environment in the Arctic is not without problems. Some governments and big companies argue that if environmental rules are too strict, they will slow down economic growth and prevent access to oil, gas, and minerals. On the other side, environmental organizations and indigenous peoples argue strongly that there should be tougher rules to protect the land, ice, and wildlife for the future. Because of this, talks about the environment in the Arctic often involve long and difficult negotiations. Countries and groups usually have to compromise, since it is not easy to satisfy both sides fully.[21] But even with these difficulties, progress has been made. The success of international scientific cooperation shows that shared concerns about the environment can bring countries together in a way that competition over resources cannot. It highlights the idea that while rivalry and profit often divide nations, the need to protect the Arctic's environment has the power to unite them under a common goal.

Conclusion

The Arctic has become one of the most important regions in global politics because climate change is opening new shipping routes, exposing vast oil, gas, and mineral resources, and creating both opportunities and tensions among powerful states. Russia, Canada, the United States, and other Arctic nations are competing for control, while China shows growing interest in using the Northern Sea Route for trade. This competition has also led to militarization, with Russia reopening bases and expanding its icebreaker fleet, and NATO countries increasing patrols and military exercises. At the same time, cooperation has not disappeared: the Arctic Council, created in 1996, remains a key platform for dialogue on environmental protection, sustainable development, and scientific research, even though it avoids military issues. Indigenous communities such as the Inuit, Saami, and Chukchi play an active role in Arctic diplomacy, reminding governments and corporations that development

must not destroy fragile ecosystems or erase local cultures. Environmental protection and scientific cooperation stand out as areas where countries continue to work together despite political rivalry, showing that shared challenges can unite nations. Overall, the Arctic represents both competition and collaboration, where the future will depend on balancing economic interests, security concerns, sustainability, and respect for human rights.

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CHAPTER FIVE

SUMMARY AND CONCLUSION

The Arctic provides a striking example of these dangers. Known for its icy landscapes, wildlife, and Indigenous communities, the region is now warming about four times faster than the global average due to a process called Arctic amplification. Melting ice not only raises sea levels worldwide but also exposes darker surfaces that absorb even more heat, worsening the cycle of warming. At the same time, the retreating ice opens access to valuable oil, gas, and minerals and creates new shipping routes, sparking competition among powerful nations. These developments make the Arctic both a vulnerable environment and a contested geopolitical space, showing how climate change is reshaping security concerns and global priorities

Climate change has become one of the greatest threats facing humanity, caused mainly by human activities such as burning fossil fuels, deforestation, industrial production, and wasteful consumption. These actions release greenhouse gases like carbon dioxide and methane into the atmosphere, trapping excess heat and disturbing the Earth's natural balance. As a result, the world experiences rising temperatures, stronger storms, droughts, floods, food insecurity, health problems, and forced migration. Because its effects touch nearly every aspect of life, climate change has moved from being seen as a purely environmental issue to a central concern in global politics. International organizations like the United Nations and the Intergovernmental Panel on Climate Change (IPCC), alongside governments and non-state actors such as NGOs, scientists, and activists, now play important roles in creating awareness, shaping policies, and pushing for international cooperation.

Different international relations theories also explain how countries react to climate change. Realism argues that states act only when their survival is directly threatened, as seen in North Korea's limited engagement. Liberalism emphasizes cooperation, laws, and global agreements, while constructivism highlights the role of beliefs, values, and identity in shaping environmental action.

Critical theories, like Marxism, draw attention to global inequalities, pointing out that poorer nations suffer most from the pollution caused by wealthier countries and corporations. Meanwhile, Green theory insists on a fundamental shift in how humanity views nature, promoting renewable energy, reduced consumption, and harmony with the environment. Together, these perspectives show that climate change is not only a scientific or environmental challenge but also a political, economic, and moral issue that shapes the present and future of international relations.

The Arctic, once seen as an untouched frozen wilderness, has now become one of the most visible examples of climate change. What was once thought of as permanent ice is rapidly melting, reshaping the environment, threatening wildlife, and disrupting the lives of Indigenous peoples who depend on the land and sea. Scientific research, especially from the mid-20th century onward, revealed that the Arctic was warming at an unusually fast rate, a process later called Arctic amplification. Satellite technology confirmed that both the extent and thickness of Arctic ice were shrinking, with multi-year ice disappearing at alarming speed. By 2007, sea ice reached record lows, signaling a major global warning. This melting has devastated ecosystems, endangering species such as polar bears, seals, and walruses, while also forcing Indigenous communities to face food insecurity, collapsing infrastructure due to thawing permafrost, and coastal erosion that has pushed some villages to relocate.

At the same time, the retreat of ice has created new opportunities and rivalries. Shorter shipping routes such as the Northern Sea Route and Northwest Passage are now opening, cutting travel time between continents and reducing fuel costs, while vast reserves of oil and gas hidden beneath the Arctic seabed have drawn intense interest. Countries like Russia, the United States, Canada, Norway, and Denmark have strengthened their presence in the region, competing for control of trade, resources, and territory. International frameworks such as the Kyoto Protocol, the Paris Agreement, and the Arctic Council have attempted to address the challenges of climate change and cooperation in the region, but their efforts remain limited and often lack enforcement power. As a result, the

Arctic has become both a symbol of the environmental crisis and a stage for geopolitical rivalry, where the fight against global warming intersects with the struggle for power and resources.

The Arctic has shifted from being a distant frozen region into one of the most contested and significant regions in global politics. Climate change has increased the melting of ice, exposing valuable reserves of oil, gas, and minerals that were once unreachable, and opening shorter sea routes such as the Northern Sea Route and Northwest Passage. These changes have drawn wide interest from both Arctic states, Russia, Norway, Canada, and the United States, and non-Arctic powers like China. For some, the region promises energy security and new economic opportunities, while for others it represents faster trade connections between the world's major economies. The struggle for access and control has therefore transformed the Arctic into a space of both opportunity and rivalry, where economic development, sovereignty claims, and environmental concerns intersect.

At the same time, the melting ice has turned the Arctic into a zone of growing geopolitical tension. Russia has expanded its military footprint by reopening bases and building icebreakers, while NATO and its allies have increased patrols and exercises, creating an atmosphere of mistrust. Yet cooperation has not disappeared entirely. Frameworks like the Arctic Council provide platforms for dialogue, especially on environmental protection, indigenous rights, and scientific research. Indigenous communities such as the Inuit and Saami have also gained recognition as active participants, stressing that development must balance with sustainability. The Arctic thus stands as both a test of international rivalry and an experiment in global cooperation, where the consequences of climate change are deeply tied to security, diplomacy, and the survival of cultures and ecosystems.

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~~THE IMPACT OF CLIMATE CHANGE ON INTERNATIONAL SECURITY: A CASE STUDY OF THE ARCTIC REGION~~

~~BY~~

~~KIRORO DAVID EDAFE~~

~~DEPARTMENT OF HISTORY AND INTERNATIONAL STUDIES,~~

-

~~FACULTY OF ART,~~

~~UNIVERSITY OF BENIN,~~

~~BENIN CITY.~~

~~OCTOBER, 2025~~

CERTIFICATION

This is to certify that this project was carried out by **KIRORO DAVID EDAFE** in the Department of history and international studies, University of Benin, under my supervision

Dr C. O. Edigin Date

(Project supervisor)

Prof. Jacinta Nwaka Date

(Head of Department)

~~DEDICATION~~

~~This Project is dedicated to Almighty God, who is the source of my being and the wings on whom I soar.~~

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CHAPTER ONE

CLIMATE CHANGE AND INTERNATIONAL SECURITY: A CASE STUDY OF THE ARCTIC REGION

INTRODUCTION

Over the years, scholars have proposed several theories to explain how the international system works. Among these, two of the most commonly discussed and widely accepted perspectives are

realism and idealism.[1] These theories offer distinct views on the nature of international relations. Realists argue that the greatest threat to a state, especially one that lacks power, is not abstract forces, but other states within the international system. They believe the absence of a central authority or global government leaves each state to fend for itself, creating a constant risk of conflict and insecurity.[2] In contrast, idealists present a different outlook. They argue that warfare between states is not only avoidable but also unwise.

According to this view, even if a state were to dominate or destroy others, it would still be vulnerable and alone in a system it cannot survive in isolation. Idealists emphasize that threats to peace are not always visible or conventional. They identify broader, often invisible challenges, such as climate change.[3] They view them as far greater long-term threats to global stability. In response to such concerns, idealist-influenced institutions like the United Nations and other international bodies have increasingly prioritized environmental issues and continue to develop strategies to address the growing danger posed by climate change. Before examining the security threats linked to climate change, especially in the Arctic, it is important to understand what climate change means. Climate change refers to a long-term shift in global temperatures and weather patterns, largely caused by human activities such as the burning of fossil fuels like coal, oil, and gas.[4]

Under normal conditions, the Earth is protected by an atmosphere that functions like a blanket, helping to regulate temperature by trapping just the right amount of the sun's heat. This balance allows life to thrive. Without the atmosphere, the Earth would experience extreme temperature swings, scorching heat during the day (like in space) and freezing cold at night, as there would be nothing to hold the heat in. The atmosphere, which is made up of gases like oxygen, nitrogen, and carbon dioxide, keeps the planet's temperature within a livable range.[5] However, with the rise of industrialization came an increase in the use of fossil fuels for transportation, electricity, and manufacturing. When these fuels are burned, they release large amounts of greenhouse gases (particularly carbon dioxide), into the atmosphere. These gases make the atmospheric "blanket"

thicker, trapping more heat than usual and causing the Earth's average temperature to rise. This process is known as global warming, and it is a major component of climate change.[6]

Climate change however, involves more than just global warming. It also includes wide-ranging and severe changes in global weather patterns. These include stronger and more frequent storms, longer periods of drought, unpredictable rainfall, melting glaciers, rising sea levels, and shifts in climate zones.[7] One of the most feared effects of climate change is its impact on agriculture. Unpredictable weather makes it difficult for farmers to plan and grow crops, which leads to food shortages, hunger, and malnutrition in many vulnerable regions. In addition, climate change worsens water scarcity in already dry areas and contributes to health problems by increasing the spread of diseases like malaria into new regions where they were once uncommon.[8] As these issues grow more severe, the pressure on governments, international organizations, and local communities to respond effectively also increases.

Among all the regions affected by climate change, the Arctic is experiencing some of the most dramatic and alarming changes. The Arctic is located at the northernmost part of the Earth and surrounds the North Pole.[9] It includes parts of several countries, such as Canada, Russia, the United States (Alaska), Norway, Greenland (part of the Kingdom of Denmark), Sweden, Finland, and Iceland. The region is known for its harshly cold climate, large areas of snow and ice, floating sea ice, and distinctive wildlife including polar bears, seals, walruses, and Arctic foxes.[10] It is also home to Indigenous communities who have lived in balance with the environment for generations.

Due to climate change, especially global warming, the Arctic is heating up about four times faster than the global average. This phenomenon is known as Arctic amplification.[11] As the ice melts, it reveals darker ocean water and land beneath, which absorb more sunlight rather than reflecting it like ice does. This extra heat causes even more ice to melt, creating a vicious cycle of warming and

melting. The loss of Arctic ice has serious global consequences. One of the most direct impacts is the rise in sea levels, which threatens to flood coastal cities and small island nations around the world.[12]

Countries of the world are showing more interest in the Arctic because the melting ice is making it easier to reach valuable natural resources like oil, gas, and minerals. New sea routes are also opening up, which can make global trade faster and cheaper. The region is becoming more important for military and political reasons too, as countries want to protect their interests. Both Arctic and non-Arctic countries now see the Arctic as a place of opportunity, competition, and concern for the future. In the following sections, we will explore the growing impact of global warming on the Arctic's already fragile weather systems and environment, as well as the strategies being developed to reduce the long-term threat of climate change in the region and beyond.

Aim and objectives

The aim of the study is to examine the effect of the international politics on the Arctic region. The objectives of the research include;

Examine the history of climate change in the Arctic region

Explore the effect of climate change on the international politics of the Arctic region

Examine the effect of climate change on the interstate relations in the region

Examine Of climate change on the trade and human population in the region.

Scope of the Study

The scope of the study will cover the period from 2007-2020. The study focuses on the period from 2007 to 2025 because it marks an important time when climate change became a serious global issue and affected the international security in the Arctic. The study focuses on how climate change has affected international security in the Arctic between 2007 and 2025. It examines the melting ice, rising interest in Arctic resources, and increased geopolitical activity by major powers. This period captures key environmental and political changes that have turned the Arctic into a region of both cooperation and competition.

Research Methodology

This adopts the historical methodology of research, It obtains data from both primary and secondary sources.

Primary Sources

Primary sources such as archival materials were utilized to support and enrich the findings of this research.

Secondary Sources

Secondary sources like books, journal articles, newspapers and online materials were used to obtain information about the subject matter.

Literature Review

In the course of this research, we will examine some works written previously that will be of great importance and benefit to this work. The first to be reviewed is the article by L. Streletskiy and N. Shiklomanov, "Assessment of the cost of climate change impacts on critical infrastructure in the circumpolar Arctic",[13] This work conducts a comprehensive analysis of how climate change is

financially burdening and physically threatening the vital infrastructure spread across the Arctic region. It closely examines how rising temperatures, melting permafrost, coastal erosion, and changing seasons, problems made worse by global climate change, are damaging important infrastructure that people in the Arctic rely on for daily life and economic activities. These include roads, bridges, airports, pipelines, oil and gas platforms, power lines, and buildings, all of which were often originally constructed under the assumption of stable, frozen ground and predictable weather patterns.[14]

Additionally, the work addresses long-term implications for regional development, energy extraction, transportation logistics, and Indigenous settlements, emphasizing the urgency of adaptation measures and investment in climate-resilient engineering designs. It also serves as a wake-up call for policymakers, stressing that the economic cost of inaction or delayed response to Arctic infrastructure vulnerability could be exponentially higher in the coming decades. Although the work will be of great significance to this research it fails to examine the historical perspective on global warming In the Artic region, the void of which will be filled by this research

D. Rothkopf, in his work "Is a green world a safe world? not necessarily",[15] questions the common belief that going green automatically brings global peace and security. He explains that while switching to clean energy is important, it can also cause serious political and economic problems. For example, moving away from oil and gas could harm countries that depend on them for income, possibly leading to unrest and weakened governments. At the same time, the growing demand for things like solar panels and electric cars could increase global competition for rare minerals like lithium and cobalt, which are mostly found in unstable regions. This could lead to power struggles, economic pressure, or even conflict. Rothkopf also points out that richer countries may benefit more from green technologies, while poorer nations struggle to keep up due to lack of money and resources.[16]

He also warns that climate change could also push many people to leave their homes, causing tensions at borders and increasing fear or hostility in some places. Overall, he argues that while protecting the environment is crucial, it doesn't automatically make the world safer, unless countries also work together to manage the political and economic changes that come with it. The study however fails to examine comprehensively the effects of climate change on the artic region. This study hopes to achieve this.

Moreso, The work by G. V. Alekseev, "Climate change in the Arctic: causes and mechanisms",[17] explains in detail the science behind how and why the Arctic is warming so quickly. Alekseev breaks down the natural and human-made factors that are driving this rapid change. He explains a process called Arctic amplification, where things like melting sea ice, reduced snow cover, and the dark ocean absorbing more heat instead of reflecting it, all work together to make the Arctic heat up faster than other parts of the world. The study also looks at how greenhouse gases like carbon dioxide and methane are changing the Earth's climate, with especially strong effects in the Arctic because of its unique environment.[18]

Alekseev further examines how wind patterns, ocean currents, and pressure systems also play a role in speeding up Arctic warming. Using scientific data, climate models, and records of past climate changes, he shows how these processes have developed over time and what might happen in the future. The work makes it clear that changes in the Arctic don't stay in the Arctic, they affect the whole world by raising sea levels, changing weather patterns, and possibly pushing the global climate toward dangerous tipping points. It however fails to give an historical perspective on global warming In the Artic region, the void of which will be filled by this research.

Torben Koenigk and Jeffrey R. Key, in their work "Climate Change in the Arctic",[19] give a broad and detailed look at how climate change is affecting the Arctic in many ways. They examine rising temperatures, melting sea ice, retreating glaciers, and thawing permafrost, changes that are

happening much faster in the Arctic than in other parts of the world. These changes are harming Arctic wildlife and destroying the natural homes of animals like polar bears, walruses, and migratory birds. The authors also look at how climate change is affecting people, especially Indigenous groups like the Inuit and Sámi, whose traditional ways of life are being disrupted by vanishing hunting areas, changing weather, and damaged infrastructure. In addition, the work explores how melting ice is opening up new sea routes and making Arctic energy resources more accessible, leading to increased global interest and competition.[20] The authors stress the need for stronger international cooperation to manage these changes and protect the region. They call for action that respects both the environment and the rights of local communities, while also supporting responsible economic development. The research although will be of great help in the furtherance of this research, it however fails to examine the impact of climate change on international diplomacy in the Arctic Region, the void of which will be filled by this research.

The work by Peter Schwartz and Doug Randall, "An Abrupt Climate Change Scenario and Its Implications for National Security",[21] describes a possible future where climate change happens suddenly and severely, not gradually. They imagine a situation where major changes in ocean circulation, especially the shutdown of the system that helps balance temperatures in the North Atlantic, cause serious climate problems in parts of the world. In this scenario, places like North America and Europe become much colder, while Asia and Africa suffer from droughts, and weather everywhere becomes more extreme and unpredictable. The authors explain how this kind of sudden change could lead to big security problems, such as less food, water shortages, mass migration, and even conflict over limited resources. They warn that climate change can make existing problems in weak countries worse and even affect stronger nations by forcing them into crisis mode. The report urges national security agencies to include climate risks in their planning.[22] It also warns that ignoring these risks could lead to state collapse, border conflicts, and the use of military force during humanitarian disasters. Overall, the work shows that climate change is not just about the

environment, it's also a serious threat to peace and global security. This work however fails to examine the causes of climate change in the Artic region as well as assess international cooperation and governance in the Arctic, the void of which will be filled by this research.

Finally, Mohammed Saaida's work, "The Effect of Climate Change on International Security",[23] explores how climate change is becoming a serious threat to peace and stability around the world. It explains how rising global temperatures, extreme weather events, sea level rise, droughts, and natural disasters can lead to problems like food and water shortages, forced migration, and competition over resources. These problems can increase tensions within and between countries, especially in regions that are already fragile or politically unstable.[24] The work examines how climate change can make existing conflicts worse and even trigger new ones, showing how environmental issues are now closely linked to national defense, global cooperation, and international peacekeeping. Overall, it highlights the urgent need for world leaders and security institutions to take climate change seriously as a growing global security challenge. This work however fails to assess in details Global Warming in the Arctic Region, the void of which will undisputably be filled by this research.

Endnotes

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CHAPTER TWO

CLIMATE CHANGE AND INTERNATIONAL RELATIONS

INTRODUCTION

The problem the earth faces on a daily basis creates concern for both the individual man and the whole mankind put together. Although significant travels and explorations have and are still being made in other planets in order to reduce the number of men on earth, life as we know of it now is still muchly dependent on earth and so it is important we do all we can to reduce the hardship placed on earth and this is where climate change comes to play. Climate change isn't a new phenomenon, but it is one of the fastest growing threat face by the world today and if nothing is done to quell it's growing disastrous capabilities, life might end even before we know it.[1] Climate change refers to the long-term changes in global or regional climate patterns, especially the rise in average global temperatures over the past century.[2]

While the Earth's climate has changed naturally over time (due to volcanic eruptions, solar activity, etc.), the current rate and scale of change is largely caused by human activity. The primary cause of modern climate change is the increase in greenhouse gases (GHGs) like carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) in the Earth's atmosphere.[3] These gases trap heat from the sun, a process called the greenhouse effect, and lead to warming of the planet (Earth specifically). The increase in these substance on the earths atmosphere is primarily caused by the activities of men. Humans cause climate change mainly through everyday activities that release harmful gases into the atmosphere. One of the biggest causes is the burning of fossil fuels like coal, oil, and gas. We burn these fuels to produce electricity, run cars, power factories, and heat our homes.[4] When we do this, we release large amounts of carbon dioxide (CO_2) into the air. This gas traps heat from the sun and makes the Earth warmer, a process known as the greenhouse effect.

Another major cause is deforestation. Trees naturally absorb CO_2 from the air, but when we cut them down for farming, construction, or wood, we lose that protection. Even worse, the carbon stored in those trees is released back into the atmosphere, adding to the problem.[5]

Furthermore, Farming also plays a big role in climate change, especially livestock farming. Animals like cows and sheep release methane, a greenhouse gas that is even more powerful than carbon dioxide. Certain types of rice farming and the overuse of fertilizers also release harmful gases into the air. Industrial activities such as manufacturing cement, steel, plastics, and chemicals contribute further by releasing more greenhouse gases and pollutants.[6] Lastly, our wasteful lifestyles, which includes the use of too many plastics, y handle, and we continue to consume resources faster than nature can recover.[7]

The dangers of climate change is so great that it has affected every every aspect of international relations. These environmental issue has now become central to foreign policies of Nations in the world as well as global politics. Governments around the world are now including climate-related matters in their foreign policy decisions because climate change affects things like national security, economic stability, and migration.[8] For example, extreme weather events, rising sea levels, and resource shortages caused by climate change can lead to conflicts or humanitarian crises, which require international cooperation to solve. This is why climate change has become central to global governance. Organizations such as the United Nations and the Intergovernmental Panel on Climate Change (IPCC) are now key players in coordinating climate action across countries.[9] The United Nations was established in 1945, shortly after World War II, to promote peace, cooperation, and development among countries. Over the past 79 years, it has expanded its role to include major environmental concerns. One of the key ways of doing this is organizing climate conferences, such as the Conference of the Parties (COP) meetings, where countries come together to make decisions on reducing greenhouse gas emissions.[10]

The Intergovernmental Panel on Climate Change-IPCC was created in 1988 by the UN and the World Meteorological Organization. For the past 36 years, it has provided scientific research and assessments about climate change, including its causes, impacts, and possible solutions. The reports released by the IPCC guide world leaders and shape international climate policies.[11] Together, these two organizations have played an important role for decades in helping countries understand climate change and work together to fight it. These organizations aren't alone in their fight against climate change. State actors, who are the principal players in the international arena are also critical in the fight against climate change. All states are main decision-makers in international climate agreements and policies. For example, countries like the United States, China, and Nigeria send representatives to global climate conferences, where they negotiate and commit to reducing carbon emissions. Through their internal policies as well as their external actions they help to fight against these environmental issues.[12] On the other hand, non-state actors are groups or individuals that are not official parts of any government, meaning they aren't states but they still influence happenings in the international system and definitely they also still influence climate policies.[13]

In today's global effort to fight climate change, both state actors and non-state actors play very important roles. State actors are mainly governments and national leaders who create policies, negotiate treaties, and represent their countries in global meetings. They are the ones who sign international agreements like the Paris Climate Accord and make decisions about laws and funding for climate action. On the other hand, non-state actors include international organizations such as the United Nations and the IPCC, environmental NGOs like Greenpeace, scientists, research institutions, private companies, and even individuals or activists like Greta Thunberg. These groups do not make official government policies, but they influence them in powerful ways.[14] For example, non-state actors often raise public awareness about climate issues, push governments to act faster, provide expert research and technical advice, and sometimes fund or create new green technologies. They also help monitor whether countries are keeping their promises on climate action.

Together, both state and non-state actors help shape the direction and progress of climate diplomacy, that is, how countries and groups work together to solve climate problems. This teamwork is very important because climate change is now considered a major environmental security threat. Drought, floods, heatwaves, and rising sea levels can cause serious problems like food shortages, forced migration, and even war. So, when state and non-state actors cooperate, they are not just protecting the environment, they are also helping to protect human lives, prevent conflicts, and keep global peace and stability. That's why climate change is no longer just an environmental issue; it is now a key part of global politics and international relations.[15]

It should be noted however that not all countries react the same way to environmental challenges such as climate change. Just as culture, ideas and values influence individual actions even when both individuals are faced with the same challenges, so also does the perception and ideology of a country determines how she reacts to climate change. The reaction of countries to this increasing danger tallies with the various international relations theories that exist. We will examine each of them and see how they influence how countries see and respond to climate change. Beginning with Realism. It is one of the most popular theories in international relations. Realism as a theory states that countries care mainly about their own safety and survival. They will only take action if they feel threatened. So, a country may not care much about climate change unless it sees that rising sea levels, drought, floods, or lack of resources could affect its people, economy, or security. So realist countries don't tend to respond much to international cooperation about climate change, because they don't see climate changes a significant threat, not until it becomes a direct threat through which it directly affects their citizens and this alone will now make them take action.[16] Realists believes that countries are always competing for power and so they don't trust each other much, they don't also like to depend on other nations when solving problems, even big ones like climate change. A classic example is north Korea under the realist leader Kin Jong-un.

North Korea under Kim Jong-un is not considered passionate about climate change. The country remains highly secretive and isolated, and its government places more focus on military development, regime survival, and self-reliance (known as Juche ideology) than on environmental concerns. While North Korea has acknowledged environmental problems within its borders, such as deforestation, flooding, and drought, these are mostly addressed in relation to their effect on food supply and internal stability. The government does not make climate change a major part of its public policy or foreign relations. It also avoids active participation in international climate agreements and rarely cooperates with global organizations.[17] North Korea is also not a prominent participant in climate forums like the United Nations Climate Change Conferences or in the Paris Agreement. Overall, under Kim Jong-un (a die-hard realist), North Korea has shown little interest in global climate diplomacy and is not known for prioritizing climate change in its national agenda.

Furthermore, liberalism says something different. It believes that countries can cooperate and work together peacefully to solve global problems. Climate change affects everyone, so liberalism encourages countries to join hands, sign agreements, and form international groups.[18] That's why we have organizations like the United Nations (UN) and the Intergovernmental Panel on Climate Change (IPCC). These groups help countries talk, share knowledge, set goals like reducing pollution, and monitor each other's progress. Liberalism sees laws, rules, and teamwork as important tools to fix global problems like climate change. A country under a lonralist leader such as The United States under Joe Biden was actively involved in climate change gatherings and the need for international cooperation to tackle such global issue.[19]

This is because this theory opines that what will a country gain if he conquers the whole world and exist alone, it also believes that there are more weightier threats in the international system all of which are unseen and these threats are even worse than the threat posed by powerful states in the international system. Furthermore, there is constructivism, which explains that countries act based on their beliefs, ideas, and identity.[20] For example, if a country believes that protecting the planet is a

moral duty, it will take climate action, even if it's costly. Countries like Sweden or New Zealand care deeply about the environment because their people believe it's the right thing to do. Also, if climate activism becomes popular among citizens, the government might feel pressure to act. So, with constructivism, it's not just about money or safety, it's also about values and what people think is important.[21]

There are other theories that can help us understand climate behaviors, and they include; Marxist or critical theory looks at how power and money affect the world. It says that rich countries and big companies are mainly focused on making money, even if it hurts the planet.[22] These powerful groups are usually the ones who cause the most pollution, through their factories, industries, and use of fossil fuels. But even though they cause most of the damage, it is the poorer countries that suffer the worst effects, like droughts, floods, and food shortages. This theory also points out that some rich companies move their factories to poor countries because the environmental laws there are weak or not enforced. That means these poorer countries get more pollution and health problems just because the companies want to save money. Marxist theory says that climate change is not just about the weather, it's also about how unfair the world is. It's part of a bigger problem where rich and powerful countries take advantage of weaker ones.[23] So, countries that believe in this theory often see climate change as one of the many results of an unequal and unjust global system, where the strong keep getting stronger while the weak suffer more.

Moreso, Green theory is an approach in international relations that places the environment and nature at the center of global discussions. Unlike other theories that focus mostly on power, security, or money, green theory says we need to completely change the way we think about the world if we want to protect the planet. It argues that our current way of life, where countries keep pushing for economic growth, industrial development, and endless consumption, is not sustainable.[24] This constant focus on making more money and using more resources is what's harming the environment the most. Green theorists says instead of seeing nature as something to use and control, we should

see it as something to care for and live in harmony with. That means switching to clean, renewable energy like solar and wind, using fewer harmful materials, reducing pollution, and changing our ideas about what development really means. It also encourages local farming, less waste, and more community-centered ways of living.[25]

From this view, climate change is not just a technical or political issue,it is a deep moral and lifestyle issue. So, for countries or people who follow this theory, saving the planet means rethinking everything from how we build our cities to how we trade, travel, and even eat. Green theory calls for a radical shift in both personal behavior and global policies in order to create a more balanced and eco-friendly future. Although no country officially calls itself a "green theorist," some countries behave in ways that reflect the ideas behind Green Theory. A good example is Bhutan. Unlike most nations that focus on economic growth and GDP, Bhutan uses a different measure called "Gross National Happiness" to guide its development. This means the country places more value on well-being, cultural preservation, and environmental protection than on just making money.[26] Bhutan is also known for being carbon-negative, which means it removes more carbon dioxide from the atmosphere than it produces, largely because of its thick forest cover. In fact, Bhutan's constitution requires that at least 60% of its land must always remain forested. The country also relies on clean energy, especially hydropower, and avoids the kind of heavy industrial development that harms the environment. These practices show how committed Bhutan is to the environment and world at large

Conclusion

In conclusion, climate change has become a major issue in international relations, influencing how countries and global actors behave and cooperate. Through the lens of theories like realism, liberalism, constructivism, Marxism, and Green Theory, we can better understand the different motivations behind climate action or inaction. While some nations act out of self-interest or shared

~~goals, others respond based on beliefs, identity, or deeper concerns about inequality and the health of the planet. Both state and non-state actors, including governments, international organizations, NGOs, and individuals, play important roles in shaping climate diplomacy and pushing for solutions. As climate change continues to affect global security, development, and power dynamics, it is clear that addressing it requires not just political will, but also a rethinking of how the world interacts, grows, and protects the environment.~~

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CHAPTER THREE

GLOBAL WARMING IN THE ARCTIC REGION: A HISTORICAL PERSPECTIVE

INTRODUCTION

The Arctic was once thought of as a faraway land that people could hardly reach, covered with endless ice and snow. But in recent years, it has become one of the clearest and most debated examples of climate change. What used to seem like a frozen land that would never change is now melting, shifting, and showing how delicate it really is. This change is not only about the environment, it also affects animals that live on the ice, the people whose lives depend on the land and sea, and even the way countries act toward one another.[1] Scientists were the first to notice that temperatures were rising and that the ice was melting faster than before. Their research showed that the Arctic was warming more quickly than the rest of the world, and this made it clear that something serious was happening. At the same time, world leaders began creating agreements to fight climate change, but these plans often did not give enough attention to the special problems the Arctic faced.[2]

As the ice kept melting, the Arctic started to matter more to the whole world, not only because of the environment but also for other reasons. When the sea ice broke apart, new water routes began to open. Ships could now travel through these shorter paths, which saved time and money compared to older, longer routes. At the same time, the melting ice made it easier for countries and companies to reach oil, gas, and other valuable resources that were hidden under the frozen seabed. Because of these changes, the Arctic became more than just a cold, empty land. It turned into a place where many countries wanted to protect their interests and gain advantages. They began competing over trade routes, energy resources, and even control of certain areas. This means that the Arctic today is not only about ice and animals, it has become a key region where the problems of climate change,

the needs of nature, the lives of people, and the struggles of politics and power all come together.[3] In this chapter we will be examining the historical background of the global warming in the Artic region.

The study of how the Arctic climate was changing started to gain real attention in the middle of the 20th century. Before that, explorers, sailors, and traders who traveled through the region had already noticed strange patterns in the weather and ice. For example, in the 1920s and 1930s, records from meteorologists showed that parts of the Arctic, especially near the North Atlantic, were warming faster than expected.[4] Norwegian scientists even wrote about winters becoming milder and sea ice shrinking in size. However, at that time, people believed these changes were only part of natural shifts in the Earth's climate, not something caused by humans. Scientists thought the warming would not last long and that the Arctic would return to its normal frozen state.[5]

Things began to change in the 1970s and 1980s, when climate science became more advanced. Researchers started to link the warming of the Arctic to greenhouse gases produced by human activities, such as burning coal, oil, and gas. What made the difference was new technology, especially satellites. Satellites allowed scientists to watch the Arctic from space and measure the ice every year with much greater accuracy than before. This showed that the ice was not only shrinking but disappearing at a much faster rate than anyone had imagined. Reports from important scientific organizations like NASA and NOAA made it clear that summer sea ice was retreating quickly. These studies also revealed that the Arctic was warming at about twice the speed of the rest of the world.[6] Scientists later gave this special process a name: Arctic amplification.

The situation became even more serious in 1990, when the Intergovernmental Panel on Climate Change (IPCC) released its first major report. This report officially warned the world that the Arctic was one of the most at-risk regions on Earth. It explained that the Arctic's ice plays an important role in controlling the planet's temperature because it reflects sunlight back into space. This effect is

called the albedo effect. But when the ice melts, the dark ocean water beneath it absorbs more heat instead of reflecting it, which causes the region to warm even faster. This creates a dangerous cycle, more warming leads to more melting, and more melting leads to even more warming.[7] The IPCC highlighted that the Arctic would serve as a kind of "early warning system" for the whole planet, because the changes happening there would show how serious climate change was becoming everywhere else.

In the last few decades of the 20th century and the early years of the 21st century, the Arctic began to change at a speed that shocked scientists. For many years, people had thought of the Arctic as a place of permanent ice, but new tools like satellites started to tell a different story. Satellites, which could look down from space and take constant measurements, showed that the ice was not just melting a little, it was disappearing steadily year after year. Both the size of the ice (its extent) and its thickness were shrinking. The thick, older ice that had lasted for many years, known as multi-year ice, was melting even faster than the younger, thinner ice that normally comes and goes with the seasons.[8] This was deeply worrying, because multi-year ice is stronger and more stable, and once it melts, it takes a long time to come back. By comparing records from 1979 to the early 2000s, scientists found that the Arctic had already lost about 40 percent of its summer ice cover.

One of the most important years in this story was 2007. This is because in that year, the Arctic reached its lowest sea ice minimum ever recorded up to that time. In other words, there was less ice in the Arctic at the end of summer 2007 than in any year scientists had measured before.[9] The drop was so dramatic that it surprised even experts who had been warning about climate change. The event caught the attention of the global community because it was a visible sign of how fast the Arctic was warming and how serious the situation had become. What had once seemed like a slow, distant problem was now happening in real time, with visible and measurable impacts. The melting of Arctic ice also brought big changes to the natural world. Animals that depend on ice to survive were among the first to feel the effects. Polar bears, for example, use sea ice as platforms to hunt

seals, their main source of food. As the ice melted, they had to swim longer distances, waste more energy, and sometimes starve because they could not catch enough prey. Walruses, which rest on ice between feeding trips, were forced to crowd onto land in dangerous numbers, leading to deadly stampedes. Seals, which use ice as a place to give birth and raise their pups, also lost safe areas, making their young more vulnerable to predators and harsh weather. These changes showed that the melting ice was not just about rising temperatures, it was destroying entire food chains and putting species at risk of extinction.[10]

The crisis did not only affect animals. Indigenous peoples who live across Alaska, Canada, Greenland, and Russia also faced serious challenges. For centuries, their way of life had been closely connected to the ice and the animals that live there. They hunted seals, whales, and fish, traveled across frozen routes, and built cultural traditions around the cycles of the Arctic environment. But as the ice melted and the weather became less predictable, hunting became more dangerous, and food became harder to find. In some areas, thinning ice made travel unsafe, cutting people off from resources and other communities.[11] This showed that climate change was not just a scientific issue or an environmental problem, it was also a human problem, deeply tied to culture, health, and survival. Another major effect of the warming Arctic was the damage to the land itself. Permafrost, which is the frozen ground (soil) that covers much of the Arctic, began to melt at an increasing rate. When permafrost melts, the soil becomes unstable, causing roads, houses, and pipelines to crack or collapse. Entire villages near the coast began to face severe erosion, where the land was literally eaten away by rising seas and stronger waves. Some communities were forced to move, leaving behind places where their families had lived for generations.[12] At the same time, the weather in the Arctic became harder to predict. Storms grew stronger, seasons shifted, and patterns that people had relied on for centuries changed rapidly, making daily life more difficult and dangerous. The Arctic's transformation in just a few decades showed the world how quickly climate change can affect both nature and society, making it a warning sign for the entire planet.[13]

As the sea ice in the Arctic continued to melt two routes in particular became very important: the Northern Sea Route along the coast of Russia and the Northwest Passage through the Canadian Arctic islands. These routes are much shorter than traditional shipping routes that pass through the Suez Canal or around Africa. For example, a ship traveling from Europe to Asia can save thousands of kilometers and many days of travel if it uses these Arctic passages instead of the long southern routes. This means less fuel, less money spent, and faster delivery of goods. For global trade, this was seen as a huge opportunity, and countries with access to the Arctic started paying more attention to the region.[14] But the Arctic was not just about shipping. The melting ice also made it easier to reach valuable resources hidden under the seabed. In 2008, the U.S. Geological Survey estimated that the Arctic could contain as much as 13 percent of the world's undiscovered oil and 30 percent of its undiscovered natural gas. These are massive numbers, considering how much the world depends on oil and gas for energy. To put it simply, the Arctic could become one of the biggest untapped sources of energy on Earth. This discovery changed the way people looked at the region. What had once been thought of as a frozen wasteland with little value was now seen as a potential goldmine for energy companies and governments.[15]

This shift encouraged renewed interest and competition among the five countries that border the Arctic Ocean, which are Russia, the United States, Canada, Norway, and Denmark. These countries, often called Arctic littoral states, began to strengthen their presence in the region. Russia expanded its icebreaker fleet and built new bases. Canada asserted control over the Northwest Passage. The United States increased research and patrols in Alaska. Norway pushed forward with offshore drilling in the Barents Sea, while Denmark showed greater interest in Greenland's resources. Each country wanted to secure a share of the Arctic's growing economic promise.[16] However, this rush for resources and trade also came with risks. On one hand, climate change was exposing how fragile the Arctic environment truly is, ecosystems were being disrupted, animals were losing habitats, and indigenous communities were facing hardship. On the other hand, the very same melting that

revealed these problems also made the region more valuable for shipping and energy. This made the region not only an environmental concern but also a place of geopolitical importance, where questions of trade, energy security, and international competition became tightly connected with the fight against climate change.[17]

As regards it's environmental concerns, people around the world began to notice how fast the climate was changing, and different international efforts were created to try and slow down global warming. However, these efforts have not always worked the same way, and their results have been mixed. The first big attempt was the Kyoto Protocol of 1997, which was the first legal agreement that asked rich, industrialized countries to cut down on the amount of harmful gases, known as greenhouse gases, that they released into the air. These gases, such as carbon dioxide, trap heat in the atmosphere and make the earth hotter. While the Kyoto Protocol was a very important step because it showed that countries were ready to work together, it did not focus directly on the Arctic, which is one of the most fragile parts of the world when it comes to climate change.[18] The agreement had no special plan for how to deal with the unique problems of the Arctic, and soon its power became weaker because some big polluting countries, especially the United States, pulled out of the deal. Since these countries did not take part, the emissions of greenhouse gases continued at a high rate, and the warming of the Arctic went on without much control during that period.

As time went on later, the world came together again in 2015 to sign the Paris Agreement, which was seen as a fresh effort with stronger goals. The Paris Agreement aimed to make sure the earth's temperature did not rise more than 2°C above what it was before the industrial revolution, and if possible, to keep it even lower at around 1.5°C.[19] For the Arctic, this difference is very serious. If global warming could be held at 1.5°C, then summer sea ice in the Arctic might still survive from time to time, even if it would not be as strong as before. But if the warming goes up to 2°C or higher, scientists believe the Arctic would experience summers without ice almost every year. This would change the entire environment of the Arctic, affecting animals, plants, and people who depend on the

ice. While the Paris Agreement sounded very ambitious and hopeful, it still faced big problems. It did not have strong punishments for countries that failed to meet their promises, and many countries did not reduce emissions as much as they should have. This meant that even though the Paris Agreement was an improvement compared to Kyoto, the Arctic was still left exposed to more and more danger as the ice continued to melt and the temperatures kept rising.[20]

At the same time, there have been some regional frameworks made just for the Arctic. The most important of these is the Arctic Council, which was created in 1996. The Council brings together countries that are located around the Arctic, such as Russia, the United States, Canada, Norway, and Denmark (through Greenland), and also includes Indigenous peoples from the region. Its main purpose is to help these countries work together on issues like protecting the environment, encouraging sustainable development, and making sure the Arctic remains safe for both nature and people. The Council has done useful work, especially by making countries sit at the same table and cooperate rather than fight. However, the Arctic Council has its own weaknesses. It does not have the power to force countries to follow rules, because decisions are made by consensus, meaning all members must agree before anything happens. This makes it very hard to tackle difficult problems like military activity, oil drilling, or strict rules on cutting greenhouse gases.[21] For this reason, the Arctic Council often depends on bigger global agreements, like the Kyoto Protocol and the Paris Agreement, to handle the large-scale climate challenges. Unfortunately, since both global and regional systems are not strong enough, the Arctic continues to warm much faster than the rest of the world, and this shows that while there are efforts to help, they are still not enough to protect this very fragile region.

Also, it is important to note that the warming of the Arctic has not only affected the environment but has also brought back old arguments about who owns what parts of the region, who controls the resources there, and who has the right to make decisions. Since the middle of the 20th century, countries that share borders with the Arctic have been making matching claims to areas under the sea,

especially places thought to have a lot of oil, gas, and minerals, like the Lomonosov Ridge.[22] To give some order to these kinds of disputes, the United Nations created the Law of the Sea (UNCLOS) in 1982, which set rules for how far countries could claim into the sea and how they could extend control over their continental shelves. However, as the ice covering the Arctic began to melt more quickly, these issues became much more urgent because resources that were once locked under thick ice are now becoming easier to reach. A famous example happened in 2007 when Russia planted a titanium flag on the seabed directly under the North Pole, an action meant to show its claim over that part of the Arctic. This move sparked attention and competition, and in the years that followed, other countries like Canada, Denmark, and Norway also submitted their own claims to the UN Commission on the Limits of the Continental Shelf, each wanting to prove that parts of the seabed rightfully belonged to them.[23]

While this growing competition has not yet led to full-scale wars or open military battles, it has definitely made the Arctic more tense and heavily guarded. Many of these countries have increased their military presence in the region, building bases, sending ships, and strengthening patrols to make sure their interests are protected. This whole situation shows how global warming has turned the Arctic from a faraway, frozen land that few cared about into an area full of international rivalry, economic opportunity, and political tension. At the same time, it highlights a double problem for the world: not only must countries work together to slow down climate change and protect the fragile environment, but they must also figure out how to peacefully handle the growing competition between powerful nations that want control over Arctic territory and resources.

Conclusion

In summary, the story of global warming in the Arctic shows a big change: it started with small signs of warming in the early 20th century and has now become clear that the Arctic is like a

~~warning signal for the whole world's climate. The fast warming there shows how closely nature and human life are connected. The melting ice and damaged ecosystems are not just Arctic problems, they are global warnings of what climate change can cause. At the same time, the Arctic is now important for trade, oil, gas, and politics, which makes working together more difficult. Climate agreements have tried to reduce emissions, but their weaknesses are felt strongly in the Arctic, where even small temperature increases can threaten animals, native communities, and world peace.~~

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CHAPTER FOUR

IMPACT OF CLIMATE CHANGE ON INTERNATIONAL DIPLOMACY IN THE ARCTIC REGION

INTRODUCTION

The Arctic has long been recognized as a region rich in natural resources, containing vast reserves of oil, natural gas, and valuable minerals. For many years, these resources remained out of reach because thick sheets of ice made extraction both dangerous and extremely expensive.[1] With the impact of climate change, however, the Arctic is now experiencing new levels of ice melt, transforming what was once an inaccessible zone. This change in the environment has made it easier and cheaper to reach deposits that were once locked under ice. Because of this, the Arctic is now seen as a new place for making money and finding resources. The idea that these resources could help meet the world's growing need for energy has attracted interest from both nearby Arctic countries and nations far away. What was once thought of as a faraway frozen land is now viewed as an important area in world politics and economic planning.[2]

The chance to control these resources has started a kind of competition, where countries and companies hurry to take their share in a rapidly changing region. For countries that share the Arctic coastline, such as Russia, Norway, Canada, and the United States, resource extraction is closely tied to national economic growth and security strategies.[3] Russia, for instance, considers the Arctic central to its future energy development and has already launched large-scale oil and gas projects in the region. Norway also sees the Arctic as vital for keeping its position as a steady supplier of energy to Europe, making work in the region a key part of its economy. Canada and the United States have taken a more cautious approach compared to Russia and Norway, moving more slowly to commit large investments because of high costs, environmental concerns, and political debates at home. Yet

both countries know that avoiding the Arctic completely would put them at a disadvantage, since other nations would gain control of resources and new trade routes.[4]

For this reason, even though they act with care, they still see the need to invest in Arctic development in order to remain competitive. The race is not only among countries inside the Arctic circle. China, for instance, has called itself a "near-Arctic state" and takes part in research and business projects in the region. It argues that the Arctic belongs to the world and should not be controlled only by the countries that have land there. This wide interest shows that the Arctic is becoming important both as a source of wealth and as a place where countries compete for global power.[5] The competition for Arctic resources has also created difficult legal and political challenges, especially because melting ice has opened up new sea routes that connect major economies.

New shipping routes (Northern Sea Route, Northwest Passage)

One of the most important effects of melting Arctic ice is the creation of faster shipping routes. The Northern Sea Route, which runs along the northern coast of Russia, reduces the distance between Europe and Asia by several thousand kilometers compared to the Suez Canal, saving both time and fuel. In the same way, the Northwest Passage, which cuts through Canada's Arctic waters, is becoming easier to use during summer months when the ice melts.[6] These shorter routes give shipping companies new ways to link different parts of the world and make global trade cheaper and quicker. But while they provide opportunities, they also bring new diplomatic and political disputes, as countries argue over who has the right to control them.[7]

Russia insists that the Northern Sea Route belongs to it and that foreign ships must ask for permission and obey Russian rules. Canada has taken the same stand with the Northwest Passage, claiming it as part of its internal waters. On the other hand, the United States and several European countries argue that both routes are international straits that all nations should be able to use freely. This disagreement has created strong political tension, since many countries see free movement of

ships as a right that must not be restricted. As a result, the question of who controls Arctic waters has become one of the most debated issues in world politics today.[8]

Geopolitical tensions and militarization

Apart from trade, the new Arctic sea routes also carry major importance for security and power. A country that controls them can shape world shipping patterns, gain large financial advantages, and also strengthen its political and military influence. Because of this, the struggle is not only happening in talks and negotiations but also directly in the Arctic itself. Countries are expanding their presence by using coast guards, building icebreaker ships, and even carrying out military patrols. Russia, which owns the largest share of the Arctic coastline, has gone further by reopening old Soviet-era military bases, establishing new ones, and expanding its fleet of icebreakers.[9] Moscow says these steps are necessary to protect its economic interests and ensure safe passage along the Northern Sea Route. However, other countries view them as aggressive and worry about Russia's long-term goals.

In response, the United States and its NATO allies have started paying more attention to security in the Arctic. The U.S. has added more military forces in Alaska, and NATO has carried out joint training exercises with Norway and other partners in the region.[10] Canada has also stressed the need to protect its northern lands by improving its systems for watching the area and by sending more patrols. Even though no actual war has happened, the increased presence of military activities has created an atmosphere of tension and distrust, where every country carefully observes the actions of the others. This growing military presence in the Arctic shows how changes in the environment, caused by melting ice and climate change, have gone beyond nature alone. They have now become a global security issue that strongly influences the plans and strategies of the world's most powerful nations.[11]

Cooperative frameworks (Arctic Council)

Even though there is rivalry and tension in the Arctic, cooperation has not completely disappeared. One of the most important channels for dialogue is the Arctic Council, which was created in 1996. This body brings together the eight countries that have territory in the Arctic, which are; Russia, Canada, the United States, Norway, Denmark (through Greenland), Iceland, Sweden, and Finland, alongside permanent representatives of indigenous communities who live in the region.[12] The Council mainly focuses on issues like protecting the environment, encouraging sustainable growth, and supporting scientific studies. But it intentionally avoids military or defense topics, this is because, by keeping talks on non-military matters, the Council has helped reduce direct clashes and build trust among members.[13] Over time, it has also led to important agreements that make the Arctic safer and more cooperative. For example, countries have agreed on rules for handling oil spills, better plans for search and rescue, and ways to work together on scientific research. These agreements show that even though countries compete, they still understand the need to follow common rules to deal with common challenges. The Council has also strengthened the idea that cooperation does not necessarily weaken the state's sovereignty, since states can still protect their own interests while joining efforts to find solutions to mutual challenges.[14]

At the same time, the Arctic Council has limitations, this is because it does not touch on military or territorial disputes, it cannot fully address some of the most sensitive issues in the region. For example, during times of high political conflict, such as when relations between Russia and Western nations are tense, the ability of the Council to function effectively is weakened. Nevertheless, it remains an important platform for dialogue and a tool for keeping communication open among states. It shows that diplomacy, even though it cannot solve every problem, is still a useful way to manage the risks created by melting ice and climate change in the Arctic.[15] Through encouragement of discussions and joint actions, the Council keeps the possibility of peaceful solutions alive, in a region that could otherwise become dominated by rivalry and mistrust.

Indigenous rights and voices

The native peoples of the Arctic, such as the Inuit, Saami, and Chukchi, have lived in the far north for hundreds of years, depending on the land, sea ice, and animals for food and survival. Their daily life is deeply tied to hunting, fishing, and traditional cultural practices. Today, however, climate change is putting their way of life in serious danger. Melting ice makes it harder to reach traditional hunting grounds, while changing weather patterns affect the animals they depend on. At the same time, new shipping routes and industrial projects bring new risks like pollution, oil spills, and damage to the environment.[16] These changes threaten not only their economy but also their culture and traditions that have been passed down for generations. Because of these challenges, indigenous groups are no longer just silent observers; they have become active voices in international talks about the Arctic's future. Through the Arctic Council, they have been given a unique position as "permanent participants." This status allows them to take part in discussions on issues such as protecting the environment, planning development projects, and supporting scientific research. Their inclusion is important because it shows that Arctic cooperation is not only about powerful states and governments but also about the people who actually live in the region and experience its changes every day.[17]

Also, Indigenous leaders often stress that development in the Arctic must be balanced with sustainability. They argue that economic progress should not come at the cost of destroying the environment or erasing local cultures. Their voices remind the world that decisions made in boardrooms and government meetings have real effects on communities that depend directly on the Arctic for survival. But even with this recognition, indigenous communities face many struggles. Their rights and priorities often clash with the interests of governments and large corporations. While governments focus on securing energy supplies and protecting national interests, and companies push for profits from oil, gas, and mining, indigenous groups worry about the long-term damage these activities can cause to the environment and their way of life. This tension forces them to

carefully balance between joining global diplomacy and defending their traditional practices. Even so, indigenous groups remain a powerful reminder that the Arctic is not just about territory, money, or resources, it is also about people, cultures, and human survival.[18]

Environmental protection and scientific cooperation

This human perspective connects directly to the wider issue of environmental change in the Arctic. Climate change is more visible here than in almost any other part of the world. The fast melting of ice, the rise in sea levels, and the threat to animals like polar bears, seals, and fish clearly show that urgent action is needed. Indigenous concerns about sustainability therefore reinforce the global call for environmental protection, since the problems are too large for any single country or community to solve alone. Protecting the Arctic environment has become one of the main topics in international diplomacy, as governments now recognize that damage in the region has consequences for the entire planet.[19] For this reason, states and organizations frequently meet to discuss how to reduce harm, safeguard fragile ecosystems, and at the same time find ways to balance responsible development with resource use.

One of the strongest areas of cooperation has been in science. Scientists from many different countries travel to the Arctic to study melting ice, changes in ocean movement, and the variety of plants and animals that live there. They share data and results, which helps the world understand climate change more clearly. This scientific teamwork has been supported by international agreements, which make it easier for researchers to work side by side. What makes this important is that science has continued even when politics between the same countries has been tense. In other words, science has provided neutral ground, where cooperation does not stop just because governments are in conflict.[20]

Evaluation of diplomacy

Even with these developments, diplomacy on the environment in the Arctic is not without problems. Some governments and big companies argue that if environmental rules are too strict, they will slow down economic growth and prevent access to oil, gas, and minerals. On the other side, environmental organizations and indigenous peoples argue strongly that there should be tougher rules to protect the land, ice, and wildlife for the future. Because of this, talks about the environment in the Arctic often involve long and difficult negotiations. Countries and groups usually have to compromise, since it is not easy to satisfy both sides fully.[21] But even with these difficulties, progress has been made. The success of international scientific cooperation shows that shared concerns about the environment can bring countries together in a way that competition over resources cannot. It highlights the idea that while rivalry and profit often divide nations, the need to protect the Arctic's environment has the power to unite them under a common goal.

Conclusion

The Arctic has become one of the most important regions in global politics because climate change is opening new shipping routes, exposing vast oil, gas, and mineral resources, and creating both opportunities and tensions among powerful states. Russia, Canada, the United States, and other Arctic nations are competing for control, while China shows growing interest in using the Northern Sea Route for trade. This competition has also led to militarization, with Russia reopening bases and expanding its icebreaker fleet, and NATO countries increasing patrols and military exercises. At the same time, cooperation has not disappeared: the Arctic Council, created in 1996, remains a key platform for dialogue on environmental protection, sustainable development, and scientific research, even though it avoids military issues. Indigenous communities such as the Inuit, Saami, and Chukchi play an active role in Arctic diplomacy, reminding governments and corporations that development

~~must not destroy fragile ecosystems or erase local cultures. Environmental protection and scientific cooperation stand out as areas where countries continue to work together despite political rivalry, showing that shared challenges can unite nations. Overall, the Arctic represents both competition and collaboration, where the future will depend on balancing economic interests, security concerns, sustainability, and respect for human rights.~~

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CHAPTER FIVE

SUMMARY AND CONCLUSION

The Arctic provides a striking example of these dangers. Known for its icy landscapes, wildlife, and Indigenous communities, the region is now warming about four times faster than the global average due to a process called Arctic amplification. Melting ice not only raises sea levels worldwide but also exposes darker surfaces that absorb even more heat, worsening the cycle of warming. At the same time, the retreating ice opens access to valuable oil, gas, and minerals and creates new shipping routes, sparking competition among powerful nations. These developments make the Arctic both a vulnerable environment and a contested geopolitical space, showing how climate change is reshaping security concerns and global priorities

Climate change has become one of the greatest threats facing humanity, caused mainly by human activities such as burning fossil fuels, deforestation, industrial production, and wasteful consumption. These actions release greenhouse gases like carbon dioxide and methane into the atmosphere, trapping excess heat and disturbing the Earth's natural balance. As a result, the world experiences rising temperatures, stronger storms, droughts, floods, food insecurity, health problems, and forced migration. Because its effects touch nearly every aspect of life, climate change has moved from being seen as a purely environmental issue to a central concern in global politics. International organizations like the United Nations and the Intergovernmental Panel on Climate Change (IPCC), alongside governments and non-state actors such as NGOs, scientists, and activists, now play important roles in creating awareness, shaping policies, and pushing for international cooperation.

Different international relations theories also explain how countries react to climate change. Realism argues that states act only when their survival is directly threatened, as seen in North Korea's limited engagement. Liberalism emphasizes cooperation, laws, and global agreements, while

constructivism highlights the role of beliefs, values, and identity in shaping environmental action. Critical theories, like Marxism, draw attention to global inequalities, pointing out that poorer nations suffer most from the pollution caused by wealthier countries and corporations. Meanwhile, Green theory insists on a fundamental shift in how humanity views nature, promoting renewable energy, reduced consumption, and harmony with the environment. Together, these perspectives show that climate change is not only a scientific or environmental challenge but also a political, economic, and moral issue that shapes the present and future of international relations.

The Arctic, once seen as an untouched frozen wilderness, has now become one of the most visible examples of climate change. What was once thought of as permanent ice is rapidly melting, reshaping the environment, threatening wildlife, and disrupting the lives of Indigenous peoples who depend on the land and sea. Scientific research, especially from the mid-20th century onward, revealed that the Arctic was warming at an unusually fast rate, a process later called Arctic amplification. Satellite technology confirmed that both the extent and thickness of Arctic ice were shrinking, with multi-year ice disappearing at alarming speed. By 2007, sea ice reached record lows, signaling a major global warning. This melting has devastated ecosystems, endangering species such as polar bears, seals, and walruses, while also forcing Indigenous communities to face food insecurity, collapsing infrastructure due to thawing permafrost, and coastal erosion that has pushed some villages to relocate.

At the same time, the retreat of ice has created new opportunities and rivalries. Shorter shipping routes such as the Northern Sea Route and Northwest Passage are now opening, cutting travel time between continents and reducing fuel costs, while vast reserves of oil and gas hidden beneath the Arctic seabed have drawn intense interest. Countries like Russia, the United States, Canada, Norway, and Denmark have strengthened their presence in the region, competing for control of trade, resources, and territory. International frameworks such as the Kyoto Protocol, the Paris Agreement, and the Arctic Council have attempted to address the challenges of climate change and cooperation

in the region, but their efforts remain limited and often lack enforcement power. As a result, the Arctic has become both a symbol of the environmental crisis and a stage for geopolitical rivalry, where the fight against global warming intersects with the struggle for power and resources.

The Arctic has shifted from being a distant frozen region into one of the most contested and significant regions in global politics. Climate change has increased the melting of ice, exposing valuable reserves of oil, gas, and minerals that were once unreachable, and opening shorter sea routes such as the Northern Sea Route and Northwest Passage. These changes have drawn wide interest from both Arctic states, Russia, Norway, Canada, and the United States, and non-Arctic powers like China. For some, the region promises energy security and new economic opportunities, while for others it represents faster trade connections between the world's major economies. The struggle for access and control has therefore transformed the Arctic into a space of both opportunity and rivalry, where economic development, sovereignty claims, and environmental concerns intersect.

At the same time, the melting ice has turned the Arctic into a zone of growing geopolitical tension. Russia has expanded its military footprint by reopening bases and building icebreakers, while NATO and its allies have increased patrols and exercises, creating an atmosphere of mistrust. Yet cooperation has not disappeared entirely. Frameworks like the Arctic Council provide platforms for dialogue, especially on environmental protection, indigenous rights, and scientific research. Indigenous communities such as the Inuit and Saami have also gained recognition as active participants, stressing that development must balance with sustainability. The Arctic thus stands as both a test of international rivalry and an experiment in global cooperation, where the consequences of climate change are deeply tied to security, diplomacy, and the survival of cultures and ecosystems.

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