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GLOBAL GEOPOLITICAL IMPLICATIONS FOR THE WORLD AS A  
RESULT OF THE NEGATIVE IMPACTS OF CLIMATE CHANGE  
ГЛОБАЛНИТЕ ГЕОПОЛИТИЧКИ ИМПЛИКАЦИИ ВРЗ СВЕТОТ КАКО  
РЕЗУЛТАТ НА НЕГАТИВНОТО ВЛИЈАНИЕ ОД КЛИМАТСКИТЕ  
ПРОМЕНИ

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**ABSTRACT**

Frequent debates and analyzes the impact of climate change on security represent the initiator of profound scientific observations by the academic community. Climate change is a phenomenon that affects virtually all vital areas of the planet and humanity. The importance of incorporating climate change in geopolitical analysis comes into focus when you consider the future consequences of climate change on specific regions and strategic directions, which would change the geopolitical power in the world. These assumptions rely on geographical power is abstracted from global changes that alter the environment today. This paper provides answers to several questions and focuses on geopolitical changes today and will take place in the world due to the negative impact of climate change.

**Keywords:** Climate change, global warming, geopolitics, global threat, region

**АПСТРАКТ**

Зачестените дебати и анализи за влијанието на климатските промени врз безбедноста претставуваат иницијатор на продлабочени научни опсервации од страна на академската заедница. Климатските промени се феномен, кој ги засега практично сите витални области на планетава и човештвото. Важноста од инкорпорирање на климатските промени во геополитичките анализи доаѓа во фокусот кога ќе се земат идните последици од климатските промени врз одредени региони и стратегиски правци, кои би ја промениле геополитичката моќ во светот. Овие претпоставки се потпираат врз географската моќ што се апстрахирали од глобалните промени кои ја менуваат животната средина денес.

Трудот дава одговори на неколкуте поставените прашања и се фокусира на геополитичките промени кои денес и во иднина ќе се случуваат во светот како резултат на негативното влијание на климатските промени.

**Клучни зборови:** Климатски промени, глобално затоплување, геополитика, глобална закана, регион.

## INTRODUCTION

Climate change is considered as the „degree of change of nature“, degree which can be initiated by various parameters, including temperature, precipitation amount, frequency and intensity of extreme weather events and so on (Милески, 2011: 63). Climate change is a phenomenon that affects virtually all vital areas of the planet and humanity. The beginning of global warming was first discovered in 1827 by French mathematician Jean Baptiste Fourier, who emphasized the connection between the atmosphere and the effect of glass garden. In the fifties of the twentieth century scientist Charles Keling again conducted measurements of the level of CO<sub>2</sub> in the atmosphere. The results of measurements showed increased concentrations of CO<sub>2</sub> in California, Hawaii and the South Pole (Scripps, 2012). Today the main body responsible for synthesizing the latest scientific climate change is the Intergovernmental Panel on Climate Change (IPCC)<sup>1</sup>, his task is to assess the human risk caused by climate change, and based on scientific, technical and socio-economic information. The assessment is based on published scientific literature expert. (IPCC does not conduct research or monitor climate change). IPCC was established in 1988 by the World Meteorological Organization with support from the UN Environment Programme (UNEP).

In its Third Assessment Report confirmed that there are new and stronger evidence that most of the warming observed over the past 50 years due to human activities. People in some areas may benefit from climate change. But very much will struggle to overcome. Developing countries will suffer more than others, because lack of resources makes them particularly vulnerable to accidents or emergencies of major proportions. Analyzing climate change geopolitical aspect, the paper will cover the benefits and losses we suffer certain regions in the world due to the negative impact of climate change.

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<sup>1</sup> Intergovernmental Panel on Climate Change

**CLIMATE CHANGE:****A KEY VARIABLE IN THE CREATION OF GLOBAL GEOPOLITICAL POWER**

Geopolitics as a social science discipline concerned with studying the mutual relationship between the ethnic, demographic and economic aspects of the impact of political relations in a country. The term geopolitics was first used by Swedish scientist Rudolf Members (Rudiolf Kjellen). According to his interpretation of geopolitics is a concept that explains the policy of the state expressing it through a natural geographical factors, geographic location and identification of geographic entities (Kjellén, 1916 :39).

One of the most concerned British geopoliticians is geographer Sir Halford Mekinder (Mackinder). For him, the geographical position and natural Resources are one of the major factors in determining the power and foreign policy of a country. In his lecture „The geographical Pivot of History“ before the Royal Geographical Society in the early twentieth century, was convinced that world politics will depend on the control of a specific part of the world.

According Mekinder, Euro-Asia is a potential seat of imperial domination of the region, the future world political power. With the rise of the industrial era, with the gradual disappearance of colonial borders, Mekinder believed that the possession of rich natural resources of Central Eurasia will be crucial to the global matrix of the twentieth century (Dodds and Sidawa, 2004: 292).

Mekinder opens new ways of thinking about the complex interactions between geography, politics and power, that geographical, environmental factors, climate and topography will affect the future balance of power. The purpose of Mekinder is to encourage thinking about the mutual relationship between geography and environmental geopolitics at a time when environmental change has become the topic of global concern. Today is a growing amount of evidence caused changes on the environment by man or nature, which has profound negative effects on the political, social and economic system. But these effects are largely ignored by most geopolitical analysis. An example can be cited in the report "Mapping (marking) of the Global Future" U.S. National Intelligence Council. The report is addressed slightly to change the environment in which to highlight the possibilities for regulating and developing technology in response to global efforts to reduce climate change.<sup>2</sup> Similarly, the U.S. CIA<sup>3</sup> report „Global Trends 2015“, lists the influences of demographic pressures and environmental changes as they could change the future of geopolitical stability, but the drawback is that it is highlighted how climate change

<sup>2</sup> National Intelligence Council, (2004) Mapping the Global Future: Report of the National Intelligence Council's 2020 Project. Washington, D.C.: U.S. Government Printing Office

<sup>3</sup> Central Intelligence Agency

could complicate the global balance of forces that in future I will be not only an indicator for the occurrence of various natural disasters but also direct negative factor that directly affects the man himself and globally on planet Earth.

So far, only a few studies suggest some consequences of climate change on international security and safety systems (Purvis and Busby, 2004: 10) in most modern geopolitical studies, unfortunately, have no significant environmental dimension. On environmental changes directly affect the economic, political and demographic factors (Fraser et al., 2005). Therefore considering the geopolitical consequences of environmental change is a complex issue. In a world populated by more than 7 billion people, no more place the issue of environmental changes to be put aside. Events like the Indian Ocean tsunami of December 2004, floods in Pakistan in August 2010 clearly shows the human consequences of environmental as well as changes that may occur to the already overcrowded planet, producing a new group of vulnerable people „environmental refugees“.

There are more natural and human relationships with environmental changes that should be the focus of attention of geopolitics scene, but climate change is one of the most important factors that have a direct impact. What is known dramatic social and economic implications can cause climate change (Linden, 2006). So far in many scientific studies is emphasized negative impact of greenhouse gases emitted into the atmosphere by man and implications on the global climate system (IPCC, 2001). The broadcasting of greenhouse gases and aerosols due to human activity warming an upward trend, so that in future expected changes in the atmosphere that affect global climate system. So far, several studies indicate that during the twentieth century the average global surface temperature has increased by 0,6 °C. For the same period the snow and ice cover decreased, global average sea level has increased, the temperature of ocean water is increased. These changes directly affect global rainfall.

While the international community is gradually confronting the implications of these changes or how climate will affect human systems, climate change becoming more reference providing consistently clear in which direction you move the man. Thereby it is important to consider how environmental changes associated with changing climate system can change the geopolitical foundations of international relations.

The importance of incorporating climate change in geopolitical analysis comes into focus when you consider the future consequences of climate change on specific regions and strategic directions, which would change the geopolitical power in the world. These assumptions rely on geographical power is abstracted from global changes that alter the environment today.

As a starting point in considering the negative implications of climate change on global security to analyze across several segments by analyzing the impacts of climate

change impacts on: agricultural systems, the availability of water, coastal impacts and analysis of transport pathways.

## **AGRICULTURAL SYSTEMS**

The relationship between climate and vegetation system is a good indicator of potential impacts of warming and cooling, and thus the ability to grow the crops in different parts of the world. According, Fisher (Fischer, G) who did research on the negative and positive impacts of climate change on agriculture in certain regions in the world, produced a map showing the areas in which agriculture will spread decreases under the influence of global warming. Using various social, economic and climatic indicators, it identified areas of demographic growth in different countries, making correlation with having free-arable land for growing crops (Cincotta et al., 2003 ).

Northern coast of South America, northwestern Africa and parts of eastern China will face the consequences of global warming. Since increased levels of carbon dioxide, climate change will affect different in developed and developing countries. For example member of the Indonesian archipelago and parts of South Asia may have increased yields due to climate change. In the middle parts of the United States, parts of Eastern Europe and the Amazon Basin, will reduce productivity, but the consequences will be severe because these areas have a high demographic growth. Other factors that may affect the destabilization of agricultural systems on biodiversity, increased occurrence of pests, weather disasters, and the changing fish stocks.

## **AVAILABILITY OF WATER**

Significant parts of the world already face shortages of fresh water for drinking. According to UN estimates, more than half of the expected increase of eight billion people living on the planet in 2025, will be faced with a shortage of drinking water (Arnell, 1999: 9). Global warming and the greenhouse effect will change the hydrological cycle. According to the second report of IPCC (IPCC, 2011), global warming will likely increase the number of floods and droughts as well as getting to change the cycles of wet and dry periods in certain areas of the world. Although the global warming predicts an increased number of rainfalls in some parts of the world they will be reduced especially in overseas countries. Areas susceptible of low water due to climate change will be most of North, East and South Africa and parts of the Middle East in the future in large-scale face access to water resources.

Over the next few decades, increasing population and water consumption will be further pressure on global water resources, particularly in Africa, parts of South Asia and

Middle East. Changes in the hydrological system will affect the economic and social development in these countries.

Considering these disorders (environmental degradation and pollution, growth and concentration, conflicts of water resources, etc.), It becomes clear that water can be exclusive geopolitical importance. Although in the past water was not a direct source of conflict, however the implementation of certain strategies can substantially influence to avoid instabilities. In contrast, some regions may face an economic depression, mass migration and the border conflicts.

## COASTAL IMPACTS

Global rise in sea level could have a significant impact on the population lives near coastlines. Melting ice in Greenland and Antarctica (Rapley, 2006: 25) indicates that if current trends continue a possible significant rise in sea level. Areas in the world who are just 20 meters above sea level will be directly threatened.

Coastal zones are located in areas with relatively low levels of social development, potentially threatened by the rise in sea level (Africa, East and Southeast Asia). New 20 major cities in these areas in the future may be directly threatened. The increase in ocean temperature could increase cyclone activity, causing increased occurrence of storms and floods. It would have disastrous consequences for a country like Bangladesh, the Netherlands chii most of the territory is barely above sea level. According to the research that has made UNEP, the rise in sea level by 1.5 meters, direct consequences on the population in Bangladesh who will be forced to become displaced from the critical parts would be more than 17 million people.

The increased rise in sea level will affect the developed countries. According to a study by Caldwell (Caldwell et al., 2003), risk of damaging low-lying port facilities, airports, roads, rail lines, tunnels, pipelines, power lines etc. is particularly large. Many of these facilities are concentrated on the Atlantic Ocean, Pacific, Gulf of Mexico, as though inland waterway. Just for illustration can mention Hurricane Katrina, which in New Orleans, Louisiana in 2005, showed the effects of coastal flooding.

Not spared even the small island states that are several meters above sea level. Small rise in sea level can cause salinization of fresh water, erosion and sinking of land, loss of coral reefs and sandy beaches, destruction of agricultural land, the occurrence of storms, high waves, etc..

Global warming in particular is concerning the Alliance of Small Island States (an organization that brings together leaders of island countries worldwide. Several island countries are already considered „Peoples scarce water“ (e.g. Barbados and West African islands). In these areas, climate change is expected to increase the frequency of droughts

and floods. Absorption of populations and even entire countries, forced to migrate because of the growing tide and ebb tide, may have profound implications for contemporary geopolitical movements.

## TRANSPORT ROUTES

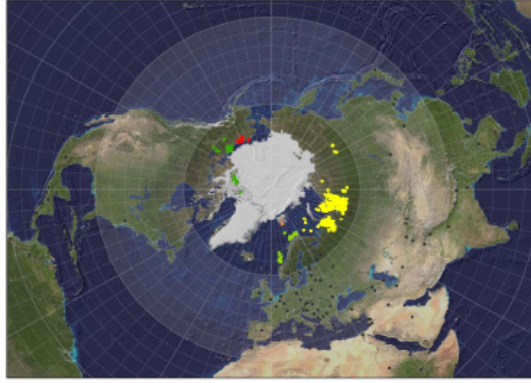
Transport roads today are of particular relevance to current geopolitical configurations. Change and opening new transport routes could significantly disrupt the balance of power.

The decrease of Arctic ice in recent years, allowing the waters off the northern coast of Canada and Russia to become avenues for delivery of raw materials (especially oil) in the summer months (Picture 1)



**Picture 1:** Transport routes for delivery of raw

A quarter of world reserves of oil and natural gas lie beneath the Arctic Ocean (Bethge, 2006) (Picture 2). Norway and Russia have disagreed over the right to drill in the Barents Sea. The size of the Russian gas field Shtkman estimated at 3.2 trillion cubic meters, making it one of the largest known deposits in the world. Regional gas could be processed in the northern hemisphere and transported to Europe and North America. This would cause a significant change of the balance of power in relation to the current richest oil regions in the world in Asia and the Middle East.



Picture 2: Oil and gas fields in the Arctic, Source: Aguirre 2006<sup>th</sup>

## GEOPOLITICAL CONSEQUENCES

What geopolitical scenarios are possible in the global arena as a consequence of global warming trend, you can enumerate the following assumptions:

1. China and India in the future will expand its global influence. The assumption that China and India will continue to move upward with economic growth relies on extrapolation of current economic and demographic changes. China could have significant agricultural problems in their fertile eastern plains as a consequence of global warming. Parts of northern India could face water shortages, direct effect may be hampered economic growth, the emergence of internal tension, which is inversely proportional to the efforts to strengthen political and economic level of these two countries.
2. U.S. will continue in development. The assumption that the U.S. can maintain its dominant position is based on the idea that they will be able to maintain its key international economic role and to continue to finance its large army. Consequences of global warming would be felt in agriculture, and increasing sea levels and increased intensity of storms can cause major flooding in East and Southeast of the country. These effects can seriously impair the means for the projection of American power.
3. Regional destabilization would have power to affect the expected trends of development. Today, most of the geopolitical analyzes focus on contemporary economic, political and ideological trends. Global warming will cause destabilization in most of North and East Africa and in Southwest Asia. Crisis and destabilization could easily spill over into other regions, so that each geopolitical scenario could be viable.



4. Scenarios of a unipolar world order and the clash of civilizations to the early 21st century, relatively few pay attention to potential new centers of power that are not negligible. With the creation of new agricultural areas, the development of new transport routes in the Arctic region, a huge benefit to have Russian agriculture and export of rich minerals and fossil fuels from their northern and eastern regions, thus confirming the position of Russia in the global geopolitical matrix.

## CONCLUSION

Physical impacts of climate change are complex and unpredictable, expressing with large average global temperatures, rising sea levels, the increasing shortage of arable land and lack of drinking water, the progress of the world is particularly sensitive to these influences. Projections of climate changes during the 21st century indicate the following: Global average temperature increased by 0,8°C from the early 20th century up to 2100 will increase by 2-7°C depending on the quantum of future emissions of greenhouse gases and the development technology. Rising sea levels will pose a threat to the population in coastal areas and infrastructure, creating a large number of „environmental refugees“. The combined effects of climate change and increasing demand for greater food production, predicted change in the productivity of major world regions for food production, and accelerated degradation of land in the fertile areas. Lack of water will increase in many places due to changes in the cycle of precipitation. In other areas, increased precipitation and frequency of monsoon will threaten agricultural production, will cause flooding and erosion which may threaten urban and rural population.

Weak economically developed countries have limited capacity to cope, and is likely to tend to adapt to challenges and environmental changes, if not to intervene-help international institutions. Extreme weather events and rising temperatures will increase instability because an immediate shortage of food and water. Long term effects include degradation of arable land, and increase internal and regional migration. Disrespect for human rights, corruption, among the factors that increase political instability in the country. (The conflict in Darfur in Sudan is an example of how climate change may affect the poor countries). The consequences of climate change will continue to redirect geopolitical purposes, the division of interests has become more apparent among a large number of advanced developing countries (China, Brazil, South Africa, India, Indonesia, etc.) and the rest of the developing countries. Such divisions and will be more pronounced, so that the collective response to tackling climate change will be difficult achievable. Greater regionalization has an array of advantages. Member states can more quickly respond to specific crises, and their interest in securing peace and stability within its own borders. In

any case, changes in geopolitics are already occurring and the impact of climate change is a constant challenge to international security.

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