

Forum: The Group of Twenty (G20)
Issue: The economic impact of global warming
Student Officer: Lida Arapogianni
Position: President

PERSONAL INTRODUCTION

Delegates of the G20,

I would like to welcome you to the G20 committee of this year's Platon School Model United Nations. My name is Lida Arapogianni and I will serve as the Main Chair of this special and extremely interesting committee. This is going to be my sixth chairing experience and I am glad that I have been given this opportunity. Together with my co-chairs, we are going to help you and guide you throughout your preparation and the three-day long conference. Therefore, if you have any questions do not hesitate to contact via email. My email is lidaki632@gmail.com .

As you already may be aware, the Group of Twenty is being introduced for the first time in PSMUN. Despite that, I am pretty sure that it will be a very successful first time. As representatives of 20 major economies, you are advised to research all the topics and come prepared to the conference, so as to be able to participate during the lobbying and debate procedures.

The issue of the economic impact of the global warming is more topical than ever in our ever changing world, which is characterized not only by scientific and technological development, but also by a plethora of environmental disasters as an outcome of the global warming. These disasters have important economic consequences. During the conference you will have the opportunity to discuss and find common solutions to deal with the issue at hand.

Best regards,

Lida Arapogianni

INTRODUCING TOPIC

The term 'global warming' describes the situation under which the Earth's surface and atmosphere are gradually heated as well as the warming of the increase in the climate's temperature. Despite the fact that there have been many people doubting the reason behind the existence of the aforementioned phenomenon as an impact of human activities, recently NASA and the Intergovernmental Panel on Climate Change have submitted reports stating that the 95% of the scientists recognize global warming as an outcome of human activities. The effects of global warming have been both evident and not so far, however climate change may cause the rise of sea level, the melting of the Arctic icecaps or even plant growth in the Sahara desert. At the same time, the impact of global warming on the economy has been immense¹. According to Time "Temperature change will leave the average income around the world 23% lower in 2100 than it would be without climate change"². There is no doubt that with an annual population growth rate of 2,2%³, the devastating effects of global warming on the economy and the agriculture of both LEDCs and MEDCs will lead to further hunger, instability and inequalities.

DEFINITION OF KEY TERMS

Global Warming

The term global warming refers to the gradual increase of the temperature on earth as a result of the emissions of greenhouse gases (from burning fossil fuels) or of the gradual deforestation of regions like the Amazon, which are of outmost importance for the existence of life on the planet. Many people and scientists believe that global warming is not caused by human activities, but it exists as a natural process (like the Ice Age-glacial periods). However, as it is also mentioned in the introduction, 95% of the scientific community believes that global warming is mainly caused by human activities.

Economy

The term was used for the first time in Ancient Greece and it meant the management of the household. Today it is being used to describe the state of a country concerning the consumption of goods, the production, the supply of money and the services.

¹ "Impacts of Global Warming." *Impacts of Global Warming*. N.p., n.d. Web. 16 Jan. 2017.

² "How Climate Change Could Make You Poorer:." *Time*. Time, n.d. Web. 16 Jan. 2017.

³ "World Population Growth." *Our World In Data*. N.p., n.d. Web. 16 Jan. 2017.

Agriculture

“The science or practice of farming, including cultivation of the soil for the growing of crops and the rearing of animals to provide food, wool, and other products.”⁴

Climate Change

The phenomenon of climate change begun to appear in the middle of the 20th century. The term describes a change in weather patterns and the climactic conditions in many regions of the earth.

GDP (Gross Domestic Product)

“Gross domestic product (GDP) is the monetary of all the finished goods and services produced within a country's borders in a specific time period”⁵.

Carbon pollution

The pollution that is caused by carbon dioxide emissions in the atmosphere. Carbon dioxide is the main pollutant that has led to the increase of global warming.

HISTORICAL BACKGROUND

BACKGROUND INFORMATION CONCERNING GLOBAL WARMING

In 1896 a Swedish scientist named Svannte Arrhenious was the first one to support the prediction that the consumption of fossil fuels would lead to global warming. Together with another contemporary famous scientist, Tomas Chamberlin⁶, they researched and came to the conclusion that human concentration would lead to an increase in the Earth's temperature. Soon, after almost 50 years, Gilbert Plass came to the conclusion that by adding more carbon dioxide in the atmosphere, more infrared radiation would be kept in the atmosphere and this would gradually lead to global warming. In the 1980s, global temperatures began to rise.⁷ It was the first time that the theory of global warming was discussed in public, although a controversial theory. In 1988, the temperatures were more high than any time from 1880. Therefore, the United Nations founded the Intergovernmental Panel on Climate Change (IPCC). In the early 90s, many scientists questioned the reliability and accuracy of the theory of global warming. However, the IPCC did not reconsider neither the results of its reports nor the theory. In 2001, the Kyoto Protocol was signed by 186

⁴ <https://en.oxforddictionaries.com/definition/agriculture>

⁵ Root. "Gross Domestic Product - GDP." *Investopedia*. N.p., 10 Sept. 2015. Web. 16 Jan. 2017.

⁶ "Water Treatment Solutions." *History of the Greenhouse Effect and Global Warming*. N.p., n.d. Web. 16 Jan. 2017.

⁷ "Global Warming Timeline." *Global Warming Timeline*. N.p., n.d. Web. 16 Jan. 2017.

countries and aimed to reduce gas emissions. Nowadays, the 97%⁸ of scientists according to NASA believe that current global warming is the outcome of the expansion of the natural greenhouse effect by human activities⁹.

THE CAUSES OF CLIMATE CHANGE⁹

GASES THAT CONTRIBUTE TO THE GREENHOUSE EFFECT	WHERE CAN THEY BE FOUND?
Water vapor	The most abundant greenhouse gas. Its increase is proportional to the rise of the temperature.
Carbon dioxide (CO ₂)	It can be found in the nature. However, the burning of fossil fuels and the changes in the use of land increase the concentration of CO ₂ in the atmosphere.
Methane	It can also be found in nature. However, the existence of natural wetlands, agricultural activities, and fossil fuel extraction and transport by cars, airplanes etc. has caused the increase of methane in the atmosphere. According to researchers Methane seems to be an active greenhouse gas.
Nitrous oxide	It can also be found in nature. Human activities, such as agricultural activities or fuel burning contribute to its increase.
Chlorofluorocarbons (CFCs) and other F-Gases	Used in coolants, foaming agents, fire extinguishers, solvents, pesticides, and aerosol propellants. Unlike the other gases they have a long lifetime in the atmosphere.

⁸ *The Independent*. Independent Digital News and Media, n.d. Web. 16 Jan. 2017.

⁹ NASA. NASA, n.d. Web. 16 Jan. 2017.

THE EFFECTS OF GLOBAL WARMING ON THE ECOSYSTEM (according to NASA)¹⁰

- Global temperature rise: It is estimated that the global temperature has been rising since 1880. At the same time, Earth's surface temperatures continue to increase.
- Sea level rise: It is estimated that the levels of sea have risen about 17 centimeters during the past century. The rise of the sea level is caused by the melting of polar icecaps and by the expansion of the sea due to warming. It is well known that sea level rise puts many coastal cities like Venice, islands or even whole countries such as the Netherlands into danger.
- Decrease of Arctic ice, glaciers and ice sheets: The abundance and the thickness of the ice worldwide has declined. At the same time, the decrease of the ice is not only a threat to the ecosystems of the Arctic Zone but also a global threat as it is naturally followed by the rise of the sea level and the extinction of species vital to many food chains.
- Extreme Events: During the last few decades, humanity has faced extreme weather events many times. Severe weather events include: extended heat waves, a bigger number of wildfires, droughts and extended rain seasons. The increase of the California wildfires is an important example of extreme events.
- Ocean acidification: Last but not least, due to a rise in carbon dioxide levels in the atmosphere, the acidity of surface ocean waters has increased by about 30%.

THE ECONOMIC IMPACT OF GLOBAL WARMING

Humanity has been deteriorating the environment since the Industrial Revolution. The destruction of the ecosystems has led to the aforementioned effects and more problems are sure to come. Every resource and living being on Earth is sure to be affected by global warming, even the existence of humanity itself. Recently the professors of Stanford University published in the journal Nature a study stating that the impact of global warming and climate change on a macroeconomic scale will be unexpected. Yet, on a small scale some sectors individually are facing important difficulties. Based both on the study and facts some of the effects of global warming on the economy are listed:

- Macroeconomic impacts: Marshall Burke, Solomon Hsiang, and Edward Miguel, economists based at Stanford and the University of California Berkeley

10 NASA. NASA, n.d. Web. 16 Jan. 2017.

stated that the macroeconomic effects will be catastrophic. More specifically, they estimated that global warming effects will lead to a 23% decrease, below of what it would otherwise be, of countries' annual GDP before 2100¹¹. The economists estimate also that countries with an annual temperature average more than 13°C will face a decreased economic growth¹². On the other hand, countries with a cooler climate will face an economic boost in terms of increasing productivity. Unfortunately, LEDCs will become poorer according to the study, since Africa, Asia and South America will be the countries mostly affected by climate change. The aforementioned will cause further inequality between MEDCs and LEDCs.

- Agriculture, livestock, fisheries: The primary sector (extraction of raw materials and distribution to other sectors) depends more than any other sector on climate and on biodiversity and abundance of species. It is also very important, to acknowledge that feeding approximately 7 billion people living on this planet depends on agricultural activities. The increase of floods and droughts is one of the main challenges that the primary sector has to face nowadays and poses a great threat for food safety. It is estimated that higher temperatures decrease the growth of crops. In addition to that, the rise in global temperatures causes changes in the habitats of fish species. In 2011, the USA faced a damage of \$1 billion, due to heat related animal losses¹³. Last but not least, global warming will cause an increase in the number of parasites and diseases that negatively affect agriculture and livestock.
- Economic loss from natural disasters: According to the BBC, economic losses from natural disasters since 1900 are around \$1 trillion¹⁴. The 40% of this losses account to floods. Taking into consideration the fact that extreme weather conditions are increasing due to global warming, it is evident that economic losses from natural disasters are going to increase, as well. A remarkable example is that in 2011 Honda and Toyota were forced to pause production for months after the natural disasters taking place in Thailand.
- Displacement of people: In 2013, approximately 22 million people were displaced from their living towns due to natural disasters.¹⁵ The number was

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¹² Nuccitelli, Dana. "Global Warming Could Be More Devastating for the Economy than We Thought | Dana Nuccitelli." *Climate Consensus - the 97%*. Guardian News and Media, 27 Oct. 2015. Web. 16 Jan. 2017.

¹³ "Climate Impacts on Agriculture and Food Supply." *EPA*. Environmental Protection Agency, 06 Oct. 2016. Web. 16 Jan. 2017.

¹⁴ Amos, Jonathan. "Economic Losses from Natural Disasters Counted." *BBC News*. BBC, 18 Apr. 2016. Web. 16 Jan. 2017.

¹⁵ Goldenberg, Suzanne. "Natural Disasters Displaced More People than War in 2013, Study Finds." *The Guardian*. Guardian News and Media, 17 Sept. 2014. Web. 16 Jan. 2017.

three times higher than the number of people displaced by wars during the same year. The migration of so many people consists indicates a huge economic loss for their countries of origin, as well as an increase in unemployment rates in their host countries. At the same time, it leads to further instability.

COUNTRIES AND ORGANIZATIONS INVOLVED IN THE ISSUE

Since we are examining a global issue, all countries are affected in different ways, however, here you can find some countries already experiencing economic damage due to global warming:

INDIA

With a population of almost 1,5 billion people (one sixth of humanity), India is a country that already suffers from the effects of global warming. The fact that India has more than 200 coastal cities where thousands of citizens live and work, as well as the fact that India has thousands of crops and its economy is based on agricultural activities, makes it evident that India is going to have huge economic losses in the next decades since the biggest part of the population depends on agriculture. The Intergovernmental Panel on Climate Change has predicted that India will gradually have decrease of 9% in the annual GDP.¹⁶

CHINA

The world's largest country when it comes to population, China is also a country already suffering from the impacts of global warming. One of the main problems China will have to face in the near future is the lack of infrastructure capable of withstanding in case of natural disasters.¹⁷ However, it should be mentioned that the government has already planned ways to deal with the problem if needed. Taking into consideration the fact that China is one of the economies mostly based on manufacturing and in general on the second economic sector, it is estimated by Oxford University that China will have notable economic losses due to climate change.

UNITED STATES OF AMERICA

USA consists of regions that are notably affected by climate change. Alaska, for example, is a region that is suffering from floods due to permafrost melts. Newtok, a city near the Niglick River is one of the most prone areas on global warming. Due to

¹⁶ "Economic Impact on India's and World GDP." *Economic Impact on India's and World GDP*. N.p., n.d. Web. 16 Jan. 2017.

¹⁷ <https://www.weforum.org/agenda/2016/04/where-will-climate-change-impact-china-most/>

the rise of river water levels, the relocation of citizens close by seems to be inevitable. This relocation will cost up to approximately \$130 million to the US government. Additionally, Florida and the Caribbean Sea are two of the most vulnerable areas on the planet. In general, USA has already faced economic losses due to the destruction of crops related to climate change.¹⁸

SUDAN

The expansion of the Sahara Desert and the decrease of rainfalls during the last fifty years has caused economic and political instability in the region. There are scientists that believe that the conflict in Darfur is a climate change conflict¹⁹. In the near future, the area as well as the whole continent will face big difficulties in terms of food security as it will be highly affected by global warming and many droughts will take place and destroy the agriculture of the region.

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

It was established in 1988 by the United Nations Environmental Program and the World Meteorological Organization. It consists of scientists aiming to examine and find solutions in order to avoid further difficulties caused by the climate change. The IPCC provides the world with a scientific view concerning the issue. 156 countries are member states of the organization. The organization had a leading role in one of the first important resolutions trying to deal with the issue in 1988 (A/RES/43/53).²⁰

¹⁸ Alexander, Harriet. "Global Warming: Ten Most Affected Areas." *The Telegraph*. Telegraph Media Group, n.d. Web. 07 Jan. 2017.

¹⁹ Borger, Julian. "Darfur Conflict Heralds Era of Wars Triggered by Climate Change, UN Report Warns." *The Guardian*. Guardian News and Media, 23 June 2007. Web. 16 Jan. 2017.

²⁰ "IPCC - Intergovernmental Panel on Climate Change." *IPCC - Intergovernmental Panel on Climate Change*. N.p., n.d. Web. 16 Jan. 2017.

TIMELINE OF EVENTS

DATE	EVENT
1896	Arrhenius publishes a report with the first calculations of global warming due to CO2 emissions.
1967	International Global Atmospheric Research Program is established.
1988	The Intergovernmental Panel on Climate Change (IPCC) was founded by the United Nations Environmental Programme and the World Meteorological Organization.
1988	A/RES/43/53 by the Intergovernmental Panel on Climate Change was discussed in the 70 th plenary Meeting of the General Assembly.
1998	The Kyoto Protocol was firstly negotiated.
2001	The Kyoto Protocol was opened for signatories and was signed by 186 countries.
2011	Floods in Thailand affect the production of Honda and Toyota.
2015	Paris Summit on Climate Chang.
2016	The Paris Agreement was open for signatories.

PREVIOUS ATTEMPTS TO SOLVE THE ISSUE

There have been many previous attempts to deal with the issue at hand. The United Nations have passed several resolutions and documents related to the issue with most important ones the Kyoto Protocol which consists the very first step in reducing emissions, A/RES/43/53 and A/RES/63/281. Of course, the Paris Summit (United Nations Climate Change Conference) of 2015 and the negotiations of the Paris Agreement consist the most remarkable step of the last decade for fighting climate change and its impacts.

POSSIBLE SOLUTIONS

During the Paris conference it was made clear that we must take measures to reduce global warming and we must be ready to deal with its impacts. Sustainable Development Goal 13: “Take urgent action to combat climate change and its impacts”:

- Creating international mechanisms that ensure the financial support for countries vulnerable to natural disasters and cooperation between all UN member states are a key factor to solve this issue. At the same time, we need to ensure that the decisions of the Paris Agreement will be enforced always with respect for each country's needs.
- Creating infrastructure in conurbations, capable of withstanding natural disasters and protecting the citizens is another issue that has to be taken into serious consideration. On the other hand, we need to ensure the safe replacement of people living in affected areas.
- Supporting scientific research concerning the topic, as well as raising awareness concerning global warming. Education is a powerful tool when it comes to humanitarian and environmental related issues.
- Informing farmers about ways to protect their crops from natural disasters. Disaster planning is a very reliable method that helps farmers to prepare themselves for natural disasters with the help of technological equipment.

BIBLIOGRAPHY

Nuccitelli, Dana. "Global Warming Could Be More Devastating for the Economy than We Thought | Dana Nuccitelli." *Climate Consensus - the 97%*. Guardian News and Media, 27 Oct. 2015. Web. 05 Jan. 2017.

"How Climate Change Could Make You Poorer:." *Time*. Time, n.d. Web. 05 Jan. 2017.

"Water Treatment Solutions." *History of the Greenhouse Effect and Global Warming*. N.p., n.d. Web. 06 Jan. 2017.

NASA. NASA, n.d. Web. 06 Jan. 2017.

"Oxford Dictionaries - Dictionary, Thesaurus, & Grammar." *Oxford Dictionaries | English*. Oxford Dictionaries, n.d. Web. 06 Jan. 2017.

"World Population Growth." *Our World In Data*. N.p., n.d. Web. 06 Jan. 2017.

"Climate Impacts on Agriculture and Food Supply." *EPA*. Environmental Protection Agency, 06 Oct. 2016. Web. 06 Jan. 2017.

Amos, Jonathan. "Economic Losses from Natural Disasters Counted." *BBC News*. BBC, 18 Apr. 2016. Web. 06 Jan. 2017.

Goldenberg, Suzanne. "Natural Disasters Displaced More People than War in 2013, Study Finds." *The Guardian*. Guardian News and Media, 17 Sept. 2014. Web. 06 Jan. 2017.

Alexander, Harriet. "Global Warming: Ten Most Affected Areas." *The Telegraph*. Telegraph Media Group, n.d. Web. 07 Jan. 2017.

"5 Places Already Feeling the Effects of Climate Change." *LiveScience*. Purch, n.d. Web. 07 Jan. 2017.

"Climate Impacts on Society." *EPA*. Environmental Protection Agency, 22 Dec. 2016. Web. 07 Jan. 2017.

"Goal 13 .:. Sustainable Development Knowledge Platform." *United Nations*. United Nations, n.d. Web. 07 Jan. 2017.

IMAGE CITATION

1.NASA. NASA, n.d. Web. 16 Jan. 2017.

2.NASA. NASA, n.d. Web. 16 Jan. 2017.