

CAUSES AND CONSEQUENCES OF CLIMATE CHANGE

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Abstract: Climate change, arising from the greenhouse effect of heat-trapping gases, is a global problem. All nations are involved in both its causes and consequences. Currently developed nations are the largest emitters of greenhouse gases, but emissions by developing nations will grow considerably in coming decades. The most recent scientific evidence indicates that effects during the twenty-first century may range from a global temperature increase of 1.1°C (2°F) up to 6.4°C. In addition to simply warming the planet, other predicted effects include extreme weather phenomena such as floods, droughts, tornadoes, increased shoreline erosion seas and oceans.

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1. INTRODUCTION

“Global warming” is the term used to describe a gradual increase in the average temperature of the Earth’s atmosphere and its oceans, a change that is believed to be permanently changing the Earth’s climate. Even though it is an ongoing debate, it is proved by the scientists that the planet is warming.

Global warming is affecting the nature’s balance and has a huge impact on life like continued heat waves, and sudden occurrence of storms and floods.

What happens, in fact, with this phenomenon of global warming? The Sun’s rays pass through the atmosphere and reach the Earth’s surface. Some of these rays are absorbed at ground level acting like heating. The other part is reflected by infrared rays which are directed vertically. If the case when the atmosphere is loaded with high amounts of polluting gases, including CO₂, the energy reflected is retained in the atmosphere and not through the upper layers of stratosphere. Thus is explained the abnormal warming of the atmosphere in the same manner that the air is warming from a greenhouse beneath the walls of glass. Global warming of the Earth over the past century, more pronounced after 1983, became an increasingly serious concern for the entire population of the globe. The first official analysis more consistent to the situation caused by the greenhouse effect was submitted to the United Nations Conference on Climate Change held in Montreal (Canada) in 1987, with the participation of all heads of State. A year later, at the conference in Toronto (Canada) was requested of CO₂ gases by 2005, as a first step to reduce "greenhouse effect" installed in the global atmosphere.

After many other interventions remained unanswered at the heads of states intervened the Kyoto Protocol(Japan) in 1997, which constituted the first concrete attempt of industrialized countries to reduce all emissions of air polluting in triggering effect gases (CO₂, methane, petroxid oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride). European Union countries have pledged to reduce pollutant emissions by an average of 8% by 2012. Experts have argued that, by the year 2050, these emission reductions to achieve 50 % since 1990. To be effective, this action would have been compulsory in the States who have refused to ratify. Although this Protocol was signed by representatives of 141 countries (including Romania, in 2001), yet there were some industrialized countries (U.S., Australia) and some African countries, whose governments have refused to unconsciously ratify without any scientific motivation.

2. THE MASSIVE INDUSTRIALIZATION

By burning fossil fuels (oil, natural gas) in factories , the gas emissions, especially carbon dioxide, retaining in the atmosphere large amounts of solar radiation. It has been calculated each year liberate on Earth, the amount of 21.52 billion tons of CO₂ of which 64 % in just 10 states intensive fuels. From a statistical report the volume of CO₂ released to the population that emerges from these 10 states categorically United States, followed by Canada, Japan, Germany, Russia, UK, Italy, France, China and India. The situation is completely disproportionate to the U.S. , covering only 4.6 % of the global population, but emits into the atmosphere about 25 % of the total CO₂ flux evolved annually from the earth's surface. In the opposite situation is China, which represents 21.2% of the world population and evolves into the atmosphere only 12.7% of global CO₂. Solid fuel consumption dictated by owners of large industrial companies, made after 1950 to be an increasing in the concentration of CO₂ in the atmosphere by 30%. During the same period increased by 150 % methane content in the atmosphere, resulting from the exploitation, transportation and consumption of natural gas from mining resources, but also from landfills, degradation and burning of waste, as well as livestock.

Although it is known that methane sources are limited, assuming that in the next 30-40 years will total liquid, there was no country to adopt a system of saving , thinking of the needs of future generations.

3. THE DEMOGRAPHIC CRISIS

The demographic crisis represents another issue is the rapid growth of the global population. The 20th and 21st century have seen an alarming demographic explosion unprecedented in human history. The official statistics show that since year I of the birth of Jesus Christ until now, the world population has multiplied by 28 times. There were significant increases slightly until 1500, recording double the number of inhabitants in a millennium and a half , a normal growth between 1500-1900 (3.7 times in four centuries) and an exponential population explosion in the last century (3.7 times in one century). World population clock installed in Chicago reported on the day of Sunday, July 18, 1999 , the existence on Earth of 6 billion inhabitants. The news was

received with enthusiasm, but at the same time, concern , since the last two decades show that the population has increased each year, with many mouths to feed 220,000 from the same fund food resources . Every second a day there are 5 newborns and 2 people die, which leads to some simple calculations. It may be noted that this rate of population growth , the Earth will have to feed 50 billion people over 120 years (if they will not take effective family planning). Serious problems are also linked to global population distribution per country . Of the 6 billion inhabitants, 50 % live in only five countries (China, India, USA, Indonesia and Brazil).

4.DEFORESTATION

A third cause is deforestation, considered actions of great seriousness of some greedy businessmen, who for the rapid enrichment can affect the lives of thousands or millions of people with devastating effects. Reckless felling of forests started in the '50s and '60s surfaces million hectares in the Sahel (Central Africa), when some foreign businessmen offer attractive area on the hard wood from tropical forests. In the attempt to have currency, the natives sold their last natural shade for all family members, causing an irreversible catastrophe. In the past 3-4 decades, the action continued deforestation in subtropical and temperate areas , especially in poorer countries . Among these was included even Romania where , after 1990 , were cleared over 200,000 hectares, mainly in Vrancea Mountains (Milcov, Zabala and Susita Valleys) Rodna Mountains, Troțușului Valley, Tazlau Valley, Nehoiului Valley, Harghita, Covasna etc. The negative effect of deforestation is linked to the fact that forests have a key role in absorbing CO₂ from the atmosphere through photosynthesis, intervening directly in the reduction of toxic gases and thus to avoid the greenhouse effect.

Water and soil pollution was another cause of the greenhouse effect and a major source of toxic gases. In the last two decades there were many cases of diving in the waters of the seas and oceans of the high-capacity tankers have spilled water on the surface of tens of thousands of tons of oil.

Industrial waste and livestock have also a negative impact on the purity of the atmosphere. An example of this country is the city, the most polluted city in Romania , especially in the hot summer months when values doubled harm the emissions of carbon monoxide, lead and other toxic pollutants (lakes, detergents, phenols), emanating from Dudești industrial areas, Faur, Vitan, Progresul , Militari, Obor, Popești Leordeni .

5.THE CONSEQUENCES OF THE GREENHOUSE EFFECT

The progressive increase in global temperature. The expansion of the greenhouse effect and the continuation of uncontrolled human activities have removed climate system from its natural evolution. The process of heating is not uniform. Thermal increases are more intense in polar and subpolare areas, emphasizing the melting glaciers. This has a disastrous effect on the way of life of the Eskimo. At the same time, occurs a numerical reduction of some species of polar animals (polar bears, seals, walrus) and some species of tundra plants. It is considered that if the average

warming the planet with 20⁰C, the temperature in the Arctic will increase by 60⁰C. Uneven heating of land and ocean waters caused some disturbance in movement of hot and cold air currents, with paradoxical effects on weather developments during the year.

Were radically shortened transition seasons (spring, autumn), so that today we only perceive two seasons (summer and winter).

The melting glaciers. Global warming has triggered a rapid melting of the Arctic ice caps and glaciers floating adrift in the ocean waters. Data from NASA satellites reveals melting of the polar glaciers in Greenland and Alaska is double then normal. Recently, many of the glaciers have disappeared in southern Alaska Peninsula. Through this area there is one of the great tectonic fault lines. By melting glaciers at the surface, Earth's crust rises and allows triggering devastating earthquakes. The impressive volume of cold water resulting from melting glaciers will descend the Northern southward and will meet Golfstrim waters, the warm current that starts in the Gulf of Mexico, crossing the Atlantic Ocean at the speed of 97 km per day, and is moving towards the west coasts of Europe (Ireland, England, Denmark, Norway, Sweden). By diverting south from warm current is possible to cool the climate in Western Europe. At the South Pole, the last time melted the glaciers Larsen A and Larsen B, which sank in just 35 days, making the whole ocean rise by 2 cm. Behind this giant glacier melting glaciers is exposed Ross's Shelf that after disintegration could cause the sea level to rise by 6 meters, moving underwater islands and countries on maritime coasts.

If the trend of global warming will continue at the same rate, it is estimated that by the year 2020, ocean levels will rise by 6-7 meters so many port cities (Amsterdam, Hamburg, London, Miami, Bangkok, etc.) have to be moved to other locations. In Romania as possible narrowing of the coastal beaches to extinction. It is worth mentioning that began and melting glaciers in the Himalayas, causing flooding of proportion in India, Nepal and China through the great rivers Ganges, Indus, Brahmaputra, Mekong, Yangtze and the Yellow River.

Precipitation in excess and disastrous floods. Increased global thermal evaporation leads to a large amount of water in the oceans and seas. Water vapor in clouds that are carried by air currents from the sea onto land where cause severe floods and tornadoes that were not known in prior periods. We cannot forget that in 2005 floods from hurricane Katrina destroyed dozens of lives destroyed thousands of homes. As major flooding in Romania corresponded heavily deforested areas may be considered as totally unacceptable that excessive enrichment of greedy barons, to reach that half the country is under water and tens and hundreds of people die taking anger management.

Tornadoes in Romania. In recent years came upon a series of tornadoes Romanian territory unknown in the past only through the media. Arrived here, the tornadoes began to "join" the corridor between Buftea Movilita, Slobozia and the Black Sea, with future extensions to massive deforestation of forest areas. These tornadoes have become common in Europe with an average of 700 per year, conducted in the form of hurricane corridors. Recently, Kyrill tornado with speeds of 160-170 km / hour devastated central and northern Europe killing 38 people in Germany, UK, Netherlands etc.

Drought , desertification and desertification. These three phenomena of nature is a big problem for mankind since the past decades, the gradual warming of the atmosphere caused a serious imbalance globally. Temperature increase correlated with a sharp decrease in rainfall and the occurrence of excessive drought. Permanent phenomenon led to desertification and subsequent desertification of large areas On a global scale , land and desertification aridisation subject occupies a quarter of the Earth 's land surface, affecting the lives of about one billion people in over 110 countries around the world, affected by this phenomenon. Serious damage was produced mostly in Africa (Sahel countries, East Africa, North and South) , South-West Asia , Iran , Afghanistan , Pakistan , China , India , Australia and some countries in America and Europe. Everywhere, drought conditions have profound effects on world and national agricultural production, especially grain production (wheat , corn, rice). In Romania soil water deficit became outstanding from year to year since 1984, with the systematic reduction effects of agricultural production, especially by destruction of large parts of the irrigated area .

6. ROMANIA PESSIMISTIC FORECASTS FOR THE YEARS TO COME

Romanian environmental specialists show the possibility that in less than 25 years, Romania will radically change its appearance , being hit every year by droughts, floods and tornadoes. It is confirmed the warning that by year 2030 the Sahara desert will exceed the area currently occupied by 9 million km² (about 38 times higher than the surface) and submit systematically north. Reaching the shores of the Mediterranean Sea, the desert will cross to Sicily, and southern Italy (Calabria), Herzegovina, Bosnia and Romania will take possession putting Southern Territories (Oltenia, Baragan, Dobrogea and part of southern Moldova). It's not far the period where the approximately 3 million hectares of arid , drought exposed , will turn into a " Romanian Sahara ". These areas will dry up rivers with low flow will degrade soils by wind blown sands , rainfall will have a total system of control and by massive deforestation adverse actions will become more frequent landslides and entire villages housing.

7.possible remedies

To prevent the devastating effects that loom over 25-30 years due to global warming is recommended:

- Reduction of CO₂ , methane and other gas emissions through measures taken at the political leaders of the countries of the world, especially in industrialized countries;

- Reduced energy consumption based on fossil fuels and adopt forms of conventional energy (sun, wind, water, biomass , heat underground);

- Replanting forests destroyed, protecting and creating national parks, protected by severe laws;

- Reduce paper consumption and recycling cellulose to prevent excessive logging resulting wood;

- Restoring facilities to irrigate crops as major steps in the feeding of the population;
- Regulation of water by damming works and desilting of sewer networks that take rain and accidental spills.

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