IMPACT OF CLIMATE CHANGE ON THE ENVIRONMENT

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Climate change is the defining issue of our time and we are at a defining moment. From shifting weather patterns that threaten food production, to rising sea levels that increase the risk of catastrophic flooding, the impacts of climate change are global in scope and unprecedented in scale. Without drastic action today, adapting to these impacts in the future will be more difficult and costly.

As it is known, greenhouse gases are produced naturally and play an important role in the survival of humans and other living things by trapping some of the sun's heat and making our planet habitable. A century and a half of industrialization, as well as clear deforestation and the use of certain agricultural methods, have led to an increase in greenhouse gas emissions into the atmosphere.

Together with the growth of the population and the development of the world economies, the volumes of their greenhouse gas emissions are increasing. There is a number of scientifically established patterns:

- the average global temperature is directly related to the concentration of greenhouse gases in the Earth's atmosphere;
- since the beginning of the industrial era, the concentration of greenhouse gases has been constantly increasing, and with it the average global temperature has been rising;
- one of the main greenhouse gases in the Earth's atmosphere is carbon dioxide, a product of burning fossil fuels.

The Intergovernmental Panel on Climate Change (IPCC) was established by the World Meteorological Organization and the United Nations Environment Program to provide objective scientific evidence. In 2013, the most complete data on the anthropogenic impact on climate change were presented.

The Intergovernmental Panel on Climate Change has released its Fifth Assessment Report, which scientifically looks at climate change. The conclusions of the report are unequivocal: climate change is real and human activity is the main cause of it.

The report provides a comprehensive assessment of sea level rise, and its causes, over the past few decades. It also estimates cumulative CO2 emissions since pre-industrial times and provides a CO2 budget for future emissions to limit warming to less than 2°C. About half of this maximum amount was already emitted by 2011. The report found that:

- From 1880 to 2012, the average global temperature increased by 0.85°C.
- Oceans have warmed, the amounts of snow and ice have diminished and the sea level has risen. From 1901 to 2010, the global average sea level rose by 19 cm as oceans expanded due to warming and ice melted. The sea ice extent in the Arctic has shrunk in every successive decade since 1979, with 1.07 × 106 km² of ice loss per decade.
- Given current concentrations and ongoing emissions of greenhouse gases, it is likely that by the end of this century global mean temperature will continue to rise above the pre-

industrial level. The world's oceans will warm and ice melt will continue. Average sea level rise is predicted to be 24–30 cm by 2065 and 40–63 cm by 2100 relative to the reference period of 1986–2005.

Most aspects of climate change will persist for many centuries, even if emissions are stopped.

There is alarming evidence that important tipping points, leading to irreversible changes in major ecosystems and the planetary climate system, may already have been reached or passed. Ecosystems as diverse as the Amazon rainforest and the Arctic tundra, may be approaching thresholds of dramatic change through warming and drying. Mountain glaciers are in alarming retreat and the downstream effects of reduced water supply in the driest months will have repercussions that transcend generations.

In October 2018 the IPCC issued a special report on the impacts of global warming of 1.5°C, finding that limiting global warming to 1.5°C would require rapid, far-reaching and unprecedented changes in all aspects of society. With clear benefits to people and natural ecosystems, the report found that limiting global warming to 1.5°C compared to 2°C could go hand in hand with ensuring a more sustainable and equitable society.

The report finds that limiting global warming to 1.5°C would require "rapid and far-reaching" transitions in land, energy, industry, buildings, transport, and cities. Global net human-caused emissions of carbon dioxide (CO2) would need to fall by about 45 percent from 2010 levels by 2030, reaching 'net zero' around 2050. This means that any remaining emissions would need to be balanced by removing CO2 from the air.

At the 21st session of the Conference of the Parties to the United Nations Framework Convention on Climate Change, a landmark agreement was concluded to tackle climate change and catalyze action for sustainable low-carbon development. The Paris Agreement builds on the mandate of the Convention and, for the first time in history, brings all peoples together to take decisive steps to combat and mitigate climate change and help developing countries to do so.

The Paris Agreement was signed at UN Headquarters in New York on April 22, 2016, on the International Day of Mother Earth, by the heads of 175 states. This was a record number of countries that signed an international agreement in one day.

In September 2019, the UN Secretary General hosted a Climate Summit to discuss issues in this area. World leaders gave presentations on the measures being taken and planned activities ahead of the 2020 UN Climate Conference.

References

1. IPCC Fifth Assessment Report. URL: https://www.ipcc.ch/report/ar5/syr/ (Last accessed 04.03.2021)
2. Infographics URL: https://unfccc.int/timeline/#infographics (Last accessed 02.03.2021)

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