

CLIMATE CHANGE IS A GLOBAL PROBLEM AND ITS IMPACT ON WORLD ECOLOGY

Khaldarov Khatamjon Mo'ydinovich

Department of "Chemical technologies", senior teacher, q.x.f.n, Kokand branch of TDTU

Nabikhanov Saidjalalkhan Lazizkhan ugli

TDTU Kokan branch, student

Abstract: Climate change is one of the most pressing issues of our time, with far-reaching consequences for the health of our planet and its inhabitants. It is a global problem that requires immediate attention and collective action from nations around the world. The scientific consensus is clear: human activities, particularly the emission of greenhouse gases from burning fossil fuels, deforestation, and land-use changes, are significantly contributing to the warming of the Earth's atmosphere. This article will explore the devastating impact of climate change on world ecology, highlighting its effects on ecosystems, biodiversity, and human societies.

Keywords: Biodiversity, environmental change, deforestation, discharge of ozone harming substances, government assistance.

Introduction: Environmental change alludes to long haul changes in neighborhood, worldwide or territorial temperature and climate because of human exercises. For 1000s of years, the connection among lifeforms and the weather conditions have been in a sensitive equilibrium favorable for the presence of all lifeforms on this Planet. After the modern upset this equilibrium is progressively changing and the change has become obvious from the center of the 20th 100 years. Presently it has turned into a significant danger to the prosperity of people and the supportability of biodiversity. An expansion in normal worldwide temperature, and outrageous and unusual weather conditions are the most well-known signs of environmental change. It has now obtained the significance of worldwide crisis. As per the report of the most recent Intergovernmental Board for Environmental Change, human-prompted environmental change as is predominant now is uncommon over the most recent 2000 years and is strengthening in each district across the globe. In this audit the drivers of environmental change, its effect on human prosperity and biodiversity, and moderation measures being taken at worldwide level are momentarily talked about.

Outflow of green-house gases

Consistent expansion in the outflow of ozone harming substances (GHGs) because of human exercises has been the essential driver for environmental change. The key ozone depleting substances are carbon dioxide (76%), methane (16%), and somewhat nitrous oxide (2%). Until ongoing many years, the temperature of the climate was kept up with inside a sensible reach as a portion of the daylight that raises a ruckus around town was reflected once more into the space while the rest becomes heat that keeps the earth and the air warm enough for the food of living things. Gathering of ozone depleting substances consolidate with water fume to frame a straightforward layer in the environment that traps infrared radiation (net intensity energy) transmitted from the World's surface and reradiates it back to Earth's surface, in this way adding to the rising temperature (nursery impact). Methane is multiple times and nitrous oxide multiple times stronger than CO₂ in catching intensity. Until 2019,

the US, UK, European Association, Canada, Australia, Japan and Russia were the significant CO₂ makers and were answerable for 61% of world's outflows. Presently, China creates the greatest measure of CO₂ (27%) trailed by USA (11%) and India (6.6%); on per capita premise, be that as it may, India stands 10th.

The outflow of GHGs is generally because of the consuming of non-renewable energy sources (coal, oil and gaseous petrol) for vehicles and ventures which bring about fossil fuel byproducts during their extraction along with utilization. How much CO₂ in the air before the modern upheaval used to be around 280 ppm and presently it has expanded to 412 ppm. Expansion in the climatic temperature additionally prompts an expansion in the temperature of the sea. The seas assume a significant part in the worldwide carbon cycle and eliminate around 25% of the carbon dioxide discharged by human exercises. Further, some CO₂ breaks up in the sea water delivering carbonic corrosive which expands the causticity of the ocean water. Increasing sea temperatures and fermentation not just lessen their ability to go about as carbon sinks yet in addition influence sea environments and the populaces that transfer on them.

Expanding interest for meat and milk has prompted a critical expansion in the number of inhabitants in animals and transformation of gigantic measure of the land to pasture and cultivate land to raise animals. Ruminant creatures (to a great extent cows, bison and sheep) produce a lot of methane when they digest food (through intestinal maturation by microorganisms), adding to the ozone depleting substances in the environment. To create 1 kg of meat it requires 7 kg of grain and somewhere in the range of 5000 and 20,000 L of water though to deliver 1 kg of wheat it expects somewhere in the range of 500 and 4000 L of water. Anaerobic aging of animal's excrement likewise creates methane. As per Patrick Brown, our animal cultivating industry should be changed; utilizing promptly accessible plant fixings, the healthy benefit of a meat can be coordinated with around one 20th of the expense.

The vitally regular wellspring of nitrous oxide delivered to the environment (60%) comes from the movement of microorganisms on nitrogen-based natural material from crude soil and waste water. The leftover nitrous oxide comes from human exercises, especially agribusiness. Use of nitrogenous manures to trim plants is a standard practice to build the yield; a large number of the ranchers will generally apply more than the necessary sum. Notwithstanding, it brings about nitrous oxide outflows from the dirt through nitrification and denitrification processes by microorganisms. Both manufactured and natural manures increment how much nitrogen accessible in the dirt to microbial activity prompting the arrival of nitrous oxide. Natural manures, in any case, discharge nitrogen more leisurely than manufactured ones so that the majority of it gets consumed by the plants as they become accessible. Engineered manures discharge nitrogen quickly which can't be utilized by plants immediately, in this manner making the overabundance nitrogen accessible to microorganisms to switch over completely to nitrous oxide. As of now CO₂ fixation in the environment is higher than whenever in somewhere around 2 million years, and methane and nitrous oxide are higher than whenever over the most recent 800,000 years.

Permafrost (forever frozen soil), far reaching in Icy locales of Siberia, Canada, Greenland, Gold country, and Tibetan level contains huge amounts of natural carbon in the top soil extra from dead plants that couldn't be deteriorated or decay away because of the virus. An unnatural weather change incited defrosting of permafrost works with deterioration of this material by microorganisms accordingly delivering extra measure of carbon dioxide and methane to the climate.

Deforestation

Restricted deforestation in early piece of human progress was the aftereffect of resource cultivating; ranchers used to chop down trees to develop crops for utilization of their families and nearby populace. In preindustrial period likewise, there was a harmony between how much CO₂ radiated through different cycles and the sum consumed by the plants. Woods are the primary sinks of barometrical CO₂. After the modern upheaval, the pattern started to change; expanding extent of deforestation is being driven by the requests of urbanization, modern exercises and huge scope horticulture. Another satellite guide has demonstrated that field crops have been stretched out to 1,000,000 extra km² of land throughout recent many years and about portion of this recently broadened land has supplanted timberlands and different biological systems.

In late many years the requests on backwoods to develop manor yields, for example, oil palm, espresso, tea and elastic, and for cows farming and mining have expanded tremendously accordingly diminishing the woodland cover. As indicated by the World Natural life Asset (WWF), north of 43 million hectares of woods was lost somewhere in the range of 2004 and 2017 out of 377 million hectares checked all over the planet. Amazon Tropical jungle is the biggest jungle of the world and covers north of 5 million km². It is going through broad debasement and has arrived at its most elevated point as of late. As per Public Geographic, around 17% of Amazon tropical jungle has been obliterated throughout recent years and is expanding lately; during the most recent 1 year it has lost more than 10,000 km. In the vast majority of the nations the woodland cover is under 33%, thought about fundamental. For instance, India's woodland and tree cover is just around 24.56% of the topographical region.

Effects of environmental change

Expansion in climatic temperature has serious results on biodiversity and environments, and human prosperity. The main confirmations of environmental change are the drawn-out information accessible on the CO₂ levels, worldwide temperature and weather conditions. The effects of environmental change in the next few decades depend on distributed models based on the examination of the accessible information. Correlation of the exhibition of environment models distributed somewhere in the range of 1970 and 2007 in projecting worldwide mean surface temperature and related changes with genuine perceptions have shown that the models were steady in anticipating a dangerous atmospheric devotion in the years after distribution. This relationship between anticipated models and genuine information shows that the models are to be sure dependable in precisely foreseeing a dangerous atmospheric deviation and its effects on weather condition in the next few decades and their results on biodiversity and human government assistance.

Weather condition and catastrophic events

One of the undeniable changes saw lately is the limit and erratic climate, and an expansion in the recurrence and force of cataclysmic events. Brazil's south focal area saw quite possibly of the most awful dry season in 2021 with the outcome many significant supplies came to < 20% limit, genuinely influencing cultivating and energy age. In prior many years, it was feasible to anticipate with sensible assurance yearly weather condition including the start and finishing of storm downpours; ranchers could design planting times of their harvests in synchrony with the overall climate. Presently the weather condition is changing consistently and the ranchers are experiencing colossal misfortunes. Comparatively the degree of yearly precipitation and the areas related with weighty and meager precipitation are not any more unsurprising with sureness. Numerous regions which were related with sparse precipitation have begun getting

a lot heavier downpours and the degree of precipitation is getting diminished in regions customarily connected with weighty precipitation. Comparatively the period and the degree of snowfall in mild locales have additionally become profoundly factor.

One of the most visible consequences of climate change is the rapid melting of glaciers and polar ice caps. As global temperatures rise, ice sheets and glaciers are disappearing at an alarming rate, leading to sea-level rise and more frequent and severe flooding events. This not only poses a threat to coastal communities and cities but also has significant implications for global food security, as saltwater intrusion into freshwater sources can contaminate agricultural land and water supplies. Moreover, the loss of Arctic Sea ice is disrupting global weather patterns, leading to more frequent and intense heatwaves, droughts, and storms.

Climate change is also having a profound impact on ecosystems and biodiversity. Rising temperatures are altering the delicate balance of ecosystems, disrupting the habitats and migration patterns of many species. This can lead to population declines, even extinctions, as plants and animals struggle to adapt to the changing environment. The consequences of this are far-reaching, as ecosystems provide essential services such as pollination, pest control, and nutrient cycling, which are vital for human well-being. The loss of biodiversity also has significant economic implications, as ecosystem services are valued at trillions of dollars annually.

Furthermore, climate change is having a devastating impact on human societies, particularly in vulnerable communities. Changes in weather patterns and increased frequency of extreme events are affecting agriculture, leading to crop failures, food insecurity, and displacement of people. The World Food Programmed estimates that climate-related disasters have increased by 75% since the 1990s, with the most vulnerable populations, including women, children, and the elderly, most affected. Additionally, climate change is exacerbating social and economic inequalities, as those who have contributed least to greenhouse gas emissions are often the most affected by its consequences.

Another critical aspect of climate change is its impact on human health. Warmer temperatures and changing precipitation patterns are increasing the spread of disease, heat stress, and other health problems. The World Health Organization estimates that between 2030 and 2050, climate change will cause approximately 250,000 additional deaths per year, mainly due to malnutrition, malaria, diarrhea, and heat stress. Moreover, climate change is also affecting mental health, as people experience anxiety, fear, and trauma related to the uncertainty and unpredictability of extreme weather events.

The economic implications of climate change are also significant. A report by the Intergovernmental Panel on Climate Change (IPCC) estimates that the global economy could suffer losses of up to 11.5% of GDP by 2100 if strong mitigation and adaptation measures are not taken. The costs of climate-related disasters are already staggering, with Hurricane Katrina in 2005 causing \$160 billion in damages and Hurricane Maria in 2017 causing \$90 billion in Puerto Rico alone. Furthermore, climate change is affecting global economic stability, as it disrupts supply chains, increases the cost of doing business, and threatens the long-term viability of industries such as agriculture, tourism, and finance.

Conclusion.

In conclusion, climate change is a global problem that requires immediate attention and collective action. Its impact on world ecology is far-reaching, with devastating consequences

for ecosystems, biodiversity, human societies, and economies. The scientific evidence is clear, and the consequences of inaction will be catastrophic. It is imperative that nations around the world work together to reduce greenhouse gas emissions, transition to renewable energy sources, and develop resilient and sustainable agricultural practices. The time to act is now, and the consequences of our failure to do so will be felt for generations to come.

In the face of this global crisis, international cooperation, innovation, and collective action are essential. Governments, businesses, and individuals must work together to develop and implement effective climate change mitigation and adaptation strategies. This includes investing in clean energy, improving energy efficiency, and promoting sustainable land-use practices. Additionally, climate-resilient infrastructure, early warning systems, and climate-smart agriculture are critical for building resilience in the face of climate change.

Ultimately, addressing climate change requires a fundamental transformation of our societies, economies, and individual behaviors. It demands a shift towards sustainable development, equity, and social justice. The consequences of climate change are far-reaching, but so are the opportunities for innovation, growth, and transformation. As we move forward, it is essential that we prioritize the health of our planet and its inhabitants, ensuring a livable future for generations to come.

References:

1. AR6 Climate Change: The sixth assessment report on climate change. IPCC, Geneva (2021). <https://www.ipcc.ch/report/ar6/wg1/>
2. Beckage B, Osborne B, Gavin DG, et al. A rapid upward shift of a forest ecotone during 40 years of warming in the Green Mountains of Vermont. *Proc. Natl. Acad. Sci. USA*. 2008; 105:4197–4202. Doi: 10.1073/pnas.0708921105.
3. Beckman NG, Aslan CE, Rogers HS. The role of seed dispersal in plant populations: perspectives and advances in a changing world. *Aoba Plants*. 2020 Doi: 10.1093/able/plaa010.
4. Cleland EE, Chinn I, Menzel A, et al. Shifting plant phenology in response to global change. *Trends Ecol. Evol.* 2007; 22:357–365. Doi: 10.1016/j.tree.2007.04.003.
5. Deutsch CA, Tewksbury JJ, Tischler M, et al. Increase in crop losses to insect pests in a warming climate. *Science*. 2018; 361:916–919. Doi: 10.1126/science.aat3466.