Climate change causes the rise of sea levels in the oceans

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Climate change is a global challenge that has a direct impact on ecosystems, environmental resources, and human life. This essay aims to present the sea level rise in the oceans, one of the most significant consequences of climate change.

According to United Nations statistics, ocean sea levels globally have increased by 15-20cm since 1900. Global ice loss increased from 760 billion tons per year in the 1990s to 1200 billion tons per year in the 2010s, which represents an increase of more than 60% from the total of 28,000 billion tons of ice melt. There have been 74 glaciers officially ended in the deep sea, more than half of the ice loss in the Northern Hemisphere (TNO, 2015).

By 2100, the sea level will rise 16 inches, America's Silicon Valley is in danger of being submerged by seawater, Vellinge in Skane county of Sweden will have sea level up to 75cm and face flooding. In the Netherlands, the sea level rises by 0.2cm every year due to melting ice and warming oceans. For Vietnam, sea-level rise may cause 40% of the Mekong Delta area to be saline, even many areas will be permanently inundated (TNO, 2015).

Figure 1: Sea level has risen over the past 8000 years.

Source: R.A. Rohde, 2006, Global Warning Art project.

Global warming comes from two groups: objective causes and subjective causes. Global warming by industrial emissions; Unsustainable use of groundwater, blocking of water in artificial lakes, industrial production, deforestation, the use of harmful gases are the main reasons for high CO₂ emissions. Moreover, melting ice increases global warming. This is because ice reflects more sunlight than water, so in the absence of sea ice, the ocean would absorb more heat and become warmer. In addition, as the earth's temperature warms, the sea water will expand with the temperature, causing the water level to rise.

Figure 2. The fact that ice melts and industrial emissions lead to global warming.

Source: AFP/VNA

Climate-induced changes in soil water reserves and water loss from basins cause structural shifts, changes in solar activity and Earth's orbit, earthquakes, and earthquakes. High intensity soil deforms the Earth's crust, the ratio of salt water - fresh water on Earth, ...

Global warming has been identified as the main cause of melting glaciers, thereby causing sea levels to rise...(Hà Anh, 2021; Nguyễn Luận, 2019; Phương, 2019).

The rapid increase in sea surface area and sea level leads to heavy losses in all aspects:

- Environment: The number of extreme natural phenomena such as heavy rain, thunderstorms, floods, droughts, forest fires, tornadoes, heat waves or severe cold is increasing; populations of special-use and rare species of flora and fauna are increasingly depleted and in danger of extinction;...

Figure 3. Consequences of sea level rise. Source : Internet

- Economy: Reduce the economic growth of many countries. By 2030, the global economy could lose \$2 trillion due to climate change. According to data from the UK NGO Oxfam, developing economies could lose \$1700 billion a year by 2050 (CTV Lê Ngọc, 2021).

- Society: Saltwater intrusion in coastal areas narrows the agricultural land area and increases the sea surface area, greatly affecting the labor structure in society (Nguyễn Thị Lan, 2019).

Figure 4. Predicted sea level in the future in the South of our country. Source: New York Times

At the 2015 United Nations Climate Change Conference, Paris launched the United Nations Framework Convention on Climate Change (UNFCCC) to develop and implement measures in the goal of mitigating warming. Global (Sara Phillips, 2015). To achieve the goal of maintaining a temperature increase of 1.5 degree. The COP26 Conference in Glasgow on November 1, 2021 has suggested three ways that can speed up progress, that is: implementing the proposed plans on time; regulate financial arrangements and further strengthen multilateral coordination. Accordingly, 197 participating countries have agreed to sign a new agreement known as the Glasgow Climate Compact; More than 140 countries have committed to net zero emissions. Countries in this group account for 90% of global GDP; More than 100 countries, including Brazil, have pledged to reverse deforestation by 2030; More than 40 countries pledged to phase out coal mining; India promises to draw half of its energy needs from renewable sources by 2030 (Xuân Phong, 2021).

The official website of the United Nations has listed 7 outstanding efforts and actions related to the fight against climate change ahead of the 26th United Nations Framework Convention on Climate Change (COP26) took place in November in Glasgow, England.

First, invest heavily in clean energy: Governments and the private sector pledged to invest \$400 billion in clean energy at the United Nations High Level Dialogue on Energy last September, 35 Countries, from small island nations to emerging powers, developed economies have made important commitments to new energy sources in the form of "Energy Contracts". Prominent among these is the agreement on the non- licensing of new construction of thermal power plants with the participants of Sri Lanka, Chile, Denmark, France, Germany, England and Montenegro.

Secondly, the US and China take action against climate change: During the high-level week of the 76th session of the United Nations General Assembly at the end of September, the world's two largest economies made commitments to climate change. more ambitious in action against climate change. President Joe Biden announced that the United States will significantly increase its financial contribution to international efforts in this area, to the amount of about \$11.4 billion a year. At the same time, President Xi Jinping pledged that China would stop providing aid and funding for the construction of thermal power plants abroad, and instead Beijing would support and support green energy plants, Generators emit less carbon.

Thirdly, Africa Climate Week provides an impetus for regional action: At the end of September, representatives of African countries had an online session within the framework of Africa Climate Week 2021 (ACW 2021), aimed at highlighting actions to combat climate change, looking for possibilities for cooperation and offering ambitious solutions. More than 1,600 delegates participated in this meeting, chaired by the host country Uganda. The event brings together representatives of governments at all levels along with private sector leaders, experts, and academics. Janet Rogan, Regional Ambassador for the Middle East Africa at COP26 said that this

discussion helps stakeholders build new partnerships, strengthening existing cooperation platforms.

Fourthly, the host country of COP26 "reminds" the countries with financial contributions: Just before the session of the 76th United Nations General Assembly, Mr. Boris Johnson, Prime Minister of Great Britain - the host country of COP26, convened a session. emergency meeting to press parties to do more in fiscal spending to combat climate change.

Fifthly, reform the global food system: Food production systems cause one-third of all greenhouse gas emissions, consume up to 70% of freshwater reserves, and account for 80% of global losses. biological form. Sustainable production systems are therefore considered an important solution to these challenges. On September 23, the United Nations held the Global Food Systems Summit within the framework of its session. 76 General Assembly. Here, world leaders raised their voices to call for action at the national and regional levels to shift the way food is produced, consumed and disposed of. At the conference, many countries announced their initiatives. new ideas, aiming to ensure the nutritional needs of the population by a food production system associated with combating climate change, protecting biodiversity and people's livelihoods.

Sixthly, youth action against climate change: More than 400 activists aged 15-29 from 186 countries participated in the meeting "Youth4Climate" (Youth4Climate), Taking place from September 28 to 30 in Milan, Italy. This is an opportunity for young people to urge the world to do more together in this fight. Since then, the issue of research, science, training, and education of the young generation in cultural awareness and action for the environment is very important (Nguyen & Vuong, 2021; Q. Vuong, 2020).

Lastly, Pre-COP26 Conference: Before each COP, there will be a preparatory meeting, held about a month before, called Pre-COP Conference. This year's conference took place in Milan, Italy, from September 30 to October 2 (Báo tin tức - TTXVN, 2021)

The earth's temperature in the future will increase or not depends largely on the behavior and lifestyle of each person. Will we continue to cut forests, emit CO₂, consume a lot of fuel, industrial products or will we change to develop clean energy, live green and more sustainably? Not to mention, we also don't fully understand the Earth's climate and ocean systems. Sea level rise will be associated with global warming. Sea level rise will be associated with global warming. In the most "optimistic" scenario, the sea level will also rise by 35 cm. According to the "worst" scenario, sea level on Earth will rise by 86 cm compared to this day. That said, it is likely that we will face the risk of sea level rise of 50 cm or more, the amount more than doubling compared to a century ago. Even if we completely stop emitting greenhouse gases into the atmosphere, not only global temperatures but also sea levels will continue to increase in the long term, not decrease.

In the long term, global mean sea level will continue to change continuously. The birth of the industrial revolution has made the Earth warmer and warmer, followed by many different

causes leading to the rapid increase of global sea level: melting ice, expansion of the sea. water and changes in the Earth's climate system, costing the global economy trillions of dollars with many development consequences.

To sum up, humanity must collaborate to find effective solutions to climate change in this century. Building an environmental culture with the participation of businesses (entrepreneurs), using 3D creativity mechanism will be the key to this problem (Vuong, Q. H., 2022; Q.-H. Vuong, 2021; Q. H. Vuong, 2021). Despite the fact that the entire world has become more aware of the consequences of climate change, there is no way to guarantee the future without the combined efforts and serious actions of the world's leading nations.

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