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CSS 2027

## Climate Change: Causes & Consequences.

### Outline.

#### 1 Introduction

"Climate change is the long-term changes in weather pattern and rising temperature primarily driven by human activities and natural activities leading to economic loss, affecting human life, ecosystem and social stability. It can be mitigated by adopting alternate energy resources, sustainable development, reforestation, and investment in climate solutions?"

#### 2 Natural activities contributing in the climate change:

- 2.1- Volcanic Eruption.
- 2.2- Sun activities.

#### 3 Human activities causing the climate change:

- 3.1- Massive Industrialisation
- 3.2- Burning of fossil fuel in Energy and Transportation sector.
- 3.3- Deforestation and Unplanned Urbanisation
- 3.4- Usage of fertilizers in Agriculture

- 4 Climate change is causing :
- 4.1 - Massive rainfall leading to floods.
  - 4.2 - Melting of glaciers and rising sea level
  - 4.3 Global warming.
  - 4.4 Infrastructure and Bio-diversity loss

- 5 Actions in fight against climate changes
- 5.1 - Shifting towards alternate energy resources.
  - 5.2 - Sustainable development.
  - 5.3 - Reforestation and Afforestation.
  - 5.4 - Investment in adoption of agriculture technologies and climate action programs.

6 Conclusion.

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Climate change is not the sudden environmental crisis. It is the result of decades of the natural as well as human activities that disrupted earth's environment. Natural activities such as volcanic eruptions and solar activities contributed small amount in ~~envi~~ climatic changes. CO<sub>2</sub> and SO<sub>2</sub> emissions from volcanic eruptions and change in earth's orbit and rotation lead to the temperature variations in the global temperature. In addition, human activities such as vast industrialization, fossil

fuels burning, unplanned urbanization, and usage of fertilizer releases a large amount of green house gases, chloro-floro carbons ~~and~~ in atmosphere contributing in the environmental crisis. These natural and human activities results in the global temperature rise leading to massive floods and droughts, global warming and economic loss. However, preventive measures such as ~~adoption~~ renewable energy resources, sustainable development and reforestation can help in mitigating the climate changes effects. Climate change is the long-term changes in weather pattern and rising temperatures primarily driven by natural and human activities leading to the economic loss, affecting human life, ecosystem, and social stability. It can be mitigated by adopting alternate energy resources, sustainable developments and investing in climate change actions.

Natural process are always influencing the earth's climate and can explain climate changes prior to industrial revolution. Volcanos plays important part in climate changes. volcanic eruptions releases  $\text{CO}_2$  and  $\text{SO}_2$  in the atmosphere, ~~in~~ specifically in the upper atmosphere, where they

Day: \_\_\_\_\_

Date: \_\_\_\_\_

they can reflect enough sunlight to space causing temporal cooling to the earth's surface. Particles from volcanic eruption are known as aerosols. On the other hand,  $\text{CO}_2$  emissions from eruption is green house gas which leads to the rising temperature. However, these effects last for few years making the climatic influence for every short period.

Change in earth's axis of rotation and sun's energy output had an impact in climate change.

For example, sun shine on northern hemisphere is the primary cause of past cycle of ice age, in which earth has experienced longest cold period and relatively warmer temperature. According to national academy report of 2020, and climate change special report, at the coldest part of last glacial average temperature was  $11^\circ\text{F}$  colder than today and  $2^\circ\text{F}$  warmer than today. Meanwhile, changes in sun's output energy contributes less in climate change.

Over the recent decade, ~~space~~ ~~variations~~ have played ~~role~~. According to the reports of national academy, satellites measured the solar energy and temperature variation since 1978 and it is observed that the global surface temperature has risen till date.

Natural processes are always influencing earth's climate and can explain climate changes before 1700s. However, recent climate changes can not only be caused natural activities alone.

Human are the primary drivers for the current climatic crisis. Massive industrialization is sole responsible for changes. Green house gas such as carbon dioxide, methane, and nitrous oxide are released in the atmosphere in a huge amount from the industries. Some of the gases like hydrochlorofluorocarbons which are not even part of atmosphere naturally are pumped into atmosphere. Re: Continuous pumping of GHGs and CFCs into nature is causing the severe climate changes. primarily driven by the industrial sites. According to Natural Resource Defense Council (NRDC) these emission have raised the global temperature  $1.9^{\circ}\text{F}$  during the 20<sup>th</sup> century. In addition with emission of from industrialization other activities such as fossil fuel burning have played an important role in environmental degradation.