

Climate Change

Causes and Consequences

To begin with, one of the foremost reasons behind climate change is deforestation, as cutting down trees reduces natural carbon sinks. Trees act as natural carbon absorbers by absorbing approximately **2.4 billion tonnes of CO_2 annually**, hence they maintain a balanced level of CO_2 in environment. However, between 1990 and 2024, 420 million hectares of forests were lost, leading to sharp rise in atmospheric CO_2 . In 2024, deforestation contributed to 3.1 gigatonnes of CO_2 emissions. This crisis is further accelerated by **urbanization and land conversion**, with nearly 10 million hectares of forests lost currently. During rapid urbanizations, a large number of trees are cut down for various

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As a result, the natural absorption of CO_2 decreases, causing its concentration in the environment to rise. Urbanization roughly covers 0.6% to 1% of global trees depletion, a figure expected to rise as projections suggest that by 2050, 6.3 million people will live in cities. This growth often replaces 'green spaces' with 'gray spaces', leading to urban heat islands. Most alarming, major parts of Amazon forests are now turning into carbon sources from carbon sinks, signaling a critical tipping point for global environment.

Equally important is the role that fossil fuels consumption plays in driving climate change. Burning fossil fuels is the second main reason behind the high level of CO_2 in environment that was previously stored underground for million of years. When fossil fuels - oil, gas and coal - are burnt they undergo a chemical reaction that releases CO_2 and nitrous oxide that are stored into environment. These gases acts like a thick blanket around earth that prevents heat radiations from escaping into space. This phenomenon results into high temperature. In addition, industrialization has accelerated this process as industries rely heavily on fossil fuels both for energy and raw material for manufacturing items. According to International Energy Agency, energy sector is responsible for about 37% of global energy use.

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with fossil fuels meeting over 67% to 70% of total demand. This increasing demand of fossil fuels for industrialization has surged the level of CO_2 in environment. Since 1880's industrialization, the concentration of CO_2 in environment has increased from 280 ppm to 420 ppm. that directly resulted into global temperature rise of 1.1°C to 1.2°C . Scientific consensus concludes that human activities including fossil fuel burning and industrialization are responsible for 100% of global warming.