

## Impact of Non-Renewable Energy on Climate Change and Sustainable Development

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### Abstract

There are numerous connections between climate change and sustainable development. Given these linkages, it is odd that the literatures on sustainable development and climate change have not been closely integrated. This lack of integration may be due in part to the very diverse research and policy traditions that each area originated from. One of the most significant environmental issues facing the world today is climate change, which has effects on everything from energy production to food production and water availability. A solid scientific understanding and coordinated national and international action are needed to address climate change. According to numerous scenarios, the expected climate change is likely to have an impact on things like food production, water supply, coastal settlements, forest ecosystems, health, and energy security. In underdeveloped nations, communities that are likely to be affected by climate change have poor adaptation potential. It is obvious that the UNFCCC's efforts and the Kyoto Protocol's provisions fall short of meeting the challenge of climate change. The most efficient strategy to combat climate change is to embrace a sustainability pathway that promotes energy efficiency, renewables, forest conservation, replanting, water conservation, and other ecologically friendly practises. Reducing the susceptibility of their natural and socioeconomic systems to the predicted climate change is the issue that matters most to emerging nations. The issue of encouraging mitigation and adaptation techniques, paying for such an effort, and dealing with its effects on economic development will be faced by India and other emerging nations.

### Introduction

Climate, which is often stated in terms of averages and variances of temperature, precipitation, and other physical features, is defined as the typical behaviour of the atmosphere and the accumulation of the weather. Without the greenhouse effect, the earth would be too cold to support life. The greenhouse effect is the capacity of some gases, such as carbon dioxide and water vapour, to efficiently trap some of the reemission of solar energy by the globe. The concentration of carbon dioxide and other greenhouse gases, however, is rising due to human activity, raising concerns about the world warming by 1-58C over the next century. The previous ten years' worth of recent increases in the average global temperature already seem to be outside the normal variability of temperature changes for the last thousand years. Many other assessments clearly imply that this temperature increase is a result of rising atmospheric greenhouse gas concentrations, which supports concerns about much more significant climate changes expected for the future. This evidence prompted the Intergovernmental Panel on

Climate Change IPCC to draw the following conclusion following a review of the remaining uncertainties: However, the overall body of data points to a human influence on the earth's climate. This conclusion has been confirmed even further by more recent research. The burning of fossil fuels by an ever-increasing global population has been identified as a major contributor to the previous growth in carbon dioxide concentrations by computer-based simulations of the intricate mechanisms controlling the carbon cycle.

The international political response to climate change began at the Rio Earth Summit in 1992, where the 'Rio Convention' included the adoption of the UN Framework on Climate Change (UNFCCC). This convention set out a framework for action aimed at stabilizing atmospheric concentrations of greenhouse gases (GHGs) to avoid "dangerous anthropogenic interference with the climate system." The UNFCCC which entered into force on 21 March 1994, now has a near-universal membership of 197 parties. In December 2015, the 21st Session of the Conference of the Parties (COP21/CMP1) convened in Paris, France, and adopted the Paris Agreement, a universal agreement which aims to keep a global temperature rise for this century well below 2 degrees Celsius, with the goal of driving efforts to limit the temperature rise to 1.5 degrees Celsius above pre-industrial levels.

Climate change is emphasised as "an inevitable and urgent global concern with long-term ramifications for the sustainable development of all countries" in the Rio+20 Conference's final report, The Future We Want. Member States express their worry on the steadily increasing greenhouse gas emissions and the susceptibility of all nations, particularly developing nations, to the negative effects of climate change through this document. In light of these worries, Member States have urged for the broadest collaboration and involvement of all nations in a successful and appropriate global response to climate change.



## **Sustainable Development Concept**

Although there isn't a single, widely accepted practical definition of sustainable development, the idea has grown to include three main perspectives: economic, social, and environmental. Each point of view refers to a system (and a domain) with unique goals and forces at work. The economy is essentially designed to promote human welfare, mostly by boosting consumption of commodities and services. The integrity and resilience of ecological systems are the primary concerns of the environmental domain. The social domain places a strong emphasis on enhancing interpersonal connections, achieving individual and community goals, and preserving institutions and values.

## **Climate Externalities**

Burning fossil fuels releases greenhouse gases like carbon dioxide into the atmosphere, which trap heat and cause climate change.

### **Following are a some of the externalities of fossil fuels on the climate:**

**Ocean acidification:** The ocean absorbs at least 25 percent of the carbon dioxide released by fossil fuels, altering the ocean's chemistry (pH). The rising acidity makes it more difficult for marine species to construct coral skeletons and shells. Ocean acidity has risen by 30% in the previous 150 years, endangering coral reefs, fishing, tourism, and the economy.

**Extreme weather:** The National Oceanic and Atmospheric Administration claims that the increased frequency and severity of extreme weather events that cause disasters are a result of climate change brought on by the burning of fossil fuels.

**Global sea level rise** is being caused by the melting of glaciers and land-based ice sheets as a result of oceanic and atmospheric warming brought on by climate change. Since the late 1800s, sea levels have increased by about 9 inches, leading to more frequent floods, destructive storm surges, and saltwater intrusion.

## **How much of an impact do fossil fuels have on the environment and climate change?**

Global warming is mostly caused by emissions from fossil fuels, according to the Intergovernmental Panel on Climate Change (IPCC). 89% of the world's CO<sub>2</sub> emissions in 2018 came from industry and fossil fuels.

As the dirtiest fossil fuel, coal is to blame for more than 0.3C of the 1C rise in average world temperatures. As a result, it is the primary cause of the rise in global temperatures.

Burning oil results in significant carbon emissions; it accounts for around one-third of global carbon emissions. Additionally, there have been a lot of oil spills in recent years that have a catastrophic effect on the environment of our oceans.

As opposed to coal and oil, natural gas is frequently touted as a cleaner energy source. Natural gas, which contributes about one-fifth of all global carbon emissions, is still a fossil fuel.

## **Policy Mechanisms to Reduce Fossil Fuel Externalities**

Eliminating fossil fuel subsidies, which may save taxpayers \$35 billion over the next 10 years, is one of the policy strategies that have been suggested to reduce the externalities associated with fossil fuel use. to gain knowledge about the policy measures used to gradually eliminate fossil fuel subsidies.

A rise in the social cost of carbon (SCC), a measure of the frequently uncounted economic losses brought on by carbon dioxide emissions. SCC is a tool used by the federal government to assess how initiatives may affect the climate.

A government standard for clean electricity that would mandate that a certain proportion of the electricity supplied by utilities come from such sources. These regulations, which are currently in place in a number of states, typically call for an increase in the proportion of clean energy on the electric grid over time.

A carbon price, which charges emitters for their carbon dioxide emissions. Different configurations of carbon price schemes are possible, including a carbon tax. At the subnational level, cap-and-trade schemes, like the Northeast's Regional Greenhouse Gas Initiative, have been in place for a long time. They reduce emissions and open up new revenue streams for clean energy development.

## **Conclusion**

Around 90% of the primary energy consumed globally today comes from fossil fuels, and by 2030, that percentage is expected to remain higher than 50%. Without a question, using fossil fuels has a negative influence on the climate in particular as well as the environment as a whole. If strict control mechanisms cannot be put in place, these effects are projected to worsen over the next 50 years as fossil fuel usage is expected to increase by a factor of three to four. The introduction of new control technology is delayed by the fact that much of it is still in the early phases of development, necessitating massive R and D efforts, that it requires a significant investment in capital, and that it lowers the overall efficiency.

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