

Climate change and Challenges of sustainability: An Overview

Nalina D B

Faculty of School of Law
University of Mysore

Abstract

Do you ever think about the ways you are sustainable in your everyday life? Maybe you cycle to school, maybe you reduce, reuse and recycle, or perhaps you do all of these things. How does this connect to climate change? Sustainability is used to tackle the issue of climate change in a variety of ways, keep reading this explanation to learn more about climate change and sustainability. The impacts of climate change include rising temperatures, rising sea levels and extreme weather (droughts, flooding, and storms.) These impacts can lead to negative effects on the environment and society, such as land degradation, disease, death, and mental health issues.

Key words: Climate change, Global Warming, Sustainable Development, Adaptive measures, Preventive measures

Introduction

There is a significant connection between climate change and sustainable development. Firstly, they are both factors that impact society and the environment. Climate change is presently a major, global issue that impacts the environment and society in several ways and sustainable development aims to reduce the impacts of climate change that affect the environment and society. Climate change is the most significant challenge to achieving sustainable development, and it threatens to drag millions of people into grinding poverty. At the same time, we have never had better know-how and solutions available to avert the crisis and create opportunities for a better life for people all over the world. Climate change is not just a long-term issue. It is happening today, and it entails uncertainties for policy makers trying to shape the future.

For many, a warming climatic system is expected to impact the availability of basic necessities like freshwater, food security, and energy, while efforts to redress climate change, both through adaptation and mitigation, will similarly inform and shape the global development agenda. The links between climate change and sustainable development are strong. Poor and developing countries, particularly least developed countries, will be among those most adversely affected and least able to cope with the anticipated shocks to their social, economic and natural systems.

Climate change – Sustainable Development goals

International perspective

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.

In the 2030 Agenda for Sustainable Development, Member States express their commitment to protect the planet from degradation and take urgent action on climate change. The Agenda also identifies, in its paragraph 14, climate change as "one of the greatest challenges of our time" and worries about "its adverse impacts undermine the ability of all countries to achieve sustainable development. Increases in global temperature, sea level rise, ocean acidification and other climate change impacts are seriously affecting coastal areas and low-lying coastal countries, including many least developed countries and Small Island Developing States. The survival of many societies, and of the biological support systems of the planet, is at risk".

Climate change is one of the biggest challenges of our times.

Climate change is already happening temperatures are rising; drought and wild fires are starting to occur more frequently, rainfall patterns are shifting, glaciers and snow are melting and the global mean sea level is rising. To mitigate climate change, we must reduce or prevent the emissions linked to human activities. For many, a warming climatic system is expected to impact the availability of basic necessities like freshwater, food security, and energy, while efforts to redress climate change, both through adaptation and mitigation, will similarly inform and shape the global development agenda.

Adaptive measures

The development of a global food security system while Northern Hemisphere countries are still able to generate an agricultural surplus at relatively low costs.

The provision of additional financial assistance to developing countries, especially those in semi- arid and flood-prone regions, to help them establish a self-supporting agricultural infrastructure, appropriate techniques and improved water management and control.

The allocation of development funds to Third world countries in order to expand food production and to develop a sustainable agriculture.

A greater international efforts to halt the trend of accelerating global desertification.

A commitment to humane methods of curbing population growth where in inhibits development.

Preventive measures

Reducing burning of fossil-fuel, particularly through the development of non- fossil- fuel energy sources and through improvements in the efficiency of extracting useful energy from fossil- fuels.

Reducing the emission of trace gases from other anthropogenic sources.

Increasing pollution control and developing technological processes to 'scrub', recover and recycle the carbon and other trace residuals emitted when fossil-fuels are burned.

Halting unnecessary tropical deforestation through alternative development strategies and incentives.

Increasing the rate of replanting in deforested areas, encouraging afforestation and improving forest management.

Global warming and climate change

Global warming affects the increased trapping of heat radiation.

The global warming will not be uniform in nature, but it differs significantly between geographical regions; as well as it varies during different seasons.

The warming of the oceans, as well as the melting of ice sheets and glaciers resulting from the warming of the land will lead to a rise in the sea level.

Global warming is the long-term warming of the planet's overall temperature. Though this warming trend has been going on for a long time, its pace has significantly increased in the last hundred years due to the burning of fossil fuels.

Fossil fuels include coal, oil, and natural gas, and burning them causes what is known as the "greenhouse effect" in Earth's atmosphere.

Global warming causes climate change, which poses a serious threat to life on Earth in the forms of widespread flooding and extreme weather.

Impacts of climate change

Three main levels of climate change impact. The global increase in temperatures can influence the physical, biological and human systems.

First, variations in the physical systems of the planet can be observed in the melting of the poles, which at the same time cause glacial regression, snow melting, warming and thawing of permafrost, flooding in rivers and lakes, droughts in rivers and lakes, coastal erosion, sea level rise and extreme natural phenomena.

In the biological systems, there is death of flora and fauna in terrestrial and marine ecosystems, wildfires and flora and fauna displacement searching for better life conditions.

In human systems, climate change affects and destroys crops and food production, causes disease and death, destruction and loss of economic livelihoods and migrations of climate refugees.

The World Meteorological Organization has published a new report on Climate Indicators and Sustainable Development: Demonstrating the Interconnections. Its release coincides with the United Nations General Assembly annual session and the opening on 22 September of the SDG Action Zone, which is dedicated to accelerating action on the SDGs.

The aim of the WMO report is to demonstrate the connections between the global climate and the SDGs, which go far beyond SDG 13 for climate action. It also champions the need for greater international collaboration, which is essential for achieving the SDGs, and for limiting global warming to less than 2 °C or even 1.5 °C by the end of this century

The report is accompanied by a story map. It highlights seven climate indicators whose impacts span the SDGs:

Carbon dioxide concentration

Temperature

Ocean acidification

Ocean heat content

Sea-ice extent

Glacier mass balance

Sea-level rise.

"In the face of ongoing climate change, poverty, inequality and environmental degradation, understanding the connections between climate and international development is a matter of urgency," said WMO Secretary-General Prof. Petteri Taalas.

"Increasing temperatures will result in global and regional changes, leading to shifts in rainfall patterns and agricultural seasons. The intensification of El Niño events is also generating more droughts and floods," he said.

"By unpacking the interconnections between the WMO climate indicators and the SDGs through clear visual maps, this report aims to contribute to the sustainable development agenda and to inspire leaders to take bolder climate action," said Prof. Taalas.

Recommendations for Meeting the Challenge of Climate Change Research

Meeting the diverse information needs of decision makers as they seek to understand and address climate change is a formidable challenge

Focuses not only on improving understanding, but helps to inform solutions for problems at local, regional, national, and global levels; Integrates diverse kinds of knowledge and explicitly engages the social, ecological, physical, health, and engineering sciences;

Emphasizes coupled human-environment systems rather than individual human or environmental systems in isolation. Evaluates the implications of particular choices across sectors and scales so as to maximize co-benefits, avoid unintended consequences, and understand net effects across different areas of decision making.

Develops and employs decision-support resources and tools that make scientific knowledge useful and accessible to decision makers.

Focuses, where appropriate, on place-based analyses to support decision making in specific locations or regions, because the dynamics of both human and environmental systems play out in different ways in different places and decisions must be context-specific; and

Supports adaptive decision making and risk management in the face of inevitable uncertainty by remaining flexible and adaptive and regularly assessing and updating research priorities.

Conclusion

The nation needs a comprehensive and integrative climate change science enterprise, one that not only contributes to our fundamental understanding of climate change but also informs and expands America's climate choices. This comprehensive, integrative program of science will need to continue current research but also engage in new research themes and directions, including research in the physical, social, ecological, environmental, health, and engineering sciences, as well as research that integrates these and other disciplines. Creating and implementing this more integrated and decision-relevant scientific enterprise will require fundamental changes in the way that research efforts are organized, the way research priorities are set, the way research is linked with decision making across a broad range of scales, the way the federal scientific program interfaces and partners with other entities, and the way that infrastructural assets and human capital are developed and maintained.

References:

activesustainability.com/climate-change

<https://www.mckinsey.com>

<https://yourcommonwealth.org>

[Public.wmo.int/en/](https://public.wmo.int/en/)

[Nap.national](https://nap.national)