



Understanding Climate Change and Sustainability - an Introduction

Climate change manifests through various impacts across ecosystems, society, the economy, and infrastructure, with interactions and cascading effects. These impacts vary geographically and affect different sectors and social groups differently. Scientific assessments by the Intergovernmental Panel on Climate Change (IPCC) and other leading organisations provide comprehensive insights. The most recent IPCC report (AR6) highlights human-induced warming across the atmosphere, oceans, and land, leading to unprecedented changes in climate systems. It emphasises the worsening trends in extreme weather events, sea-level rise, glacial retreat, and ocean warming, among others. The report underscores the urgency of deep emissions reductions to limit further warming and mitigate irreversible impacts. Additionally, annual reports from the World Meteorological Organization offer critical updates on the state of the global climate. The 2020 report highlighted alarming trends, including record-high greenhouse gas emissions, escalating temperatures, accelerating sea-level rise, and intensifying extreme weather events. These trends exacerbate economic losses, displacement, food insecurity, and other societal challenges.

Overall, climate change's multifaceted impacts underscore the urgent need for sustainable mitigation and adaptation efforts to safeguard ecosystems, livelihoods, and communities worldwide.

Sustainability encompasses three core pillars: environmental, social, and economic. It's an approach aimed at meeting the needs of the present while safeguarding the ability of future generations to meet their own needs. This concept of sustainability was formally introduced in 1987 with the publication of the Brundtland Report, which outlined the goals of sustainable development and introduced the three pillars of sustainability, often referred to as ESG (Environmental, Social, Governance).

Environmental sustainability focuses on preserving and protecting the natural environment, addressing issues like pollution, climate change, loss of biodiversity, and unsustainable resource consumption.

Social sustainability emphasises the well-being of people and communities, striving for equity, human rights, access to education and healthcare, and inclusive societies.

Economic sustainability aims to balance economic growth with resource efficiency, social equity, and financial stability, promoting responsible resource management and equitable economic opportunities.

To achieve these sustainability goals, various international agreements and initiatives have been established, such as the UN Framework Convention on Climate Change, the Convention on Biological Diversity, and the UN Sustainable Development Goals (SDGs).

The SDGs, comprising 17 goals covering economic, social, and environmental dimensions, provide a roadmap for global sustainability efforts. These goals address issues like poverty, hunger, health, education, gender equality, clean energy, sustainable cities, climate action, and more.

