

# Understanding the Multifaceted Impacts of Global Warming: A Path to Sustainable Solutions

**Talekar Suryabhan Sampatrao**

Amrutvahini Polytechnic, Sangamner, India

talekarss@amrutpoly.in

**Abstract:** *This research analyzes global warming, a pressing issue of the 21st century, caused primarily by human activities such as burning fossil fuels, deforestation, and industrial emissions. It explores the causes, effects, and possible solutions based on literature, data analysis, and modeling. Major findings indicate dramatic changes in temperature, precipitation, and sea levels, disproportionately impacting vulnerable ecosystems, biodiversity, and human health, particularly in developing countries. The study also examines mitigation options like renewable energy, carbon capture, and global accords like the Paris Agreement, in addition to adaptation for cities and agriculture. The study emphasizes international cooperation, more stringent emissions controls and clean technology investment to address global warming and ensure sustainable development.*

**Keywords:** global warming