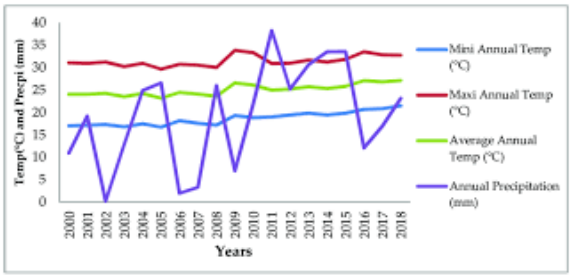
IMPACTS OF CLIMATE CHANGE ON SOCIO-ECONOMIC CONDITIONS OF PAKISTAN.

INTRODUCTION:

Over the last ten years, Pakistan has experienced recurring episodes of extreme weather events, such as floods, droughts, glacial lake outbursts, cyclones, and heat waves. These events have had devastating consequences on both human life and the country's vulnerability to climate change impacts. The adverse effects on property and the economy have been well-documented and acknowledged. For instance, the super flood of 2010 resulted in the loss of 1,600 lives, submerged an area of 38,600 square kilometers, and caused approximately $10 billion worth of damage. Similarly, the Karachi heat wave in June 2015 claimed the lives of over 1,200 individuals. Recent studies have demonstrated that climate change is affecting both people and the natural world. It is leading to rising temperatures, altered rainfall patterns, intensified solar radiation, and increased occurrence of extreme weather events.

These changes have negative implications for food security, human health, agriculture, forests, and land. Approximately 971 million people reside in areas with high climate change risks, with a significant proportion of them living in less developed or developing countries.



Pakistan ranks among the top ten countries most affected by climate change. South Asia, in particular, has borne the brunt of these impacts due to its high sensitivity to climate variations and limited knowledge on adaptation and protection measures. Pakistan has faced numerous natural disasters in the past, including prolonged droughts, floods, glacier melting, lake formation, earthquakes, hurricanes, avalanches, and other snow and ice-related events. These events have hindered the country's ability to adapt to new circumstances. Despite Pakistan's relatively low greenhouse gas emissions, there are endangered animal species within its borders. Pakistan is facing significant challenges in terms of its food supply, energy security, and overall well-being due to its heavy reliance on fossil fuels and

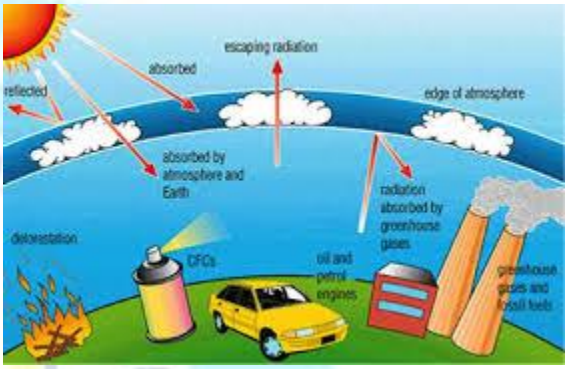
other man-made greenhouse gases (GHGs). A comprehensive analysis of Pakistan's industries reveals the extent to which they are adapting to climate change and the substantial annual costs associated with these efforts, estimated to be between 7 and 14 billion dollars in the United States (Brøns-Petersen & Ashraf Hussain 9196 Gjedsted, 2021). It is evident from the research that the government's active involvement is crucial for the country to achieve sustainable growth. To accomplish this, it is imperative to closely monitor and utilize the resources and regulations that have been previously established, thereby enabling the formulation of cutting-edge climate policies. The impact of global climate change on food security will ultimately be determined by the vulnerability of individuals to these changes and their ability to adapt and recover.

Gases	1990	1998	2005	Increase
CO_2	280	365	379	35%
CH_4	700	1745	1774	153%
N_2O	270	314	318	18%
CFC_s	0	268	292	-

Source: IPCC AR4 (2007) and TAR (2001)

GREENHOUSE GAS EMISSION PROFILE OF PAKISTAN:

The Fifth Assessment Report (AR5) by the Intergovernmental Panel on Climate Change (IPCC) reveals that global greenhouse gas (GHG) emissions have reached an unprecedented level, despite global efforts to reduce them. Therefore, the report emphasizes the need to reduce global emissions by 40% to 70% compared to 2010 levels by mid-century, and to near zero by the end of the century, in order to limit the increase in global mean temperature to 2°C above pre-industrial levels. According to Pakistan`s national GHG inventory for the year 2011-2012, the country's total GHG emissions amounted to 369 million tons of carbon dioxide equivalent (MtCO2e). 9% of emissions, followed by the agriculture and livestock sector at 44. The energy and agriculture livestock sectors alone contributed to 90. 7% of the total emissions, making them the largest emitters of GHGs since 1994.



This projection is made under the assumption that the GHG emissions intensity in the five main sectors mentioned earlier will remain consistent with the levels observed between 1994 and 2008. Consequently, Pakistan's total GHG emissions are projected to more than double by 2020, aligning with the government's economic growth strategy. Furthermore, by 2050, these emissions are expected to increase by approximately 14 times compared to the levels recorded in 2008.