CLIMATE CHANGE: A MAN-MADE CRISIS REQUIRING GLOBAL MITIGATION EFFORTS FOR ENSURING SUSTAINABLE DEVELOPMENT M. Qasim Jan^{1,2} and Khazima Muazim²

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Abstract

Climate change is an inclusive term, for and global warming, environmental degradation, extreme and unpredictable weather conditions and changes in precipitation trend, to name a few. It is amongst the most potent threats to sustainable development and has, therefore, become a focus of intense scientific research and debate. According to the Fifth Assessment Report of the IPCC (2013-2014), global temperature has risen by about 0.8°C over the past 130 years, but some studies suggest a rise up to 1°C. With increasing accumulation of greenhouse gases-GHG (comprising apart from water vapor, CO2 and smaller quantities of N2O, Chlorofluorocarbons, and CH4 etc.), temperature increase is likely to accelerate. In order to circumvent this increase, The Paris Agreement 2016 (keeping the increase below 2°C, preferably not more than 1.5° C), was adopted as an implementation plan to combat climate change. In case the world fails to comply with this regulatory abatement, an increase in global temperature to 3°C or more will be the harbinger of global disaster. Temperature records since 1880 on land and oceans, heat contents of the ocean, and near surface (troposphere 50 years' satellite data) show increasing temperature trends. Rise in sea-level, increase in humidity, recession in glaciers, reduction in polar icecaps and increased coral bleaching provide additional buttress to climate change claims. Geological records show the impact of natural processes on climate change. However, the recent global warming and climate change are commonly attributed to anthropogenic activities, primarily accumulation of GHG in the atmosphere. GHG are released into atmosphere through plethora of sources such as burning of fossil fuels, methane release from agriculture activities, waste management and fluorinated gasses from industrial processes and consumer products.

Consequences of climate change can be disastrous, long lasting, and even irreversible. Changes in patterns of rainfall and snow, increased likelihood of drought and severe storms, decline in ice cover, melting of glaciers and glacial lake outbursts, floods, landslides, rise in sea level, higher humidity, changes in animal and plant behavior, faunal extinction and disappearance of coral reefs are some of the observed effects of climate change. All these effects create a vicious cycle of socioeconomic burden. Global warming can affect energy supply, infrastructure, socioeconomic patterns of livelihood, and living. Around 75% of world's population will be exposed to deadly climate conditions by 2100. It would have severe impact on agriculture sector, food security and its supply chain. Water borne & water related disease such as malaria, dengue, diarrhea, dysentery and typhoid, are likely to become epidemic. Global warming is projected to cause approximately 20,000 heat-related deaths among the elderly in 2030. Rising temperatures, floods, drought and limited supply of drinkable water will initiate human displacement/migration. All this will lead to increase the informal settlements, social conflicts, poverty and poor standard of life. The potential threats of climate change would presumably be severe to the less developed countries because of their lack of preparedness and lower resilience. According to the Global Climate Risk Index, Pakistan was ranked the 7th most vulnerable country in terms of the negative effects of global warming and climate change for the period 1996-2015. Many other Asian countries would be similarly vulnerable with crises of food insecurity and massive floods.

The situation is serious and demands global attention to minimize the climate change impact and to ensure sustainable development. Immediate actions on remedial steps, such as removal of CO2 from atmosphere, afforestation, use of clean energy, conservation and efficient use of water and other natural resources, and changes in our life style, are necessary to control earth's increasing temperature and climate change. Two approaches such as carbon sequestration and geo-engineering have garnered a lot of attention to protect earth from climate change. In summary, the danger of climate change is real. To minimize its impact, it is imperative to pursue suitable climate change adaptation and mitigation measures, along with good science, globally on emergent basis.