Leveraging nuclear energy to tackle climate hazards

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The realm of the climate crisis is often overlooked in international relations as more direct forms of conflict--such as the ones over sovereign borders are thought to lead to destruction of humanity and in turn of nation states. However, a quick look at deaths caused by climate change and global warming reveals the stark opposite. In 2023, Greece faced its hottest July in 50 years, while the United States (US) recorded soaring temperatures. Americans faced a medley of extreme weather from blazing heat from Texas to Southern California to smoke-choked air wafting into the midwest from Canada's wildfires. Flood warnings were issued in Vermont towns that were flooded while Tropical Storm Calvin caused 37 fatalities. The World Meteorological Association warned of an increased risk of deaths linked to excessively high temperatures. An estimated 61,000 people died in heat waves in 2022 in Europe alone.

Global warming(Unsplash)

Closer to home, in Asia, South Korean President, Yoon Suk Yeol, in July this year called for an overhaul of national preparedness as extreme weather becomes commonplace. Death toll from flash floods and landslides, triggered by days of heavy rains rose to 40 in July. In China, two years ago, in Zhengzhou nearly eight inches of rain caused devastating storms and flooding that killed nearly 400 people. This year, in August, Beijing is again reckoning with more unprecedented precipitation which has led to flooding in the capital and the neighbouring province of Hebei- leading to the deaths of at least 33 people so far, destruction to tens of thousands of Chinese homes, roads, bridges as well as swaths of cropland. The disaster hit on the heels of record heat. The other side of the country faces drought! In India, monsoons and related flooding in New Delhi left 22 dead this year, Again, in 2023 itself at least 176 people died in flash floods in an eastern

part of the Democratic Republic of Congo! Clearly, more stringent measures are needed to tackle climate crises across the world- be it in the Global North, including the US and Europe or in the Global South, including in India and in China.

The global temperature has already increased by 1C, and as countries pursue economic development more rigorously to ensure their domestic populations have access to stable incomes, gainful employment and better standards of living; industrialisation at the cost of the environment will continue. Several processes within the gambit of industrialisation rely on the usage of fossil fuels. When fossil fuels are burned, they release large amounts of carbon dioxide, which is a toxic greenhouse gas into the air. Greenhouse gases trap the heat in the atmosphere, leading to global warming, which in turn cause adverse weather scenarios including heavy precipitation, flash floods, droughts and so on. In 2021, the world consumed about 490 exajoules of fossil fuels, which is an unfathomable figure of epic proportions. Global energy demand grew by 5.8% in 2021, and coal consumption rose by 6%, reaching hitherto unseen heights since 2014. China alone consumes 49% of the world's total coal, making it the largest coal consumer in the globe, followed by the US which consumes 11% of the world's total coal.

In this context, it becomes urgent that the reliance on fossil fuels, and on coal is done away with. Nuclear energy becomes an excellent option for cutting down carbon emissions, and to provide better energy nuclear security. Nuclear power along with hydropower form the backbone of low-carbon electricity generation, as they together provide three-quarters of global low-carbon generation. In fact, in the last 50 years, the usage of nuclear power has reduced carbon dioxide emissions by over 60 gigatonnes, which is equivalent to two years' worth of global energy related emissions.

In 2023, the South Korean government announced that nuclear energy will account for 34.6% of the country's electricity generation by 2036, as compared to 27.4% in 2021. In Japan, 30% of electricity comes from nuclear power, and as a result, its dependence on oil as a primary supply for energy has been reduced from 77% in 1973 to 42% in 2009. In China, which continues to reply on coal, which, in turn, is largely responsible for the climate calamities it continues to face, only 5% of electricity comes from nuclear energy. However, the Chinese nuclear society hopes that China's nuclear capacity will reach 150 gigawatts by 2035, and that will generate 10% of the domestic demand. In India, which is at a later stage of economic development than its northern neighbour China, nuclear energy is the fifth largest source of electricity, and contributes to 3% of the total electricity generation in the country. This is laudable as compared to the Chinese case, because as compared to the world's largest coal consumer China, with stupendous economic growth rates, India has begun preparing for climate crisis-induced dystopia. Clearly in all the Asian countries mentioned- India, China, Japan and South Korea, the realisation has dawned that to address the so-far known fallouts of climate change, a shift to nuclear energy is needed. Climate change can, and is causing more devastations than sovereignty related conflicts, and the sooner a shift is made away from fossil fuels, the better are the chances of humankind's survival.

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