**India and rising heatwaves**

Engineer Arshad H Abbasi

Tuesday, Jun 07, 2022

In March 2022, reported record temperatures in India made this the hottest year in the 122 years since records began. The world has seen heatwaves in the past, but human-made climate change is making heatwaves longer, more extreme, and more frequent, while smog worsens each winter.

The burning of fossil fuels is the fundamental cause of the exponential increase in carbon dioxide and other greenhouse gases in the atmosphere, which ultimately results in heatwaves and smog in South Asia. One of the more serious consequences of record-breaking heatwaves are the enormous forest fires that have erupted across Pakistan especially recently.

India emits about three gigatons of GHG emissions each year, causing Himalayan glaciers to retreat, threatening the flow rate of the Indus, Ganges, and other major rivers. This extraordinary ever-increasing greenhouse emission has risen by 0.8 Celsius between 1901 and 2021.

Scientific studies have established that 70 per cent percent of GHG emissions come from the power sector of India, mainly from coal power plants, followed by agriculture, industry, and others. India’s coal-based thermal power sector is one of the country’s biggest emitters of carbon dioxide (CO2). The total installed capacity of India is 400000MW and 58 per cent of its total installed capacity comes from coal. India was ranked fourth in wind power, fifth in solar power, and fourth in renewable power installed capacity. As of March 31, 2022 the Installed capacity of wind energy is 46,723MW and solar energy is 109,885 but for the power sector, the number of electricity units generated only counts.

For more clarity, in the month of Feb 2022, a total of 133 billion units were generated in India while the share of coal-based electricity was 103 billion units, which makes up almost 78 per cent of the total generation, and the share of renewable power was only 13 per cent. So meeting electricity demand with renewable energy will take another 100 years. This is why India defended coal-based power generation at the Glasgow climate summit.

I have been working on the role of power generation in GHG emissions for decades. In my research on remission from thermal plants, released in 2012 and 2014, I concluded that CO2 emissions are a function of the efficiency of a thermal power plant, which in turn depends on its size and age, and the technology it utilizes. India has one per cent of ultra-supercritical power plants and the rest is subcritical, whereas China and Japan have significant portions with ultra-supercritical technology. This is why India has the second-highest specific CO2 emissions, standing at 983 g/kWh; 22 per cent higher than the world’s lowest specific CO2 emission.

Adding more to GHG emissions is the heavy ash content of coal produced in India. The global average varies from 10 to 20 per cent, while Indian domestic coal has 30-45 per cent. The heavy ash content further aggravates the emissions of SO2, NOx, and particulate matter, with associated impacts on health. Coal-fired power plants are the biggest sources of fly ash, which contains toxic chemicals. Coal ash ponds of power plants are also one of the biggest sources of air pollution, and prone to flooding, smog, and heatwaves.

Taking into account the hazards of coal-based power generation, in August 2020 UN Secretary-General Antonio Guterres advised India to stop building coal-fired power stations before the end of the year 2020. India not only ignored this advice but also added 5500MW of coal power plants as well as targets to increase its coal production to 1.2 billion tons by 2023-24.

With the increase in coal-based production, India is poised to become the world’s next biggest polluter in the second half of this century. The international community has been putting pressure on the Narendra Modi government to set a 2050 deadline for India’s emissions to reach net zero. But India is reluctant to accept this, having become the sixth-largest economy in the world – with foreign reserves of about $600 billion due to cheap power from coal. In India, the electricity produced from coal-based power plants is 35 per cent cheaper than electricity produced from renewables (and 16 per cent cheaper than domestic natural gas). Again on January 18, 2022, while addressing the World Economic Forum, the UN secretary-general stressed the phasing out of coal as climate priority number one. And, again, this failed to make any impact on India’s commitment to using coal as an engine for economic growth. At international forums, India is always coming up with the argument that China is the top GHG emitter.

But this statement was never challenged by other South Asian countries by asking India to show how the air, which is heavily mixed with Sulfur dioxide (SO2), Nitrogen oxides (NOx), Carbon dioxide (CO2), and fly-ash residues created when power plants burn coal crosses the high Himalayas and the Tibetan Plateau.

The worst impact of this Indian strategy is on Pakistan – which suffers severe heatwaves in the summer and smog in the winter. In 2020, Pakistan was placed at fifth place in the climate change vulnerability index. Yet, the climate-change sector in Pakistan is a fine example of elite capture. Generating fancy reports or generic statements by pseudo-intellectuals and officials, while being alien to this subject, is the biggest tragedy of how this sector has been handled. Pakistan is in the grip of an extreme heatwave, causing acute water shortages and a health threat, but the government came up with a proposal to frame a communication strategy. This is what the country has been doing for the last two decades to combat transboundary GHG emissions. It has never bothered to frame a logical and technical case against India, reinforced with scientific facts and legitimate data. But who will make the effort? An inept bureaucracy? The political government?

There is some hope from the US, whose president has emerged as a global climate change leader. President Biden is committed to reducing levels in 2030, reaching a 100 per cent carbon pollution-free power sector by 2035. Can Bidden ask India to take a look at the April 29, 2014 decision of the US Supreme Court? The US Supreme Court had set standards to protect states from the harmful air pollution that is emitted by distant power plants, pollution that then blows across state borders. When will Biden send a strong message to India to take action for its net-zero emission in 2030-1. Ninety-eight billion people are waiting for relief from climate-change adversities and hope for a cleaner environment to breathe in.

The writer is an adviser at the Sustainable Development Policy Institute, Islamabad. He can be reached at: ahababsi@gmail.com