FLATTENING THE CLIMATE CURVE

Relevant for: Environment | Topic: Environmental Degradation - GHGs, Ozone Depletion and Climate Change

"Climate change involves not just a change in temperature but every other component of weather, including rainfall, humidity and wind speed ." People relocate as a precautionary measure against Cyclone Nisarga in Mumbai. | Photo Credit: <u>Rajanish Kakade</u>

Two interrelated curves began their upward trend two centuries ago with the advent of the industrial age. The first curve was the atmospheric concentration of carbon dioxide (or, more generally, all greenhouse gases, GHGs) and the second was the average global temperature curve.

Actually, the CO2 curve began its upward march about 18,000 years ago when it was a little under 200 parts per million (ppm) and earth was much colder. By the time it reached 270 ppm about 11,500 years ago, the warmer conditions accompanying this curve made it possible for the emergence of agriculture. Over the past million years, CO2 levels never exceeded 280-300 ppm. They always went back to 200 ppm before rising again in a cyclical fashion. They remained steady at close to 280 ppm for 10,000 years until, beginning in the mid-19th century, they began to rise again as humans burnt coal and oil to fuel the industrial revolution, and burnt forests to expand agriculture and settlements. From a mere 0.2 billion tonnes of CO2 emissions in 1850, annual emissions increased to 36 billion tonnes by 2018. If all this CO2 had accumulated in the atmosphere, we can say that human life would have been altered beyond recognition. Nature has been rather kind to us so far — about one-half of all CO2 emissions have been sanitised from the atmosphere, equally by growing vegetation on land and by absorption in the oceans. Thus, the levels of CO2 in the atmosphere reached 407 ppm in 2018, a level last experienced by earth some three million years ago.

Also read | <u>'COVID-19 is alarm bell for climate change, more outbreaks may follow'</u>

The second curve of direct consequence to us is the global average temperature curve. From 1850 onwards, for over a century, the global temperature showed a slight warming trend. But there was nothing suggestive of anything serious. From 1975 onwards, the temperature graph has shown a distinct, upward trend. By 2015, the globe had heated by a full degree Celsius relative to a hundred years previously. Climate modellers unequivocally project that under the current trends of emissions the globe will heat up by 4C by the end of the century.

Climate change involves not just a change in temperature but every other component of weather, including rainfall, humidity and wind speed. Indirect effects follow, such as a rise in sea levels from melting glaciers. Globally there have been several extreme weather events such as hurricanes, heat waves or droughts. While no single event can be directly attributed to climate change, the collective trends are consistent with climate change predictions.

For the sake of illustration, let us focus only on temperature change. The 2003 European heat wave killed over 70,000 people. The years 2015-19 have globally been the warmest years on record. Leave aside the Amazon fire of 2019, the bush fires of 2019-20 in Australia were unprecedented in their scale and devastation. While our attention has been on COVID-19, news has just come in that March 2020 has been the second warmest March on record.

Also read | Learning about climate change from a pandemic

The Climate Impact Lab at the University of Chicago put out a warning for India last year that if

global CO2 emissions continue to gallop at the present rate, average summer temperatures would rise by 4C in most States. Extremely hot days (days above 35C), which were only five days in 2010, would increase to 15 days by 2050 and to 42 days by 2100 on average across all districts. A more moderate emissions scenario, as a result of countries largely fulfilling their commitments under the Paris Agreement, would keep average global temperature rise below 2C compared to pre-industrial levels.

The most common excuse is that the world cannot afford to curb GHG emissions for fear of wrecking the economy. An article in *Nature* in 2019 highlighted the financial dimensions of tackling the looming climate crisis. Apparently, the wealthy nations are spending over \$500 billion each year internally on projects aimed at reducing emissions. The Intergovernmental Panel on Climate Change, however, estimates that a sustained annual investment of \$2.4 trillion in more efficient energy systems is needed until 2035 in order to keep warming below the more ambitious 1.5C relative to pre-industrial levels. To put this in perspective, that is about 2.5% of the global GDP.

Also read | <u>COVID-19 lockdown-like interventions may help combat air pollution in India, say</u> scientists

Some of the wrangling over money relates to the amounts that the wealthy nations, which have caused most of the GHGs resulting in global warming, agreed to pay other countries to cope with climate change. At the UN Climate Conference in 2009, the richest nations had pledged to provide \$100 billion in aid each year by 2020 to the poorer countries for climate change mitigation and adaptation. In 2017, for which data are available, only \$71 billion had been provided, with most of the money going towards mitigation and less than 20% towards climate adaptation. Such numbers had been challenged prior to the 2015 Paris Summit by many countries, including India, because much of the so-called aid provided did not come out of dedicated climate funds but, rather, development funds or simply loans which had to be repaid. It thus seems unlikely that the rich countries will deliver \$100 billion in tangible climate finance during 2020.

COVID-19 has unwittingly given humanity a brief respite from the climate change curve. Carbon emissions from fossil fuels have surely reduced in recent weeks. How long this respite will last ironically depends on the extent to which the global economy has been wrecked by COVID-19. Commentators are already talking about a paradigm shift in the structure and functioning of societies once the pandemic subsides. This is also a make-or-break moment for the climate trajectory which has to be flattened within a few years if we are to avoid dangerous climate change. Nature's kindness is not expected to last beyond a 2C rise in temperature as the carbon sequestered into vegetation will be thrown back into the atmosphere. Also remember that earth has already warmed by 1C and we really have only another 1C (or 0.5C if we are concerned about island nations) as a safety margin.

Opinion | No, the lockdown is not a green moment

COVID-19 has elicited an unprecedented response worldwide. Only cognitive psychologists can explain why the spectre of dangerous climate change impacting human civilizations has not yet evoked a comparable response. There seems to be wishful thinking that technology can be used to suck out billions of tonnes of CO2 from the atmosphere and store this safely somewhere, but available ones are extremely slow and expensive. Harebrained schemes to regulate solar radiation by geo-engineering are bound to bring nasty surprises. There is no substitute to reducing GHG emissions. Technologists, economists and social scientists must plan for a sustainable planet based on the principles of equity and climate justice within and across nations. It is the responsibility of leaders to alter their mindset and act on the looming climate

crisis with the same alacrity they have shown on COVID-19.

R. Sukumar is professor, Centre for Ecological Sciences and Divecha Centre for Climate Change, Indian Institute of Science, Bengaluru

You have reached your limit for free articles this month.

Already have an account ? Sign in

Start your 14 days trial now. Sign Up

Find mobile-friendly version of articles from the day's newspaper in one easy-to-read list.

Enjoy reading as many articles as you wish without any limitations.

A select list of articles that match your interests and tastes.

Move smoothly between articles as our pages load instantly.

A one-stop-shop for seeing the latest updates, and managing your preferences.

We brief you on the latest and most important developments, three times a day.

*Our Digital Subscription plans do not currently include the e-paper ,crossword, iPhone, iPad mobile applications and print. Our plans enhance your reading experience.

Dear reader,

We have been keeping you up-to-date with information on the developments in India and the world that have a bearing on our health and wellbeing, our lives and livelihoods, during these difficult times. To enable wide dissemination of news that is in public interest, we have increased the number of articles that can be read free, and extended free trial periods. However, we have a request for those who can afford to subscribe: please do. As we fight disinformation and misinformation, and keep apace with the happenings, we need to commit greater resources to news gathering operations. We promise to deliver quality journalism that stays away from vested interest and political propaganda.

Please enter a valid email address.

To reassure Indian Muslims, the PM needs to state that the govt. will not conduct an exercise like NRC

Subscribe to The Hindu now and get unlimited access.

Already have an account? Sign In

Start your 14 days trial now Sign Up

To continue enjoying The Hindu, You can turn off your ad blocker or Subscribe to The Hindu.

Sign up for a 30 day free trial.

END

Downloaded from crackIAS.com

 $\ensuremath{\textcircled{}^\circ}$ Zuccess App by crackIAS.com