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Source : www.thehindu.com Date : 2023-11-01

STOCKTAKING CLIMATE FINANCE — A CASE OF CIRCLES IN RED INK

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

November 01, 2023 12:08 am | Updated 01:28 am IST

‘The issues relating to climate finance are likely to be prominent in the Conference of the Parties (COP 28) meeting, in Dubai’ | Photo Credit: Getty Images/iStockphoto

Climate finance has a crucial role in retaining the trust of the developing countries in future climate change negotiations. The issues relating to climate finance are likely to be prominent in the Conference of the Parties (COP 28) meeting (November 30–December 12), in Dubai, in the context of Climate Change 2023: Synthesis Report providing the main scientific input to the global stocktake at COP. The report which says that the current temperature increase at 1.1° Celsius is responsible for frequent hazardous weather will feed into the global stocktake. Thus, the developed countries and climate vulnerable countries are likely to demand a ramping up of mitigation action by the developing countries — which is likely to be countered with the demand that the developed countries have not been able to meet the mark of a mobilisation of $100 billion climate finance. The sum is inadequate in terms of the challenges faced by the developing countries in switching over to a low carbon development path and climate resilient development. Providing finance to developing countries is the operationalisation of the anchor sheet principle of the Common but Differentiated Responsibilities and Respective Capabilities.

The developed countries are required in mandatory terms to provide financial resources to developing country parties. Under Article 9 of the Paris Agreement on Climate Change, it is also mandatory for the developed countries to provide in their Biennial Update Reports (BUR), information relating to the financial resources which they have provided and, also, the projected levels of public financial resources to be provided to developing country parties. At the Copenhagen Change Conference in 2009, the developed countries made the commitment to mobilise $100 billion per year by 2020. Further, the developed countries are required, in accordance with the decision accompanying the Paris Agreement, to collectively mobilise $100 billion through 2025, before a new collective quantified goal (NCQG) ‘from a floor of $100 billion per year is to be set at the end of 2024’. At the 26th United Nations Climate Change conference in Glasgow in 2021, the developed countries noted, with deep regret, of being able to mobilise only a total of $79.6 billion.

The Paris Agreement is based on the self-determined efforts of all the parties inscribed in the nationally determined contributions (NDCs), which contain the mitigation efforts to be made by a party for the next five years. Entire NDCs put together project a picture of overshooting the 1.5° C temperature goal. Going by the needs of countries in the Global South expressed in their

NDCs, the amount quantified for the first time touches close to $6 trillion until 2030. For India, its third BUR says that its financial needs derived from its NDCs for adaptation and mitigation purposes for 2015-30 are $206 billion and $834 billion, respectively. Most of the financial needs are required in transitioning towards low-carbon, cleaner energy systems from traditional systems, which will not be funded by the designated financial mechanisms of the United Nations Framework Convention on Climate Change (UNFCCC). Additionally, India has reiterated its demand for a just transition at COP27 as '3.6 million people in 159 districts in India are entrenched in the fossil fuel economy through direct or indirect jobs related to the coal mining and power sector'. They will have to be supported with suitable economic opportunities and livelihoods.

The developed countries are mandatorily required to provide financial resources to developing country parties, but there is no agreed approach among developed countries to share the burden of this goal. One analysis suggests that the United States provided just 5% of its fair share in 2020. Without any mandatory formula for collecting money, it is difficult to predict how the said money or the NCQG for climate finance will be mobilised. Neither the UNFCCC nor the Paris Agreement mention the criterion for mobilisation. Instead, the mobilisation is done with the help of a replenishment process.

The Global Environment Facility, a UNFCCC-designated funding agency providing grant and concessional loan to developing countries, is replenished every four years. A similar approach has been borrowed into the Green Climate Fund (GCF) by the developed countries to mobilise finance. The GCF, set up to administer a portion of the $100 billion for developing country parties to switch over to low-emissions and climate resilient development path, had its second replenishment on October 5, 2023. In the second pledging conference, only 25 countries out of 37 developed countries met in Bonn, pledging to contribute $9.3 billion in new contributions. Interestingly, the GCF includes voluntary contributions by nine developing countries. More contributions in the GCF serve the purpose of counting international public climate finance more easily as it has been subject of debate as to what counts as international public climate finance.

Strong political will, perceived urgency and enlightened self-interest of the elite Global North were writ large in the case of a perceived collapse of global public good (global financial stability) in 2009-10 when the G-20 governments quickly responded to the global financial crisis, getting $1.1 trillion in a few weeks to support the International Monetary Fund and multilateral development banks to save the global financial system. Unfortunately, these factors are missing when it comes to the necessary climate finance transfers from developed to developing countries to safeguard another global common — the atmosphere.

Anwar Sadat is a senior Assistant Professor in International Law, specialising in environmental law, at the Indian Society of International Law, New Delhi

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Source : www.thehindu.com Date : 2023-11-01

OCTOBER RAIN IN SOUTHERN INDIA ‘SIXTH LOWEST’ SINCE 1901

Relevant for: Geography | Topic: Climate and Weather & Changes in Climate

October 31, 2023 05:55 pm | Updated November 01, 2023 07:23 am IST - New Delhi

Above-normal rainfall is likely over some areas of the southernmost parts of peninsular India, most parts of northwest India, and many parts of east-central, east and northeast India. | Photo Credit: The Hindu

The northeast monsoon, which replaced the southwest monsoon in October, and brings vital rain to several parts of southern India, has been the “sixth lowest” since 1901 so far, India Meteorological Department (IMD) Director General, M. Mohapatra said at a briefing on October 31.

Explained | How El Nino could impact the world’s weather in 2023-24

In September, the agency had forecast ‘normal’ rainfall for Tamil Nadu, coastal Andhra Pradesh and Kerala but October rainfall saw a 60% rainfall deficiency in these regions. The reason, Dr. Mohapatra said, was due to the prevailing El Nino and, paradoxically, a positive India Ocean Dipole (IOD). A positive IOD usually brings good rainfall. “Historically, an El Nino year and positive IOD individually means normal rainfall over southern India in October. This year, however their combined effect seems to have reduced rainfall,” he noted. While October rainfall in the region in 2016 was the lowest ever recorded since 1901 (5 cm), 2023’s has been the lowest since 1988.

Rainfall in November in these regions is likely to be ‘normal’, though this can mean anything from a 23% deficiency to 23% excess rain, given the inherent variability in November rainfall, he added.

The El Nino conditions are expected to get stronger and will continue to do so until March 2024. While current forecasts indicate it would weaken in time for next year’s monsoon, it would be “premature” to assume so, he added.

Also Read |El Niño is coming, and ocean temperatures are already at record highs

‘Above normal’ maximum temperatures were likely over most parts of India during November except parts of northwest India and central India. Above normal ‘minimum temperatures’ were also likely in most parts of the country during the month, a press statement from the IMD noted.

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Source : www.thehindu.com Date : 2023-11-02

RISK OF TYPE 2 DIABETES LINKED TO AIR POLLUTION IN CHENNAI, DELHI

Relevant for: Environment | Topic: Environmental Pollution - Air, Water, Soil & E-waste

November 01, 2023 08:01 pm | Updated 08:57 pm IST - Chennai

People walk on Kartavya Path, near India Gate, engulfed in a blanket of smog, New Delhi, October 26, 2023. | Photo Credit: Shashi Shekhar Kashyap/The Hindu

Two studies published in international journals have reported a worrying link between air pollution levels and the incidence of type 2 diabetes in Chennai and Delhi. The study is notable not because the findings are new – they aren't unprecedented – but because they have found that the link, which has been indicated in Western countries and more recently in China as well, also holds in urban India.

Indian cities have consistently dominated the tops of lists of places with the worst air for residents, with air quality frequently several times higher than the limits set by the World Health Organisation.

The new studies are part of the Centre for cArdiometabolic Risk Reduction in South Asia (CARRS) Surveillance Study. Here, researchers roped in 6,722 adults in Chennai and 5,342 in Delhi and tracked their health through questionnaires and blood samples, with which they checked for fasting plasma glucose (FPG) and glycosylated haemoglobin (HbA1c), at specific intervals from 2010 to 2016.

The researchers also developed air pollution and exposure models using, among other things, satellite data and emissions inventories.

Based on their findings, the researchers reported that 10 g/m3 (micrograms per cubic metre air) difference "in annual average PM2.5" could be related to a 9-36% higher risk of developing type 2 diabetes. They have interpreted the long-term follow-up of study participants to mean that the link between type 2 diabetes and air pollution is "not due to intermittent episodes of high pollution levels" but "long-term exposure to ambient PM2.5".

They also reported that for every 10 g/m3 increase a month in PM2.5 levels, FPG increased by 0.21-0.58 mg/dL (milligrams per decilitre) and HbA1c by 0.012-0.024 in Delhi, and FPG increased 0.36-1.39 mg/dL and HbA1c 0.01-0.06 in Chennai. Over six months, a 10 g/m3 change in PM2.5 levels resulted in a rough doubling of both ranges in Delhi, but couldn't be associated with a statistically significant result in Chennai.

The paper published in *BMJ Open Diabetes Research & Care* also said that “hypertensive participants… were more susceptible to developing type 2 diabetes against long-term exposure to PM 2.5 in Chennai,” whereas “younger participants were more susceptible to developing [the disease] in Delhi”.

There is some epidemiological wisdom as to how ambient PM2.5 concentrations ‘outside’ the body can affect processes ‘inside’. For example, one 2016 study in mice reported that “short-term exposure to PM2.5 induces vascular insulin resistance and inflammation triggered by a mechanism involving pulmonary oxidative stress”.

A commentary accompanying the publication of this paper noted that “any other condition involving oxidative stress may increase the susceptibility to harm from PM 2.5”.

The other paper, published in the journal *Hypertension*, stated that the “data strongly support a temporal association between high levels of ambient air pollution, higher systolic blood pressure, and incident hypertension”.

India already has a large burden of noncommunicable diseases, which accounted for 64% of the national disease burden in 2021. And poor air’s links with respiratory and heart health have stoked concerns of a public health crisis, even as new research has revealed its effects on disparate parts of life.

For example, a model-based study published in *The Lancet Planetary Health* in 2021 estimated that increasing PM2.5 exposure by 10 g/m3 could also increase the risk of pregnancy loss by 3% in India, Pakistan, and Bangladesh.

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diabetes / disease / air pollution

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Source : www.thehindu.com Date : 2023-11-03

BIOSPHERE RESERVES ARE EVOLVING AS POCKETS OF HOPE

Relevant for: Environment | Topic: Biodiversity, Ecology, and Wildlife Related Issues

November 03, 2023 02:30 am | Updated 02:30 am IST

The Torres del Paine National Park, in, Chile, and a UNESCO World Biosphere Reserve | Photo Credit: AFP

Away from the cacophony of urban life, most of us look for respite in sites with natural beauty, lush greenery, and peaceful surroundings. As the tourist season approaches, it is no surprise that while we search for unpolluted spots to explore, unconsciously our consumption of single-use plastic, in particular plastic water bottles, will also significantly increase. With 80% of all tourism taking place in coastal areas, would you call it a relaxing vacation if you found discarded plastic bottles while taking a stroll on the beach?

In the Island of Principe Biosphere Reserve, Sao Tome and Principe in Africa, schoolchildren have been equipped with stainless steel bottles for drinking water, so the daily production and consumption of single-use plastic bottles can be completely avoided. Acting as pockets of hope in the face of the climate crisis, the United Nations Educational, Scientific and Cultural Organisation (UNESCO) biosphere reserves are hidden oases, protecting biodiversity, reducing pollution, and enhancing climate resilience. They are living jewels of land, coastal and marine ecosystems, scattered across the globe, where nature and humans come together creating a symphony of life.

World Biosphere Reserve Day is celebrated on November 3 each year to raise awareness of the importance of biosphere reserves and to promote their conservation and sustainable use. In the heart of each biosphere reserve lies the strictly protected core zone, providing habitat for flora and fauna, and protecting water, soil, air, and biota as a whole ecosystem. There is a buffer zone surrounding the core zone, where people live and work in harmony with nature; a zone that also functions as a laboratory for scientists to study nature, and for training and education. The outermost edge is the transition zone where communities practise socio-culturally and ecologically sustainable human activities.

Designated by UNESCO to promote the conservation of biodiversity, sustainable development, and research, biosphere reserves are also supported by other United Nations agencies, for example the United Nations Development Programme, the United Nations Environment Programme, as well as the International Union for Conservation of Nature. According to UNESCO, there are currently 748 biosphere reserves across 134 countries, including 22 transboundary sites, enhancing the friendly cooperation between neighbouring countries. They

impact the lives of more than 250 million people in 134 countries; 12 sites can be found in India alone.

Biosphere reserves are vital for the future of our planet. They are a living testament to the resilience of nature, that even amidst human activity, finds a way to flourish. They are home to a wide variety of ecosystems — from tropical rainforests to alpine deserts, and thereby provide home to countless unique and endangered plants and animals species. In addition to playing a vital role in the protection of biodiversity and ensuring the sustainable use of natural resources, they also provide opportunities for sustainable economic development. In recent years, biosphere reserves have become crucial in our fight against climate change, as these areas are home to many of the world's carbon sinks helping to absorb carbon dioxide from the atmosphere. Carbon sinks, like forests and the ocean, provide solutions in implementing adaptation strategies to fight climate change.

There have been significant advancements in the conservation of biosphere reserves on the local level. For example, in the Sundarban Biosphere Reserve in India, local communities are working together to manage mangrove forests and protect the biodiversity of the region. In the Gulf of Mannar Biosphere Reserve in India, local communities, including women, are contributing towards conservation efforts by forming self-help groups, while the youth are getting engaged in eco-tourism.

Recently recognised with the UNESCO Michel Batisse Award for Biosphere Reserve Management 2023, the Gulf of Mannar Biosphere Reserve Trust has also introduced the concept of 'plastic checkpoints'. Community members check all vehicles and tourists for plastic waste, which is collected, recycled and used for the construction of roads. In times of global challenges such as climate change, biodiversity loss and sustainable development, the role of biosphere reserves becomes even more important. Despite these sites being the most vital ecosystems protecting nature, these oases are not without threats such as deforestation, invasive species and land use changes such as mining. With increasing urbanisation and constant growth of the world population, exploitation by humans is ever increasing.

On this second anniversary of World Biosphere Reserve Day, it is important to reflect on the progress that has been made in conserving and sustainably using these vital ecosystems. In this context, UNESCO in partnership with the Ministry of Environment, Forests and Climate Change and the National Centre for Sustainable Coastal Management, concluded the 10th South and Central Asian Biosphere Reserve Network Meeting (SACAM) in Chennai, India (November 1-3). With the theme "Ridge to Reef," the SACAM provided a platform for exchanging knowledge and fostering collaborations in the realm of sustainable environmental practices in the South and Central Asia Region.

The UNESCO Man and the Biosphere (MAB) programme enhances the human-environment relationship through combining natural and social sciences to improve livelihoods, safeguard ecosystems, and promote sustainable economic development.

Benno Böer is the Chief of the Natural Sciences Unit, UNESCO New Delhi Regional Office for Bangladesh, Bhutan, India, the Maldives, Nepal, and Sri Lanka. Srishti Kumar is Natural Sciences Intern, UNESCO New Delhi. Stephanie Murr is Natural Sciences Intern, UNESCO New Delhi

environmental issues / tourism / plastic pollution / oceans / African Union / school / United Nations / climate change / conservation / Sustainability / ecosystems / Chennai

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Source : www.pib.gov.in Date : 2023-11-03

8-POINT ACTION PLAN AS PER STAGE-III OF GRAP IN THE ENTIRE NCR INVOKED WITH IMMEDIATE EFFECT

Relevant for: Environment | Topic: Environmental Pollution - Air, Water, Soil & E-waste

Today, Delhi's average Air Quality Index (AQI) clocked 392 as per the daily AQI Bulletin provided by the Central Pollution Control Board (CPCB). At 5PM, Delhi's average AQI clocked 402. In wake of deteriorating air quality of Delhi-NCR, the Sub-Committee for operationalization of the Graded Response Action Plan met today. The Sub-Committee while comprehensively reviewing the overall air quality scenario in the region as well as the forecasts for meteorological conditions and air quality index made available by IMD/IITM during the meeting noted that the overall AQI of Delhi since 10AM of 02.11.2023 is on a sharp increase and at 4PM the average AQI for Delhi clocked 392. Further, the average AQI for Delhi at 5PM stood at 402 which is only expected to increase further owing to the highly unfavorable meteorological and climatic conditions.

Keeping in view the prevailing trend of air quality, and in an effort to prevent further deterioration of air quality in the region, the Sub-Committee today has taken the call to invoke all actions as envisaged under Stage-III of GRAP – 'Severe' Air Quality (AQI ranging between 401-450), today with immediate effect in the entire NCR. This is in addition to the restrictive actions mentioned in Stage-I and Stage-II of GRAP. Various agencies responsible for implementing measures under GRAP and Pollution Control Boards (PCBs) of NCR and DPCC have also been advised to ensure strict implementation of actions under Stage-III of GRAP in addition to actions under Stage-I and Stage-II of GRAP during this period. In 2022, Stage-III of GRAP was invoked in the month of October itself, this year Stage-III of revised GRAP is invoked in November.

An 8-point action plan as per Stage-III of GRAP is applicable with immediate effect from today in the entire NCR. This 8-point action plan includes steps to be implemented/ ensured by different agencies and Pollution Control Boards of NCR and DPCC. These steps are:

(i) Enforce strict ban on construction and demolition activities in the entire NCR, except for the following categories of projects:

Note: The above exemptions shall be further subject to strict compliance of the C&D Waste Management Rules, dust prevention/ control norms including compliance with the directions of the Commission issued from time to time in this regard.

(ii) Other than the projects exempted under (i) above, dust generating/ air pollution causing C&D activities to be strictly banned during this period shall include:

(iii) For all construction projects in NCR, nonpolluting / non-dust generating activities such as plumbing works, electrical works, carpentry related works and interior furnishing / finishing / decoration works (excluding painting, polishing and varnishing works etc) shall be permitted to be continued.

Further, the CAQM appeals to the citizens of NCR to cooperate in implementing GRAP and follow the steps mentioned in the Citizen Charter under GRAP. Citizens are advised to:

The revised schedule of GRAP is available on the Commission's website and can be accessed via caqm.nic.in

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The revised schedule of GRAP is available on the Commission's website and can be accessed via caqm.nic.in

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Source : www.thehindu.com Date : 2023-11-04

GLOBAL WARMING WILL REACH 1.5C THRESHOLD THIS DECADE

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

November 03, 2023 04:25 pm | Updated 04:25 pm IST

Steam rises from the AES Indiana Petersburg Generating Station, Wednesday, Oct. 25, 2023, in Petersburg, Ind. In a little more than five years – sometime in early 2029 – the world will likely be unable to stay below the internationally agreed temperature limit for global warming if it continues to burn fossil fuels at its current rate, a new study says. | Photo Credit: AP

Climate change is accelerating and the world will cross the 1.5 degrees Celsius (2.7 Fahrenheit) warming threshold this decade, according to research published on Thursday that scientists said should raise alarms at this year's COP28 climate talks.

Countries pledged in the 2015 Paris Agreement to hold global warming to within 1.5C above pre-industrial temperatures but the new paper by a team of scientists, including from NASA and Columbia University, adds to evidence suggesting that this goal is already out of reach.

Most emissions scenarios under the United Nations Intergovernmental Panel on Climate Change (IPCC) envision the world breaching 1.5C during the 2030s.

"The 1.5C limit is deader than a doornail," said study co-author James Hansen of Columbia University's Earth Institute who was among the first scientists to alert the world in the 1980s to the climate-warming impact of greenhouse gases.

"The shortcoming of our scientific community is to not make clear to the political leaders what the situation is," he said.

The world already has warmed by nearly 1.2C (2.2F) above preindustrial temperatures.

The study has received mixed feedback from other climate scientists. Some questioned its findings, with Michael Mann of the University of Pennsylvania saying in a blog post that they were "very much out of the mainstream".

The new report comes after months of extreme weather shocks worldwide, from heatwaves in China to severe flooding in Libya, with 2023 set to be the warmest year on record.

Countries will gather later this month in Dubai for the annual U.N. climate summit to discuss global policy efforts to rein in greenhouse gas emissions.

The study's findings, published in the journal Oxford Open Climate Change, result from two factors.

Scientists have underestimated how sensitive the Earth's climate is to rising carbon dioxide levels. The IPCC has given a best-guess estimate that the doubling of atmospheric carbon dioxide levels would yield global warming of around 3C (5.4F).

A better understanding of ancient climate data - gleaned from sources such as ice cores and tree rings - has resulted in a higher estimate of around 4.8C (8.6F), the study said.

So far, atmospheric carbon dioxide concentrations have risen from around 280 parts per million (ppm) in the preindustrial era to about 417 ppm today.

Another factor cited by the report relates to China's progress in cleaning up air pollution, caused mainly by sulphur dioxide spewed from coal plants, alongside global efforts to curb such emissions from shipping.

Cleaning the skies, while bringing health benefits and saving lives, accelerates climate change. Aerosols scatter and reflect solar radiation.

Pennsylvania's Mann took issue with the notion that models have underestimated climate sensitivity, as well as with the impact of declining sulphur dioxide emissions from shipping.

Others said the study was in line with other recent research.

"Everything is accelerating," said climate scientist Klaus Hubacek of the University of Gronigen.

Earlier this week, research published in the journal Nature Climate Change suggested the world would need to reach net zero emissions by 2034 for a 50% chance of containing warming to 1.5C - far sooner than the global goal of 2050.

climate change / global warming / environmental pollution / environmental issues

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Source : www.thehindu.com Date : 2023-11-04

CLIMATE'S 'CATCH-22': CUTTING POLLUTION HEATS UP THE PLANET

Relevant for: Environment | Topic: Environmental Pollution - Air, Water, Soil & E-waste

November 03, 2023 04:06 pm | Updated 04:06 pm IST

People walk by high-rise office buildings shrouded by pollution haze, at the central business district during the lunch break, in Beijing, Wednesday, Nov. 1, 2023. | Photo Credit: Reuters

Air pollution, a global scourge that kills millions of people a year, is shielding us from the full force of the sun. Getting rid of it will accelerate climate change.

That's the unpalatable conclusion reached by scientists poring over the results of China's decade-long and highly effective "war on pollution", according to six leading climate experts.

The drive to banish pollution, caused mainly by sulphur dioxide (SO_2) spewed from coal plants, has cut SO_2 emissions by close to 90% and saved hundreds of thousands of lives, Chinese official data and health studies show.

Yet stripped of its toxic shield, which scatters and reflects solar radiation, China's average temperatures have gone up by 0.7 degrees Celsius since 2014, triggering fiercer heatwaves, according to a Reuters review of meteorological data and the scientists interviewed.

"It's this Catch-22," said Patricia Quinn, an atmospheric chemist at the U.S. National Oceanic and Atmospheric Administration (NOAA), speaking about cleaning up sulphur pollution globally. "We want to clean up our air for air quality purposes but, by doing that, we're increasing warming."

The removal of the air pollution - a term scientists call "unmasking" - may have had a greater effect on temperatures in some industrial Chinese cities over the last decade than the warming from greenhouse gases themselves, the scientists said.

Other highly polluted parts of the world, such as India and the Middle East, would see similar jumps in warming if they follow China's lead in cleaning the skies of sulphur dioxide and the polluting aerosols it forms, the experts warned.

They said efforts to improve air quality could actually push the world into catastrophic warming scenarios and irreversible impacts.

"Aerosols are masking one-third of the heating of the planet," said Paulo Artaxo, an

environmental physicist and lead author of the chapter on short-lived climate pollutants in the most recent round of reports by the Intergovernmental Panel on Climate Change (IPCC), completed this year.

"If you implement technologies to reduce air pollution, this will accelerate – very significantly – global warming in the short term."

The Chinese and Indian environment ministries didn't immediately respond to requests for comment on the effects of pollution unmasking.

The link between reducing sulphur dioxide and warming was flagged by the IPCC in a 2021 report which concluded that, without the solar shield of SO2 pollution, the global average temperature would already have risen by 1.6 degrees Celsius above preindustrial levels.

That misses the world's goal of limiting warming to 1.5C, beyond which scientists predict irreversible and catastrophic changes to the climate, according to the IPCC, which pegs the current level at 1.1C.

The Reuters review of the Chinese data provides the most detailed picture yet of how this phenomenon is playing out in the real world, drawing on previously unreported numbers on changes in temperatures and SO2 emissions over the past decade and corroborated by environmental scientists.

Reuters interviewed 12 scientists in total on the phenomenon of unmasking globally, including four who have acted as authors or reviewers of sections on air pollution in IPCC reports.

Vehicles drive amid heavy smog in Beijing, China, November 30, 2015. | Photo Credit: Reuters

They said there was no suggestion among climate experts that the world should let-up on fighting air pollution, a clear and present danger that the World Health Organization says causes about 7 million premature deaths a year, mostly in poorer countries.

Instead they stressed the need for more aggressive action to cut emissions of climate-warming greenhouse gases, with reducing methane seen as one of the most promising paths to offset pollution unmasking in the short term.

President Xi Jinping pledged to tackle pollution when he took power in 2012 following decades of coal-burning that had helped turn China into "the factory of the world". The following year, as record smog in Beijing inspired "Airpocalypse" newspaper headlines, the government unveiled what scientists called China's version of the U.S. Clean Air Act.

On March 5, 2014, a week after Xi went on a walkabout during another extreme bout of smog in the capital, the government officially declared a war on pollution at the National People's Congress.

Under the new rules, power plants and steel mills were forced to switch to lower-sulphur coal. Hundreds of inefficient factories were shuttered, and vehicle fuel standards toughened up. While coal continues to be China's largest power source, smokestack scrubbers now strip out most SO2 emissions.

China's SO2 emissions had decreased from a 2006 peak of at nearly 26 million metric tons to 20.4 million tons in 2013 thanks to more gradual emissions restrictions. But with the war on pollution, those emissions had plummeted by about 87% to 2.7 million metric tons by 2021.

The drop in pollution was accompanied by a leap in warming - the nine years since 2014 have seen national average annual temperatures in China of 10.34C, up more than 0.7C compared with the 2001-2010 period, according to Reuters calculations based on yearly weather reports published by the China Meteorological Administration.

Scientific estimates vary as to how much of that rise comes from unmasking versus greenhouse gas emissions or natural climate variations like El Nino.

The impacts are more acute at a local level near the pollution source. Almost immediately, China saw big warming jumps from its unmasking of pollution near heavy industrial regions, according to climate scientist Yangyang Xu at Texas A&M University, who models the impact of aerosols on the climate.

Xu told Reuters he estimated that unmasking had caused temperatures near the cities of Chongqing and Wuhan, long known as China's "furnaces", to rise by almost 1C since sulphur emissions peaked in the mid-2000s.

During heatwaves, the unmasking effect can be even more pronounced. Laura Wilcox, a climate scientist who studies the effects of aerosols at Britain's University of Reading, said a computer simulation showed that the rapid decline in SO2 in China could raise temperatures on extreme-heat days by as much as 2C.

"Those are big differences, especially for somewhere like China, where heat is already pretty dangerous," she said.

Indeed, heatwaves in China have been particularly ferocious this year. A town in the northwestern region of Xinjiang saw temperatures of 52.2C (126F) in July, shattering the national temperature record of 50.3C set in 2015.

Beijing also experienced a record heatwave, with temperatures topping 35C (95F) for more than four weeks.

The effects of sulphur unmasking are most pronounced in developing countries, as the U.S. and most of Europe cleaned up their skies decades ago. While the heat rise from sulphur cleanup is strongest locally, the effects can be felt in far-distant regions. One 2021 study co-authored by Xu found that a decrease in European aerosol emissions since the 1980s may have shifted weather patterns in Northern China.

In India, sulphur pollution is still rising, roughly doubling in the last two decades, according to calculations by NOAA researchers based on figures from the U.S.-funded Community Emissions Data System.

In 2020, when that pollution plummeted due to COVID lockdowns, ground temperatures in India were the eighth warmest on record, 0.29 C higher than the 1981-2010 average, despite the cooling effects of the La Nina climate pattern, according to the India Meteorological Department.

India aims for an air cleanup like China's, and in 2019 launched its National Clean Air Programme to reduce pollution by 40% in more than 100 cities by 2026.

Once polluted regions in India or the Middle East improve their air quality by abandoning fossil fuels and transitioning to green energy sources, they too will lose their shield of sulphates, scientists said.

"You stop your anthropogenic activities for a brief moment of time and the atmosphere cleans up very, very quickly and the temperatures jump instantaneously," added Sergey Osipov, a climate modeller at the King Abdullah University of Science and Technology in Saudi Arabia.

As the implications of the pollution unmasking become more apparent, experts are casting around for methods to counter the associated warming.

One proposal called "solar radiation management" envisions deliberately injecting sulphur aerosols into the atmosphere to cool temperatures. But many scientists worry that the approach could unleash unintended consequences.

A more mainstream plan is to curb methane emissions. This is seen as the quickest way to tame global temperatures because the effects of the gas in the atmosphere last only a decade or so, so cutting emissions now would deliver results within a decade. Carbon dioxide, by comparison, persists for centuries.

As of 2019, methane had caused about 0.5C in warming compared with preindustrial levels, according to IPCC figures.

While more than 100 countries have pledged to reduce methane emissions by 30% by the end of the decade, few have gone further than drawing up "action plans" and "pathways" to cuts. China - the world's biggest emitter - has yet to publish its plan.

By targeting methane, the world could mitigate the warming effect of the reduction in pollution and potentially avert catastrophic consequences, said Michael Diamond, an atmospheric scientist at Florida State University.

"This doesn't doom us to going above 1.5 degrees Celsius if we clean up the air."

END

Source : www.thehindu.com Date : 2023-11-05

ENVIRONMENTAL FACTORS DETERMINE HEIGHT OF CHILDREN IN LMICS

Relevant for: Science & Technology | Topic: Biotechnology, Genetics & Health related developments

November 04, 2023 09:20 pm | Updated 09:20 pm IST

Environmental factors such as socio-economic status, nutrition and infection load influence childhood growth | Photo Credit: Prashant Nakwe

In a significant finding, scientists have discovered that environmental factors play a greater role than genetic variants in determining the height of children in low and middle income countries (LMICs) in contrast to those from European nations, where genetic aspects predominate in regulating childhood height.

This was expounded in a study carried out by the Hyderabad-based Centre for Cellular and Molecular Biology (CSIR-CCMB) along with several other national and international institutions. The study was recently published in the journal *Nature Communications*.

While human height is strongly influenced by fixed genetic and variable environmental factors, the authors of the study noted that the contribution of modifiable epigenetic factors is under-explored. Epigenetic factors are external influences, including lifestyle, nutrition and environment that affect the way genes work. Epigenetic changes affect gene regulation and alter gene expression but not the DNA sequence.

Many environmental factors, including socio-economic status, nutrition and infection load are believed to influence childhood growth which plays a critical role in determining one’s height. Quoting the World Health Organization, 2021 estimates which indicated that a large proportion of stunted children reside in LMIC, particularly in South Asia and sub-Saharan Africa where undernutrition and associated co-morbidities are more prevalent compared to high income countries (HICs), the study observed “this offers a potential explanation for the disparity in height variation attributed to non-genetic factors between LMIC and high-income countries”.

Although the impact of environmental exposure during early childhood is believed to be quite significant with long-term consequences, there are no genome-wide epigenetic investigations on height in childhood especially in low and middle income countries. Epigenetic processes such as DNA methylation and histone modifications can influence gene expression. Methylation basically is a chemical modification of DNA molecules used by cells to regulate gene expression. It can be influenced by environmental factors such as diet, drugs, stress and exposure to chemicals and toxins.

In this study, the scientists did an epigenome-wide association analysis and genome-wide association study to independently investigate links between DNA methylation and genetic variants with childhood height in five cohorts—three from India, one from Gambia and another one from the U.K. (high income country —HIC). The scientists found a novel, robust association between methylation in the SOCS3 gene and height in children from low- and middle-income countries which was replicated in the HIC cohort but with a lower effect size. “Overall, our study provides strong evidence of genome-wide DNA methylation associations with height in children from LMIC”, the study observed. Interestingly, the established 12,000 genetic variants were also associated with height in Indians but their effect was significantly lower compared to the European and American counterparts.

According to Dr. Giriraj Chandak, Sir J C Bose Fellow at CCMB, the genetic risk variations are largely similar for Europeans and Indians, although the magnitude differs between the two ancestries. However, the genetic risk appears to have been modified due to environmental factors in children in LMIC. Apparently, the environmental cues that trigger the epigenetic processes in children in low and middle income countries are different in Indians and thus not influencing the epigenetic regulation of height in Europeans, he added.

(*Y. Mallikarjun is a freelancer writing on science and health*)

END

Source : www.thehindu.com Date : 2023-11-06

TIDING OVER: THE HINDU EDITORIAL ON NORTH INDIA AND ITS ANNUAL AIR QUALITY INFLECTION POINT IN NOVEMBER

Relevant for: Environment | Topic: Environmental Pollution - Air, Water, Soil & E-waste

November 06, 2023 12:30 am | Updated 09:03 am IST

Delhi and parts of the surrounding States of Punjab, Haryana and Uttar Pradesh encounter their annual air quality inflection point. This is the time when the southwest monsoon has receded and with it, the great drafts in the upper atmosphere that normally flush out pollutants from the gamut of anthropogenic activities such as construction, driving, power generation and the burning of agricultural residue. Through the years, there have been studies commissioned and executive action initiated to study, acknowledge and address the crisis. The science is also fairly clear on the relative contribution of pollutants and the limits of corrective intervention in the face of adverse meteorology and the disruption to economic life that this can entail. The consequence of this is that the air pollution crisis has now devolved into a stalemate. The Commission for Air Quality Management (CAQM), which is tasked with addressing the causes of air pollution in Delhi and the adjoining States, is now a body packed with expertise but whose powers are limited to evoking and recommending grades of measures depending on the degree of deterioration in air quality.

While the CAQM pointed out, as recently as October 31, that the daily average air quality in Delhi from January to October of this year was the best in the last six years, it elides the fact that the number of days in November when air quality becomes ‘severe’ (over 450 AQI) has remained roughly the same. Thus, in 2022, the AQI was in the severe category in the first fortnight of November for three days, the same as in 2021, 2020 and 2019. While there is greater awareness and action to curb the sources of pollution, November, which has in recent years emerged as the critical month for pollution, remains to be tamed. Incidents of stubble burning in Punjab, Haryana and Uttar Pradesh this year have been roughly half that when compared to previous years, though the weeks ahead are expected to see more such activity. While the measures earlier have seen an institutionalised response to tackle air pollution, it is now time for a concerted approach to address these challenges of November. Beyond stubble burning, this means addressing the more daunting challenges of vehicular pollution and construction dust. While urban Delhi could have always blamed the distant farm fires for the pollution crisis, tackling November may mean hard measures and greater inconvenience. Bodies such as the CAQM have to assert their independent credentials and ensure greater coordination and compliance within Delhi and the surrounding States to address the challenge.

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air pollution / Monsoon / pollution control / Delhi / Punjab / Haryana / Uttar Pradesh / automobile / agriculture

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Source : www.thehindu.com Date : 2023-11-06

CMFRI’S RESEARCH ON CORAL REEFS GETS NATIONAL RECOGNITION

Relevant for: Environment | Topic: Environmental Conservation, Sustainable Development, and EIA

November 05, 2023 07:06 pm | Updated 07:06 pm IST - KOCHI

Research on coral reefs being carried out by ICAR-Central Marine Fisheries Research Institute (CMFRI) has won national recognition with Alvin Anto, a young professional at the institute, securing the prestigious Hasmukh Shah Memorial Award for Ecological Studies for the year 2023 in the research category.

The award includes a cash prize of 2 lakh and a certificate of recognition. Mr. Anto has been recognised for his extensive research on the resilience of coral reefs in the Lakshadweep islands, highlighting the increasing threats these critical ecosystems face from climate change and other human-induced factors.

The Hasmukh Shah Memorial Award, instituted by the Gujarat Ecology Society and funded by the Kachnar Trust, aims to honour and reward individuals who have made significant contributions through research, development or implementation of innovative environmental, technical, or social solutions that address and mitigate pressing sustainability or social issues, says a communication from CMFRI here.

The award is particularly significant as it will help promote resilience-based management approaches, which are vital for coral reefs. These approaches aim to develop strategies for the preservation, protection, and restoration of these fragile marine habitats.

A passionate ocean enthusiast and a dive master certified by the Professional Association of Diving Instructors, Mr. Anto has led several underwater surveys concentrating on coral reefs and associated marine life along the Indian coast and its islands. His work has been instrumental in providing valuable insights and data, critical for ongoing conservation efforts. He is also part of CMFRI’s team conducting coastal surveys on marine mammals, the communication adds.

The award will be presented during the Hasmukh Shah Memorial Lecture, scheduled for January 5, 2024, at the Federation of Gujarat Industries in Vadodara.

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Source : www.thehindu.com Date : 2023-11-07

MORE LIGHT, LESS SOUND: THE HINDU EDITORIAL ON FIRECRACKERS AND A FESTIVAL OF LIGHT

Relevant for: Environment | Topic: Environmental Pollution - Air, Water, Soil & E-waste

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November 07, 2023 12:15 am | Updated 09:01 am IST

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The ‘festival of lights’ should not be allowed to degenerate into a festival of noise. Firecrackers are associated with joyous celebrations across the world; but, many are toxic, often too loud, and release noxious fumes when combusted. In 2018, the Council of Scientific and Industrial Research launched less noxious and less noisy ‘green’ crackers, whose use various statutory bodies have mandated. The Noise Pollution (Regulation and Control) Rules 2000 stipulate that firecrackers cannot be burst in ‘silence zones’, designated by State governments, and anywhere after 10 p.m. From 6 a.m. to 10 p.m. (i.e., ‘daytime’) and in industrial areas, firecracker noise cannot exceed 75 dB(A) Leq. The thresholds in commercial and residential areas are 65 dB(A) Leq and 55 dB(A) Leq, respectively. dB stands for decibel; A is a weight scale for human perception of loudness; and Leq means the figure is a time-average. The rules allow people to register a complaint if the noise overshoots by 10 dB(A) Leq during daytime.

Because dB is a logarithmic unit, an increase of 10 dB implies a tenfold increase in acoustic pressure, which is often beyond the point at which the sound becomes harmful. Research has found links between loud environs and sleep disorders, tinnitus, stress, anxiety, hearing loss, and cardiac health. More than 80 dB(A) in offices has been associated with hypertension whereas above 50 dB(A) at night, when the body is unaccustomed to loud noises, could increase cortisol levels. Traffic noise has burgeoned in cities where haphazard development has forced motorists to overuse horns. Many religious occasions have become synonymous with noisy celebrations irrespective of the hour. During Deepavali, firecrackers (even ‘green’ ones) routinely produce more than 90 dB of sound. If, say, people burst firecrackers at 90 dB for 10 seconds and the ambient noise is 50 dB for 50 seconds, and this pattern continues for four hours followed by 12 hours of 50 dB noise, the 16-hour Leq is 74.5 dB — which merits a complaint in residential areas but not in commercial ones, yet the noise is already harmful. Different loudness zones are also seldom publicly demarcated while some places are both residential and commercial. The rules are unclear about the sanctions to be meted out to offenders. Enforcement remains obscure. So, focusing on marginal improvements to firecrackers before every festival is becoming a red herring. India’s noise is a public health crisis. If firecrackers are not to worsen matters, governments must prevent the production of violative firecrackers altogether and cities must improve public access to noise data and adopt noise mitigation targets.

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Deepavali / noise pollution / scientific institutions / health / traffic / India

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Source : www.thehindu.com Date : 2023-11-07

IN THE SIKKIM FLOOD'S WAKE, A TRAIL OF HAZARDS LIE IN WAIT

Relevant for: Environment | Topic: Disaster and disaster management

November 06, 2023 10:00 pm | Updated November 07, 2023 09:15 am IST - Nainital, Uttarakhand

Views of South Lhonak Lake before (top) and after it burst its banks on October 3, 2023. | Photo Credit: Maxar/Reuters

The South Lhonak lake in the Himalayan state of Sikkim breached on the night of October 3, resulting in a glacial lake outburst flood (GLOF) that ravaged four districts. At least 42 people died as a result and 77 more are still missing. More than a month after the disaster, the lake remains a potential hazard, say scientists.

The South Lhonak lake is located in North Sikkim, at an altitude of 5,200 m. According to scientists, the current interpretation of the flood – which relies heavily on satellite data – suggests that on October 3 night, a slope failure occurred along the lateral moraine (a mass of debris and rocks) on the lake's left bank. Preliminary research found that some of the landslide material scraped the glacier terminus; most of it hit the lake, creating an impulse wave that moved towards the lake's narrow front end.

An annotated collage explaining the cause of the South Lhonak Lake flood. | Photo Credit: Sentinel Hub (collage and annotation by Ashim Sattar)

It widened the lake's outlet, resulting in a partial breach, said Ashim Sattar, a mountain hazard specialist who is currently studying the GLOF and has authored research articles predicting different GLOF scenarios for the South Lhonak lake. There was also a probable overtopping as water moved over the moraine along the lake's outlet. The result was a GLOF that affected around 88,400 people in Sikkim's Mangan, Gangtok, Pakyong, and Namchi districts.

The lake is one of the largest and fastest growing glacial lakes in Sikkim, and has been a potential hazard for several years now. Dan Shugar, a geomorphologist from the University of Calgary in Canada, who is currently conducting research on the GLOF, noted that before the flood, the lake's area was 1.62 sq. km, and after water being drained out in the GLOF, the area dropped to 1.46 sq. km.

Dr. Sattar said, "While the lake level was lowered due to the flood, it did not drain completely. A lot of water still remains in the lake, making it a potential hazard."

Adding to the existing hazard, weeks after the disaster, there have been continuous landslides along the slope that first failed on October 3, Dr. Shugar added.

When the flood gushed through the valley, it triggered a landslide about 30 km downstream of the South Lhonak lake, which blocked the river, forming a landslide-dammed lake. After reviewing satellite images, Dr. Sattar surmised that the lake had not drained even by November 1.

Considering the risk of sudden release of water downstream, it requires monitoring.

The Sikkim government has been claiming that the GLOF was triggered by a cloudburst. In fact, Sikkim State Disaster Management Authority's daily reports on deaths and damages continue to call the flood "cloudburst induced". The National Disaster Management Authority's October 4 press release also called the event a "likely combination of excess rainfall and a GLOF".

However, according to G.N. Raha, who heads the Meteorological Centre in Gangtok, the possibility of either a cloudburst or extreme rainfall triggering the GLOF is very low. The 10 weather stations across North Sikkim recorded light-to-moderate rainfall for the period of the GLOF, Dr. Raha said.

On the morning of October 4, the station at Lachen, almost 46 km from the South Lhonak lake, recorded only 6.7 mm rainfall for 24 hours, he said. However, scientists continue to analyse meteorological data for accurate information regarding the role of rainfall in the GLOF.

Researchers are also currently checking whether earthquake tremors could have triggered the GLOF.

The disaster downstream of the lake was not caused solely by the GLOF, but by a cascade of several events.

One of the most affected places was Chungthang, a town around 62 km from the lake, where the dam of Sikkim's biggest hydropower project – the 1,200-MW Teesta-III – broke. Water from the damaged reservoir combined with the GLOF, leading to even more destruction downstream of the dam.

While the reservoir's gross storage capacity was 5.08 million cubic metres, the volume of water stored in it at the time of the disaster is currently not known. Further downstream of the Teesta-III dam, two more hydropower projects were damaged: the 510-MW Teesta-V and the 500-MW Teesta-VI that is under construction.

"In the Teesta Basin, where GLOFs are evident, placing mega-dams was a bad decision," said Mayalmit Lepcha, an activist associated with the Affected Citizens of Teesta (ACT), a collective of Sikkim's citizens protesting against harmful dams on the Teesta river for more than a decade and a half. The lack of early warning also proved to be detrimental, she said.

Maximillian Van Wyk de Vries, an assistant professor of physical geography at the University of Nottingham, U.K., said that at the South Lhonak lake, a large section of the lateral moraine was "moving for many years preceding the collapse, at a rate of several metres per year".

Prior analysis of a possible landslide, which can be inferred using satellite imagery, would have guided glacial lake management efforts and infrastructure planning in the Teesta Basin, he said.

On October 13, the Indian Space Research Organisation's (ISRO) National Remote Sensing Centre published satellite images showing a large deposit of sediments and several landslides along the path of the flood, especially in and around the Chungthang dam. The loose sediment may pose a threat to downstream areas in future, said Kalachand Sain, Director of the Dehradun-based Wadia Institute of Himalayan Geology.

In view of the many hydropower-related dams in the Teesta Basin, the large amount of loose sediment that can easily be eroded by heavy water flow may imply a shorter lifespan for dams and lower efficiency for hydropower projects, scientists said.

In the South Lhonak glacier, the signs of climate change emerged decades ago and became stronger as the rate at which the glacier melted increased, resulting in a rapidly growing lake that was bound to breach – as several research studies stated. In 1990, the South Lhonak glacier was 6.4 km long. A research article published in 2021 found that, by 2019, it had reduced by about 1.3 km and that its area had declined by about 0.96 sq. km.

In 1976, the South Lhonak lake area was a mere 0.20 sq. km, according to a research article published in 2018. As the glacier shrank, the lake grew larger. By 2019, the lake was covering 1.35 sq. km, per the 2021 article.

South Lhonak lake has been rapidly growing in size | Photo Credit: Kavita Upadhyay and research articles

GLOFs are natural, but the rapid increase in the lake's size as a result of the glacier's accelerated melting tied closely to anthropogenic climate warming, said Dr. VWDV (as he prefers his last name) of the University of Nottingham.

Anil V. Kulkarni, Distinguished Scientist at the Bengaluru-based Indian Institute of Science's Divecha Centre for Climate Change, said, "The lake's rapid expansion might have weakened the permafrost that was holding the moraines, which would have been one of the important reasons behind slope failure on October 3."

Kavita Upadhyay is an independent journalist and researcher who writes on disasters in the Indian Himalayan Region.

END

Source : www.thehindu.com Date : 2023-11-09

AI IMPROVES LEGAL WRITING SPEED, NOT QUALITY: REPORT

Relevant for: Environment | Topic: Environmental Pollution - Air, Water, Soil & E-waste

November 09, 2023 09:18 am | Updated 09:18 am IST

The study urges law schools to ban the use of generative artificial intelligence in core first-year courses and their exams [File] | Photo Credit: REUTERS

Law students who used artificial intelligence on several legal writing tasks were able to complete their assignments faster, but their work product wasn't consistently better than that of classmates who didn't use the technology, according to a new study.

Law students with lower grades on average saw bigger improvements on their legal writing tasks when using GPT-4 than did their higher-performing classmates, suggesting that the benefits of artificial intelligence vary according to the abilities of the user and the type of legal work being performed, the study found.

"These results suggest that generative AI will almost certainly become a vital tool for many lawyers in the near future, comparable to more familiar legal-tech tools like Westlaw, Lexis and ediscovery software," reads the study titled, "Lawyering in The Age of Artificial Intelligence." Westlaw and Reuters are owned by the same parent company.

The study, posted online on Tuesday and conducted by two University of Minnesota law professors and a law professor at the University of Southern California, is the latest in a growing body of research examining AI in legal education. Two of those three authors in August released a study that found low-performing law students scored higher on final exams when given access to GPT-4, while their high-performing classmates performed worse when using the technology. Earlier studies found that the exam scores of the previous version of GPT-4 matched those of mediocre law students, while a newer one found that GPT-4 can pass the bar exam.

(For top technology news of the day, subscribe to our tech newsletter Today's Cache)

GPT-4 is a large language model from the Microsoft-backed OpenAI, which generates human-like text based on user queries.

The authors of the new study recruited 60 Minnesota law students to undergo several hours of training on GPT-4 then complete four distinct writing assignments: drafting a complaint; a contract; a section of an employee handbook; and a client memo. Each participant used GPT-4 on two of those assignments and completed the other two without AI, and the assignments were

graded.

GPT-4 did not result in any statistical improvement except on the contract drafting assignment, the authors found. But there were “large and consistent decreases” in the amount of time it took the students to complete the assignments when they used GPT-4, according to the study. Students who used GPT-4 to draft a complaint spent and average 32% fewer minutes on that task.

The study urges law schools to ban the use of generative artificial intelligence in core first-year courses and their exams, in part because the technology disproportionately helps lower-performing students. But they should also develop upper-level courses that teach students how to use artificial intelligence effectively, it adds.

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Source : www.thehindu.com Date : 2023-11-09

‘LOSS AND DAMAGE’ FUND TALKS LEAVE DEVELOPING NATIONS AT NEW DISADVANTAGE

Relevant for: Environment | Topic: Environmental Conservation, Sustainable Development, and EIA

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November 08, 2023 10:13 pm | Updated 10:27 pm IST

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People pull a rickshaw taxi from the flood waters on a street following heavy rains in Mogadishu, Somalia, November 8, 2023. | Photo Credit: Reuters

As the climate crisis intensifies, two terms are in sharp focus: adaptation and ‘loss and damage’ (L&D).

Adaptation is the proactive response to climate change, the art of survival using which communities and countries make deliberate choices to prepare for and cope with climate-related challenges.

In contrast, L&D represents the irreversible consequences of climate change: impacts that can’t be avoided or mitigated through adaptation efforts. They encompass the real losses that extend beyond monetary value and cut to the core of human rights and well-being. L&D includes economic losses, human casualties, and the degradation of ecosystems and cultural heritage.

The call for affluent nations to acknowledge their accountability for historic pollution is more than 30 years old. Historic pollution has elevated the world’s average surface temperature by more than 1 degree Celsius and is currently inflicting damage worldwide, but especially in the poorest nations.

At the 19th Conference of the Parties (COP 19) to the United Nations Framework Convention on Climate Change (UNFCCC) in Warsaw, Poland, in 2013, representatives of member countries formally agreed to establish the L&D fund. It was being created to provide financial and technical assistance to economically developing nations that were incurring L&D due to climate change.

At COP 25, the Santiago Network for L&D was set up, but countries didn’t commit any funds. Subsequently, at COP 26, the Glasgow Dialogue on finance for L&D was established to continue discussions over the next three years on the fund. Finally, at COP 27 in November 2022, after intense negotiations, representatives of the UNFCCC’s member states agreed to set up the L&D fund and a Transitional Committee (TC) to figure out how the new funding mechanisms under the fund would operate. The TC was also to prepare recommendations that countries would consider, deliberate on, and potentially adopt by COP 28.

But so far, four meetings of the TC have concluded with no clear recommendations. And herein

lies an important problem.

The fourth meeting of the TC, or TC4, concluded on October 20, 2023, with no clear consensus on operationalising the L&D fund. The principal bones of contention had to do with hosting the fund at the World Bank, the foundational principle of common but differentiated responsibilities (CBDR), climate reparations, and the eligibility of all developing nations for the funds.

Differences on these counts deepened the rift between developed and developing nations at the TC4 meeting.

An impromptu fifth meeting of the TC, i.e. TC5, in Abu Dhabi concluded a few days back, and a set of recommendations have been drafted and forwarded to COP 28. TC5 was not on the original agenda – a sign of how contested the L&D fund continues to be.

At the TC5 meeting, developing nations conceded to the fund being hosted by the World Bank Financial Intermediary Fund for an interim period of four years, serviced by a new dedicated and independent secretariat. While the World Bank is yet to confirm that it is willing, let us not forget that it charges an exorbitant overhead fee.

But the developed nations, particularly the U.S., have remained non-committal about being primary donors to the fund and have rejected references to the CBDR, equity, and liability in the draft. The result is that their support is voluntary. This has watered down the spirit and intent of the L&D fund.

Further, there is currently no indication of the size of the fund because such a statement was quashed under pressure from the U.K. and Australia. The current draft simply urges and invites developed nations to provide money.

The TC5 outcome highlights a profound lack of trust between affluent and emerging economics regarding their historical responsibilities, creating a substantial divide between wealthy and impoverished nations, particularly concerning climate reparations.

The unwillingness of wealthy nations to fulfil intended commitments undermines faith in global climate negotiations and hampers the cooperative spirit necessary to address climate change. It represents a missed chance to take concrete steps to combat the escalating consequences of climate change on vulnerable communities and signifies a breakdown in diplomatic efforts, leading to doubts about nations' ability to collaborate effectively.

The discontent among developing nations steps from the perception that their concerns and needs are not adequately addressed by the international community, making the path to climate action – and indeed other global issues – even more complicated.

Beyond the immediate diplomatic and trust-related repercussions, the watering down of the L&D fund has wide-reaching implications as well. It threatens climate justice and exacerbates the suffering of vulnerable communities in developing nations. These communities have contributed minimally to global missions but today bear the brunt of climate change.

The watering down can also increase the number of humanitarian crises, including via food shortage, people displacement, and conflict, and force communities to cope independently with a worsening climate and its consequences.

The absence of support also has economic consequences for both developing and developed nations: financial crises and economic downturns in one region can have extensive

repercussions due to the interconnectedness of the global economy. Without adequate L&D funds, there will also be limited capacity to address environmental degradation and the loss of vital ecosystems, which will further worsen environmental crises, causing irreversible harm to the earth.

Finally, climate-change-induced instability can have security implications as well, as conflicts and tensions emerge in vulnerable nations and threaten to spill across borders.

As we strive to mitigate the worst impacts of climate change, we must remember that adaptation and L&D are not mutually exclusive concepts. They exist on a continuum of climate resilience, and both have a place in our collective efforts to combat climate change.

A successful response to climate change requires us to balance the proactive measures of adaptation with the moral and financial responsibility of addressing the losses and damages that are – regrettably – an inescapable part of a climate-altered world.

The L&D fund was conceived as a critical component of global climate action, recognising that some of the consequences of climate change are irreversible and beyond the capacity of vulnerable nations to handle. So to achieve climate justice, rich countries must meet their obligations to reduce emissions and deliver finance in line with what is fair, and thus uphold the principles of equity, justice, and solidarity in the face of a changing climate.

Otherwise, global climate action will get derailed, putting more pressure on the already beleaguered COP 28 talks later this month.

Indu K. Murthy is a Principal Research Scientist heading the Climate, Environment and Sustainability Sector at the Center for Study of Science, Technology and Policy (CSTEP), a research-based think tank.

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Source : www.thehindu.com Date : 2023-11-10

CENTRE FAULTS PUNJAB'S FARM FIRES FOR DELHI'S AIR POLLUTION PROBLEM

Relevant for: Environment | Topic: Environmental Pollution - Air, Water, Soil & E-waste

November 09, 2023 10:29 pm | Updated November 10, 2023 07:00 am IST - NEW DELHI

A farmer burns stubble to remove paddy crop residues from a field, near Punkab's Patiala on November 9, 2023. | Photo Credit: PTI

With Delhi's air pollution plummeting precipitously and no respite expected in the weeks ahead, a meeting chaired by the Union Cabinet Secretary and senior officers of Punjab, Haryana, Uttar Pradesh, Rajasthan and Delhi on November 8 concluded that the current crisis was "majorly" on account of stubble burning. Central government sources said 38% of the air pollution level was contributed by stubble burning.

Environment Minister Bhupendra Yadav said on X on Thursday that "...93% of farm fire (stubble burning) events this year have happened in Punjab and that was because the Aam Aadmi Party had failed to provide alternatives to farmers." Since 2018, the Centre had given 1,426 crore to Punjab for crop residue management machines but to little effect, he alleged.

Data from the Indian Agricultural Research Institute's satellite monitoring division suggest that of the 35,350 crop residue burning events recorded this year, 65% have been reported out of Punjab. So far 23,620 events — the lowest in four years — have been reported this year (September 15-November 9) from the State, compared to 34,868 last year and 69,372 in 2020. Haryana has only reported 1,676 events, or about 4%, down from 2,693 last year and much lower than the 4,753 in 2020. Madhya Pradesh, which ranks after Punjab, reported 3,032 instances — or about 8% — and down from the 4,374 last year.

Delhi air pollution: What you need to know right now?

However, nearly 32 lakh hectares have come under paddy in Punjab this year, compared to 13 lakh hectares in Haryana. The data from Madhya Pradesh was not immediately available.

At the meeting on Wednesday, officials said 90% of harvesting was complete in Haryana compared to 60% in Punjab and therefore "immediate steps" were necessary to curtail burning. The Supreme Court also directed States earlier this week to ensure that no more stubble was burnt.

The Centre said that the Commission for Air Quality Monitoring should be sending out 'flying squads' to Punjab and Haryana and monitoring farm fires.

Nearly 1.2 lakh seeder machines were made available to Punjab and 76,000 in Haryana and were these machines used optimally they could have prevented stubble burning to a large extent.

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air pollution / New Delhi / pollution control

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Source : www.thehindu.com Date : 2023-11-11

STUBBLE TROUBLE

Relevant for: Environment | Topic: Environmental Pollution - Air, Water, Soil & E-waste

November 11, 2023 02:34 am | Updated 07:55 am IST

Paddy crop residue being burned on the outskirts of Chandigarh. | Photo Credit: Shashi Shekhar Kashyap

It's the first week of November and Delhi is blanketed in smog. But buses full of children in school uniform head towards Lodi Garden, a sprawling park in the heart of the city, and groups of people amble towards India Gate, a war memorial. It is rare to see faces covered with N95 masks, despite the air quality index (AQI) hitting the severe-plus 500 mark and the government banning construction and the plying of certain types of vehicles as emergency measures to control air pollution.

But on the fifth floor of a building at the All India Institute of Medical Sciences, the largest government hospital in Delhi, 39-year-old Fauzia Begum's brother wheels her into a doctor's room. A white tube from an oxygen cylinder, attached to a side of the wheelchair, splits into two. They go into Begum's nostrils.

Begum coughs. "Her condition got worse over the last week due to the pollution," her brother tells the doctor. In a low voice, Begum adds, "It's hard to breathe. I can't sit and I feel very weak. What should I do?"

"This month is very bad," the doctor replies. "Every year, you will have to take this injection in November-December," he adds and scribbles a list of medicines on her file.

Outside the room, Begum's brother says her condition had worsened during this time last year too, when Delhi's air became thick, brown, and toxic. "She was better and could breathe with us running the oxygen at 2 (litres per minute)," he says. "About two weeks ago, she started getting breathless and we increased it to 3. But she was still not fine, so we had to increase it to 4," he says. Begum used to be more active than him, he rues.

"Now, I only go to hospital," says Begum.

Many other patients show a similar pattern, says Dr. Vijay Hadda, Additional Professor (Pulmonary Medicine) at AIIMS. He termed pollution a "hidden killer" that affects "almost every organ." Air pollution has been linked to lung cancer, stroke, heart attack, and many other diseases. About 1.67 million Indians died prematurely in 2019 alone due to air pollution, accounting for 18% of all fatalities, according to a report published by *The Lancet* last year.

India ranks eighth in the list of countries with the worst air quality index, according to the Annual World Air Quality Report released by Swiss air quality technology company, IQAir, earlier this year. To make matters worse, of the top 20 most polluted cities in the world, 14 were from north India.

Poor air is therefore not just a Delhi problem. Every year, especially during winter, air pollution spikes in the entire Indo-Gangetic Plain. This region, covering large parts of Delhi, Haryana, Punjab, and eastern Uttar Pradesh, constitutes an airshed, which means that roughly the same atmospheric conditions prevail everywhere.

Pollution spikes when pollutants from different sources are not dispersed easily in winter because of a drop in wind speed and temperature. Vehicle and diesel generator exhaust, heavy industry emissions, soil and road dust, open waste burning, and biomass burning are all present in the atmosphere throughout the year. In winter they get accumulated, amplifying the effects of the pollutants compared to summer. The pollution from stubble burning, a practice of removing paddy crop residue from fields to sow wheat, which happens in October-November, makes the situation worse.

This November too, air pollution spiked in the Indo-Gangetic Plain and a toxic smog covered the national capital for about a week. Delhi remained the ‘most polluted’ major city in the world for many days in November, according to IQAir’s live data for over 100 cities.

Calling it a “murder of the health of the people,” the Supreme Court cracked the whip on the government. Among other directions, it ordered Punjab, Haryana, Uttar Pradesh, and Rajasthan to stop stubble burning “forthwith”.

A thick layer of smog covers Delhi. | Photo Credit: Sushil Kumar Verma

Last week, while the Bharatiya Janata Party (BJP) blamed the Aam Aadmi Party (AAP)-ruled Punjab for stubble burning in the State, the AAP hit back saying this is a north Indian problem for which the BJP has no plan. Paddy stubble burning, a politically sensitive issue, takes place only during the harvest period of September 15-November 30.

The good news is that the number of stubble-burning incidents in the region are falling, according to the Consortium for Research on Agroecosystem Monitoring and Modelling from Space Lab, run by the Indian Agricultural Research Institute. In 2022, the number of farm fires fell in Punjab, Haryana, and Uttar Pradesh compared to the previous year.

This year too, there is a fall. According to data from the Punjab Pollution Control Board (PPCB), collected through satellite imagery, the State recorded 22,981 stubble-burning incidents from September 15 to November 8. Sangrur, the home district of Chief Minister Bhagwant Mann, recorded the highest number of farm fires at 4,070. Last year, 33,090 such incidents were recorded during the same period in the State. These figures show that while farm fires have reduced, they are still high in absolute numbers.

On October 22 this year, stubble burning accounted for about 16% of the PM2.5 particulate matter in Delhi. It increased to nearly 35% on November 3, the highest this season, when the AQI broke into the most toxic category, according to a tracker maintained by the Earth Sciences Ministry.

Meteorological factors play a significant role in determining the degree of particulate matter coming in from stubble burning outside of Delhi-NCR. “It was surprising that multiple weather factors combined between October 26-31,” says Professor Sachchida Nand Tripathi, an

authority on atmospheric sciences, at IIT Kanpur. “The boundary layer dropped by 50%, the wind direction changed from north-east to northwest, and the columnar winds were as low as they can get. It’s well known that these values will correspond to the worst pollution levels,” he says. The boundary layer refers to the height at which pollutants hover. If it’s too low, natural wind drafts cannot flush the pollutants away. The same goes for columnar wind.

As stubble burning is a significant factor, though not solely responsible for the spike in pollution, as Tripathi says, it also dominates conversations in Punjab. In Fatehpur, a village on the outskirts of Patiala city, winter is setting in. It is that time of the year when farmers in Punjab and Haryana race against time to harvest the paddy (summer) crop and prepare to sow the wheat (winter) crop.

Paddy, which is harvested with combine harvester machines, leaves behind a stubble on the field. Many farmers find burning the crop residue to be the most “effective and cheap” method when they want to prepare their farm to sow wheat. As they have only three weeks between the harvest of paddy and the sowing of wheat, farmers resort to stubble burning.

Farmers across Punjab annually face the challenge of managing nearly 20 million tonnes of paddy straw. It is estimated by the State government that over 15 million tonnes of paddy straw are burnt in open fields to clear the land for sowing wheat or other crops.

Ajit Singh (name changed to protect privacy), 58, is aware of the 2015 order of National Green Tribunal, which bans stubble burning. But the owner of a 14-acre family farm says he is helpless.

“Most farmers don’t want to set stubble on fire,” he says. “They do it out of compulsion. We are the first victims of the pollution from crop burning, so why would we want that? The problem is that successive governments have failed to provide us with viable options to manage the crop residue.”

He adds that if farmers were given machines or financial incentives by the government “in a time-bound manner,” they wouldn’t burn the residue.

For the last few years, the government has been providing crop residue management (CRM) machines, but even on subsidy, they are expensive, especially for small and marginal farmers. They are also not available on time. This year, the government has been promoting the use of balers (machines designed to compress crop residue into compact bales).

“The problem remains the same: they are not available when we need them,” Ajit says.

In the village, a group of farmers meet close to a pond. They debate the controversial incident of some farmers in a village in Bathinda forcing a government official to burn paddy straw in a field last week. A first information report was registered against the perpetrators. Mann said that “the State government can’t be a mute spectator to this incident and allow anarchy to prevail.”

The farmers say the problem is deeper. “Mechanisation is only a partial solution. The government needs to promote crop diversification, which is only possible through a minimum support price and assured purchase of the produce for other crops on the lines of paddy and wheat,” says Gurpreet Singh, 35, who has been using a super-seeder machine for removing paddy stubble. These machines plough standing paddy stubble in soil and sow wheat seed simultaneously in a single operation.

Amarjit Singh (name changed), of Bari village in Sahibzada Ajit Singh Nagar district, says the

private bale operator he had approached asked him to pay 800 per acre to have his field cleared. Amarjit refused. “I can’t bear that cost as it adds to the cost of cultivation. Why can’t the government make an arrangement to lift the stubble from our fields,” he says.

In Rupnagar district’s Rolu Majra village, Pargat Singh, in his 70s, who has cultivated paddy in a 14-acre farm, says farmers have been demanding 2,500-3,000 per acre from the government for many years: “If they pay us this, we will not burn the stubble because we can opt for scientific methods to dispose of the residue.”

There has been an encouraging response for balers from farmers this year, says Jaswant Singh, Director of the Punjab Agriculture Department. “The demand has gone up significantly this season. Most of these balers are imported. The companies in the business had procured balers keeping in view the routine demand. But given this sudden rise, we have had a problem of shortage. We hope it is resolved soon.”

With no quick solutions in sight, farmers have reluctantly been burning paddy, which has caused air pollution to spike in the last fortnight in Punjab. The AQI has slipped from the ‘moderate’ to ‘poor’ category. Experts fear that with close to 20% of area of paddy yet to be harvested, pollution will only spike further.

Asserting that the number of hospital patients with respiratory diseases has gone up in the last few days, Dr. Aslam Parvez, president of Punjab Rural Medical Services Association, says, “Stubble burning triggers respiratory disease. We are seeing more and more patients with cough, runny nose, itchy eyes, besides skin diseases.”

For the management of crop residue, the Punjab government has been providing subsidies on the purchase of CRM machines, including surface seeders, an in-situ paddy stubble management device. The State government has mandated that brick kilns use stubble as fuel and that other plants buy stubble from farmers.

Gurpreet Singh Kuthala, from Ferozepur-Kuthala village in Malerkotla district, says that the demand for stubble from biomass energy plants, industrial boilers, and paper cardboard mills has seen an uptick this year. This is fetching the farmers a good price.

“Last year, I bought a rake and baler on government subsidy for stubble management. I cleared stubble in 600 acres and earned around 20 lakh by selling bales. This year, I expect the area to go up to 2,000 acres. I don’t charge anything from the farmers. I have entered into an agreement with a compressed bio-gas plant situated in Sangrur. They pay 170 per quintal for the bale,” he says.

P.S. Rangi, former adviser to the Punjab State Farmers Commission, says the State has over 10 lakh farming families who have land holdings of 2-5 acres and cannot afford to opt for mechanised farming. “While supplying agro-machines on subsidy may reduce the problem of stubble burning to some extent, it is not a complete solution. These agro-machines are used for a limited period of time. They are of no use for the whole year. Also, they have no utility unless they are provided within the required time,” Rangi says.

To curb the menace of stubble burning, PPCB has been promoting paddy straw as a resource to create wealth. “The PPCB has been encouraging the use of paddy straw in power plants and industrial boilers. Demonstrative industrial boilers were installed and entrepreneurs are trying to replicate them in their units. Punjab has tackled technological challenges over the last two years. There have been metallurgical improvements in industrial boiler vessels and the supply chain of paddy straw has been strengthened. The efforts have resulted in 125% increase (to 4.5 million

tonnes) in paddy straw usage from the previous year," says Krunesh Garg, chief environmental engineer, PPCB.

Meanwhile in Delhi, though schools have shut, children continue to go out and play, and people party on and even burst firecrackers.

With inputs from Jacob Koshy

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air pollution / Delhi / Ground Zero

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Source : www.thehindu.com Date : 2023-11-14

COMMUNITY RIGHTS AND FOREST CONSERVATION

Relevant for: Environment | Topic: Environmental Conservation, Sustainable Development, and EIA

November 13, 2023 10:49 pm | Updated 10:49 pm IST

Paddy fields are seen near a Dongria tribal village inside the Niyamgiri hills in Odisha. | Photo Credit: BISWARANJAN ROUT

The story so far: The Forest Conservation Amendment Act of 2023 has received limited attention and little discussion about its impact on forests and its inhabitants. From the colonial forest law in 1865 to the Forest Conservation Amendment Act, 2023, more than fifteen laws, Acts, and policies have been formulated interlinking forests with legal and policy frameworks. However, there is little to no recognition of the rights of indigenous communities in these Acts, who are the rightful inhabitants of forest lands.

At first glance, the amendment primarily aims to tackle the critical issues of climate change and deforestation's adverse effects, focusing on effective management and afforestation. The law further aims to determine how forests can be utilised for economic gain, and the manner in which it seeks to achieve this goal is outlined in the legislation. The primary method used to achieve this objective involves removing forests from the law's jurisdiction, thereby facilitating various forms of economic exploitation. As per the amendment, the forest law will now apply exclusively to areas categorised under the 1927 Forest Act and those designated as such on or after October 25, 1980. The Act will not be applicable to forests that were converted for non-forest use on or after December 12, 1996 and land which falls under 100 kilometres from the China and Pakistan border where the central government can build linear projects. To establish security infrastructure and facilities for surveillance, the central government is authorised to construct security measures in areas up to ten hectares. This provision also applies to areas (up to five hectares) which are designated as vulnerable. Within these regions, the government, with the necessary approvals, can implement security protocols as described above. Initiatives like ecotourism, safari, environmental entertainment, and more may be implemented in these areas. The main objective of these initiatives is to improve the livelihoods of those reliant on forest resources, a goal that has drawn criticism from tribal communities and human rights activists.

The *Godavarman Thirumulkpad* case, a prominent legal dispute that came before the Supreme Court in 1996, led to an interpretation of forest land in accordance with its 'dictionary meaning'. Subsequently, all private forests were brought under the ambit of the 1980 law. This has been a subject of debate as it was argued that the legislation primarily aims to restrict forest land from being used for various non-forest purposes, including the conversion of land for large-scale industries. The law has faced significant opposition, especially from private landowners, individuals, and organisations involved in forest conservation, for its perceived adverse impact on the country's industrial progress. In other words, the need to exclude forest land from the

legal framework was mainly driven by the requirements of the industrial classes in the country. It is in this context that concerns regarding the Forest Conservation Act tend to resurface periodically, echoing the apprehensions of indigenous communities and human rights activists. These factors came to the forefront again when the Forest (Conservation) Amendment Bill was introduced in Parliament in March, triggering extensive discussions and debates. The Parliament then referred the Bill to a 31-member Joint Parliamentary Committee (JPC).

Of the 31-member JPC addressing the issue, only six individuals were from the opposition. The JPC submitted its report to Parliament on July 20, within three months. The critical comments from the committee members and public appear to have been largely disregarded; reduced to dissenting notes, holding a minority viewpoint on the Bill.

Therefore, the Bill successfully passed in both houses of Parliament without any substantial debates or discussions. There have been no collaborative discussions with the southern States concerning matters related to their specific geographical locations. A few days after the Act was enacted, the Odisha government revoked the “deemed forest” status in the State but had to later cancel the order due to public outrage and cited that it is waiting for detailed rules and guidelines from the concerned Central Ministry. If the government were to remove the forests from the purview of the Forest Conservation Act, it would effectively obstruct indigenous communities from asserting their rights.

The Forest Conservation Act underwent important amendments in 2016 and 2017, which stipulated that prior consent from the tribal grama sabha was mandatory for any alterations to forests for non-forest purposes. However, the recent revisions to the legislation have removed the necessity for such consent. Nevertheless, in this situation, State governments can proactively engage in specific activities within this framework through the inclusion of grama sabhas, particularly in matters of land acquisition for various purposes, by establishing State-level steering committees. But numerous State governments might hesitate on this aspect, as they hold a preconceived notion that Adivasi grama sabhas are ‘anti-development,’ and they fear that their decisions could hinder economically lucrative afforestation initiatives.

Compensatory afforestation, as outlined in the new legislation, encompasses various projects and schemes that can be undertaken by both private individuals and organisations (including large corporations) for afforestation or reforestation purposes. The Compensatory Afforestation Act encountered significant challenges in the past, primarily due to ambiguities in the original legislation and shortage of available land. The goal of the new amendment is to streamline the process. However, there is apprehension regarding the potential environmental implications of this amendment. The law mandates that for every parcel of land that is lost due to afforestation efforts, an equivalent amount of land must be afforested elsewhere. It does not specify the type of trees that should be planted, leaving room for discretion.

The FRA has had notable impacts in various regions, such as the Mendha-Lekha in Maharashtra, Loyendi in Odisha, and Malakkappara in Kerala. Despite the initial enthusiasm, it appears that both the Central and State governments have become less enthusiastic about implementing the FRA in their States. Many consider the Act as an impediment to convert forest land for non-forest purposes. The State government and its bureaucracy hold the view that granting community rights under the FRA could weaken the State’s authority over the forest. They anticipate potential legal challenges to any such endeavours. To navigate this situation, the government has opted to reduce or dilute the extent of forest areas, rather than amend the FRA, thereby limiting the potential for additional Adivasi claims. The amendment also fails to address the growing issue of human-animal conflicts in forest areas, particularly in the Adivasi hamlets of the Western Ghats region. This conflict not only endangers the livelihoods of the Adivasis but also poses a threat to wildlife.

When examined superficially, the law appears to address issues without complications. However, once the law is put into practice, it presents substantial challenges to forest dwelling communities and government agencies. The concept of afforestation, which offers considerable financial incentives to private individuals and institutions for afforestation projects, fundamentally clashes with the idea of forest governance. Furthermore, it contradicts the concept of decentralised forest governance as forests in the country fall under the concurrent list. Such governance practices are against the spirit of federal norms. Moreover, defining strategic linear projects becomes exceptionally complex and vague. Unlike external security threats like border disputes and cross-border skirmishes, internal environmental security should also be considered a significant concern, especially in States that consistently face natural disasters. Regrettably, this priority is not guaranteed.

Abhilash Thadathil is Assistant Professor at the Centre for Development Studies, Thiruvananthapuram

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WORLD SEVERELY OFF TRACK TO LIMIT PLANET-HEATING EMISSIONS: U.N.

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

November 14, 2023 05:21 pm | Updated 07:30 pm IST - Paris

Scientists have warned that humanity is dangerously close to blowing past the 1.5°C global heating limit, risking intensifying impacts. File | Photo Credit: AP

The world is “failing to get a grip” on climate change, the U.N. warned on November 14, as an assessment of current climate pledges shows only minor progress on reducing emissions this decade.

In a report released just weeks before high-stakes climate negotiations, the United Nations climate change organisation said the world was failing to act with sufficient urgency to curb greenhouse gas emissions.

With temperatures soaring and 2023 expected to become the warmest year so far in human history, scientists say the pressure on world leaders to curb planet-heating greenhouse gas pollution has never been more urgent.

The U.N. found that combined climate plans from nearly 200 nations would put the world on a path for 2030 carbon emissions just 2% below 2019 levels.

That is far short of the 43% fall that the U.N.’s IPCC climate panel says are needed to limit warming to the Paris deal target of 1.5°C since the preindustrial era.

“Every fraction of a degree matters, but we are severely off track. COP28 is our time to change that,” said U.N. Climate Change chief Simon Stiell.

He called for climate talks in Dubai this month to mark a “clear turning point” for a world already wracked by increasing floods, heatwaves and storms.

Scientists have warned that humanity is dangerously close to blowing past the 1.5°C global heating limit, risking intensifying impacts.

“The world is failing to get a grip on the climate crisis,” said U.N. Secretary-General Antonio Guterres, warning countries were not acting fast enough to avoid climate catastrophe.

“Inch by inch progress will not do. It is time for a climate ambition supernova in every country,

city, and sector.”

Also Read | ‘Loss and damage’ fund talks leave developing nations at new disadvantage | Explained

Under the 2015 Paris deal, countries are required to submit ever deeper emission cutting plans, known as Nationally Determined Contributions, or NDCs.

The latest annual U.N. assessment of these plans includes 20 updated NDCs submitted between September 2022 and September 2023, including from Mexico, Turkiye, Norway and COP28 hosts the United Arab Emirates.

Last year’s report used a 2010 benchmark and found that if the world’s NDCs were fully implemented, emissions would be 10.6% higher by 2030.

This time around there has been “only a fractional improvement”, Mr. Stiell said, with emissions projected to be 8.8% higher in 2030 than in 2010.

In September, a global stocktake of the world’s progress on averting the worst impacts of climate change warned that the world was far off target.

Global greenhouse gas emissions must peak by 2025 and drop sharply thereafter to keep the 1.5°C limit in view, it said, drawing from a major scientific assessment by the U.N.’s IPCC science advisory panel.

Achieving net zero carbon emissions by 2050 — another Paris goal — will also require phasing out the burning of all fossil fuels whose emissions cannot be captured or compensated.

A response to the stocktake will form the centrepiece of the November 30 to December 12 COP28 meeting, with crucial debates over the future of oil, gas and coal — the main drivers of planet-heating emissions.

But currently, countries are still failing to match their actions to what scientists say is needed to avoid blasting past the world’s agreed global warming limits.

This month a report by the United Nations Environment Programme (UNEP) found that planned production increases in major petrostates would result in 460% more coal, 82% more gas and 29% more oil than would be consistent with limiting warming to 1.5°C.

And the room to manoeuvre might also be tighter than previously understood.

In October, new research found that the amount of CO2 the world can emit and still have a 50% chance of limiting warming to 1.5°C is much smaller than previously thought and could be used up in six years at current pollution levels.

“We are still miles off where we need to be for limiting global warming to 1.5°C,” said Tom Evans, policy advisor at the think tank E3G, adding that the response to the stocktake will be “critical”.

“It’s the only chance we have to make sure that the next set of climate targets — due by 2025 — will put us in a place to close this gap.”

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GREENHOUSE GASES HIT RECORD HIGH IN 2022: UN

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

November 16, 2023 02:14 am | Updated 02:14 am IST - Geneva

Representational file image. | Photo Credit: AP

Greenhouse gas concentrations in the atmosphere hit new record highs in 2022, with no end in sight to the rising trend, the United Nations warned on November 15.

The UN's World Meteorological Organization said levels of the three main greenhouse gases — the climate-warming carbon dioxide, methane and nitrous oxide — all broke records last year.

Such levels of heat-trapping gases will mean further temperature increases, more extreme weather and higher sea levels, the WMO said in its 19th annual Greenhouse Gas Bulletin.

"Despite decades of warnings from the scientific community, thousands of pages of reports and dozens of climate conferences, we are still heading in the wrong direction," said WMO chief Petteri Taalas.

The bulletin comes ahead of the November 30-December 12 COP28 UN climate summit in Dubai.

The 2015 Paris Agreement saw countries agree to cap global warming at "well below" two degrees Celsius above average levels measured between 1850 and 1900 — and 1.5C if possible.

The global mean temperature in 2022 was 1.15C above the 1850-1900 average — and Mr. Taalas said it was all but certain that 2023 would be the warmest year on record.

"The current level of greenhouse gas concentrations puts us on the pathway of an increase in temperatures well above the Paris Agreement targets by the end of this century," Mr. Taalas said.

"This will be accompanied by more extreme weather, including intense heat and rainfall, ice melt, sea level rise and ocean heat and acidification.

"The socioeconomic and environmental costs will soar. We must reduce the consumption of fossil fuels as a matter of urgency."

In 2022, carbon dioxide concentrations were at 418 parts per million, methane at 1,923 parts per

billion and nitrous oxide at 336 parts per billion.

These values constitute, respectively, 150%, 264% and 124% of the pre-industrial (before 1750) levels.

Of the three major greenhouses gases, carbon dioxide (CO2) accounts for about 64 percent of the warming effect on the climate.

Global averaged concentrations of CO2 in 2022 were, for the first time, 50 percent above those of the pre-industrial era, and "continued to grow in 2023", said the WMO.

"Given the long life of CO2, the temperature level already observed will persist for several decades even if emissions are rapidly reduced to net zero," the WMO warned, with Taalas adding: "There is no magic wand to remove the excess carbon dioxide from the atmosphere".

Atmospheric methane is the second largest contributor to climate change, accounting for around 16 percent of the warming effect.

Methane remains in the atmosphere for only about 10 years, but has a much more powerful warming impact than CO2.

"We don't fully understand why methane concentrations are steadily growing," said Taalas.

For nitrous oxide — accounting for around seven percent of the warming effect — the increase last year "was higher than that observed any time before in our modern time record", the WMO said.

Around 80% of greenhouse gas emissions come from G20 countries.

Although the scientific community has a broad understanding of climate change and its implications, there are still some uncertainties about the carbon cycle — and the fluxes in the ocean, the land biosphere and the permafrost areas.

The bulletin called for greater information on certain topics.

These included feedback loops in the climate system — for example, increased carbon emissions from soils or decreased carbon uptake by oceans due to climate change.

The WMO is also concerned about so-called tipping points, where a certain level of change leads to a self-accelerating and potentially irreversible cascade of changes.

One could be how parts of the Amazon rainforest, long a carbon sink, has now become a source of carbon emissions due to deforestation.

The organisation said more information is also needed on non-CO2 greenhouse gases.

Taalas said there was a risk that the wars in Ukraine and Gaza were overshadowing climate change, which "is still the biggest challenge for the welfare of mankind this century".

carbon emissions

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Source : www.thehindu.com Date : 2023-11-19

SHRINKING MUDFLAT ECOSYSTEM OF KERALA'S KADALUNDI KEEPS SHOREBIRDS AWAY

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

November 18, 2023 11:45 pm | Updated November 19, 2023 12:45 am IST - MALAPPURAM

Sand sedimentation is causing the mudflats of Kadalundi to vanish. | Photo Credit: Special Arrangement

Kadalundi, on the south-west coast, had about 8 hectares of nutrient-rich inter-tidal mudflats in the early 2000s. Today, the expanse of mudflats in the estuary of the Kadalundipuzha river has reduced to just about 1 hectare. This too is gradually being covered with sand, depriving prey to thousands of shorebirds that migrate from colder climes in winter to Kadalundi village in Kozhikode district.

Researchers point out that if the mudflats are not protected and restored, Kadalundi will vanish from the global map as a prominent destination of migrant shorebirds in a few years. It is the abundance of prey such as polychaetes and crustaceans in the mudflats that attract a wide variety of migrant shorebirds to Kadalundi from places such as Siberia, Ladakh, Mongolia, and Scotland.

"We have tried to convince the government through memorandums, of the importance of protecting the mudflat ecosystem of Kadalundi from other invasive elements such as sandbanks and mangroves. But the response has been passive," said T.R. Athira, C.T. Shifa, and K. Jishnu, who have been studying the ecological changes taking place in Kadalundi for the past several years.

However, efforts are on to popularise ecotourism in the Kadalundi-Vallikunnu Community Reserve (KVCR) by widening the expanse of mangroves. The 154-hectare KVCR had less than 50 hectares of mangroves until a few years ago, but these trees that thrive in salt water have proliferated so fast that they currently occupy more than 60 hectares.

"We are planting four more new species of mangroves as part of strengthening eco-tourism in Kadalundi. As many as 40 country boats are currently operating for tourists here," said P. Sivadasan, KVCR management committee chairperson.

The sedimentation of sand on mudflats not only brings down the amount of prey there, but also helps mangroves easily proliferate. The viviparous mangroves of Kadalundi, according to researchers, have been displaying an aggressively invasive behaviour.

The mangrove lobby has been raising carbon sequestration as the key environmental factor for its promotion. “But people often underestimate the significance of soil and mud in carbon sequestration. Soil contains nearly twice the amount of carbon compared to the combination of the atmosphere, vegetation, and animals,” said Ms. Athira.

Studies show that wetlands and grasslands have the capacity to sequester more carbon than many types of forests. “Haphazard tree planting without proper understanding is never advisable. It is crucial to adopt a holistic approach that prioritises the protection of intact ecosystems and focuses on restoring the functionality of degraded ecosystems,” she said.

The mangroves of Kadalundi never attract shorebirds coming from colder regions. They prefer open mudflats where they are safe from predators. “When I started my research in 2005, we used to see large congregations of migrant species such as the lesser sand plover, greater sand plover, common sandpiper, whimbrel, Eurasian curlew, common redshank, common greenshank, Kentish plover, Terek sandpiper, dunlin, and sanderling foraging voraciously during low tide. But now the prey depletion, because of sandbanks and mangrove proliferation, is forcing them to stay away from the mudflats,” said Mr. Aarif.

He said the devastating floods of 2018 and 2019 hastened the process of degradation in Kadalundi. The migrant birds with great site fidelity are now finding an alternative on the beaches of neighbouring coasts.

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Source : www.livemint.com Date : 2023-11-20

MINT

Relevant for: Environment | Topic: Environmental Conservation, Sustainable Development, and EIA

Our dependence on fossil fuels is damaging our health and pushing temperatures to record levels. The interlinked climate calamities of the past few years—extreme weather events, food insecurity, water scarcity, and worsening air pollution—are a direct result of greenhouse-gas (GHG) emissions. But the adverse effects we are experiencing today could be just a preview of the catastrophes that await us.

That is the key finding of the latest Lancet Countdown report on climate change and health, authored by a group of leading health and climate scientists that I led. Undoubtedly, this grim conclusion will not come as a shock to the millions suffering from climate-related health issues and their loved ones. Most of us, wherever we live, are directly or indirectly affected by this crisis.

As climate change worsens, its effects on our physical and mental health are no longer hypothetical. Our research finds that, compared with 1981-2010, the increasing frequency of heatwaves and droughts over the past few years has exposed 127 million more people to moderate or severe food insecurity in 2021. Meanwhile, outdoor air pollution from the combustion of dirty fuels claims 1.9 million lives annually, and infectious diseases like dengue are reaching new regions.

Yet, despite 27 years of annual climate-change talks, world leaders still refuse to acknowledge the urgent need to phase out fossil fuels. Despite overwhelming evidence that fossil-fuel combustion is the primary driver of today’s health crisis, a draft statement on climate change and health, set to be released during the United Nations Climate Change Conference (CoP-28) in Dubai, omits any reference to the issue.

With many countries and companies backtracking on climate commitments, the world is moving in the wrong direction. At the current rate of GHG emissions, we are heading for a global temperature increase of nearly 3° Celsius by 2100, far above the 1.5°C target established by the 2015 Paris climate agreement. The consequences could be catastrophic. Even with a global mean temperature increase of just under 2°C, annual heat-related deaths are projected to increase by 370% by mid-century. The most vulnerable groups, the elderly and children, are now exposed to twice as many heatwave days as they were 30 years ago. And with heatwaves becoming increasingly frequent, the number of people suffering from moderate or severe food insecurity could increase by roughly 525 million by mid-century

Beyond these direct effects, the climate crisis hurts individual well-being and the socioeconomic conditions necessary for a healthy population. In 2022, heatwaves resulted in a loss of 490 billion working hours worldwide. Even if we manage to limit global warming to just below 2°C, heat-related labour loss is projected to increase by 50%. These effects won’t be distributed evenly. Regions that have contributed the least to climate change—Africa, South and Central America, Asia and small island states—often bear the brunt of climate-related health risks. Given the urgency of the threat we face, the current pace of global efforts to reduce emissions is insufficient, falling far short of the Paris targets. Energy-based emissions hit an all-time high in 2022, while renewables still account for only 9.5% of the world’s electricity. Households still rely on dirty fuels.

While policymakers are tempted to address this crisis incrementally, solving one problem at a time or focusing on adaptation alone is insufficient. Without significant emissions reductions,

adaptation will be futile. The climate-fuelled health crisis cannot be solved without urgently shifting away from fossil fuels. By focusing on climate policies that enhance public health and well-being, governments could prevent premature deaths, build a more resilient population and a stronger workforce, and bolster their domestic economies.

How can this be achieved? Our report outlines 11 measures across five priority areas. First, to ensure that climate hazards remain within the adaptive capacity of our health systems, we must reduce GHG emissions in accordance with the Paris pact. We must phase out fossil fuels through a just energy transition that mitigates the health effects of air pollution and expands access to clean energy, especially in regions where energy poverty remains a challenge. We must accelerate adaptation efforts to protect communities already suffering from the health fallout of climate change, by forging cooperative links between the health sector, environmental organizations and meteorological services. And by eliminating all subsidies, lending, and investment in fossil fuels, we can create space for climate financing.

The health sector must lead this transition. Health adaptation is critical. We must implement public-health measures that reduce air pollution, advocate healthier low-carbon diets, encourage active lifestyles, and enforce regulations on polluting industries. And, given that the health sector itself accounts for 4.6% of global GHG emissions, it could play a significant direct role in global decarbonization as well.

CoP-28 is a test of world leaders' commitment to tackle the climate crisis. A genuine focus on health could catalyse a shift away from fossil fuels and facilitate adaptation efforts. Failing to do so will result in a conference that does little more than pay lip service to health concerns. Climate-related deaths will keep increasing unchecked and a liveable future will drift further beyond reach. ©2023/project syndicate

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Source : www.thehindu.com Date : 2023-11-21

U.S. TO ANNOUNCE GLOBAL NUCLEAR FUSION STRATEGY AT COP28

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

November 21, 2023 02:39 am | Updated 02:39 am IST - WASHINGTON:

U.S. Special Envoy on Climate Change John Kerry. File. | Photo Credit: Reuters

The U.S. will lay out the first international strategy to commercialize nuclear fusion power at the upcoming UN climate summit in Dubai, U.S. Special Envoy on Climate Change John Kerry will say on Monday, two sources familiar with the announcement said.

Fusion could have an important advantage over today's nuclear fission plants that split atoms, as it does not produce long-lasting radioactive waste. If deployed successfully, it could also provide a cheap source of carbon-free electricity.

The former secretary of state will announce his plan to lay out the strategy that foresees strengthened cooperation with other countries aiming to speed commercialization on a tour of fusion company Commonwealth Fusion Systems near Boston. The UK and the United States on Nov. 8 signed a cooperation agreement on fusion.

Fusion, the process that powers the sun and stars to generate electricity, can be replicated on Earth with heat and pressure using lasers or magnets to smash two light atoms into a denser one, releasing large amounts of energy.

In August, scientists using laser beams at a national lab in California repeated a fusion breakthrough called ignition where for an instant the amount of energy coming from the fusion reaction surpassed that concentrated on the target.

Kerry, who as a U.S. senator more than a decade ago backed legislation that would fund fusion research at the Massachusetts Institute of Technology, will tour Commonwealth with Claudio Descalzi, CEO of Italian energy company Eni. Eni is working on four fusion research partnerships in Italy and the U.S., including one with Commonwealth.

"I will have much more to say on the United States' vision for international partnerships for an inclusive fusion energy future at COP28," Kerry said in a statement.

Decades of federal investment is transforming fusion from an experiment to "an emerging climate solution", he added.

But there are hurdles to fusion's producing commercial electricity. The energy output of last year's fusion experiment at the U.S. National Ignition Facility was only about 0.5% of the energy that went into firing up the lasers, some scientists estimate.

Scientists have so far only reached scattered instances of ignition, not the many continuous ignition events per minute needed to generate electricity to power homes and industries.

There are also regulatory, construction and siting hurdles in creating new fleets of power plants to replace parts of existing energy systems.

Some critics say fusion will be too expensive and take too long to develop to help in the fight against climate change in the foreseeable future.

A source familiar with the planned announcement said the fusion strategy will be a framework that lays out plans for the global deployment of the technology that could gain support from international partners.

The source said COP28, which runs from Nov. 30 to Dec. 12, will "be the starting gun for international cooperation" on nuclear fusion, which Kerry will tout as a climate "solution, not a science experiment".

Despite what scientists say is an urgent need for an energy transition to fight climate change, investment has slowed into many parts of the clean energy business this year due to economic uncertainty and inflation.

In 2023, international fusion companies have garnered about $1.4 billion in investments for a total of about $6.21 billion in mostly private money, the Fusion Industry Association (FIA) said, down from about $2.83 billion in new investment last year.

But the number of companies getting investments rose to 43 from 33, spanning a dozen countries, according to the FIA, including the U.S., where Commonwealth is one of about 25 companies. Other countries pursuing fusion include Australia, China, Germany, Japan, and the UK.

Of the two main types of fusion, one uses lasers to concentrate energy on a gold pellet containing hydrogen.

The other, on which Commonwealth and many other companies are focusing, uses powerful magnets to trap plasma, or gaseous hydrogen heated to about 100 million degrees Fahrenheit (55 million degrees Celsius) until atoms fuse.

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RECOGNISING THE IMPACT OF CLIMATE CHANGE ON HEALTH

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

November 22, 2023 12:15 am | Updated 12:48 am IST

A man crosses the dry and cracked bed of the Koparli dam on May 26, in Peth Taluka village, Nashik, Maharashtra. | Photo Credit: Getty Images

As India gets ready for the 28th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP28), it is important to examine how climate change affects the country's health. India's inadequate health systems make our population particularly vulnerable to the impact of climate risks on health. Climate change affects health directly, causing more sickness and death. In more indirect ways, it affects nutrition, reduces working hours, and increases climate-induced stress.

The precipitating factors continue to be unrelenting. One estimate suggests that if global temperature were to rise by 2°C, many parts of India would become uninhabitable. All nations during the Paris Agreement agreed to cap the rise in temperature at 1.5°C. Clearly, we have failed. The year 2023 saw the highest temperatures and heat waves in recorded history. The situation is likely to worsen for the planet. Climate emergencies — extreme heat, cyclones, floods — are expected to occur with increasing regularity. These will interfere with food security and livelihoods and sharpen health challenges.

The double burden of morbidity that India faces from communicable and non-communicable diseases will be worsened by climate change. It could facilitate the growth of vectors such as mosquitoes, sandflies, ticks, and as yet unknown ones, and change the seasonality of infection through changes in their life cycle. It could also facilitate the introduction of vectors and pathogens into areas where they did not exist before, such as mosquitoes in the Himalayan States. Heat also alters the virulence of pathogens. Reduced availability of food and water and the decrease in nutritional value of food increases vulnerability to diseases. Epidemics commonly occur after floods, but extended warm periods also promote the proliferation of water and food-borne pathogens and diseases.

Less well recognised is the impact of climate change on non-communicable diseases and mental health, both of which are poorly managed in India. Heat, physical exertion, and dehydration, a constant state for labourers, could lead to kidney injuries, which are rising in India due to uncontrolled diabetes. Chronic Obstructive Pulmonary Diseases are exacerbated by increased and extended episodes of air pollution. The risk of dying from pulmonary disease increases by 1.8–8.2% during a heat wave and hospitalisation rates will go up by 8% for every

1% increase in temperature above 29°C. Depression, aggravated by stress generated by the change in weather conditions, and Post Traumatic Stress Disorder invariably accompany a climate emergency. These are rarely recognised in India, much less addressed.

India is urbanising at a rapid pace, in an unplanned manner. Urban areas, not tempered by urban greenery and open spaces and filled with asphalt roads and heat-retaining buildings that physically block air circulation, bear the worst ill effects of climate change due to the urban heat island effect. (Urban areas are warmer than surrounding rural areas, especially at night). Climate change puts further pressure on the weak urban primary health system, already suffering the ill effects of air pollution; urban planning that discourages physical activity; and work-related and cultural stress.

Mitigation efforts begin with understanding the direct and indirect pathways by which climate change impacts health and assessing the burden. Currently, the health information systems are not modified to gather this data. Since the impact is accentuated by socio-economic conditions, having systems in place for social support and health services will reduce the impact. But the benefits from upstream interventions that focus on better urban planning, green cover, water conservation, and public health interventions will be much larger — not only for health but for many determinants of health.

Action to control climate change needs to happen at global, regional, and local levels. Pathways of climate change and their impact will determine the appropriate area of intervention. To achieve this, India has to recognise climate change and its impact on health as a problem that can be and needs to be addressed. Researchers who work in this area need to come up with policy options for action. National, State, and local governments have to decide to act on the policy options that have been generated by research. Only when the three streams of problematisation, policy options, and political decision-making come together is meaningful change likely to happen. It will be worthwhile to examine if these necessary conditions have been satisfied before expecting a change in the status quo on climate change and its impact on health.

Pranay Lal is Senior Advisor, Health Systems Transformation Platform; Rajeev Sadanandan is CEO, Health Systems Transformation Platform

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ALARMING COUNTDOWN: THE HINDU EDITORIAL ON NET ZERO CARBON EMISSION TARGET

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

November 22, 2023 12:15 am | Updated 12:15 am IST

The title of the United Nations' latest report, Broken Record, is a clever pun. Not only does it suggest that previous warnings of the consequences of rising greenhouse gas emissions (GHG) are being ignored but also that new ceilings are being breached. The annual emissions report, usually timed close to the beginning of the climate talks, reiterates in sharper language that progress, since the Paris Agreement (PA) of 2015, has been tardy. The stated goal was to keep temperatures from rising over 2°C, and 'as far as possible' below 1.5°C, of pre-industrial levels. In the last few years, much of the consensus has been that we should be directing all our efforts towards keeping it below 1.5°C. The Broken Record report, however, suggests that accounting for all commitments made by countries, as per the PA, to minimise their economies' reliance on fossil fuel, temperatures would still result in an overshoot of 2.5°C-2.9°C by the end of the century. To keep temperature below 2°C, emissions by 2030 must be cut 28% and for 1.5°C, they need to be shaved by 42%. Despite many countries having promised to be 'net zero,' meaning no net carbon emissions, the report does not think these promises are 'credible' and even in the most optimistic scenarios, the likelihood of keeping emissions below 1.5°C are 14%.

However, it is not as if the PA has been infructuous. GHG emissions in 2030 based on policies in place were projected to increase by 16% at the time of the adoption of the PA. Today, the projected increase is 3%. To keep temperatures below 1.5°C, annual emissions must reduce every year, until 2030, by 8.7%. What the report says is that the world collectively emitted 57.4 billion tonnes in 2022, an increase of 1.2% over 2021. The pandemic saw 4.7% drop in emissions but the projections for 2023 suggest that the globe is nearly back to pre-pandemic emission levels. The consequences of the globe's tardiness are writ large. As of October this year, 86 days were recorded with temperatures over 1.5°C above pre-industrial levels. September was the hottest recorded month ever, with global average temperatures 1.8°C above pre-industrial levels. In terms of solutions, the report repeats sage advice that has been offered for years: the richest countries and those historically responsible for gobbling sparse atmospheric capacity for carbon must commit to greater and faster reductions. While legalese and nit-picking have been characteristic of climate summits, precious little time remains for the world to get its act together.

carbon emissions / climate change

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COAL ISN'T EASY TO EXCLUDE FROM SUSTAINABLE DEVELOPMENT

Relevant for: Indian Economy | Topic: Infrastructure: Energy incl. Renewable & Non-renewable

November 21, 2023 10:30 pm | Updated 10:30 pm IST

Heavy machines operate at an open cast coal mine in Khammam, Telangana, January 10, 2022. | Photo Credit: G.N. Rao/The Hindu

The world is highly dependent on fossil fuels, which produce 80% of the total energy supplied. In 2022, oil, coal, and gas accounted for 30%, 27%, and 23% of the world's total energy, while solar and wind energy sources together contributed only 2.4%. Further, the per capita energy supplied in India during 2022 was 37% of the global average, and only 26% of that of China. Since per capita energy is directly related to the Human Development Index, we can expect that India's energy needs will continue to grow in the foreseeable future.

Electricity security is achieved only by having a reliable and stable supply of electricity that can always match the demand at an affordable price. Only 10.4% of the 36.44 exajoules of India's primary energy consumption in 2022 are from renewables (hydroelectric, solar, and wind); coal and oil gas account for 55.1% and 33.3%, respectively. Coal-fired thermal power plants (TPPs) generated 74.3% of India's electricity during FY 2022-2023; generation by TPPs continues to grow to meet demand. The country's coal sector plays a vital role in infrastructure development and in the power, steel, cement, and aluminium industries, which employ millions of people.

Further, India's cumulative emissions from fossil fuels and industry between the start of the industrial revolution in 1750 and the end of 2021 are only 3.3% of the global total, far behind those of Europe (31%), the U.S. (24.3%), and China (14.4%). Fulfilling the development needs of 17% of the world's population, which lives in India, is also a fundamental duty to which we must attend, failing which 'sustainable development' will simply be an empty catchphrase.

Most of the critical materials required for grid-scale battery storage are controlled by the top three producers – especially China – and batteries will become cost-effective only after 2030. Against this backdrop, India must focus on increasing the efficiency of its TPPs to reduce emissions while ramping up nuclear energy and enhancing pumped storage to integrate more solar and wind energy into the grid.

According to Central Electricity Authority (CEA) projections for FY 2031-2032, India's national grid can absorb 924 TWh of electricity from various renewable energy sources by progressively adding 47 GW of battery storage capacity and 27 GW of pumped storage projects by FY 32. The tariffs of pithead TPPs are only 40% of the current round-the-clock tariffs for solar plants backed

by battery storage in India today. Further, any major increase in battery storage capacity in India will require the import of critical minerals like lithium, cobalt, nickel, and graphite, which are controlled by other countries (mainly China), posing significant risks to India's energy security.

Ninety-six percent of the coal used by TPPs in India comes from domestic mines and is key to why electricity is so affordable in India. Therefore, the CEA's National Electricity Plan projects that TPP capacity in India will reach 259-262 GW by FY32, from 212 GW in FY23.

However, recent projections indicate that only 19 GW of pumped storage projects and 18 GW battery storage capacity additions are expected by FY32, which will require a further 23 GW of TPP capacity to be added to the grid by then – above the 40 GW of new TPP capacity projected by the CEA.

To balance this with India's long-term goal of reaching net-zero by 2070, the country must continue to implement clean coal technologies to reduce the power sector's emissions.

Coal deposits in India generally contain high levels of ash (35-50%) compared to those mined in other major coal-mining countries, like Australia, China, and the U.S. Burning coal with more ash leads to the erosion and eventual failure of boiler tubes and other components, affecting the plant's availability, efficiency, and performance.

The transport of unwashed raw coal to TPPs located more than 500 km from the mines also means transporting millions of tonnes of ash-producing non-coal material, congesting India's over-stretched road and rail transportation systems.

The practice in all major coal-producing countries is that the coal miner washes the run-of-mine coal (i.e. coal with impurities) at the pithead and dumps the rejects in the mine, before dispatching the washed coal of higher calorific value to consumers.

The government can mandate miners to supply only washed coal to all TPPs located more than 500 km from mines or ports to reduce carbon dioxide emissions and other environmental pollution. The coal-washing charges can be regulated as a part of the tariff determination process to protect consumers.

Indian coal – other than that from Assam and Meghalaya – has lower sulphur content than that mined in other coal-rich countries, and about one-sixth of that of coal used in Chinese power plants. However, TPPs in India also have some of the tallest stacks in the world, and most of them are in regions where the flue gas' exit velocity coupled with favourable weather conditions allow sulphur dioxide emissions to be dispersed far and wide.

According to the U.N. Intergovernmental Panel on Climate Change, historical sulphur dioxide emissions have created a cooling effect by producing sulphate aerosols that block some of the incoming solar radiation and enhance cloud formation, masking global temperature rise by 0.5 degrees Celsius.

However, the projected reduction in the gas's emission in China by the use of flue gas desulphurisers (FGDs) in their TPPs could result in an increase in the global average temperature between 2016 and 2050 by about 0.6 degrees Celsius.

Retrofitting existing TPPs with FGDs, to comply with current emission norms, could increase their specific coal consumption by 1.5-1.7%, leading to correspondingly lower energy efficiency and higher emission intensity. Such retrofitting also requires thousands of crores in capital investments and tariff hikes, not to mention temporary plant shutdowns.

Currently, retrofitting FGDs in operating TPPs has been delayed in India because TPPs are unable to shut down: coal-fired power generation has increased by 11% in the last seven months over the corresponding period in FY 2022-23.

In this milieu, the government can implement a ‘graded priority’ of power plant pollutants: particulate matter, carbon dioxide, sulphur dioxide, nitrogen oxides, and mercury, in that order. This way, India can reduce particulate emissions by 99.97% by installing the cost-effective, high-performance electrostatic precipitators and reserve FGDs for TPPs near urban areas.

Some 30% of the current TPP capacity in the country is from supercritical or ultra-supercritical technologies, which are also being installed in the 35 TPPs under construction. TPPs based on advanced ultra-supercritical technology (AUSC), with a proven efficiency of 46%, will also reduce carbon dioxide emissions by 15% compared to TPPs equipped with supercritical technology.

Integrated gasification combined cycle (IGCC) power plants also have efficiencies of 46-48% and can capture carbon dioxide.

Taken together, the Government of India can incentivise projects to prove IGCC or AUSC technologies at scale before 2030. To enhance round-the-clock zero-carbon electricity generation, the Indian government can encourage NTPC – India’s largest power generator – to repurpose some TPP sites to install small modular nuclear reactors under the overall supervision of the Atomic Energy Regulator, while complying with international safeguards.

Global warming is the result of the combustion of fossil fuels, not just coal. Such a challenge can be tackled only according to the principle of ‘common but differentiated responsibilities and respective capabilities’ enshrined in the U.N. Framework Convention on Climate Change (UNFCCC) and in the Paris Agreement.

It’s theoretically elegant to argue that switching to renewable energy will generate investments and jobs – but it may not work so smoothly in practice since the electricity grid must meet the peak demand at all times. The efficient operation of TPPs is critical for India since they ensure that peak and off-peak demands are met continuously, at affordable costs.

For India, low-carbon development is not a choice but a necessity, and the steps to achieve this are reflected in the ‘Long-term Low-Emissions Development Strategy’ it submitted to the UNFCCC.

The authors hope that developed countries will take the lead in combating climate change and provide new and additional climate-specific financial resources and technology transfer to developing countries as under the provisions existing under the UNFCCC and the Paris Agreement.

R. Srikanth, is professor and dean, and J.R. Bhatt is adjunct professor in the School of Natural Sciences and Engineering – both at the National Institute of Advanced Studies, Bengaluru.

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STUDYING SEA ICE AMID PENGUINS AND THE SOUTHERN LIGHTS

Relevant for: Environment | Topic: Biodiversity, Ecology, and Wildlife Related Issues

November 23, 2023 09:21 pm | Updated November 24, 2023 02:24 am IST

Polar researcher Vishnu Nandan in Antarctica as part of a British-based project called DEFIANT — Drivers and Effects of Fluctuations in sea Ice in the ANTarctic. | Photo Credit: Special arrangement

It is unlike any workspace in the world. Each day starts off with frigid, record-low temperatures. In the Antarctic, everything depends on the weather.

“If the weather is good, we head out. Else, we stay in,” says polar researcher Vishnu Nandan, as he settles down reluctantly to the temperate climate of his hometown Thiruvananthapuram in Kerala, after a 40-hour flight from Antarctica. “It is not warm enough here,” he says. “Or maybe by now I have been so used to the cold that this isn’t warm enough,” he adds quickly, as an afterthought.

Vishnu has just returned from an eight-month odyssey in the Antarctic. He was one of the two scientists who were part of a 25-member team of the British Antarctic Survey, braving the extreme weather and the polar darkness at the Rothera Research Station on Adelaide Island, West Antarctica as part of a scientific survey. The research is part of a U.K.-based project called DEFIANT (Drivers and Effects of Fluctuations in sea Ice in the ANTarctic), which set up a ground-based radar system to take measurements of sea ice.

A research scientist at the University of Calgary and the University of Manitoba in Canada, Vishnu’s expertise lies in sea ice (frozen seawater that floats on the ocean surface). His work involves measuring the thickness of sea ice using the ground-based radar-based system and correcting the errors in the measurements of the same obtained from radar satellites. As part of the research, Vishnu, along with scientist Robbie Mallett, installed a U.S.-made instrument owned by the University of Manitoba on the sea ice to take the measurements.

“The thickness of the sea ice measured using satellite radars is prone to error. We cannot determine how thick the sea ice really is through this method because sea ice keeps drifting and it is not easy to keep track of its movement using satellites. Also, snow forms a layer over the ice. With the presence of snow, we could overestimate the thickness when measurements are taken using satellite radars. This is very crucial, because, we might be under the impression that the sea ice is thicker than it really is. This could impact the policies we come up with to tackle climate change,” says Vishnu.

The Antarctic can be challenging to conduct field measurements of sea ice, says Vishnu, explaining that the snow is very thick and deep. It floods the ice into the ocean and becomes slushy. “It is more salty, and is not homogeneous when compared to that in the Arctic. So there are combined errors from different sources,” he says. Of the eight months they spent in the Antarctic, he says the team could take readings on only 22 days. The rest of the days, there was no sea ice in the area where their ground-based radar system was mounted.

This year recorded the worst sea ice ever and the lowest since 1986, he says. The researchers found that the sea ice area is almost one million square kilometres less than the previous lowest which was in 1986, a real climate concern. “The maximum thickness of sea ice measured by us was 44 cm, which is low. It can ideally go up to 1.5 metres or more,” he says.

So why do we need the sea ice? “If you don’t have sea ice, a lot of the solar heat gets absorbed by the oceans, instead of being reflected by the sea ice. This will lead to the polar oceans getting warmer and other oceans also getting warmer, causing extreme weather scenarios. Further, the wildlife in the poles also needs sea ice to survive,” he says.

Vishnu says that climate change is very evident in the poles. The weather is not as cold as it used to be. This has been observed both in the Arctic and the Antarctic. It has also brought in a lot of challenges to do science. “I honestly hope that people value more about how climate and environment are changing and protect it in ways they can,” he says.

He adds that life in the poles can be very rewarding. When not working, the team can go for climbing, diving into the ocean, and skiing or just contemplate life amid penguins and the Southern Lights. But the downsides can be equally stressful, with isolation and the cold taking a toll on one’s mental and physical health.

“I think isolation and loneliness are perhaps the biggest challenges when you are out in the poles. You are away from your friends and family and that takes a toll on you. I have seen people get injured, or their moods fluctuate. Teamwork is always a challenge here,” says Vishnu, who has spent 1,000-plus days altogether in the Arctic and the Antarctic.

“There is no sun for six months. I have become addicted to darkness, silence, and isolation. But that aside, I am very happy, humbled, and lucky to be able to do this as my profession. Every day is a new challenge and you have to think on your feet, adapt, and be flexible,” he says, adding with a chuckle, “And I have an office with a view.”

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Source : www.thehindu.com Date : 2023-11-24

PERU LOST MORE THAN HALF OF ITS GLACIER SURFACE IN JUST OVER HALF A CENTURY

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

November 23, 2023 05:03 pm | Updated 05:03 pm IST

A boy fishes for trout at lake Rajupaquinan at Huascaran natural reserve in Ancash. Peru has more tropical glaciers than any other nation but rising temperatures linked to global warming are shrinking the ice masses, filling existing lakes to the brim and spawning hundreds of new ones. Picture taken November 29. | Photo Credit: Reuters

Peru has lost more than half of its glacier surface in the last six decades, and 175 glaciers became extinct due to climate change between 2016 and 2020, Peruvian scientists from the state agency that studies glaciers said Wednesday.

“In 58 years, 56.22% of the glacial coverage recorded in 1962 has been lost,” said Mayra Mejía, an official with Peru's National Institute of Research of Mountain Glaciers and Ecosystems, or Inaigem.

The factor that causes the greatest impact is the increase in the average global temperature, causing an accelerated retreat of glaciers, especially those in tropical areas, Jesús Gómez, director of glacier research at Inaigem, told The Associated Press.

The South American country has 1,050 square kilometers (405 square miles) of glacial coverage left, an area representing about 44% of what was recorded in 1962, when the first glacier inventory was carried out.

Mejía, an expert in glaciology, said there are some mountain ranges in Peru where glaciers have almost disappeared, namely Chila, which has lost 99% of its glacial surface since 1962.

Chila is key because the first waters that give rise to the Amazon River, the longest and mightiest in the world, descend from the glacier.

Beatriz Fuentealva, president of Inagem, said the loss of glaciers increases the risks for those living in lowland areas, as was the case in 1970 when a huge sheet of ice from the snow-capped Huascarán, in the northern Andes, broke off after a 7.9 magnitude earthquake, falling on a lagoon and causing a mud avalanche that destroyed the city of Yungay and left more than 20,000 dead.

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climate change / global warming / Peru

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Source : www.thehindu.com Date : 2023-11-26

ANTARCTICA'S OZONE HOLE EXPANDS MID-SPRING SINCE 2001

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

November 25, 2023 09:10 pm | Updated 09:10 pm IST

The core (middle stratospheric layer) of the Antarctic ozone in mid-spring (October) has experienced a 26% reduction since 2004, contrary to previously reported recovery trends in total ozone, according to a study published recently in the journal *Nature Communications*. However, recovery trends remain in early spring (September). The findings highlight the importance of continuous monitoring and evaluation of the state of the ozone layer with the changing dynamical state of Earth's climate.

The Montreal Protocol designated a list of controlled ozone depleting substances that were banned from future production in 1987 and is widely considered to have been successful for ozone recovery. However, the past three years (2020-2022) have witnessed the re-emergence of large and long-lived ozone holes over Antarctica in mid spring, while early spring still shows a slight ozone increase (or a slight recovery of the ozone hole). Understanding ozone variability remains of high importance, due to the major role Antarctic stratospheric ozone plays in climate variability across the Southern Hemisphere.

To assess recent changes in the Antarctic ozone hole, including during the 2022 season, Annika Seppälä from the University of Otago, Dunedin, New Zealand and others analysed monthly and daily ozone changes between 2001-2022. Data from 2002 and 2019 were excluded as sudden stratospheric warming broke up the ozone hole anomalously early in these years. They looked at different stratospheric layers throughout the key austral springtime months of September to November.

When satellite data from 2022 is considered, they found that previously reported recovery trends in Antarctic spring total column ozone (the total ozone above a given point on Earth across all atmospheric layers) from 2001 onward disappear. The middle stratosphere has been dominated by continued, significant ozone reduction since 2004, amounting to 26% loss in the core of the ozone hole. This reduction is potentially driven by dynamical changes in the mesosphere (the atmospheric layer above the stratosphere and the ozone layer).

The findings suggest that changes in the Southern Hemisphere atmosphere are contributing to a persistent Antarctic ozone hole.

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Source : www.thehindu.com Date : 2023-11-27

FLEET ELECTRIFICATION TO TACKLE URBAN POLLUTION

Relevant for: Environment | Topic: Environmental Pollution - Air, Water, Soil & E-waste

November 27, 2023 12:47 am | Updated 12:48 am IST

“The Indian truck fleet is likely to reach a figure of 1.7 crore in 2050. Hence, there is a need to push top gear on the pace of transition to e-trucks” File | Photo Credit: The Hindu

The air quality index (AQI) in many Indian cities has entered the red zone several days this year. Millions of people have to face serious health hazards due to recurring increases in air pollution. It is clear that mitigation strategies have to be prioritised. As per two seminal studies pertaining to Delhi, the Urban Emission (2015) and the TERI study (2018), a significant contributor to urban smog is PM2.5 and PM10 pollution, which is caused by the transport and construction sector.

About 9 lakh new trucks are added to Indian roads every year to an already running fleet of 70 lakh trucks. India carries over 2 trillion tonne kilometres freight on trucks, annually. These trucks consume over one-fourth of Indian oil imports and contribute to over 90% of road transport CO2 emissions. The rate of increase of truck fleet is expected to keep increasing in a growing network of roads in an emerging economy. If all these new trucks are powered by diesel-fired internal combustion engines vehicles, as is the case today, our cities will face a greater onslaught of PM2.5 pollution.

Thankfully, India has already electrified rail freight transportation, but that caters to only about 20% of the freight carried in the country. On roads, India’s electric vehicle penetration rate has crossed the 6% mark, but electric trucks remain a challenge due to upfront costs and charging infrastructure constraints. It is commendable that the government is aggressively electrifying the bus fleet, and sets electrification targets for bus aggregators. However, the focus must extend to diesel trucks and dust mitigation — significant PM sources requiring immediate attention. This is important both from an energy security perspective and sustainability perspective.

In this era of urgency, where every breath counts, deploying solutions swiftly is paramount. The recent demand for 7,750 e-trucks in India by 2030, if it materialises, will result in the country saving over 800 billion litres of diesel till 2050. However, the Indian truck fleet is likely to reach a figure of 1.7 crore in 2050. Hence, there is a need to push top gear on the pace of transition to e-trucks. Public funding alone cannot meet the transformational scale required. A pipeline of bankable projects, effectively structured, which can attract private and institutional capital at a ratio of at least six rupees for every rupee of public money is the need of the hour.

Though the victory achieved (more than 50% electric vehicle penetration) in three-wheelers’

electrification in India is an important milestone for the 2070 net zero agenda, transport sector decarbonisation pathways have to be led by truck electrification. However, the upfront cost of a mid-range electric truck in India is around 1.5 crore compared to about 40 lakh for a diesel truck. This and the cost of charging logistics remain major hurdles in the transition to e-trucks in the country.

Declaring some of the expressways and national highways as green freight corridors will have a demonstration effect in the country. Accelerating feasibility studies, demand aggregation, supplier readiness, and a prudent risk allocation strategy are required to create green freight corridors in India. Such corridors can first evolve in small stretches of 500 kilometres on routes with heavy truck movement. Innovative financial instruments, incentivisation of charging infrastructure, facilitation of entrepreneurial efforts, and a conducive regulatory environment in the country can bring forth the much-needed breakthrough for truck electrification in India. We must realise the urgency of the need to take such concerted efforts if we want a fresh breath of life in our cities.

Rajesh Gupta is a research scholar. Views are personal; Joseph Teja is a research scholar. Views are personal

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Source : www.thehindu.com Date : 2023-11-29

NGT FORMS PANEL TO ANALYSE CAUSE OF SEA TURNING RED IN PUDUCHERRY

Relevant for: Environment | Topic: Biodiversity, Ecology, and Wildlife Related Issues

November 29, 2023 12:58 am | Updated 02:11 am IST - CHENNAI

The principal Bench of NGT was hearing a *suo motu* case based on a report in The Hindu on a reddish tinge observed on the northern side of the Promenade Beach on October 17. | Photo Credit: S.S. KUMAR

The principal Bench of the National Green Tribunal (NGT) has formed a committee to analyse the cause of the sea turning red in Puducherry.

Hearing a suo motu case based on a report in The Hindu on a reddish tinge observed on the northern side of the Promenade Beach on October 17, the Bench comprising Justice Prakash Shrivastava and expert member A. Senthil Vel ordered the panel to ascertain the cause of the colour change and take remedial action to prevent such an incident.

The committee will comprise a nominee of Member Secretary, Central Pollution Control Board (CPCB); Member Secretary, Puducherry Pollution Control Committee (PPCC); a nominee of the Head of Marine Biology Department of University of Puducherry; a senior scientist nominated by Director, Centre of Advanced Study in Marine Biology, Parangipettai.

Citing the report, the Bench said the cause of colour change could be algal bloom and the reddish tinge was observed at several patches along the coastline, and it had been expressed that industrial pollution or ‘Red Tide’ could be the factor behind the sea turning red.

The Member Secretary of the PPCC informed the Bench that apart from October 17, the incident was observed on October 24 and November 1, and samples had been collected on all the three days. “He has not disputed that the cause of such an incident could be industrial pollution. He has also informed that Noctiluca genus of marine dinoflagellates contain red pigments, due to which red tide occurs,” the Bench added.

The Bench ordered that the analysis report be submitted before the Tribunal’s southern zone, to which the case has been transferred, within two months.

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Source : www.thehindu.com Date : 2023-11-29

UNPACKING THE DUBAI CLIMATE MEETING

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

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November 29, 2023 12:47 am | Updated 09:23 am IST

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Smoke rises from a coal-powered steel plant at Hehal village near Ranchi, Jharkhand. | Photo Credit: AP

As December draws near, so does the volume and intensity of global conversation around climate change negotiations. In early December, the 28th annual Conference of the Parties (COP28) to the United Nations (UN) Framework Convention on Climate Change will take place in Dubai.

While climate change diplomacy occurs in multiple fora including G20 m67557084.eetings, UN summits, and bilateral fora, the COP remains the central place where the machinery of global climate governance gets built. Because all countries, not only the powerful, have a voice at COPs, questions of equity and vulnerability are more likely to be placed on the table.

Editorial | Time for action: On COP28 climate meeting in Dubai

In what has become a disturbingly familiar pattern, 2023 has seen devastating weather events: extreme heat in North Africa and Europe, wildfires in Canada and Hawaii, floods in India and Libya, and drought in the Horn of Africa. By September, scientists were expressing astonishment at how much land and ocean temperatures increases, and Antarctic sea ice decrease, have deviated from past records (likely exacerbated by an El Niño effect). It is likely that 2023 will be the warmest year on record.

But long-standing disagreements over what is a fair and equitable approach to addressing climate change, and who will pay, remain on the boil. To make matters worse, the geopolitical context is not favourable for enhanced cooperation. The U.S. and China have only recently tried to put the brakes on a deteriorating relationship and the Ukraine war and the horrific situation in Gaza have polarised public opinion and countries.

Explained | What can we we expect from health talks at COP28?

Diplomats at the COP are tasked, then, with addressing an ever-more urgent problem under challenging conditions for global cooperation. And COPs are an unwieldy instrument with which to manufacture cooperation; they result in a torrent of words that are intended, but often fail, to unleash concrete actions. What can we expect from Dubai's COP?

At the top of the agenda is the first Global Stocktake (GST), a key part of the Paris Agreement

machinery. The GST is at the heart of a five yearly ‘ambition cycle’, which consists of country pledges for climate action, a global assessment of progress through the GST, and renewed country pledges. By assessing aggregate (not individual country) progress in mitigation, adaptation and support (finance, technology and capacity), the GST is meant to drive the ratcheting up of country pledges.

Also read | Analysing the Global Stocktake report

The GST definitively finds, as do other UN and independent reports, that greenhouse gas emission pathways are not on track to limit warming to the Paris targets of 2°C or 1.5°C. But the agreement ends there; what is to be done about it? Developing countries argue that the GST must look at past efforts and bring accountability for the failure of many developed countries to do what they argue is consistent with equity; developed countries argue that developing countries will account for the bulk of future emissions and the GST should focus on limiting emissions going forward. The outcome of this debate will shape whether the disproportionate responsibility of developed countries for emissions is adequately reflected in future benchmarks for action. For example, one way to recognise responsibility is to expect developed countries to reach net zero emissions earlier than developing countries.

A core task of the GST is to inform and drive the next round of bottom-up national pledges — Nationally Determined Contributions — mandated by 2025. But should the GST be prescriptive about this, as some developed countries have argued, and call for pledges to be in specific forms, such as absolute emissions targets, and aligned with specific temperature targets, like 1.5°C? Those arguing for prescription say it is needed to accelerate progress. Yet, there is a catch. Benchmarking a country against a temperature outcome requires prior agreement on what each country can fairly be asked to do to limit emissions. But we have no such agreement, because this issue has been at the heart of fraught climate politics. Without it, any benchmarking is arbitrary and risks not adequately considering equity, which is why developing countries argue against a prescriptive approach.

Editorial | Stocktaking the calamity: On climate crisis and the U.N. Global Stocktake report

However, the GST not only calls for greater ambition, it also calls for enhanced implementation of pledges. This is a productive direction, because it focuses on actions countries can and should take now versus uncertain future statements of intent for future decades. To give implementation concrete form, the COP is likely to include language that calls for countries to triple renewable energy and double energy efficiency — ideas that were notably included in the recent G20 Delhi Leaders’ Declaration.

But not all of this text is agreed. Particularly contentious is a call for a time-bound phase down of fossil fuels, but here the exact phrasing will matter. India has been among those advocating a broad focus on all fossil fuels versus a narrow focus on coal alone, as was included in prior COPs. While coal is indeed the most polluting, addressing climate change requires addressing all fossil fuels. Moreover, oil and gas are much larger sources of energy in the developed world and critical to petrostates such as Dubai, while India depends more on coal. An escape hatch that oil and coal exporters may seek is the addition of the word ‘unabated’ before ‘fossil fuel’ to signal that plants using new technologies to capture their emissions may be allowed, giving fossil fuel a longer lease of life. The fossil fuel text is likely to be contentious, and win headlines at COP28.

Adaptation has often been the neglected dimension of climate negotiations. COP28 is an opportunity to correct this, because a ‘Global Goal on Adaptation’ is to be agreed, setting

unified, consistent targets for enhancing resilience and adaptive capacity. These have proved challenging to frame, because of varying contexts across countries and what is required for resilience. As with other issues, the question of ‘who pays’ is also likely to be prominent; since the last COP, there have been calls for a doubling of adaptation finance.

Also read | ‘More finance needed to wean India’s electricity grids off coal’

An explosive issue is the establishment of a Loss and Damage Fund, agreement on which was a hard-won gain from the last COP; this COP is tasked with advancing progress. In a pre-negotiation, a fragile consensus was won on several thorny issues, including who will pay into the fund – developed countries are ‘urged’ and developing countries are ‘encouraged’; and who will receive – the vaguely worded ‘particularly vulnerable’ countries. Perhaps most contentious, the World Bank was agreed as an interim host of the fund, but under strict governance guidelines to provide a greater say for recipient countries. Whether this consensus holds or unravels will be a key issue for COP28.

The GST is careful to call for ambition not only in action but also support for those actions, notably finance. Over a decade ago, developed countries had pledged to provide an arbitrary $100 billion a year by 2020. In addition to the deadline being unmet, the amount was likely too little to meet needs. By COP28, the discussion has shifted to a concrete assessment of needs to support mitigation and adaptation, with numbers hovering in the low trillion. Coming up with a number is only a starting point; the contentious issues remain around how it will be mobilised. How important is public versus private funds? Will private capital flow in response to efforts to ‘de-risk’ investment opportunities? Are larger changes in the global financial environment needed, including debt restructuring and reform of mule tilateral development banks? How can they be brought about?

Comment | Redouble efforts to reduce disaster risks

As the finance discussion suggests, climate change is now on the menu at the geopolitical and geoeconomic high table. The stakes for countries from COPs are consequential, in terms of climate impacts, fossil fuel energy politics, and competitiveness in emergent energy technologies. All this will not be resolved in Dubai, but it will be an important marker in the slow unfolding of global climate politics.

Navroz K. Dubash is a Professor at the Centre for Policy Research, and an Adjunct Senior Visiting Fellow at the LKY School of Public Policy, National University of Singapore

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Source : www.thehindu.com Date : 2023-11-29

TIME FOR ACTION: THE HINDU EDITORIAL ON COP-28 CLIMATE MEETING IN DUBAI

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

November 29, 2023 12:20 am | Updated 02:56 am IST

The next fortnight will see world leaders, industrialists, activists, and indigenous peoples converge at the 28th edition of the Conference of the Parties (COP). This annual affair is an attempt to inch ahead on getting at least 190 countries, all members of the United Nations climate framework, to act on weaning their economies off fossil fuels. The current goal is to make good on a collective commitment made by countries in Paris, in 2015, to strive to hold global temperatures to no higher than 1.5°C above pre-industrial levels by the end of the century and definitely below 2°C. Despite countries unanimously agreeing that humanity will collectively bear a huge price if these limits are breached, and nearly all major economies framing grand national plans to show how they are doing 'their bit', the science says that instead of being cut 8% annually, emissions have grown 1.2% from 2021-22. At this rate, the world will warm 2.5-3°C by the end of the century. There have already been 86 instances just this year of global temperatures breaching the dreaded 1.5°C threshold.

In the nearly three decades of COP meetings, the major economies have agreed on three broad principles. Countries that rapidly industrialised in the 20th century have disproportionately emitted more carbon than their 'fair share' given the population sustained. Economic growth premised on fossil fuel consumption, while cheaper per unit than renewable energy, spells disaster. And developing countries and those with minimal industrial infrastructure today must be compensated for adopting costlier, but cleaner, non-fossil fuel sources for growing their economies. There is also a consensus that the countries already weathering climate disasters must be compensated and also paid to bolster their infrastructure. However, getting all countries to actually act on these principles is onerous given the mutual suspicion, the spirit of de-globalisation, and the fear of political reprisal that heads of governments face within their constituencies. These themes are expected to play out this year too. Two major issues are expected to take the stage: the conclusion of the Global Stocktake and the operationalisation of the Loss and Damage Fund. However, there is no clarity on the size of the fund and the individual contributions by countries. While COPs, by nature, are self-congratulatory when all they deliver are agreements with elaborate caveats, COP28 must strive to live up to its declared goal of being a conclave that compels its signatories to take definitive action.

climate change / United Nations (climate change)

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