Hasina seeks new passport; Dhaka firm on extradition

London-based law firm seeks new documents for the ousted leader; Acting Foreign Minister of Bangladesh calls Hasina a 'terrorist', says India should hand her over under the extradition treaty

Kallol Bhattacherjee
NEW DELHI

Hours after a legal team representing deposed Bangladesh Prime Minister Sheikh Hasina sought a new passport for her, the Government of Bangladesh asserted on Monday that Ms. Hasina can return to Bangladesh through an "acceptable prisoner exchange" programme under the India-Bangladesh extradition treaty.

A source in Dhaka told *The Hindu* that Ms. Hasina has requested the Ministry of Foreign Affairs, through a London-based legal firm, for a new passport and a National Identity Card.

The official said the Ministry is verifying the letter and will take a decision after internal consultations.

Document push

Bangladeshi officials were verifying a request for a fresh passport and a National Identity Card for the former PM

Sheikh Hasina had announced in August this year that she may return to her country in December despite facing serious legal challenges



Hasina's passport was revoked after she escaped to India in August 2024 after an uprising that toppled her government

A passport will be needed in case India has to consider Hasina's extradition to Bangladesh

Bangladesh will seek the return of Sheikh Hasina through an acceptable prisoner exchange process

HUMAYUN KABIR, Acting Foreign Minister

Ms. Hasina's passport was revoked after she escaped to India in August 2024 after an uprising toppled her government.

She had announced in a press conference in August this year that she may return to her country in December despite facing serious legal challenges.

Speaking to the media in Dhaka, the country's Acting Foreign Minister Humayun Kabir described Ms. Hasina as a "terrorist" who had fled to India after committing crimes.

"Bangladesh will not issue a passport to any terrorist; there is no provision for such an action. Bangladesh will seek the return of Sheikh Hasina through an acceptable prisoner exchange process," Mr. Kabir said, adding that India should hand over Ms. Hasina under the extradition treaty.

The External Affairs Ministry is yet to respond to Mr. Kabir's remarks, but a source familiar with the Indian stance on the matter told *The Hindu* that the Bangladeshi position of not issuing a passport to Ms. Hasina will further complicate the matter, as a passport will be needed if India were to consider her extradition.

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GS II – International Relations | India and its Neighbourhood

Key Pointers

- What is an extradition treaty, and why do countries enter into such agreements?
- What is the difference between extradition, deportation and prisoner transfer?
- What is the role of the Ministry of External Affairs in handling extradition requests?
- Under what conditions can a country refuse an extradition request?

AMRITA IAS

Delhi's air quality readings go blank on Deepavali night

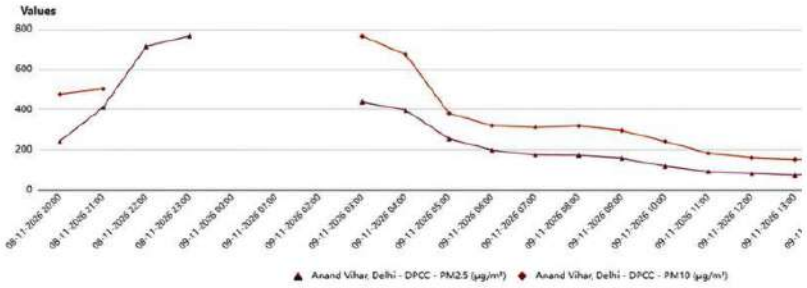
Missing PM2.5 data for several hours on CPCB website have understated city's pollution levels, say experts; 227 PM2.5 readings missing across 59 monitoring stations; govt. will look into it: Mishra

Nikhil M Babu
NEW DELHI

Several government air quality monitoring stations failed to report data for hours during Deepavali night on Sunday, with experts warning that the gaps have led to understated pollution levels and resulted in a lower official air quality index (AQI).

According to D. Saha, former head of the Central Pollution Control Board (CPCB)'s air quality laboratory, AQI values are calculated using a moving or running average of hourly concentrations of eight parameters, including PM2.5 and PM10, over the previous 24 hours.

On Monday, PM2.5 readings went blank for several hours at many stations in the city, including Anand Vihar, Patparganj and Bawana, on the CPCB website. PM2.5 (particulate matter measuring 2.5 micrometres or less in diameter) consists of fine inhalable particles that can penetrate the lungs and enter the bloodstream, causing respiratory and other diseases. Similar data gaps were reported at several monitoring stations during Deepavali last year as well.







(Clockwise) Data show PM2.5 level at Anand Vihar rising close to 800 micrograms per cubic meter of air at 11 p.m. on Sunday, followed by a 4-hour-break; people bursting firecrackers; area near India Gate engulfed in smog on Monday. CPCB/SHASHI SHEKHAR KASHYAP

'Artificial AQI'

Manoj Kumar, an analyst at the Centre for Research on Energy and Clean Air, a Finland-based non-profit research organisation, said the missing hourly PM2.5 data "raised concerns about the assessment of Delhi's air quality".

"From midnight on November 8 until 5 a.m. on November 9, 227 hourly PM2.5 observations were missing across 59 CPCB monitoring stations in Delhi. Only 14 stations reported complete data, while the remaining 45 had at least one missing hourly observation," Mr. Kumar said, adding, "When the hourly PM2.5 data is missing, it will artificially lower the AQI, showing better air quality when the actual air quality is worse."

When asked about the missing air quality data at several monitoring stations, Delhi Development Minister Kapil Mishra told the media that the government would look into the issue. The Member Secretary of the CPCB, which releases AQI data, did not respond to calls and messages seeking comment.

Mr. Saha told *The Hindu* that there should not be gaps in the data, especially during crucial periods.

Upper limit

He said the CPCB had set the measurement range of PM2.5 analysers at 0-1,000 micrograms per cubic metre, which meant they could not measure concentrations above that level. "So, if the value of PM2.5 is beyond 1,000, it should at least be shown as 1,000 instead of showing a blank," he said.

Bhavreen Kandhari, an environmental activist, alleged that the government had "clearly fudged data" to conceal the actual air pollution situation rather than solving the problem.

According to CPCB data, the PM2.5 concentration in Anand Vihar spiked to 767 micrograms per cubic metre at 11 p.m. on Sunday, about 51.13 times the World Health Organization's (WHO) 24-hour guideline of 15 micrograms per cubic metre. But readings went blank for three hours. PM10 readings were also missing for five hours.

Similarly, the PM2.5 concentration in Patparganj, east Delhi, peaked at 930 micrograms per cubic metre at 10 p.m. on Sunday, before the readings went blank for three hours. This value was about 62 times the WHO's guideline.

GS III – Environment

Key Pointers

- What is the Air Quality Index (AQI), and why is reliable air quality data important?
- Which pollutants are considered while calculating India's AQI?
- What are PM2.5 and PM10, and why are they important indicators of air pollution?
- How does missing data from air quality monitoring stations affect the calculation of AQI?
- What is the role of the Central Pollution Control Board (CPCB) in monitoring air quality?

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Cracker conundrum

Any regulation of crackers needs strict enforcement at all levels

The two Deepavali nights following the Supreme Court's (SC) temporary relaxation of the cracker ban, played out predictably. The Air Quality Index (AQI) in several north Indian cities – already 'poor' and 'very poor' in the first week of November – was 'severe' on Diwali night. Several air sensors – maintained by various organisations – reported PM2.5 in Delhi and its outskirts, exceeding 1,000 by Diwali night. In this context, the SC's order last week regarding crackers bears revisiting. While stating it was aware of the consequences of emissions from crackers, the Court has been waiting for quantitative evidence on the health and environmental effects of emissions from Diwali celebrations. Such direct, causative evidence is almost impossible to furnish. Slackening winds and post-monsoon atmospheric dryness are known to trap the latent particulate matter from vehicles, industries, construction dust and stubble burning. Crackers are only an additional element that further degrades an already vitiated air. Delhi's five-day average AQI rose from approximately 298 before Diwali to 358 afterwards in 2024, 259 to 315 in 2025 and from 350 to 376 in 2026. While the timing of these spikes is consistent with a contribution from firecrackers, their precise share of overall pollution cannot be isolated from other emissions and meteorological influences. An absolute ban would encourage "illegal crackers from across the border," the Court was told. Cracker season begins a fortnight before Diwali and therefore an earlier decision by the Court regarding its permissibility would have given stockists time to better dispense 'green' crackers.

However, it is important to note that CSIR-NEERI, the developers of the products, underline that low-emission crackers – under stringent lab conditions – only reduce emissions by 30%-45%. These percentage reductions reveal nothing about gross particulate matter emissions. The post-Deepavali AQI is evidence of this. The Court acknowledges, but does not address, the immense implementation challenges in policing cracker sales and hyphenates crackers with religious observation but pays only lip service to provisions in the Constitution that say that religious customs cannot override considerations of health and life. Rather than wait for the week running up to Deepavali 2027, the Court must pronounce a final view on crackers and lay down the contours for the government to evolve a policy on limiting the manufacture, sale, and burning of crackers in a time-bound manner.

GS III – Environment

Key Pointers

- What are the major pollutants released by firecrackers, and how do they affect air quality?
- How do PM2.5 and PM10 levels increase during festivals such as Deepavali?
- Why is it difficult to identify the exact contribution of firecrackers to overall air pollution?
- What are green crackers, and how are they different from conventional firecrackers?
- What is the role of CSIR-NEERI in developing and testing green crackers?
- What are the challenges in enforcing restrictions on the manufacture, sale and use of firecrackers?

A case for Nepal: suing major carbon emitters for floods



Manoj Kumar Sinha

V-C of Dharmasashtra National Law University, and president of Indian Society of International Law (ISIL)



Anwar Sadat

Associate Professor in international environmental law at ISIL

The catastrophic floods in Nepal which resulted in the deaths of thousands of people in August 2026, is overwhelmingly attributed to climate change. This is yet another worst-case climate change scenario from South Asia, after the floods in Pakistan in 2022.

A debate that has not drawn much attention so far in this part of the world is that there is scope to explore and establish the flood victims as victims of climate wrongs. The case for the Nepalese people needs to be analysed from the prism of climate litigations used by plaintiffs in many jurisdictions of Europe and the U.S. in the last two decades.

These plaintiffs, who were exposed to climate-related risks, have brought claims against state and private corporations on the ground of serious risks to life, well-being, health, property, privacy and disruption of family life. Though the plaintiffs have not turned out to be winners in these proceedings every time, the challenge itself has been eye-opening.

Legal reasoning

In a strict legal sense, it is extremely difficult to establish causation between a defendant's (such as a state or private corporation living miles away) failure to take appropriate measures restricting the emission of Greenhouse Gases (GHG) and the flood victims in those districts of Nepal bordering Tibet.

While climate wrongs harm society, they do not harm specific individuals or a group of individuals in a sufficiently direct and proximate way. The logic that is widely accepted now is that the failure to take appropriate measures by an entity makes an incremental contribution to global cumulative GHGs, which diffuse and leave global and lingering effects on the likelihood of adverse physical events. The impact of such events is itself dependent on extraneous factors such as exposure, vulnerability and resilience.

While climate wrongs harm society, they do not harm individuals in a sufficiently direct and proximate way

The identification of the victims exposed to risks in contrast to the 'general' population is needed to describe that specific group as victims of climate change. This gives them the standing to sue – to justify their invocation of individual or group rights and consider claims for compensation.

The people living in the Tibet-Nepal border area, specifically those living in the Trishuli and Bhote Koshi river basins area of Nepal, have been exposed to Glacial Lake Outburst Floods (GLOFs) over the last three decades. Scholarship focusing on the Tibetan Autonomous Region is of the view that since 2010 both the area and the number of glaciers is retreating at a faster rate than before. Climate scientists predict that the mountain glaciers will lose most of their volume by the end of the 21st century, placing alpine ecosystems and human population at risk. These climate-linked physical events, which were present prior to the flood, could possibly fulfil the normative threshold of the imminence of a catastrophe.

Holding emitters accountable

The case that merits attention in this context is the *Lliyua vs RWE* case which established that it is possible to causally link the GHG emissions of one large emitter to a concrete risk of life and property in a country that is 5,000 miles away. In the case, Lliyua, a Peruvian national, sued RWE (a German energy provider company headquartered in Germany) under a German private nuisance law on the ground that the company's past and present coal-fired power generation is responsible for huge quantities of CO_2, which reduced the stability of glaciers near his home.

In an important judgment, the Higher Court of Appeal in Hamm on May 28, 2025 ruled that RWE can be held legally responsible in principle, though the specific claim was dismissed due to inadequate proof of an imminent risk. The court accepted that past individual climate harms can proportionally contribute to climate risks and it also upheld that German civil law can apply to transboundary climate harms. This, in effect, amounts to saying that long distance and global scale do not automatically shield a corporation from liability.

In *Milieudefensie et al vs Royal Dutch Shell* (November, 2024), the Dutch Court of appeal confirmed under Dutch tort law principles that companies which contribute significantly to climate change and have it within their power to contribute to combating it, have an obligation, as per the general duty of care under Dutch law and human rights standards, to limit GHG emissions to counter climate change.

The climate lawsuit brought by four Indonesian islanders against Holcim, a Swiss building material giant, in the Swiss Cantonal Court of Zug (*Asmania vs Holcim*) is also quite relevant. Here, the plaintiffs sought a reduction of GHGs as well as compensation for present and future damages against Holcim's excessive CO_2 emissions.

Although there is no rule of binding precedent, it is still advisable for the flood victims of Nepal to use the channel of litigations against major GHG emitters, as there is growing judicial awareness of the duties owed by large emitters in responding to the threat of climate change.

GS II – International Relations

Key Pointers

- What are climate change lawsuits, and how can affected communities seek compensation for climate-related damage?
- How can greenhouse gas emissions contribute to glacier retreat and Glacial Lake Outburst Floods (GLOFs)?
- What are GLOFs, and why are Himalayan countries such as Nepal vulnerable to them?
- What is the principle of causation in climate litigation, and why is it difficult to prove?
- What is the significance of the Lliuya v. RWE case in the development of climate litigation?

Commercial farming in forest land is not protected by FRA: SC

The Hindu Bureau
NEW DELHI

The Supreme Court has made it clear that commercial crop cultivation within reserve forest areas is not protected under the Forest Rights Act (FRA), 2006.

The court has distinguished commercial cultivators and plantation owners from forest-dwelling Scheduled Tribes and Other Traditional Forest Dwellers, who have lived in forests for generations and depend on them for livelihood. Their rights are protected under the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, commonly known as the FRA.

A Bench of Justices Vikram Nath and Sandeep Mehta recorded the court's view in an order concerning extensive silk cotton cultivation within the reserve forests of the Agasthyamalai Biosphere Reserve. The court, in its November 6 order, directed the Central Empowered Committee to examine the Tamil Nadu government's opinion that silk cotton was a 'minor forest produce'.

The Bench made clear its *prima facie* view against the State's claim of historical cultivation of silk cotton. "If commercial crops are permitted to be cultivated in the forest areas, the very nature of the forest is bound to change," Justice Mehta, who authored the order, observed.

GS II – Governance | Social Justice | GS III – Environment

Key Pointers

- What is the Forest Rights Act (FRA), 2006, and why was it introduced?
- Who are Forest-Dwelling Scheduled Tribes and Other Traditional Forest Dwellers under the Act?
- What is the difference between individual forest rights and community forest rights?
- What is the role of the Gram Sabha in recognising and protecting forest rights?

Air pollution spikes 200 times above WHO limits in Delhi during Deepavali

Data missing from several monitoring stations at the peak of air pollution during the intervening night of Nov. 8 and 9; AAP accuses BJP govt. of 'data fraud', the latter hits back alleging stubble burning 'conspiracy' by AAP-governed Punjab, which recorded 1,152 stubble burning incidents on Sunday

Nikhil M. Babu
NEW DELHI

As Delhiites burst firecrackers well past the 10 p.m. deadline set by the Supreme Court for Deepavali night, air pollution shot up to over 150-200 times World Health Organisation (WHO) limits in parts of the city, but fell through the early morning hours of Monday due to better weather conditions, show official data.

At the peak of pollution, following the bursting of firecrackers on Sunday night, crucial air quality data were missing from several monitoring stations managed by government authorities. Experts say missing data on peak values of air pollution will artificially show better air quality than the reality.

Though the Supreme Court allowed only green firecrackers during fixed windows on November 7 and 8, traditional firecrackers, which are more polluting, were also available in the markets of Delhi.



Worrying trend: Rashtrapati Bhavan was shrouded in thick smog during the early morning hours of Monday after Deepavali celebrations in New Delhi. SHASHI SHEKHAR KASHYAP

As per the Delhi government's Delhi Pollution Control Committee (DPCC) data, the level of PM2.5 (a major pollution) in Patparganj of East Delhi was 2,597 micrograms per cubic metre at 1 a.m. on Monday – about 173.13 times the WHO permissible limit of 15 micrograms per cubic metre for a 24-hour period.

Similarly, the level of PM2.5 on NSUT West Campus was 3,008.4 micrograms per cubic metre at 5 a.m. on Monday – about 200.5 times the WHO permissible limit. PM2.5 (Particulate matter 2.5) are fine inhalable particles, which can get into lungs and bloodstream and lead to a range of respiratory and other diseases.

Favourable wind

Gufran Beig, chair professor, National Institute of Advanced Studies, said though the air pollution spiked around 12 midnight on Sunday to 5 a.m. on Monday due to bursting of firecrackers on Deepavali, both wind direction and speed were very favourable for faster dispersion of air pollution.

"The wind direction was earlier north westerly, originating from stubble burning areas in Punjab and Haryana. But around Sunday afternoon, it changed to easterly and south easterly and also picked up speed by Sunday evening. The reversal of wind direction led to almost negligible effect of stubble burning in Delhi," said Mr. Beig, who is also the founder-director of the Central government's SAFAR (System of Air Quality and Weather Forecasting Research).

The 24-hour average overall Air Quality Index (AQI) of Delhi stood at 344 ("very poor") at 4 p.m. on Monday, lower than 376 ("very poor") a day earlier, according to the CPCB's daily bulletin, which is considered the day's AQI. A higher AQI means worsening of air quality. The overall AQI of Delhi which stood at 370 (very poor) at 9 a.m. on Monday, improved through the day to reach 344 by 4 p.m.

Meanwhile, both the AAP and the Congress attacked the BJP government over the missing data, with the former alleging that it was "data fraud". Hitting back, Delhi Labour Minister Kapil Mishra alleged there was a "conspiracy" by AAP-governed Punjab to set stubble on fire on Sunday evening.

Every winter, air pollution spikes in Delhi-NCR and many parts of the larger Indo-Gangetic Plains, mainly due to meteorological factors such as lower wind speeds and a drop in temperature. Also, pollution from stubble burning during October and November and bursting of firecrackers during the festive season add to existing pollution from vehicles and dust, worsening the air quality.

Stubble burning

Meanwhile, Punjab recorded 1,152 stubble burning incidents on Sunday – the highest this paddy harvest season, according to the Indian Agricultural Research Institute's (IARI) daily bulletin. But it dropped to 198 on Monday, taking the total this harvest season to 4,657, the second lowest since 2020 (till November 9), the data show.

The contribution of stubble burning in neighbouring States to PM2.5 (a chief pollutant) in Delhi on Sunday was 5.1%, according to the Union Ministry of Earth Sciences data.

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GS III – Environment

Key Pointers

- What are the major sources of air pollution in Delhi-NCR during winter?
- What are PM2.5 and PM10, and how do they affect human health?
- Why does winter weather increase the concentration of air pollutants in the Indo-Gangetic Plains?
- How do stubble burning, vehicle emissions, construction dust and firecrackers contribute to air pollution?
- What is the Air Quality Index (AQI), and how does the CPCB calculate it?
- What is the role of the Commission for Air Quality Management (CAQM) in controlling pollution in Delhi-NCR?
- What is the Graded Response Action Plan (GRAP), and how does it help control severe air pollution?

Villages without 4G decline 75% in 4 years on BSNL's saturation project

Data obtained by *The Hindu* under RTI shows a sharp decline in the number of villages without serviceable internet speeds from 45,180 in 2022 to 11,372; reduction notable because of historical gaps in connectivity between urban and rural India

Aroon Deep
NEW DELHI

The number of villages without 4G connectivity has fallen from 45,180 in 2022 to 11,372, about a fourth of the earlier figure, according to data from the Department of Telecommunications (DoT) obtained by *The Hindu* under the Right to Information Act, 2005.

The reduction is partly the result of BSNL's 4G saturation project. But the figure is beyond the scheme's initial target of covering 24,680 villages, indicating complementary efforts by private operators.

The reduction is notable because of historical gaps in connectivity between urban and rural India. The country is still far from universal smartphone ownership, even as cities and towns often enjoy extensive high-speed 5G coverage and affordable wired home broadband.



India is still far from universal smartphone ownership, even as cities and towns often enjoy extensive high-speed 5G coverage. FILE PHOTO

The development also comes at a time when additions to wired broadband subscriptions have stagnated for months, making mobile broadband – the primary means of internet access for Indians – all the more important. The Union government has "sanctioned the next order of 26,000 [sites]," a senior official said last week. In 12 or 13 circles, BSNL's efforts have been supplemented by intra-circle agreements with Vodafone Idea Ltd. (Vi). "So, BSNL has come a long way," the official said.

Odisha topped the list of States with the highest number of villages without 4G coverage, at 1,789, as of August 31.

This figure includes over 300 uninhabited villages. Arunachal Pradesh ranked second, with 1,518 villages, roughly a tenth of which are uninhabited. The northeastern State's tally of unconnected villages was reduced by 59%, 16 percentage points less than the national average.

The next few States – Maharashtra, Madhya Pradesh, Chhattisgarh, Rajasthan and Himachal Pradesh – have all reduced the number of villages without 4G connectivity by well over half. An analysis by *The Hindu* suggests that this year, about 40 lakh people may live in villages without 4G reception. This amounts to roughly 0.25% of India's estimated population. Scheduled Tribe-dominated villages account for the bulk of this population, the analysis found, with 46% of the population in villages whose names are found in the 2011 Census falling into this category.

The population of these villages represents 11% of the overall sample.

This estimate does not include villages that did not exist in 2011.

As there has been no nationwide Census since that year, many villages have been added and removed from the overall list.

Some entries in the newer list of villages with 4G connectivity are inconsistent with information shared by the Communications Ministry in a parliamentary response in March. For instance, while the list shared with *The Hindu* includes eight villages in Kerala, the Ministry's response reported no villages without 4G coverage in the State.

GS II – Governance | Social Justice

Key Pointers

- What is the Digital Divide, and how does it affect rural and urban populations differently?
- What is BSNL's 4G Saturation Project, and why was it introduced?
- How can 4G connectivity improve access to education, healthcare, banking and government services?
- What is the role of Bharat Sanchar Nigam Limited (BSNL) in expanding rural telecommunications?
- How does the Digital India programme support digital connectivity and inclusion?

At COP31, 'overshoot' narrative cannot replace climate action

No COP decision has referred to the quantitative value of the total or remaining carbon budget nor has it discussed which countries have spent it the most; if COP31 is to deliver real impetus to climate action, it must focus on accountability for emissions and the fulfilment of finance commitments

Ankita Ranjan
Tejal Kanitkar

The 31st Conference of the Parties to the UN Framework Convention on Climate Change (COP31) kicked off in Antalya, Turkiye, on Monday, in a year marked by extreme weather events, terrible human tragedy, as well as a severe energy crisis entered its final stretch. It is also the year in which the world is preparing to officially accept that we will exceed a warming level of 1.5 degrees Celsius.

The natural corollary to this unassailable reality is that countries should strive to collectively limit warming to as little over 1.5 degrees Celsius, and as below 2 degrees, as possible. This requires scientific discussions, assessment of options, and a critical analysis of the trade-offs. However, what we have instead is another buzz word: "overshoot".

Overshooting something is typically taken to mean passing swiftly (or mistakenly) past an intended point. But in the case of "1.5 degrees Celsius overshoot", it means passing the point in the near term and returning to it by the end of this century.

The term emerged in the climate modelling literature and countries are now seamlessly importing it into political discussions to ensure that the 1.5-degree target remains perpetually alive, at least on paper if not in reality. And just as "net-zero" was the flavour of the COP26 summit in Glasgow, "overshoot" is likely to be the flavour at COP31 – and could once more help some countries avoid the real issues.



The focus on creating narratives and coining buzzwords has obscured legitimate scientific discussions at successive COPs. AFP

Unmet obligations

The years since the Paris Agreement came into effect have passed in a flurry of ambitious discourse, including terms like "net-zero targets", "keeping 1.5 degrees alive", and "transitioning away from fossil fuels".

But in stark contrast is the real action by countries most responsible for climate change as well as which are the most economically developed. In 2025, fossil fuels still accounted for about 83% and 73% of primary energy use in the U.S. and the European Union respectively. Having exited the Paris Agreement twice, the U.S. has proposed opening nearly 1.3 billion acres of its waters to offshore drilling. Norway has offered 70 new oil and gas exploration blocks, including in the Arctic, while the United Kingdom has approved the Jackdaw gas field. Germany and the Netherlands have likewise cleared gas drilling near the Wadden Sea, a UNESCO World Heritage site. Australia, which will preside over the COP31 negotiations, has itself approved 37 fossil fuel projects since 2022.

In the same vein, the low ambition on climate finance is being outdone only by its even poorer delivery, with some governments even cutting down on what they have pledged. Developed countries reported mobilising around $137 billion in climate finance in 2024. However, its true value has been estimated to be only $33-45 billion, with 65% of public finance provided as loans. The U.S. has since also rescinded $4 billion in pledges to the Green Climate Fund while the U.K. has almost halved its contribution.

Adaptation finance also fell to $26 billion in 2023, against a need of at least $310-365 billion every year by 2035.

Further, unilateral trade measures such as the EU's Carbon Border Adjustment Mechanism (CBAM) target iron, steel, cement and aluminium – sectors central to industrial development. In effect, the economically developed countries are backtracking on their own obligations as well as penalising the industrialisation the Global South needs.

The narrative of "overshoot" will only deepen this imbalance because the promise of a future decline in global warming rests on uncertain science as much as on the land and resources of the Global South.

Inequity of overshoot

The United Nations Environment Programme (UNEP) recently released a report titled *Limiting Overshoot: Navigating Exceedance of 1.5 degrees Celsius and Pathways towards Return*. It discussed the immense scale of net-negative emissions required to keep the earth's average surface temperature from warming by more than 1.5 degrees Celsius. The report found that reversing just 0.1 degrees of warming would require countries to permanently remove 220 billion tonnes of carbon dioxide (CO_2) from the atmosphere – a quantity that the world currently emits – in five years.

The world removes about 2.2 billion tonnes of CO_2 annually, almost entirely through forests and soils, while direct air capture barely removes 2 million tonnes, and scaling it up could still impose a cost of $600 per tonne of CO_2 removed. Also, removing a tonne of CO_2 may not undo the warming caused by emitting it, at the same rate or in the same proportion.

However, the UNEP report is silent on who should undertake and pay for these removals and on whose land they will happen. National pledges already rely on nearly 1.2 billion hectares of land for CO_2 removal – most of which is located in the Global South.

Rich countries are also already outsourcing their mitigation obligations. Switzerland, for example, plans to meet up to one-third of its 2030 target by purchasing credits from projects abroad, including through cookstoves in rural Ghana, whereas its own emissions were only 22% below 1990 levels in 2024 against a 50% target by 2030. In the U.S., an oil company selected for federal funding for a direct air capture hub has described the technology as giving the industry "a license to continue to operate for 60, 70, 80 years" more.

Without clearly allocating responsibility, the "overshoot" narrative will turn the land that the Global South needs for food, livelihoods, and development into sinks for the excess emissions of the Global North.

Back to basics

The focus on creating narratives and coining buzzwords has obscured legitimate scientific discussions at successive COPs.

No COP decision has referred to the quantitative value of the total or remaining carbon budget nor has discussed which countries have spent it the most. If COP31 is to deliver real impetus to climate action, its decisions must revert to the basics.

The first is immediate, deep, and sustained mitigation by the developed countries. Given their historical overuse of the carbon budget, developed countries must reach net-zero well before 2050 and achieve net-negative emissions within their own borders. They must not bank on the forests still standing in developing countries to continue to be net-positive emitters.

Second, developing countries urgently need predictable, grant-based public finance from developed countries. They do not need loans or private investments. The Climate Finance Work Programme agreed at Belém, in Brazil, last year must take shape in Antalya this year and provide clear political guidance on implementing Article 9.1 of the Paris Agreement: on the obligation of developed countries to finance climate adaptation and mitigation in developing countries.

Country representatives at the summit must also discuss, frankly, the intellectual property and other barriers that result in technology being sold at premiums rather than being transferred.

Finally, any discussion of "overshoot pathways" must clearly explain the term as well as acknowledge the associated carbon budget, historical emissions, scientific uncertainties, feasibility constraints, and consequences on livelihoods, food security, biodiversity, and indigenous communities.

The world needs scientific, equitable, and fair climate action – not rhetoric.

(Ankita Ranjan is a Research Associate at the National Institute of Advanced Studies, Bengaluru. Tejal Kanitkar is an Associate Professor at the Indira Gandhi Institute of Development Research, Mumbai. ankitar@nias.res.in, tejalk@nias.res.in)

GS III – Environment | Climate Change

Key Pointers

- What is the Conference of the Parties (COP) under the United Nations Framework Convention on Climate Change (UNFCCC)?
- What is the significance of the 1.5°C and 2°C temperature limits under the Paris Agreement?
- What is a carbon budget, and how is it linked to limiting global warming?
- What is the difference between net-zero emissions and net-negative emissions?
- Why must developed countries take greater responsibility for reducing emissions, based on historical emissions?
- What is climate finance, and why do developing countries need predictable financial support?
- What is the difference between climate mitigation, climate adaptation and carbon removal?

AMRITA IAS
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Some predators, such as killer whales, suffered impairment in prey detection because of marine noise pollution. GETTY IMAGES

A noisy Anthropocene is imposing fatal stress on wildlife

Divya Gandhi

The Anthropocene, the epoch of sweeping human-dominated planetary change, has ushered in an understudied phenomenon: extreme noise pollution. And the polluted soundscape is not just a human health hazard, but impacts the dynamics of wildlife too, physiologically, developmentally and behaviourally, found a new study published in *Science*.

The din of traffic, industrial activity, offshore construction, petroleum exploration, sonar operations and multiple other sources of noise, which has consistently increased during the past 50 years, affects over a 100 aquatic and terrestrial species, said the paper.

Researchers analysed over 200 experimental studies on 177 aquatic and terrestrial species across six continents and found that noise altered specific traits in 80% of the animals studied. These included everything from a decline in fitness and abundance to disruptions of predator-prey interactions. Mortality among many animals increased by a staggering 138%.

Species were found to change their behaviour in response to noise is several ways. This included an increase in 'antipredator behaviour' or the ability to ward off prey. As a result, predators suffered around a 25% decrease in hunting success despite increasing their hunting effort by over 150 %.

"In other words, they expended 2.5 times as much effort while catching 25% less prey," said the paper. Some predators, such as killer whales, suffered impairment in prey detection because of marine noise pollution.

Anthrophony in the ocean

The marine world is especially vulnerable to noise pollution as sound travels faster and farther in water than in air. A 2021 paper in *Science* said that marine organisms, from invertebrates to great whales have evolved to rely on sound to "interpret and explore the marine environment and to interact within and among species." But shipping, resource exploration, and infrastructure development have increased the 'anthrophony' (sounds generated by human activities), and in extreme cases, compromise the very survival of marine life forms, said the reseacrhers.

As for parental care among wild species, the new paper finds that while some species, such as those among birds, "compensated" for the changed soundscape by increasing care, which raised the weight of the offspring, others reduced care that led to a lower survival rate of the offspring.

Noise also interfered with internal homeostasis, or the biological process by which an organism maintains a stable internal environment. There was an activation of stress hormones and cellular damage among several species and also impaired immune function, changes in organs and specialised tissues. It impaired reflexive reactions, cognition and even sexual selection.

The paper reported a reduction in overall fitness by 27% "through both direct mortality and sublethal effects reducing survival."

Interestingly, there were some "winners" in the acoustic arms race too. For instance, some predators can "benefit when noise creates 'acoustic traps'," explained the paper: while "noise typically increases sheltering behavior, enclosed shelters amplify sound, forcing prey to escape to open areas where predation risk increases."

GS III – Environment | Biodiversity

Key Pointers

- What is anthropogenic noise pollution, and how is it different from natural sounds?
- How do road traffic, industries, shipping, mining and construction increase noise pollution?
- How does underwater noise affect marine animals such as whales and dolphins?
- How does noise pollution affect the feeding, breeding, communication and survival of wildlife?
- Why do predators find it difficult to detect prey in noisy environments?