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## PM CALLS FOR WATER CONSERVATION DRIVE

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

Prime Minister Narendra Modi on Sunday said there was a need to start conserving water right away and that the Jal Shakti Ministry would be launching a 100-day “catch the rain” campaign soon.

Mr. Modi was speaking during his monthly radio address, *Mann Ki Baat*, when he said there was a need to have collective responsibility on water conservation.

“In most parts of India, rainfall begins in May-June. Can we right away start a 100-day campaign for the sake of cleaning up the water sources around us and conserving rainwater? With this very thought in mind, in a few days from now, Jal Shakti Abhiyan ‘catch the rain’ is being initiated by the Jal Shakti Ministry,” he said, according to the English translation of his address provided by the government.

Since it was National Science Day on Sunday, Mr. Modi said the youth should learn about the history of science in India and scientists.

### ‘Self-reliant India’

“Friends, when we talk of science, many a time people restrict it to physics, chemistry or labs, but the spread of science is much more than that. And there is a lot of contribution of the power of science to the Atmanirbhar Bharat campaign. We have to move science forward with the mantra of ‘Lab to Land’,” said the Prime Minister.

For making India more self-reliant, Mr. Modi said it was not just “bigger things”, such as missiles, aircraft, tanks and Metro trains, that would achieve the goal. He cited the example of a farmer in Uttar Pradesh who has started growing chia seeds.

“Friends, nowadays you must be hearing a lot about chia seeds. People connected to health awareness give a lot of importance to it and it has a lot of demand too in the world. In India, it is mostly sourced from abroad, but now people are taking up the challenge to be self-reliant in chia seeds, too. Similarly, Harishchandrajiof Barabanki in Uttar Pradesh has begun farming of chia seeds. Cultivation of chia seeds will also increase his income and will help in the self-reliant India campaign too,” he said.

Answering a question from a listener about the one thing he felt he “missed”, Mr. Modi said, “I pondered this over and told myself that one of my shortcomings was that I could not make much effort to learn Tamil, the oldest language in the world.”

“I could not make myself learn Tamil! It is such a beautiful language, which is popular all over the world. Many people have told me a lot about the quality of Tamil literature and the depth of the poems written in it. India is a land of many languages, which symbolises our culture and pride,” the Prime Minister said.

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# THE SECOND EDITION OF BIRDS OF COIMBATORE IS A HANDY GUIDE FOR SEASONED BIRD WATCHERS OF TAMIL NADU

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

Spot-bellied eagle-owl | Photo Credit: [Sathish Senniyappan](#)

A striking image of a dusky brown bird captures my attention as I flip through the pages of the newly-launched book titled *Birds of Coimbatore*. It's the spot-bellied eagle-owl with a pair of round, dark eyes staring out of a flat face. It has a sharp yellow bill but what makes it arresting is its pair of distinctive ear tufts. A quick glance through the section on owls enlightens you on 15-odd species: the serene-looking barn owl in brown and grey shades, the Ceylon bay-owl distributed across the Western Ghats and Sri Lanka, and the jungle owlet with bright, yellow eyes.

A brief description accompanies every photograph and highlights the conservation status of the bird as rare, threatened, extinct, uncommon or of least concern as determined by the International Union for Conservation of Nature(IUCN). "A pictorial habitat icon indicates if the bird can be seen in grasslands, wetlands, rocky forests or paddy fields, or is nocturnal, and a QR code guides the readers to the xeno-canto website (dedicated to sharing bird sounds from all over the world) where they can listen to the bird call," says G Prakash, who has co-authored the book along with A Pavendhan and PB Balaji.

The book, in its second edition, is brought out jointly by Coimbatore Nature Society (CNS), a birding group with over 200 members that has been organising bird walks every weekend since 2012, and Young Indians (Coimbatore Chapter), an initiative of the Confederation of Indian Industry. "It is a compilation of birds, a total of 409 species, sighted over the landmass of Coimbatore across different habitats from 2012 to September 2020," says Pavendhan.

While the section on trogons, the birds of tropical forest, shows a male and female Malabar trogon with its crimson red plumage, the one on hoopoes and hornbills is a visual treat of cinnamon coloured common hoopoe, black-yellow-white great hornbill, and the Malabar grey hornbill. It continues with the section on doves and pigeons. Check out the Asian emerald dove, the State bird of Tamil Nadu that sits pretty with a bluish-grey crown, emerald green wings and pinkish legs.

The 'ducks and geese' segment features resident ducks like cotton pygmy-goose, knob-billed duck and the migrant ones like the highest-flying bar-headed goose. "The great crested grebe, a rare winter visitor, sighted in Coimbatore and nowhere else in South India finds a mention in the book," says P B Balaji, adding that Tamil names of birds along with scientific and common names is a big plus. "For those who are new to bird watching, introduction to birds chapter is comprehensive. For seasoned birders, the checklist and the 40 hotspots are invaluable. It can give a push to ecotourism in the region," adds Balaji. Another highlight is the introduction by Krishnaraj Vanavarayar that covers Coimbatore's history from the prehistoric times as well as its current milestones in education, agro-industries, textiles and automobile sector.

Pavendhan draws your attention to the migratory birds that throng a myriad landscapes including wetlands, forests, and grasslands during the wintering months. "The birds featured can be seen across all districts of Tamil Nadu."

While the Indian peafowl and gray francolin (*koudhari* in Tamil) that can easily be spotted in urban landscape take centrestage among ground-feeding birds, there is enough information on greater flamingos, that make an occasional appearance at Coimbatore wetlands while enroute to their wintering grounds.

Tracing the journey of the book, R Selvaraj, the founding president of CNS says the objective is to educate people on bird watching and eventually conservation. A 10-member team has worked tirelessly to ensure that the data is credible. "We have specialists amongst us in shore birds, owls, and ducks to name a few, who have contributed immensely to the book."

Prakash is quick to add that the book's USP are the priceless on-field observations by birders; he gives an example: "Darter, which is called snake bird, has a unique feeding behaviour. It darts its neck to impale fish and then brings it out of water and tosses it in air before swallowing the fish. The cormorants who share the habitat tries its luck to catch the fish."

The authors say bird watching is also about common birds. "Have you tried seeing a jungle crow or common crow using binoculars?" asks Prakash, adding, "The appearance and behaviour is fascinating. You can learn a lesson in every single move of the bird. Bird watching can never be boring."

*The book is priced at 1,000. Google Pay numbers are 9840092602, 9842261279. Discounts offered for students and bulk purchases from institutions. Write to [cnsnature@gmail.com](mailto:cnsnature@gmail.com)*

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# CLIMATE EXTREMES SEEN HARMING UNBORN BABIES IN BRAZIL'S AMAZON

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

Image for representational purposes only | Photo Credit: [AFP](#)

[A new study](#) that links extreme rains with lower birth weights in Brazil's Amazon region underscores the long-term health impacts of weather extremes connected to climate change, researchers said on Monday.

Exceptionally heavy rain and floods during pregnancy were linked to lower birth weight and premature births in Brazil's northern Amazonas state, according to the researchers from Britain's Lancaster University and the FIOCRUZ health research institute.

They compared nearly 3,00,000 births over 11 years with local weather data and found babies born after extreme rainfall were more likely to have low birth weights, which is linked to worse educational, health and even income attainment as adults.

Even non-extreme intense rainfall was linked to a 40% higher chance of a child being low birth-weight, according to the study, published on Monday in the *Nature Sustainability* journal.

Co-author Luke Parry said heavy rains and flooding could cause increases in infectious diseases like malaria, shortages of food and mental health issues in pregnant women, leading to lower birth weights.

"It's an example of climate injustice, because these mothers and these communities are very, very far from deforestation frontiers in the Amazon," Parry told the *Thomson Reuters Foundation*. "They've contributed very little to climate change but are being hit first and worst," he added, saying he had been "surprised by just how severe these impacts are".

Severe flooding on the Amazon river is five times more common than just a few decades ago, according to a 2018 paper in the journal *Science Advances*.

Last week, Brazilian President Jair Bolsonaro visited the neighbouring state of Acre in the Brazilian rainforest, which is under a state of emergency after heavy flooding.

Parry said local people had adapted their lifestyles to deal with climate change, but that "the extent of the extreme river levels and rainfalls has basically exceeded people's adaptive capacities".

The negative impacts were even worse for adolescent and indigenous mothers. The study said the "long-term political neglect of provincial Amazonia" and "uneven development in Brazil" needed to be addressed to tackle the "double burden" of climate change and health inequalities.

It said policy interventions should include antenatal health coverage and transport for rural teenagers to finish high school, as well as improved early warning systems for floods.

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## PAINTED SPURFOWL: A RESIDENT BIRD THAT 'CHOOSES' ITS HILLS WITH A FINE-TOOTHED COMB

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

A male and female Painted Spurfowl at Natham-Vallapakkam range in Vellore. Photo: Rama Neelamegam | Photo Credit: [Rama Neelamegam](#)

Three bitter phasianidae realities birders from Peninsular India have to swallow.

Taking its name seriously, the delectably-coloured Himalayan Monal keeps to that region, fancying real estate that comes with an elevation of 10,000 ft, give or take a couple of thousands. So, a monal sighting is much effort, much time and a few travel tickets away.

The Golden Pheasant, also strikingly-painted, is not within easy range, and can even be safely called out-of-bounds. Though endemic to western China's mountainous ranges, it has populated scattered parts in the rest of the world as feral populations, but none of these is in India.

The unkindest cut of all: the Painted Spurfowl — as with the other two, the male is right out of a canvas — belongs to peninsular India. But not every peninsular birding soul is deemed worthy to have a Painted Spurfowl sighting in their backyard. The bird's habitat is a combination of scrub environment and hilly terrain, but it chooses such properties with a fine-feathered comb.

So, you will find this species in the Natham-Vallapakkam range in Vellore, around 150 km from Chennai. But not in the Kumizhi hills near Guduvancherry; not in the hillocks in Pallavaram; not in the Vandalur area; nor at the hillocks around Mailai village on the road from Tiruporur to Chengelpet, though the non-decrepit village with its hillocks is known for another famous phasianidae, the Indian peacock. Of course, the Indian peacock is a highly adaptable member of the family, with a range covering the length and breadth of India, except for the really high reaches of the Himalayan range.

"The Painted Spurfowl needs a hilly terrain marked by huge, exposed rocks, which I do not think really characterises the hillocks in and around Guduvanchery. Large boulders with scrub vegetation in-between — that is where we normally see this species. The Painted Spurfowl sighting closest to Chennai has been at Gingee in Vellore district. I do not think they are in coastal areas. They are found in areas a little more interior; a little more drier. The Deccan plateau must be a good habitat; Hampi would be a good area to sight the Painted Spurfowl. Of course, the species is in the Eastern Ghats; and also found in some of the outlying hills of the Western Ghats, but not in the range's densely forested areas," says V. Santharam, ornithologist and director, Institute of Bird Studies, Rishi Valley, a residential school run by the Krishnamurti Foundation of India in Madanapalle, Chittoor.

If the last paragraph of Matthew Arnold's *Dover Beach* ever required an illustration from the natural world, the Painted Spurfowl would be a fit candidate.

Adult birds are usually seen moving around in pairs, ascending and descending hilly slopes, and foraging together in scrub vegetation. Santharam has observed the bird display this behaviour at Rishi Valley.

He elaborates: "Our campus is protected and well-wooded, and surrounded by rocky hillocks. I have seen the Painted Spurfowl go up these hillocks in pairs, flying from one rock to another

only to avoid getting into the bushes, and making a characteristic call. They probably feed on the rocky hill, in the scrub forest, on seeds fallen from the plants in the crevices of these rocks. In the evening, the reverse happens. They start descending from 4.30 p.m. - 5 p.m. onwards, and the slow descent would come to an end around 5.30 p.m. - 6 p.m., depending on the sunset. As they move downwards, they would again fly from one rock to another, making that call. And so they come to our campus, where they probably roost on trees. On the campus, I have seen the Red Spurfowl climb up trees to roost there. For a long time, we thought only the Painted Spurfowl was on the campus, but it came to light that the Red Spurfowl was there too; and it seems to be commoner than the Painted Spurfowl.”

Its inherently shy and wary nature had kept the Red Spurfowl from being documented as a species on the campus

In *Indian Birds*, dated 22 April 2013, Santharam narrates how in February 2011, Chennai birder and Madras Naturalists' Society member Gnanaskandan Keshavabharathi photographed the Red Spurfowl at Rishi Valley. That evidence led Santharam to revisit spaces where he had earlier heard what he recognised as calls of the retiring Red Spurfowl, but not clapping eyes on it around these spaces had held him back from acknowledging the species' presence. Fresh and determined efforts that followed the record led to many Red Spurfowl sightings on the campus.

The Red Spurfowl is also a bird of the hill terrain with scrub vegetation.

Santharam says, “There are old records of Red Spurfowls being sold in the Madras Market; those were probably birds captured from hills, possibly Nagari Hills, and brought to Madras.”

Coming back to the Painted Spurfowl, eBird reviewer Vikas Madhav Nagarajan has made an observation of a female Painted Spurfowl sighting at Kolapakkam in the Vandalur belt in December, 2018. He could not snap a photo of the bird.

“Though I am certain it was a Painted Spurfowl, I am not sure about the bird's origin: where it could have come from. It could have been an escapee, after being brought here and kept in some form of confinement,” says Vikas.

On the likelihood of the Painted Spurfowl being a resident in these parts: “With the kind of rocks found there, the Deccan topography would be ideal habitat for the Painted Spurfowl. It is not just about hills, even the nature of the vegetative cover matters. The vegetative cover in the hillocks in Chennai and its outlying areas is different from that found in Vellore and Tiruvanamalai hills. Painted Spurfowl, White-naped Woodpecker and Yellow-throated Bulbul and Red Spurfowl are species you see in Vellore and Thiruvanamalai.”

Not many weeks ago, Chennai-based birder Rama Neelemegam documented Yellow-throated Bulbul and Painted Spurfowl sightings from the same habitat in Vellore.

Vikas says: “You never know, there may be an odd pocket or two around Chennai that may have the Painted Spurfowl. But are these areas accessible enough for us to explore them?”

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## FIVE NEW SPECIES OF SHRUB FROGS FOUND IN WESTERN GHATS

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

*Raorchestes sanjappai* (left) and *Raorchestes vellikkannan*. Credit: 2021 Garg et al., PeerJ, <https://doi.org/10.7717/peerj.10791>

Researchers from India and the U.S. have discovered five new species of shrub frogs from the Western Ghats, one of the globally recognised biodiversity hotspots.

The frogs, belonging to the the Old World tree frog family Rhacophoridae, were discovered by researchers from University of Delhi and Kerala Forest Research Institute and University of Minnesota as part of a long comprehensive study on the Shrub frogs (genus *Raorchestes*) of the Western Ghats, carried out over a period of nearly 10 years.

Researchers said the new species were identified and found to be distinct based on multiple criteria, such as their external morphology, DNA, calling pattern, behaviour, and other natural history observations. [The findings are published in PeerJ.](#)

While one of the new species called *Raorchestes drutaahu* (Fast-calling Shrub Frog) was discovered from two localities: Kadalar in Idukki district and Siruvani in Palakkad district of Kerala, another one named *Raorchestes kakkayamensis* (Kakkayam Shrub Frog) was found only in the vicinity of Kakkayam dam in the southern state.

New genus of tree frog discovered, found in Andamans and Northeast India

*Raorchestes keirasabinae* (Keira's Shrub Frog), a unique tree frog inhabiting the highest canopy layers, was found in Agasthyamalai and Anamalai hills in the southern Western Ghats. The species is named after young nature lover Keira Sabin, in appreciation of the long-time support and commitment of the Andrew Sabin Family Foundation towards amphibian research and conservation around the world.

*Raorchestes sanjappai* (Sanjappa's Shrub Frog), a beautiful green shrub frog, was discovered from the Wayanad region of northern Kerala. The species is named after Dr. M. Sanjappa, a renowned Indian Botanist and former Director of the Botanical Survey of India.

The *Raorchestes vellikkannan* (Silver-eyed Shrub Frog) was discovered in the Siruvani hills and adjoining regions of the Silent Valley National Park. The name is derived from Malayalam 'velli' (meaning silver) and 'kannu' (meaning eye), referring to its distinct silver eye colour.

According to the researchers, over 80% of the globally known shrub frogs are restricted to the Western Ghats, and most species are known to have narrow geographical ranges. For the first time, male calls for as many as 48 species of shrub frogs were studied, they said.

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According to the study, the shrub frogs of the genus *Raorchestes* exhibit highly unique and diverse eye colour and patterns.

Biju, who is the head of Department of Environmental studies in Delhi University, said the study was a testament to how little is known about the most threatened group of vertebrates in India.

"Shrub frogs are among the most researched groups of frogs in India, with frequent new discoveries being made over the past two decades. Yet, we are far from fully understanding their existing diversity and uniqueness...Our work has once again added new insights on what we thought we knew about this group of frogs, from how to identify different species and their affinities to each other, to where they live and how vulnerable they may be to various anthropogenic threats," he said.

Scientists are now tracing potential evidence for population decline of the five newly discovered species, and any threats that they may be facing within their known ranges, in order to protect them from extinction.

"Several new species are often threatened even before they are formally named and known to science. Many of these may already be extinct before they are discovered...It is an unfortunate fate that scientists call as the nameless extinction," said Sonali Garg, the lead author of the study.

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# HIMALAYAN SEROW SPOTTED IN ASSAM

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

A wild dog trailing a Himalayan serow. SPECIAL ARRANGEMENT

A Himalayan mammal, somewhere between a goat and an antelope, has been confirmed as the newest creature to be spotted in Assam.

A couple of nature guides had spotted the Himalayan serow, a goat-antelope, in the 950-sq.km Manas Tiger Reserve on December 3. The animal — a high-altitude dweller usually found 2,000-4,000 metres above sea level — was seen being chased by wild dogs.

“We have now confirmed the animal as the Himalayan serow, spotted close to the border with Bhutan in Manas’s Bansbari-Mathanguri forest. The sighting augurs well for the health of the tiger reserve,” Anindya Swargowari, Additional Principal Chief Conservator of Forest for areas under the Bodoland Territorial Council, told *The Hindu* on Tuesday.

He said the serow has been spotted for the first time in the tiger reserve or anywhere else in Assam, but “this does not mean the animal never visited our forests before”.

According to Mr. Swargowari, the sightings of rare animals and birds in Manas is an outcome of better access to remote parts of the protected area where extremists and hunters once ruled.

“There are chances of more faunal species, found in the higher reaches, being spotted in the park.”

The Reserve is contiguous with the 1,057-sq. km. Royal Manas National Park in Bhutan. The black-necked crane was also recently sighted in Manas. A pair each of such cranes was sighted on January 10 and February 18. The Buddhists revere the bird that nests in the Tawang region.

Officials in Manas said the critically endangered white-bellied hero was also seen a few weeks ago.

In February, birders had sighted the colourful Mandarin duck in the Maguri-Motapung wetland near eastern Assam’s Dibru-Saikhowa National Park. This duck was last spotted in Assam 118 years ago.

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## ON WORLD WILDLIFE DAY, A LIST OF SOME BIODIVERSITY HOTSPOTS OF ANDHRA PRADESH

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

Black buck photographed at Rollapadu Wildlife Sanctuary | Photo Credit: [Srikanth Manneपुरi](#)

*(170 kilometres from Visakhapatnam)*

The Godavari mangroves located in East Godavari District stand as the first line of defence against frequent cyclones and tidal surges that hit the state. But that is not their only use. Located in the Godavari estuary, the mangrove is ecologically diverse and supports a wide range of wildlife.

“These mangroves are home to several mammals and reptiles that include sea turtles and water monitor lizards. One can also spot Golden jackals, smooth-coated otters and the elusive fishing cats in these regions,” says Srikanth Mannipuri, a Kakinada-based wildlife photographer who has been documenting the animals of Andhra Pradesh for almost a decade.

The Coringa Wildlife Sanctuary, which is a part of the estuary of River Godavari, supports the growth of mangrove vegetation and nurtures over 200 species of birds.

“The 20-kilometre drive from Kakinada to the Sanctuary is an experience in itself. It takes you over bridges, vast paddy fields dotted with scattered hamlets and stretches of wild greenery. The sanctuary is a paradise for bird watchers. One can spot Pelicans, Painted Stork, Oriental White Ibis, and Indian Skimmers in this region. From end-November to mid-March, the area is abuzz with a variety of migratory birds,” he says.

The forest floor of these mangroves also supports creatures like mudskippers and yellow fiddler crabs.

*(230 kilometres from Visakhapatnam)*

The hour-long drive from Maredumilli to Chinturu via Rajahmundry-Bhadrachalam highway is another destination to explore the rich biodiversity of Andhra Pradesh.

A large part of the 50-kilometre stretch winds through Papikonda National Park and hence is a drive under dense canopies. The road passes by two waterfalls- Amruthdhar and Jalatarangini and is dotted with several viewpoints. “From here people can spot birds and animals wandering around in the forest. I have had the chance to see sambars, Indian bison, antelopes, wild boars while driving through this stretch,” says Srikanth.

If you are driving through this road anytime between December to March, there are high chances of getting a glimpse of migratory birds that come here from different parts of the country for a brief sojourn. “Birds like Indian pitta, Malabar Pied Hornbills, Crested Serpent Eagles and Thrushes can be spotted on this route,” he adds.

*(600 kilometres from Visakhapatnam)*

Once a home to the Great Indian Bustard whose sightings are rare now, the Rollapadu Bird Sanctuary is a rich land of avian delights like Indian rollers, mynas and eagles. Named after the

Rollapadu village, the sanctuary was set up to protect the grasslands of the region and conserve the Great Indian Bustard; it is now known for birds such as Barn owls, Brown Fish Owls, and Short-toed snake Eagles. The sanctuary is also a great place to spot Black Bucks.

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## CLIMATE AND CONSCIOUSNESS

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

The damaged Dhauliganga hydropower project at Reni village after a glacier broke off in Joshimath causing a massive flood in the Dhauliganga river in Chamoli district of Uttarakhand on February 7, 2021. | Photo Credit: [PTI](#)

It is common to hear policymakers and the public refer to natural disasters, such as this year's Himalayan [glacier flooding that overwhelmed Uttarakhand](#), or the [cold snap that paralysed Texas](#), as “acts of God”. But what precipitated both events was not the hand of God, but human-made global warming. Unless climate change is tagged as a primary culprit, climate action will continue to falter.

The melting of the Himalayan glaciers that prompted the floods and landslides in Uttarakhand have the fingerprints of global warming. In 2013, glacial flooding caused over 6,000 deaths in Uttarakhand during the monsoon months. The United States has already witnessed many deadly avalanches since the beginning of 2021. Furthermore, as glacier cover is replaced by water or land, the amount of light reflected decreases, aggravating warming — a contributor to the sweltering heat in cities like Delhi and Hyderabad, or the epic floods in Chennai or Kerala.

Also read | [After flash floods, alternative Bailey bridge opened over Rishiganga in Uttarakhand](#)

The extreme cold weather in Texas, like the double-digit negative temperatures seen in Germany earlier this year, is connected to Arctic-peninsula warming, at a rate almost twice the global average. Usually, there is a collection of winds around the Arctic keeping the cold locked far to the north. But global warming has caused gaps in these protective winds, allowing intensely cold air to move south — a phenomenon that is accelerating.

When the public connects cause and effect, responses are usually swift. But global warming is still seen as a danger that lies over the horizon. So, while COVID-19 triggered the mobilisation of trillions of dollars in financing, the equally frightening climate scenario has not.

For India, the third-largest carbon emitter after China and the United States, a decisive switch is needed from highly polluting coal and petroleum to cleaner and renewable power sources. China has announced carbon neutrality by 2060, Japan and South Korea by 2050, but India is yet to announce a target. The acceleration of hazards of nature should prompt countries to advance those targets, ideally by a decade.

The stakes are laid out in alarming reports, which show that India is particularly vulnerable. While HSBC ranks India at the top among 67 nations in climate vulnerability (2018), Germanwatch ranks India fifth among 181 nations in terms of climate risks (2020). But public spending does not reflect these perils.

A vital step should be explicitly including policies for climate mitigation in the government budget, along with energy, roads, health and education. Specifically, growth targets should include timelines for switching to cleaner energy. The government needs to launch a major campaign to mobilise climate finance.

Even if major economies speed up climate mitigation, catastrophes like Uttarakhand will become more frequent due to the accumulated carbon emissions in the atmosphere. So, climate adaptation needs to be a priority. India's Central and State governments must increase

allocations for risk reduction, such as better defences against floods, or agricultural innovations to withstand droughts.

A big worry is that the Uttarakhand government and the Centre have been diluting, instead of strengthening, climate safeguards for hydroelectric and road projects. Studies had flagged ice loss across the Himalayas, and the dangers to densely populated catchments, but policy response has been lacking. Similarly, Kerala ignored a landmark study calling for regulation of mining, quarrying and dam construction in ecologically sensitive places, which contributed to the massive floods and landslides in 2018 and 2019.

Sustainable growth depends on timely climate action. For that to happen, policymaking needs to connect the dots between carbon emissions, atmospheric warming, melting glaciers, extreme floods and storms. Events like Uttarakhand and Texas should be treated as lessons to change people's minds and for the public to demand urgent action.

*The author is a visiting professor at the National University of Singapore, and former senior Vice-President at the World Bank*

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

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## CAMBODIA'S ROYAL TURTLE LAYS EGGS IN CAPTIVITY FOR FIRST TIME

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

This handout photo taken on January 19, 2021 and released by the Wildlife Conservation Society on March 2, 2021 shows a conservationist measuring a royal turtle egg at the Koh Kong Reptile Conservation Center (KKRCC) in Koh Kong province. | Photo Credit: [AFP](#)

An endangered turtle bred in captivity laid eggs for the first time in Cambodia, conservationists said this week, in a massive win for animal protection in the kingdom.

The animal was among five Royal Turtles — once feared extinct in the country — that laid more than 70 eggs.

Cambodia is home to several populations of endangered turtles, whose numbers have dwindled due to demand for them in Vietnam and China as delicacies and for use in traditional medicine.

Royal Turtles, formally classified as Southern River Terrapins, were pushed to the brink of extinction by hunting and sand mining, which destroys the banks where they lay their eggs.

The damage was so severe that in 2000 they were feared wiped out in Cambodia, before nests were found and a careful conservation effort began.

On Tuesday the Wildlife Conservation Society (WCS) announced that four Royal Turtles bred in captivity — and one that was handed to its conservation centre in Cambodia's southwestern Koh Kong province — successfully laid 71 eggs.

"It's the first time that the captive female Royal Turtles have ever laid eggs since they were head-started at the centre in 2006," said Som Sitha, a conservation project manager with the WCS. "The team will make artificial nests for incubation purposes or leave them as they are."

Given the rarity of the species in the wild, the successful egg laying is considered a massive win for Cambodia.

"We anticipate soon being able to produce large numbers of Royal Turtles in captivity and releasing them back into the wild," said the WCS's Steven Platt.

Since conservation efforts started, scores of Royal Turtles have been released back into the wild.

These come from eggs laid in the wild and taken into captivity, to protect them from the dangers which threaten the species' numbers.

Koh Kong Reptile Conservation Centre — the kingdom's only dedicated turtle conservation facility — currently holds 192 Royal Turtles, and plans to release 50 of them this year.

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## HC QUASHES DENOTIFICATION 260 ACRES OF FOREST IN SHIVAMOGGA DISTRICT

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

In a setback to the State government, the High Court of Karnataka on Thursday quashed the notification issued in 2017 denotifying 260 acres of forest area in Shivamogga district purportedly for rehabilitating people affected from Linganamakki dam project area in 1960.

The court set aside the notification, issued on February 23, 2017 under Section 28 of the Karnataka Forest Act, 1963, while holding that the State government could not have exercised its statutory power without the prior approval from the Central government under the provisions of the Forest (Conservation) Act, 1980.

While directing the State government to initiate criminal prosecution under the provisions of the FC Act if any officers were responsible for not following the law, the court made it clear that a notification issued under Section 28 of the KF Act, 1963 sans prior approval from the Central government cannot be implemented or given effect to. A Division Bench passed the order while allowing a PIL petition by one Gireesh Achar, a social activist hailing from Hosanagar in Shivamogga district.

Petitioner's advocate Veerendra R. Patil had argued that the notification was illegal and the court in November 2020 restrained the State government from taking further step based on 2017 notification and not to alter status of forest land after Central government said that its prior approval was needed.

Not only the State government violated the provisions of the FC Act but it also acted contrary to the law laid down by the Supreme Court in Godavarman case, the Bench said. Minimum that was expected from the State government was not to indulge in de-reservation/denotification of forest in violation the FC Act and the well-settled doctrine of public trust to protect the forests, the Bench observed. The Bench also noticed that the State government had not published 2017 notification in the official gazette despite such a mandate in the KF Act.

The State government had issued notification in 2017 denotifying 240 acres of forest at Suduru village and 20 acres at Kudi village of Shivamogga citing that people affected from the dam project could not be given land documents for the land without issuing notification under Section 28 (power to declare forests no longer reserved forests) of the KF Act, 1963. It had also claimed that 260 acres were part of around 9,900 acres of reserved forest area that was reserved from forest between 1959 and 1969 for rehabilitating people affected from the dam project.

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## SCIENTISTS BAT FOR HOSTING VIRTUAL CONFERENCES EVEN AFTER COVID

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

Scientists bat for hosting virtual conferences even after Covid. | Photo Credit: [Reuters](#)

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Despite 'Zoom fatigue' and the inability to simulate in-person networking with colleagues, scientists want conferences to be held virtually even after the COVID-19 pandemic is over, citing ease of attending from anywhere in the world and low carbon footprint among its many perks.

It has been a year since the American Physical Society (APS) cancelled its meeting just days before it was to begin in Denver, US, on March 2, last year due to the situation created by the COVID-19 pandemic.

The announcement triggered similar cancellations, ushering in a 'new normal' for scientists, academicians, and researchers.

According to a poll of over 900 readers of Nature magazine, a year of online research conferences has brought many benefits.

Nearly 75 per cent of survey respondents said scientific conferences should continue to be hosted virtually, or have a virtual component, even after the Covid pandemic ends.

Many researchers say that in the past year they have been able to attend more meetings than ever because they were held online.

Another biggest benefit after accessibility, the survey respondents said, was the lower carbon footprint offered by virtual meetings due to less travel involved.

Lovi Raj Gupta, Executive Dean of Science and Technology, Lovely Professional University (LPU) Punjab, said the paradigm shift during the times of COVID-19 was swaying the dialogue and interaction between researchers and scientists from "room to Zoom".

"This had a challenge of loss of expression through body language but came up with a grand opportunity of convenience, the ease of reaching out and defying the time constraints," Gupta told PTI.

"Researchers took the opportunity and began collaborating, a significant increase in the number of new special interest groups (SIG) crept up and the existing ones curated handshaking with the other SIGs," he added.

Sourav Chatterjee, Professor of Mathematics and Statistics, Stanford University, US, noted that the pandemic has impacted science and research in India more or less the same way as in other countries.

"Classes and seminars have moved online, with the usual consequences," Chatterjee, the winner of the Infosys Prize, told PTI.

He explained that the lack of face-to-face interactions maybe stressful and unnerving, but at the same time, online seminars can be accessed by a much broader audience.

The recordings are saved for posterity, Chatterjee said, which will greatly benefit everyone for years to come.

He noted that there are both pros and cons of virtual conferences and online sessions.

"Another major change is that the lack of opportunities for travel during Covid has drastically cut down the number of academic conferences," Chatterjee said.

"We certainly do not need to have as many academic or non-academic conferences in the world as we had pre-Covid because a vast number of them are just opportunities to vacation on taxpayer money," he added.

On the other hand, he said, personal interactions that happen during conferences sometimes open up new directions of research, which have been hindered due to Covid.

Arindam Ghosh, Professor, Department of Physics, Indian Institute of Science (IISc), Bangalore, said the suspension of international travel and visa processes have caused great anxiety and uncertainty among students and researchers looking for overseas education, employment or collaboration.

"The education system, the interaction among scientists and researchers, the modes of conferences have all undergone a massive paradigm shift. Most meetings are now taking place in online mode," Ghosh, who is also an Infosys Prize laureate, told PTI.

The Infosys Prize is an annual award given to scientists, researchers, engineers, and social scientists of Indian origin by the Infosys Science Foundation.

Ghosh noted that international conferences are adapting to include diverse time zones of speakers and participants.

However, he said while physical presence at the laboratory for experimental research is unavoidable, many labs or institutions are developing 'shift' systems.

"Theoretical research is largely being pursued from home. The online platforms are not always suitable for easy exchange of ideas, and new innovations are required," he added.

The experts believe that COVID-19 has also paved new dimensions for need-based, societal, and speedy innovations not only in India but all across the world, adding researchers and innovators from across the globe collaborated virtually to find solutions to defeat the pandemic.

"Another change in COVID-19 pandemic was the collaboration with peers and other researchers nationally and internationally," Gupta said.

"Now that the world is getting vaccinated and people will be out and about over the next few months, I expect the collaboration and camaraderie between researchers to continue," he added.

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Data from research firm IDC showed Apple's shipments surged 22% to a record 90.1 million phones in the quarter, giving it global market share of 23.4%.

A contest among Wyoming schoolchildren will decide the new supercomputer's name.

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## WORKING TOWARDS CLIMATE JUSTICE IN A NON-IDEAL WORLD

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

The [election of Joe Biden as U.S. President](#) has catapulted climate change to the top of the global agenda, allowing him to keep his promise to “lead a major diplomatic push” to increase global climate ambition. This also works well for him in rebuilding the trans-Atlantic alliance apart from keeping at bay the domestic fissures from a tenuous hold of the Democrats in the U.S. Congress while being resolute on climate change. It is also in line with the legacy ambitions of his team, led by former U.S. Secretary of State, John Kerry (and now Special Presidential Envoy for Climate), with many of them being old climate warriors, some even from the days of the U.S. President, Bill Clinton.

Interestingly, the U.S. is not just striding back to the Obama signature achievement of the [Paris Accord](#) with its voluntary commitments but also to the Bush days. This is, perhaps, best evidenced by the presidential call to reconvene the Major Economies Forum (MEF) starting with a Leaders’ Climate Summit in April this year.

The MEF, which was first convened in March 2009, originated in the Bush-era U.S. efforts to rope in major emitters.

It was also to push a way forward on climate change without heed to the principle of differentiated responsibilities and recognition of historical responsibilities, which are rightly hallowed principles of the climate discourse given the decades of staying power of greenhouse gases (GHGs) in the atmosphere. The serious unwillingness of emerging economies to be labelled “major emitters” saw the meeting retitled “Major Economies Meeting” given the clear link between GDP and GHG. While the meeting’s purport was not hidden, the retitling provided a feel-good and one from which retraction was not possible for the emerging economies.

This time the push appears to have come to shove, with all countries being told to commit to net zero (GHG emissions) by 2050 with credible plans to ensure meeting this domestic target. Indeed, the Chinese, who posited themselves as reaching there by 2060, have been sternly told to be there a decade earlier.

Taking a cue from the new U.S. Administration, the UN Secretary-General has even called on countries to declare national climate emergencies apart from building a coalition for a carbon-neutral world by 2050. As of today, countries representing around 65% of global CO<sub>2</sub> emissions have already agreed to this. The UN Secretary-General would like this figure to reach 90% within 2021.

These plans and their implementation will, undoubtedly, be subject to international reviews and verification. Not said as yet, but non-compliance may not be just naming and shaming. Historical responsibilities and differentiation, obviously, have no place in this discourse; but neither does the level of development. India, with its huge population and now one of the world’s largest economies, can easily be in the crosshairs of such a discourse no matter its extraordinarily small carbon footprint in per-capita terms and huge development imperatives.

Adding to the challenges of this proposed global goal is the distinct possibility of the EU imposing carbon border levies on those who do not take on high carbon cut-down targets and do so unilaterally if there is no global agreement. While as of now the U.S. Administration appears

ambivalent on these border levies, the possibility of their coming around cannot be ruled out. In such a scenario, World Trade Organization rules that presently exclude the use of tariffs on environmental grounds will certainly get modified.

The issue of money, especially the lack of it, is a perennial one in the climate discourse. In this context, Raghuram Rajan has recently put forward a proposal for India to consider — it calls on countries to pay into a global fund amounts based on their carbon emissions over and above the global per-capita average of five tons. This obviously disincentives coal in a big way while incentivising renewables. Those above the global average would pay, while those below would receive the monies. While this would suggest a certain equity, it may be unacceptable to the developed countries even though Mr. Rajan has gone along with the drumbeat to forget historical responsibility.

As far as India is concerned, for starters such a proposal may appear attractive as India today has per capita CO<sub>2</sub> emission of only 2 tons and is a global record setter in pushing renewables. But will real politics allow a major economy to benefit from such fund flows or indeed even be the recipient of any form of concessional climate finance? Unlikely.

Moreover, the long-term implications of such a proposal in a setting of a sharply growing economy and reliance on coal-produced electricity for several decades require examination in detail, quite apart from factoring in the twists and turns that negotiations could give to such an idea. And then, of course, there are alternatives such as emission trading.

Furthermore, the proposal focuses on current and future emissions, and in keeping with the contract and converge approach, allows practical considerations to trump fairness by not only giving a short shrift to historical responsibility but also denying priority access to the remaining carbon space for developing countries. In that sense, it double penalises them while giving developed countries a certain free pass. Here it bears noting that more than 75% of the carbon space available to humankind to keep global temperature rises to 1.5° C has already been taken up by the developed world and China.

Climate negotiations are not just about the environment and human well being or even energy, but are also about global governance, and will henceforth be pursued with a vigour which requires India to carefully calibrate its approach including on the economic and political fronts. Climate justice is an imperative for India, which needs to leverage its green and pro-nature commitment to ensure carbon and policy space for its developmental and global aspirations. India's diplomatic and negotiating efforts must be quickly geared to that end.

*Manjeev Singh Puri is a former Ambassador and Lead Negotiator at the United Nations Framework Convention on Climate Change. He is also Distinguished Fellow, TERI: the Energy and Resources Institute. The views expressed are personal*

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

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# WHAT IT TAKES FOR THE CONSERVATION OF WHALE SHARKS

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

Awareness campaign by Wildlife Trust of India at a school in Gujarat | Photo Credit: [Special arrangement](#)

Two decades ago, the coastal communities of Gujarat knew the 'barrel,' but not the whale shark. It was a commonly used name for the fish, not because of its size but because harpoons and barrels were used while hunting it. But today, they are referred to as *vhal* which means "dear one" in Gujarati. The change in perception is due to the conservation efforts of Wildlife Trust of India.

A recent study published in *Nature*, one of the world's leading science journals, states that the global population of sharks and rays have crashed by over 70% in the past five decades. According to a report by the Central Marine Fisheries Research Institute, India is now the second largest shark fishing nation in the world, following Indonesia. This makes present-day, grassroots conservation efforts — by NGOs and State Forest Departments alike — all the more worthy of the spotlight.

It was in 2001 that, in a conservation attempt, whale sharks were included in Schedule I of the Wildlife (Protection) Act of India, 1972, rendering the capture and killing of the fish a cognisable offence. It was the first-ever species to be protected under this Act, after which the Ganges shark (*Glyphis gangeticus*) and spartooth shark (*Glyphis glyphis*) were added to it.

Sajan John, head of marine projects at Wildlife Trust of India, adds, "However, enforcing the fishing regulations for these sharks was not straightforward, as whale sharks were usually hauled in as bycatch when fishermen were targeting economically benefiting species. The meat of whale sharks is not very edible, it is the liver that is the most important for commercial trade, while oil from the fish is used for water-proofing boats."

Despite the protection, whale shark landings were common on India's West coast, especially in Gujarat.

This is when Wildlife Trust of India, decided to launch awareness and conservation programmes in the State to educate the fishermen about the species. "The decision of protecting the species was taken at an apex level but the information never trickled down to the fishermen. That is why we launched our Whale Shark Conservation Programme in Junagadh in 2004 and thereafter spread to Gir Somnath, Porbandar and Dwarka," explains Sajan.

Workshops were conducted in villages and street plays were written and enacted to convey the consequences of hunting whale sharks. "We also roped in leaders from local communities to head our campaigns so that we did not look like outsiders calling them out for their practices," adds Sajan.

Due to the consistent efforts of WTI, whale shark landings in Gujarat reduced and fishermen started releasing the fish during accidental encounters. But, the sharks that were saved in Gujarat were hunted down South on the coasts of Maharashtra, Kerala and Lakshadweep. "Once we realised this, we launched awareness campaigns in Kerala and Lakshadweep. Like Gujarat, we have street plays in coastal villages and have been part of carnivals to raise

awareness. It is due to these efforts that the last whale shark landing from Gujarat was reported in 2005 and the incidents have reduced drastically in Kerala and Lakshadweep. Since 2007, the fishermen in Gujarat have reported spotting of over 50 whale pups. We are now geo-tagging these fishes to know their whereabouts,” he adds.

Meanwhile, on the East coast, the Forest Department of Andhra Pradesh along with The East Godavari River Estuarine Ecosystem (EGREE) has been conducting awareness programmes and workshops to educate fishing communities since 2013.

“In 2015, a survey was conducted in almost 500 fishing villages and hamlets across the State about whale shark sightings. In the process, over 650 fishermen were interviewed of which 90% knew about the whale shark, 50% had seen the fish and over 11% had seen a pup,” says C Selvam, Deputy Conservator of Forests (WL), Eluru.

Kakinada, Visakhapatnam, Machilipatnam and Nizampatnam are major shark landing areas in the State.

Blacktip sharks, bull sharks, pelagic and big-eye thresher shark, smooth and scalloped hammerhead, and tiger sharks are the species that are hunted frequently on these coasts. “Of these, several species like smooth and scalloped hammerhead are classified as threatened species by International Union for Conservation of Nature (IUCN). Scalloped hammerheads are categorised on the IUCN Red List as globally endangered,” adds Selvam.

Irrespective of their size or habitat, humans have found a way to hunt most of the sharks and use every part of them.

The skin is used for leather which is made into boots and bags, and liver for oil. The fins were earlier harvested for shark fin soup, a sought-after delicacy in Southeast Asia and China. However, exporting shark fins was banned in India in 2015. It was easier raising awareness about whale sharks as the fish is protected under the Wildlife (Protection) Act but this could not be done for others.

Adding to this Sajan says, “The basic question that fishermen ask is whether it is illegal to kill the fish and when the answer is no, we have lost the battle there. We need to have more species under the Act so that we can save them from extinction.”

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# OLIVE RIDLEY TURTLES ARRIVE AT GAHIRMATHA BEACH FOR MASS NESTING

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

Around 7.30 lakh Olive Ridley turtles had turned up for mass nesting in the 2019-20 nesting season in Odisha with Gahirmatha beach playing host to 4.50 lakh turtles for mass nesting | File | Photo Credit: [Special Arrangement](#)

The endangered Olive Ridley female turtles have started arriving at the Gahirmatha beach in Odisha's Kendrapara district, the world's largest known rookery of these species, to lay eggs, a phenomenon otherwise called 'arribada', officials said on Wednesday.

Arribada, a Spanish term that describes the unique natural heritage of millions of these marine species converging on the nesting ground for laying eggs.

The annual mass nesting of these delicate marine species began on Tuesday night in Nasi-2 beach of the Gahirmatha nesting ground. The number of female turtles that crawled onto the beach to dig pits by flippers and lay eggs was on a lesser scale. We are expecting a large turnout of turtles in the coming days for the arribada, said Debashis Bhoi, the forest range officer, Gahirmatha forest range.

The officials are yet to count the number of nests dug by the turtles so far. However, around 2,000 turtles had turned up to lay eggs. The mass nesting is likely to continue for at least 10 days. The intensity of the number of turtles turning up to lay eggs will pick up pace in the next three to four days, they said.

### The ridleys return

Around 7.30 lakh Olive Ridley turtles had turned up for mass nesting in the 2019-20 [nesting season in Odisha](#) with Gahirmatha beach playing host to 4.50 lakh turtles for mass nesting. We are expecting this year's mass nesting figure to get better than last year's, the official said.

The forest department is now prioritising the safety of turtles' nests. To ensure the safety of turtle eggs, a 600 metre net barricade has been installed along the casiruanna forest cover that is close to nesting ground. Wildlife staff are on the round-the-clock vigil to keep the predators like jackals, hyena and wild dogs at bay, he said.

"The presence of forest personnel on the nesting ground did not bother the turtles as they maintained a distance from the animals. Emphasis is on to provide privacy to the marine animals during the egg-laying process. On their seaward journey, they moved past the forest guards at hand- shaking distance", said the officials who witnessed mass nesting.

It's only the female turtles that invade the nesting beaches usually at the dead of the night for laying eggs. After indulgence in instinctive egg-laying, the turtles leave the nesting ground to stride into the deep sea water.

### Odisha requests WII to conduct fresh study on Olive Ridley turtle movement

Hatchlings emerge from these eggs after 45-60 days. It is a rare natural phenomenon where the babies grow without their mother, said officials.

The Olive ridley turtles turn up in millions for mass nesting along the Odisha coast every year. Gahirmatha beach off the Bay of Bengal coast in Kendrapara district is incidentally acclaimed as World's largest-known nesting ground of these animals.

Apart from Gahirmatha, these threatened aquatic animals turn up at Rushikulya river mouth and Devi river mouth for mass nesting. An Olive Ridley turtle usually lays about 120 to 150 eggs. But not all eggs remain intact as predators devour them. Besides, eggs are also washed away by sea waves during high tide.

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## BRING DOWN BENZENE EMISSION AT FUEL OUTLETS, SAYS PANEL

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

Green concern: Fuel stations are a major source of emission, according to the National Green Tribunal. K. Murali Kumar

A joint committee appointed by the National Green Tribunal (NGT) to study air pollution in the State has recommended the installation of vapour recovery system at fuelling stations and retrofitting of diesel vehicles with particulate filters to improve air quality.

The report submitted before the Southern Bench of the tribunal pointed out that petrol refuelling stations were a major source of benzene emissions, volatile organic compounds, and particulate matter 2.5 concentration. "Therefore, installation of vapour recovery system is an important step in improving air quality. This is to be implemented in coordination with the Petroleum and Explosives Safety Organization [PESO] shortly," it said.

The joint committee comprises officials of the Ministry of Environment, Forest and Climate Change, Central and State Pollution Control Boards, and the CSIR-National Environment Engineering Research Institute, Chennai. The committee was directed to assess the ambient air quality levels in the State, especially in Thiruvananthapuram, Kollam, Kochi, Alappuzha, Kozhikode, Thrissur, Kasaragod, and Kannur.

The committee recommended stringent action against industrial units that do not comply with emission standards. The Pollution Control Board had already issued circulars suggesting retrofitting of emission control devices of generators and replacing diesel generators by gas-based generators. Other recommendations include promoting battery-operated vehicles, ban on old diesel vehicles in a phased manner, greening of open areas, and creation of green buffers along traffic corridors.

The short-term measures recommended include strict action against visibly polluting vehicles (to be initiated by the Motor Vehicles Department), introduction of wet / mechanised vacuum sweeping of roads, controlling dust pollution at construction sites, and ensuring transport of construction materials in covered vehicles.

The tribunal has asked the committee to assess the air quality in the post-pandemic phase to study the scenario when activities are expected to peak. The committee has said that the study could be held in June, anticipating that educational institutions may reopen, and public transport will return to normal.

***A report points out that petrol refuelling stations are a major source of benzene emissions and volatile organic compounds.***

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# GREGARIOUS BAMBOO FLOWERING IN WAYANAD POSES THREAT

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

Bamboo groves in bloom in the Wayanad Wildlife Sanctuary.

The “gregarious flowering of bamboo” inside the Wayanad Wildlife Sanctuary (WWS) and the nearby Mudumalai Tiger Reserve and Gudalur forest division in Tamil Nadu this year may pose a threat to wildlife in the Nilgiri biosphere, a major tiger and elephant habitat.

The bamboo groves in the Wayanad forest are the mainstay of herbivores in the Nilgiri biosphere during summer. With the advent of the season, migration of wild animals starts from the adjacent sanctuaries in Karnataka and Tamil Nadu to Wayanad due to shortage of fodder and water.

## May affect migration

“The gregarious flowering may adversely affect migration, especially by elephants, wild gaur, and other lower herbivores owing to the mass destruction of bamboo groves after the flowering,” S. Narendra Babu, wildlife warden, WWS, said.

“Bamboo groves, which grow in more than 500 hectares of the 344.44 sq km of the sanctuary, have fully bloomed, a phenomenon said to occur once in the life cycle of bamboo plants” he added.

Moreover, pointing to a threat to wildlife as well as the ecology of the Nilgiri biosphere, it is reported that over 25% of bamboo groves in the WWS and nearby sanctuaries have bloomed since 2010, and the phenomenon is continuing.

Thorny bamboo ( *Bamboosa bambos* ) is a monocarpic (flowering only once) plant belonging to the Poaceae family (grass family), and its flowering cycle varies from 40 to 60 years.

Profuse natural regeneration occurs from seeds after gregarious flowering. Seeds have no dormancy, and it helps germination under favourable conditions soon after seed fall, Mr. Babu said.

## Protection from fire

But protection from fire and grazing is essential for proper establishment of seedlings, he observed.

Fire incidents have been comparatively low in the sanctuary for the past five years owing to summer rain and conservation measures implemented by the Forest Department.

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# GENETICS OF EYE COLOUR

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

Human eye colour ranges from black, brown to blue, green, and even red. Eye colour is primarily determined by melanin abundance within the iris pigment epithelium, which is greater in brown than in blue eyes. There are two forms of melanin – eumelanin and pheomelanin – and the ratio of the two within the iris as well as light absorption and scattering by extracellular components are additional factors that give irises their colour. Absolute melanin quantity and the eumelanin–pheomelanin ratio are higher in brown irises, while blue or green irises have very little of both pigments and relatively more pheomelanin.

The researchers from King's College London also found that eye colour in Asians with different shades of brown is genetically similar to eye colour in Europeans ranging from dark brown to light blue. Previously a dozen genes (mainly *HERC2* and *OCA2*) were found to influence eye colour.

The researchers have now identified 50 new genes for eye colour (*Science Advances*). Genetic analysis of nearly 0.2 million people across Europe and Asia helped the researchers to identify the new genes. The findings collectively explain over 53% of eye colour variation using common single-nucleotide polymorphisms. Overall, the study outcomes demonstrate that the genetic complexity of human eye colour considerably exceeds previous knowledge and expectations, highlighting eye colour as a genetically highly complex human trait, says a release.

These findings will help improve our understanding of eye diseases such as pigmentary glaucoma and ocular albinism where pigment levels play a role.

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## PANEL ON AIR QUALITY DISSOLVED

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

Members who were part of the Commission for Air Quality Management said they were taken aback by the sudden dissolution of the body — constituted last October and via an ordinance — on Friday. The dissolution happened despite, *The Hindu* has learnt, the nodal Union Environment Ministry submitting the paper work to the Union Cabinet Secretariat, required to give legal backing to the commission.

The body came into being in October on the back of an ordinance — a temporary measure — and the law requires that a formal Bill be presented to Parliament within six weeks of it reconvening — in this case — January 29 when the Budget Session began. Before a Bill is tabled in Parliament it needs to be approved by the Union Cabinet.

However in spite of several Cabinet meetings since January, it wasn't taken up for discussion due to which, the tenure of the body expired, without ever making it to Parliament. It is still technically possible to revive the body during the ongoing Parliament session.

*The Hindu* spoke to members of the commission who said “they were surprised” that they learnt of the dissolution of a functional body via newspaper reports. “We were discharging the duties we were supposed to. There is office space that some of us work out of in Delhi and another office was being readied. Staff has been hired and we were coordinating with States — as our mandate — in addressing pollution. That the body may be dissolved was nowhere near even the back of our minds,” a commission member said.

Another person, aware of matters, said that the Bill — whose drafting was a “routine affair” — was even approved by Union Environment Minister Prakash Javadekar before perusal by the Union Cabinet.

The commission was headed by M.M. Kutty, a former secretary in the Ministry of Petroleum and Natural Gas.

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## SC BATS FOR GREAT INDIAN BUSTARD

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

Death trap: Power companies say a diminishing habitat is the bigger threat for the birds.

The Supreme Court on Monday swooped-in to intervene on behalf of the critically endangered Great Indian Bustards over the birds falling dead after colliding with power lines running through their dwindling natural habitats in Gujarat and Rajasthan.

A Bench led by Chief Justice of India Sharad A. Bobde will examine on a priority basis whether overhead power cables can be replaced with underground ones to save one of the heaviest flying birds on the planet.

Attorney General K.K. Venugopal, appearing for the Power Ministry, however submitted that only low voltage lines can go underground but not the high voltage ones.

The court found further that an alternative mechanism — to install flight bird divertors — to guide the birds away from the power lines would be expensive.

The court discovered that the divertors, with their recurring costs, would end costing more than installing and maintaining underground lines. But the court suggested treading the middle path. “Wherever there is high voltage power lines, they can use flight bird divertors even if the recurring costs are high. Wherever there are overhead low voltage lines, these lines can be placed underground,” Chief Justice Bobde remarked.

Senior advocate A.M. Singhvi, appearing for some power companies, objected to the court passing any sort of blanket ban which would affect over 50 lakh jobs.

Mr. Singhvi said the greater threat to the birds was from their diminishing habitat, flattened for agriculture.

The court agreed to further hear the case next week.

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## KVIC ROLLS OUT PROJECT RE-HAB TO PREVENT ELEPHANT – HUMAN CONFLICT USING HONEY BEES

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

Imagine a herd of elephants, the largest animal who is equally intelligent, being shooed away by the tiny honey bees. One may call it an exaggeration, but, this is a reality in the forests of Karnataka.

Khadi and Village Industries Commission (KVIC), on Monday, launched a unique project of creating “bee-fences” to mitigate human – elephant conflicts in the country. The objective of Project RE-HAB (Reducing Elephant – Human Attacks using Bees) is to thwart elephant attacks in human habitations using honey bees and thus reducing loss of lives of both, humans as well as elephants. The pilot project was launched at four locations around village Chelur in Kodagu district of Karnataka on 15<sup>th</sup> March, 2021 by KVIC Chairman Shri Vinai Kumar Saxena. These spots are located on the periphery of Nagarhole National Park and Tiger Reserve and prone to human-elephant conflicts. The total cost of the RE-HAB project is just Rs. 15 lakh.

Project RE-HAB is a sub-mission under KVIC’s National Honey Mission. While the Honey Mission is a programme to increase the bee population, honey production and beekeepers’ income by setting up apiaries, Project RE-HAB uses bee boxes as a fence to prevent the attack of elephants.

KVIC has set up 15-20 interspersed bee boxes at each of the four locations in the passage ways of elephant-human conflict zones to block the entrance of elephants to human habitations. The boxes are connected with a string so that when elephants attempt to pass through, a tug or pull causes the bees to swarm the elephant herds and dissuade them from progressing further. Bee boxes have been placed on the ground as well as hung from the trees to block the passage of elephants. High resolution, night vision cameras have been installed at strategic points to record the impact of bees on elephants and their behavior in these zones.

KVIC Chairman Shri Saxena called it a unique initiative and as a sustainable resolution to the human-elephant conflicts that are common in several parts of the country. He said that *“it has been scientifically recorded that elephants are annoyed and even frightened of honey bees. Elephants fear that the bee swarms can bite their sensitive inner side of the trunk and eyes. The collective buzz of the bees is annoying to elephants and it forces them to return. Elephants, who are the most intelligent animal and carry their memories for long, avoid returning to the place where they have encountered honey bees”*. Shri Saxena also mentioned that *“the biggest advantage of Project RE-HAB is that it dissuades elephants without causing any harm to them. Besides, it is extremely cost-effective as compared to various other measures like digging trenches or erecting fences”*.

Nearly 500 people die every year due to elephant attacks in India. This is nearly 10 times more than the fatalities caused by big cats across the country. From 2015 to 2020, nearly 2500 people have lost their lives in elephant attacks. Out of this, nearly 170 human fatalities have been reported in Karnataka alone. On the contrary, nearly one-fifth of this number, i.e. around 500 elephants have also died in retaliation by humans in the last 5 years.

Earlier, Central Bee Research and Training Institute, Pune, which is a unit of KVIC, had conducted field trials of creating “bee-fences” in Maharashtra to mitigate elephant attacks. However, this is for the first time, KVIC has launched this project in totality. KVIC has roped in

the College of Forestry under the University of Agriculture and Horticultural Sciences, Ponnampet, for impact assessment of the project. KVIC Chief Advisor (Strategy & Sustainable Development) Dr R Sudarshana and Dr CG Kushalappa, Dean of the College of Forestry, were present on the occasion.

### Human Deaths Due to Elephants

<b>Year</b>	<b>Deaths</b>
2014-15	418
2015-16	469
2016-17	516
2017-18	506
2018-19	452
<b>Total</b>	<b>2361</b>

### State-wise Deaths of Humans (2014-15 to 2018-19)

<b>States</b>	<b>Deaths</b>
West Bengal	403
Orissa	397
Jharkhand	

349

Assam

332

Chhattisgarh

289

Karnataka

170









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## BN / RR

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**PROJECT**  
**RE-HAB**

REDUCING ELEPHANT - HUMAN ATTACKS USING BEES

AN INITIATIVE OF  
KHADI & VILLAGE INDUSTRIES COMMISSION  
GOVT. OF INDIA

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BN / RR

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## MULTIPLE THREATS TO HIMALAYAN BIODIVERSITY

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

Red panda is among the species under threat.

The Indian Himalayas, which constitute about 12% of the country's landmass, is home to about 30.16% of its fauna, says a new publication from the Zoological Survey of India (ZSI).

The publication, *Faunal Diversity of Indian Himalaya*, lists 30,377 species/subspecies in the region with the entire identified fauna in the country adding up to 1,00,762.

Spread across six States — from Jammu and Kashmir in the west through Himachal Pradesh, Uttarakhand, Sikkim and West Bengal's Darjeeling to Arunachal Pradesh in the far east — the Indian Himalayas are divided into two bio-geographic zones — the Trans-Himalaya and the Himalaya, based on physiographic, climatic and eco-biological attributes.

### Abundance of species

The entire region, spread over 3.95 lakh sq. km., is home to 280 species of mammals, 940 species of birds, 316 species of fishes, 200 species of reptiles and 80 species of amphibians. This put together accounts for 27.6% of the total vertebrate diversity of the country.

The central Himalayas are the most rich in faunal diversity with 14,183 species, followed by the west Himalayas, which is home to 12,022 species.

Dr. Kailash Chandra, Director of ZSI, one of the authors of the publication, said no other geographic region in the country is as unique and influences the ecology and bio-geography of the country as the Indian Himalayas.

### Extensive collaboration

According to Dr. Chandra, 85 taxonomic experts and specialists of various groups of faunal groups actively collaborated and contributed more than 50 chapters on the organisms, their habitats and the threats facing them.

In addition to Dr. Chandra, the publication has been co-authored by K.C. Gopi, Devanshu Gupta, Bausudev Tripathi and Vikas Kumar.

Measuring the range of species spread over the biotic provinces of the vast Indian Himalayan land mass, the authors aimed to identify areas for future research.

Dr. Chandra said the fauna of the region exhibited an intermingling of both the Oriental and Palearctic-Ethiopian elements. He explained that the eastern parts of the Indian Himalayas, a bio-diversity hotspot, had tropical elements with their affinities from Indo-Chinese and Malayan sub-regions of the Oriental region. The fauna of the western part of the Indian Himalayas on the other hand, comprises the Mediterranean and Ethiopian elements.

The Indian Himalayas also have 131 protected areas, which cover 9.6% of the entire protected area of the country, almost the same as the Western Ghats (10% of protected areas), another biodiversity hotspot in the country. The protected areas include 20 national parks, 71 wildlife sanctuaries, five tiger reserves, four biosphere reserves and seven Ramsar Wetland sites.

The publication lists 133 vertebrate species of the region cited as threatened in the IUCN Red List. This includes 43 species of mammals like the critically endangered Pygmy Hog, the Namdapha flying squirrel and the endangered Snow leopard, the Red Panda and the Kashmir Gray Langur.

Fifty-two species of birds are also in the threatened category like the critically endangered White-Bellied Heron and Siberian crane and vulnerable species like the Black Necked crane and the Indian Spotted eagle, among others. Of the 940 bird species found in the Indian Himalayas, 39 are endemic to the region.

The Indian Himalayas host 1,249 species/subspecies of butterflies, with the highest density recorded in Arunachal Pradesh. Some of the rare high-altitude butterflies found in the Himalayas are *Parnassius stoliczkanus* (Ladakh banded Apollo) and *Parnassius epaphus* (Red Apollo), listed under Schedule I and Schedule II of the Wildlife Protection Act, 1972, respectively.

### Role of climate change

According to experts, most of the threatened species of vertebrates, particularly mammals, require population assessment and study of the role of climate change on their habitat.

Climate change is the major threat as far as mammals and birds are concerned. The impact is visible in the shifting distribution of sensitive species like the Asiatic Black Bear, the Snow leopard, and the Himalayan Marmot. "Carnivores and their habitats are threatened by ever-increasing human-wildlife conflict in the region," the publication states.

Habitat loss due to land use change, illegal wildlife trade, forest fires and increasing anthropogenic activities pose threats to this Himalayan biodiversity, the publication underlines.

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## POLLUTANT LEVELS HIGHER THAN WHO LIMITS

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

South India has relatively better air quality. SUDHAKARA JAIN SUDHAKARA JAIN

Despite widespread air quality improvements during 2019 and 2020, air pollution continues to be dangerously high, the annual data 'World Air Quality Report, 2020' compiled by IQAir has revealed.

According to a press release, south Indian cities recorded relatively better air quality, though they remained above the daily WHO limit of 25 g/m<sup>3</sup> for most parts of 2020.

Bengaluru, for instance, recorded an average 15.6% dip in PM 2.5 levels. However, the pollutant levels were above the WHO prescribed limit in 46.7% of the days. The IT city's annual average stands at 27.5 g/m<sup>3</sup>, nearly three times the prescribed limit. Also, Bengaluru's PM 2.5 levels in December 2020 surpassed the January 2020 levels, indicating that the 'better air quality' has already faded away.

The report showed that 22 of the top 30 most polluted cities globally are in India. None of the Indian cities met the prescribed annual limit of 10 g/m<sup>3</sup>. This is despite all Indian cities monitored recording improvement in air quality compared to 2018. As many as 63% of them saw improvements compared with 2019. Delhi ranked as the 10th most polluted city and the top polluted capital city in the world.

The report added that major sources of air pollution include transportation, biomass burning for cooking, power generation, industry, construction, waste burning, and episodic agricultural burning.

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## INDIA'S BLUE REVOLUTION NEEDS MORE MARINE PROTECTED AREAS, SAYS NEW RESEARCH

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

Governments may not be paying attention to the damage done to the ocean by deep sea trawling in terms of its ability to absorb carbon dioxide. File | Photo Credit: [BALACHANDAR L](#)

India, with its long coastline, has a major opportunity to boost fisheries yield by expanding Marine Protected Areas (MPAs) along its Exclusive Economic Zone, and in parallel, protect the ocean's capacity to capture carbon and boost biodiversity, says a large scale study reported on Wednesday by a group of scientists in the journal *Nature*.

Expanding the realm of MPAs in the world's oceans presents a big opportunity to raise food production, enhance carbon storage and preserve a lot more of threatened biodiversity for all countries, the authors argue. They stress the need for greater international cooperation to extend the boundaries of protection.

Although 7% of the world's oceans are earmarked or designated as MPAs currently, in practice, that figure drops to 2.7% enjoying full or high level of protection, the team led by Enric Sala of the Pristine Seas project of the National Geographic Society said. Although many countries lower protection levels because of the view that protected areas prevent extraction of food and materials, the scientists contend that expanding MPAs would actually produce overflow effects in other parts, which would raise the yield of food.

The report assumes significance as the scheduled 15th Conference of the Parties to the UN Convention on Biological Diversity in Kunming, China, later this year will consider the "30 by 30" target, which is to protect 30% of the planet's land and ocean by 2030.

In conserving biodiversity, Dr. Sala and his colleagues think countries have a major opportunity to make a difference, since 90% of the top 10% priority areas for marine biodiversity protection are located within the 321 km (200 mile) Exclusive Economic Zone of countries.

According to the research paper, 90% of the potential biodiversity benefits could be realised by strategically safeguarding 21% of the world's oceans - 43% of EEZs and 6% of the high seas. The estimate is that such an expansion of area would raise protection for endangered and critically endangered species from the current 1.5% and 1.1% of their ranges to a staggering 82% and 87% respectively.

Dr. Boris Worm, a study co-author and Killam Research Professor at Dalhousie University in Halifax, Nova Scotia said, "Smart ocean protection will help to provide cheap natural climate solutions, make seafood more abundant and safeguard imperiled marine species - all at the same time."

India fully protects 0.2% of its EEZ, as does the European Union, while corresponding figures for the U.S. are 22.1%, Chile 28.3%, Australia 8.9% and zero for Great Britain, Japan, China and Germany, to name a few.

What is more, in spite of the impact of climate change on the distribution of species, 80% of the areas within the top 10% global biodiversity priorities today will remain valid until 2050, based on the high greenhouse gas emission scenarios of the IPCC Special Report on Emission

Scenarios.

Among the seas recommended for enhanced protection are Antarctica, the Mid-Atlantic Ridge, the Mascarene Plateau, the Nazca Ridge and the Southwest Indian Ridge.

Protection through MPAs brings important benefits in the form of carbon capture that is otherwise released through deep sea trawling by fisheries, and an increase in the level of food availability.

A modelled increase in food stocks achieved through strategically placed MPAs covering 28% of the global ocean could touch 5.9 Million Metric Tonnes (MMT), assuming that existing fisheries move to new areas and use the same effort, as opposed to no action and a continuation of current practices. One of the effects of new MPAs would be a potential spillover of larval and adult fish from protected areas to sites outside, under the right biological conditions.

Such an intervention could address the issue of overfishing, which has depleted stocks in many seas. Even without any additional effort being taken by fisheries in the areas outside the new MPAs, there would be an estimated increase in food stock, of a marginally less 5.2 MMT.

### India's potential

To a question on whether India has the potential to benefit more from protection in overfished areas along its EEZ, Francesco Ferretti, Assistant Professor, Department of Fish and Wildlife Conservation, Virginia Tech, U.S., and a co-author of the paper told *The Hindu*, "Yes, there is. It depends on the recovery potential of the stocks in that area and this newly protected area's capability to affect fishing production outside."

"In general terms, India ranks relatively low among Asiatic nations in terms of the fraction of EEZ in the top 10% of priority areas, even though its contribution would be substantial in absolute terms. That means that India would benefit relatively more than others for reaching global conservation objectives. That is, more from the overall effect of protection at the global scale by pushing for the protection targets described in this paper," Dr. Ferretti said.

"Because of such variable costs and benefits for nations, in the paper, we stress the importance of international collaboration, which should ensure a fair distribution of costs among all nations that would benefit from a healthy ocean," he added.

Reniel Cabral, Assistant Researcher, Bren School of Environmental Science, and Management and Marine Science Institute, University of California, Santa Barbara, U.S., said in response to a question that MPAs especially worked best if located in overfished areas.

"Fish stocks and biodiversity in overfished areas are expected to positively respond to protection. [Our earlier work](#) shows that India is one of the top countries that will benefit greatly from fisheries reform and MPAs definitely can help improve fisheries in India, in addition to improving biodiversity and protecting carbon stock," according to Dr. Cabral.

Governments may not be paying attention to the damage done to the ocean by deep sea trawling in terms of its ability to absorb carbon dioxide. The study estimates that 1.8% of the world's ocean, equating to 4.9 million sq. km. is deep-trawled each year by industrial trawlers and dredgers, destabilising the sediments containing organic carbon and leading to remineralisation of the sedimentary carbon into CO<sub>2</sub> and thereby acidification of the ocean.

This potentially reduces the capacity of the ocean to absorb atmospheric CO<sub>2</sub>, the authors

contend, affecting the effort to stop dangerous climate change.

The estimates were arrived at on the basis of satellite imagery of activity involving industrial trawlers and dredgers. The research paper calculates that in the first year of trawling, 1.47 Petagrams (1,470 megatonnes) of CO<sub>2</sub> emissions from the water represents 0.02% of total marine sedimentary carbon, which might appear to be low but is equivalent to 15–20% of the atmospheric CO<sub>2</sub> absorbed by the ocean each year. This is comparable to estimates of carbon loss in terrestrial soils caused by farming. Continued trawling uses up the entire sedimentary carbon in the top metre over time.

India's bottom trawling for fisheries is thought to be responsible for annual CO<sub>2</sub> emissions of the order of 28,83,128 tonnes. For comparison, it is 4,77,26,031 tonnes for Britain, and 76,92,94,185 tonnes for China.

Creating MPAs would stop large-scale dredging up of the carbon-laden sediments, with potential to reduce emissions.

According to the researchers, the areas with the highest priority are found where carbon stocks and present threats from human activity are the highest. These include China's EEZ, Europe's Atlantic coastal areas, and productive upwelling areas. Moreover, countries with "the highest potential to contribute to the mitigation of climate change through protection of carbon stocks are those with large EEZs and large industrial bottom trawl fisheries," they write.

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## PM ADDRESSES INTERNATIONAL CONFERENCE ON DISASTER RESILIENT INFRASTRUCTURE

Relevant for: Environment | Topic: Disaster and disaster management

The Prime Minister, Shri Narendra Modi addressed the opening ceremony of International Conference on Disaster Resilient Infrastructure through video conference. Prime Minister of Fiji, Prime Minister of Italy, Prime Minister of the United Kingdom were present on the occasion. Participants from national governments, experts from international organisations, academic institutions and the private sector also participated in the conference.

Terming the current situation unprecedented, the Prime Minister said, "We are witnessing an event that is being termed a once-in-a-hundred-year disaster. COVID-19 pandemic has taught us that in an interdependent and interconnected world, country-rich or poor, in the east or west, north or south- is immune to the effect of global disasters."

The Prime Minister noted that the pandemic has shown how the world can come together. "The pandemic has shown us that innovation to address global challenges can come from anywhere" said the Prime Minister. For this, Shri Modi called for fostering a global ecosystem that supports innovation in all parts of the world, and its transfer to places that are most in need. The year 2021 promises to be a year of swift recovery from the pandemic, he hoped.

The Prime Minister cautioned that the lessons from the pandemic must not be forgotten. They apply to not only public health disasters but other disasters as well. He said that It will take sustained and concerted efforts to mitigate climate change.

The Prime Minister stressed that Countries that are making large investments in infrastructure, such as India, must ensure that this is an investment in resilience, and not in risk. Many infrastructure systems- digital infrastructure, shipping lines, aviation networks- cover the entire world and the effect of disaster in one part of the world can quickly spread across the world. Cooperation is a must for ensuring the resilience of the global system.

The Prime Minister pointed out that the year 2021 is a particularly important year. We are approaching the mid-point of the Sustainable Development Goals, the Paris agreement, and the Sendai Framework. The expectations from COP-26, to be hosted by the UK and Italy later this year, are high. This partnership on resilient infrastructure must play its important role in helping meet some of those expectations, he said.

The Prime Minister elaborated on key priority areas. First, CDRI must embody the central promise of the Sustainable Development Goals, that is, "leave no one behind". This means that we have to put the concerns of the most vulnerable nations and communities first. Second, we must take stock of the performance of some of the key infrastructure sectors - particularly health infrastructure and the digital infrastructure, that played a central role during the pandemic. What are the lessons from these sectors? And how can we make them more resilient for the future? Third, in our quest for resilience, no technological system should be considered too basic or too advanced. The CDRI must maximize the demonstration effect of the application of technology. And finally, the notion of "resilient infrastructure" must become a mass movement galvanizing

the energies of not just the experts, and formal institutions, the Prime Minister concluded.

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DS/AK

The Prime Minister, Shri Narendra Modi addressed the opening ceremony of International Conference on Disaster Resilient Infrastructure through video conference. Prime Minister of Fiji, Prime Minister of Italy, Prime Minister of the United Kingdom were present on the occasion. Participants from national governments, experts from international organisations, academic institutions and the private sector also participated in the conference.

Terming the current situation unprecedented, the Prime Minister said, “We are witnessing an event that is being termed a once-in-a-hundred-year disaster. COVID-19 pandemic has taught us that in an interdependent and interconnected world, country-rich or poor, in the east or west, north or south- is immune to the effect of global disasters.”

The Prime Minister noted that the pandemic has shown how the world can come together. “The pandemic has shown us that innovation to address global challenges can come from anywhere” said the Prime Minister. For this, Shri Modi called for fostering a global ecosystem that supports innovation in all parts of the world, and its transfer to places that are most in need. The year 2021 promises to be a year of swift recovery from the pandemic, he hoped.

The Prime Minister cautioned that the lessons from the pandemic must not be forgotten. They apply to not only public health disasters but other disasters as well. He said that It will take sustained and concerted efforts to mitigate climate change.

The Prime Minister stressed that Countries that are making large investments in infrastructure, such as India, must ensure that this is an investment in resilience, and not in risk. Many infrastructure systems- digital infrastructure, shipping lines, aviation networks- cover the entire world and the effect of disaster in one part of the world can quickly spread across the world. Cooperation is a must for ensuring the resilience of the global system.

The Prime Minister pointed out that the year 2021 is a particularly important year. We are approaching the mid-point of the Sustainable Development Goals, the Paris agreement, and the Sendai Framework. The expectations from COP-26, to be hosted by the UK and Italy later this year, are high. This partnership on resilient infrastructure must play its important role in helping meet some of those expectations, he said.

The Prime Minister elaborated on key priority areas. First, CDRI must embody the central promise of the Sustainable Development Goals, that is, "leave no one behind". This means that we have to put the concerns of the most vulnerable nations and communities first. Second, we must take stock of the performance of some of the key infrastructure sectors - particularly health infrastructure and the digital infrastructure, that played a central role during the pandemic. What are the lessons from these sectors? And how can we make them more resilient for the future? Third, in our quest for resilience, no technological system should be considered too basic or too advanced. The CDRI must maximize the demonstration effect of the application of technology.

And finally, the notion of "resilient infrastructure" must become a mass movement galvanizing the energies of not just the experts, and formal institutions, the Prime Minister concluded.

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# INDIA CONSIDERS TO GO NET-ZERO EMISSIONS BY 2050. CAN IT ACHIEVE THE TARGET?

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

Top Indian government officials are debating whether to set a target for net-zero greenhouse gas [emissions](#) by 2050. Doing so would mean an overhaul of a coal-reliant energy sector, transport, heavy industry and even the nation's sluggish bureaucracy.

All that must be achieved while the world's third-biggest emitter also meets the aspirations of 1.4 billion people for faster economic development, which will only happen with an accelerated pace of industrialization and energy demand.

Committing to a legally binding net-zero target would help India attract some of the trillions of dollars in investment that'll be required for a green transformation, lawmaker Jayant Sinha, a member of Prime Minister Narendra Modi's Bharatiya Janata Party and an advocate of a 2050 goal, said in an interview.

"The world is not going to achieve its targets of halting global warming unless India is able to reduce its carbon emissions and India changes its trajectory right now," Sinha said. Here are some of the key challenges:

## Ramping Up Renewables

Reforming India's electricity sector is key to delivering lower emissions. Renewables are already making some inroads in a system where coal is currently used for almost 70% of power generation. Since Modi took office in 2014 solar and wind capacity has expanded to about 93 gigawatts.

Meeting the nation's existing target of 450 gigawatts of renewables by 2030 is already a massive lift. Hitting net zero will require an even more dramatic acceleration.

India will also need to fix its money-losing distribution utilities, make more land available for wind and solar farms, and support development of additional transmission networks. It'll also have to balance its renewables push against a desire to reduce dependence on foreign suppliers. Taxes on imports of foreign solar panels are intended to spur domestic manufacturing, but could make the rollout of cleaner energy more expensive in the short term.

## Fossil Dependent

Just three fuels meet about 80% of India's energy demand: coal, oil and solid biomass such as fuelwood, animal waste and charcoal. Changing that mix will require more than simply adding more renewables.

Coal use is expected to rise, even if India stops building new power plants. That's because existing coal power plants are running far below capacity, which the country will look to maximize. Oil and petroleum are used to power not only cars, trucks and railways, but also industrial machinery and even the pumps which deliver water for India's agricultural sector. Tens of millions of homes still rely on cheap biomass fuels for cooking, and subsidies to switch them to cleaner liquefied petroleum gas cylinders have been trimmed.

To make matters worse, poor quality scrubbers on power plants burning coal make them a major contributor to poor air quality. The Indian capital New Delhi is the world's most-polluted capital city, according to IQAir.

## Rising Demand

India's energy use doubled since 2000 as hundreds of millions of citizens added an electrical connection, and the nation's consumption is forecast to accelerate sharply. It'll be driven both by industry and households, which are adding appliances including air conditioners, refrigerators and space heaters.

The country will have the fastest growing rate of energy consumption globally through 2050, the U.S. Energy Information Administration forecasts.

All that means India needs to add energy capacity equivalent to the entire European Union over the next two decades, the International Energy Agency said in February. Meeting that with cleaner electricity sources will require more hydro-power and nuclear energy, as well as wind and solar. The nation also needs stronger and more flexible electricity grids, and vastly improved energy efficiency measures.

## Electrifying Transport

The global shift to electric vehicles is happening far more slowly in India, with the costs of battery powered-models too high, access to charging infrastructure limited and concerns over the reliability of power grids. By 2040, only about a third of new passenger cars sold will be battery-powered, compared with about 70% in China and Germany.

Freight vehicles also pose a challenge, and account for about 45% of the country's road transport emissions. "It will be really difficult for India to replace oil as transportation fuel," said Senthil Kumaran, head of South Asia oil at industry consultant FGE. "Freight will rely on diesel no matter what."

Still, some firms are positioning for more uptake. Ola Electric Mobility Pvt. Ltd. hopes to make 10 million electric two-wheelers a year by the summer of 2022 at a plant on Bangalore's outskirts. India is also examining plans to run long-haul vehicles on liquefied natural gas and hydrogen.

## Cleaner Industry

As a still-industrializing economy, India's emissions from making steel, cement, chemicals and other carbon-intensive materials is set to rise regardless of a climate push. But the country could make a dent in those emissions by deploying more energy-efficient measures, switching to cleaner fuels and embracing carbon-capture technology.

Increasing clean-energy spending will go a long way in helping the industrial sector. The IEA estimates that green investment across the energy sector, which includes energy, transport, and industry will need to be three times higher between 2025 and 2030, relative to the average from 2015 to 2020. That jump could help put the country on the greenest track that the IEA has modeled. How India supports research and innovation in technologies including energy storage and carbon-capture will be crucial to success in meeting any new target, said Santhosh Jayaram, head of [climate change](#) practice at KPMG India.

## Better Bureaucracy

India will also have to give its under-funded environmental regulators more resources and power, and ministries will need to get better at translating policy into action. For decades, the nation has disappointed in efforts to improve crumbling infrastructure, extend access to public services and root out corruption.

One solution could be to set up a climate change commission, similar to bodies established in the U.K. and New Zealand, to monitor progress and help devise mechanisms to achieve long-term emission reductions, according to Sinha. The U.K.'s Climate Change Committee has been credited with pushing the government to set the most ambitious goal among G-20 nations.

*This story has been published from a wire agency feed without modifications to the text. Only the headline has been changed.*

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# HONG KONG'S FRAGILE CORAL REEFS BOOSTED BY 3D PRINTING

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

Children form a reef fish on a beach in Hong Kong on April 23, 2015 | Photo Credit: [AFP](#)

In jade waters off Hong Kong's eastern shoreline, scientists are thrilled to spot a cuttlefish protecting her eggs inside an artificial, 3D-printed clay seabed helping to restore the city's fragile coral reefs.

On postcards and in the popular imagination Hong Kong is a byword for urban density, a thicket of towering skyscrapers crammed along the harbour or clinging to the vertiginous hillsides above.

Yet it is circled by a surprising array of nature and the small number of coral reefs are some of the city's best-kept secrets.

Around 84 species of coral are found in Hong Kong's waters, scientists say, more diverse than those found in the Caribbean Sea. Most can be found on remote inlets, far from the sediment-filled Pearl River Delta and its busy shipping channels.

### How to be a coral reef guardian

But like all reefs in a rapidly warming world, they are under enormous pressure.

Which is where Vriko Yu and her team of fellow marine scientists come in.

They have begun using 3D printed tiles that work as an artificial bed for corals to latch onto and thrive, with promising results.

"The first time we put down the tiles, there were a few fish around," she told *AFP* on a recent inspection by University of Hong Kong (HKU) researchers.

Now the artificially produced reef laid down last summer is teeming with wildlife, including the cuttlefish, something Yu described as "very, very exciting".

Hong Kong's government commissioned research into local coral ecosystems after the reefs at Hoi Ha Wan marine park were struck by bleaching and mass die-offs.

Corals are colonies of billions of living polyp invertebrates and are hugely sensitive to temperature changes. When they get too hot, they lose their vibrant colour and die.

### India begins coral restoration in Gulf of Kachchh

Repopulating a dead or damaged reef requires suitable ground for the remaining coral larvae to latch onto and build a new home — and the printed tiles have so far proven dependable.

"3D printing allows us to customise a tile or a solution for any type of environment and I think that's the real potential that the technology brings," David Baker, an associate professor at HKU's School of Biological Sciences who led development of the technology, told *AFP*.

Tiles carrying 400 coral fragments have been laid on a 40 square-metre (430 square-foot) section of sea floor in the marine park. "The corals now on the tiles definitely survive better than the traditional way of transplantation," said Yu, putting the success rate at around 90%.

Some projects around the world have deliberately sunk ships or concrete onto the sea floor to encourage coral growth. And while those methods have had some success, they can change the chemistry of the water.

The tiles used in the Hong Kong project are made with terracotta, minimising the environmental impact. "Clay is basically soil, so soil you can find everywhere on earth," said Christian Lange, an associate professor from HKU's Department of Architecture. It leaves water chemistry unchanged, Lange added, and if a tile fails to spawn a new colony it will simply erode without leaving a trace.

Marine biologists pay close attention to successful reef repopulation programmes because corals are at risk of disappearing.

Rising sea temperatures have decimated reefs around the world, especially those in warmer tropical waters.

Report sounds an alarm on ongoing decline of U.S. coral reefs

Australia's Great Barrier Reef — the world's largest coral system — is now so badly damaged that it is listed by the International Union for Conservation of Nature (IUCN) as "critical", the worst category.

Corals that exist in subtropical waters are of particular interest to scientists because they form generally hardier colonies that are better able to withstand a greater range of temperatures.

A recent Royal Society paper found some evidence that some subtropical corals were thriving in warmer oceans, compared with their tropical cousins.

"The Great Barrier Reef... has many corals living offshore in clear tropical waters, they're not used to change," explained Baker. "So just having a little extra warmth is going to push them over the edge faster than we think our local corals would succumb to bleaching."

Baker said the tiles are not a panacea for the mass bleachings.

But he hopes the project can identify species with the genetic resilience to endure future environmental stress and buy time for corals "to adapt and to migrate into more suitable areas".

"We might actually be creating a new potential home for corals as they try to escape climate change from equatorial regions," he said.

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## UNITED NATIONS OFFICE FOR PROJECT SERVICES PARTNERS WITH GOVERNMENT OF DENMARK TO SUPPORT JAL JEEVAN MISSION IN BUNDELKHAND & VINDHYA REGION OF UP

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

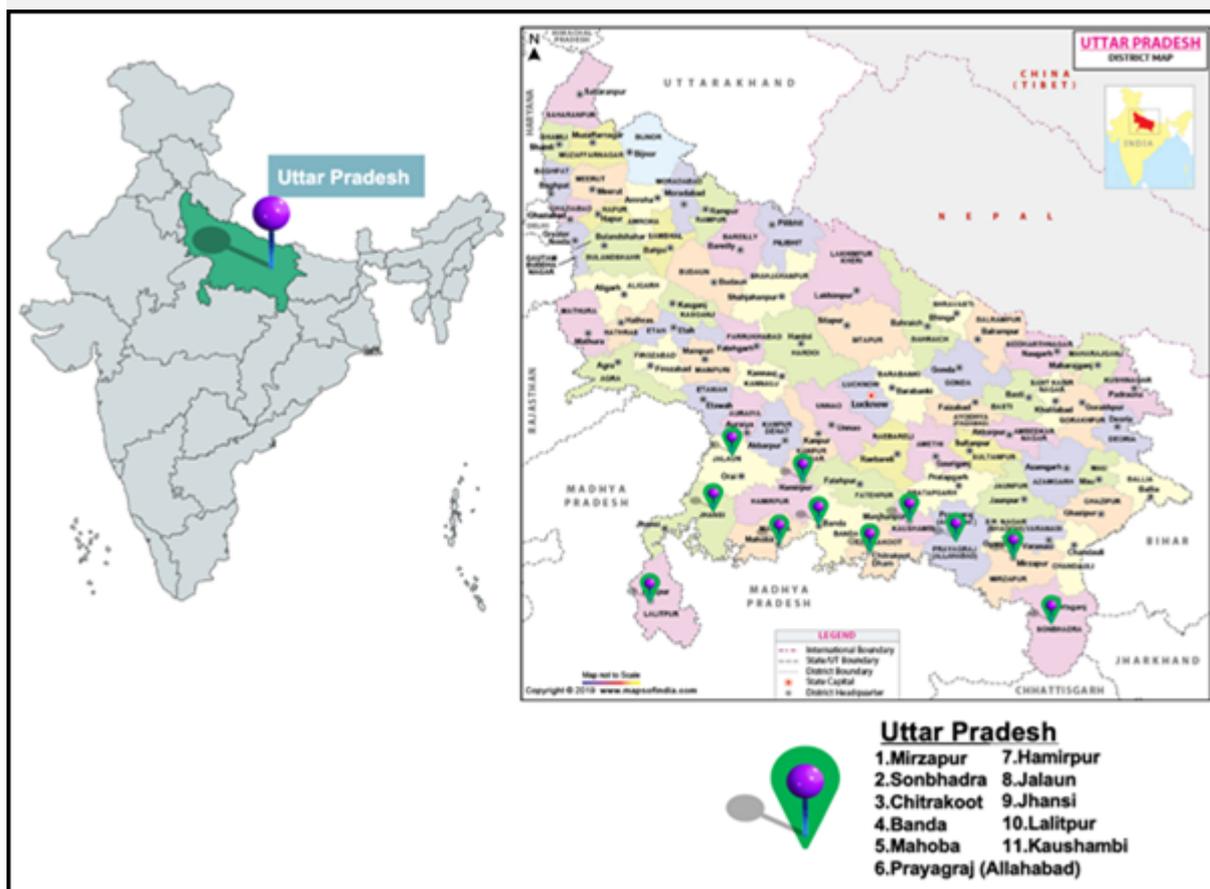
United Nations Office for Project Services (UNOPS) entered into a partnership with the Government of Denmark to support the Union Government's flagship programme, Jal Jeevan Mission in Uttar Pradesh on **World Water day**. The purpose of partnership between the Government of Denmark and UNOPS is to provide strategic technical support to Jal Jeevan Mission (Water program). UNOPS shall be focussing on instituting scalable delivery models in focused 11 water-scare districts of Uttar Pradesh in Bundelkhand and Vindhya regions as per the priorities laid down in the Operational Guidelines of Jal Jeevan Mission.



Through coordination between UNOPS and the Embassy of Denmark, it will be ensured that the partnership and the bilateral Indo-Danish cooperation on the Jal Jeevan Mission mutually support and reinforce each other in order to support the achievement of the Jal Jeevan Mission's goals. UNOPS will mobilize its resources in these districts especially in the area of community mobilization, capacity building, training, etc., which will help in achieving the goal of the mission to provide tap water connection to every household in a time-bound manner.

The Jal Jeevan Mission aims to provide functional household tap connection to every rural household by 2024. This coincides with the United Nation's Sustainable Development Goal-6. In view of UNOPS's goodwill with Government of India at all levels and with civil society, built up over the years, it is of strategic importance that this collaboration between Government of Denmark and UNOPS brings meaningful impact to achieve the objectives of the Mission.

## Intervention area



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**BY/AS**

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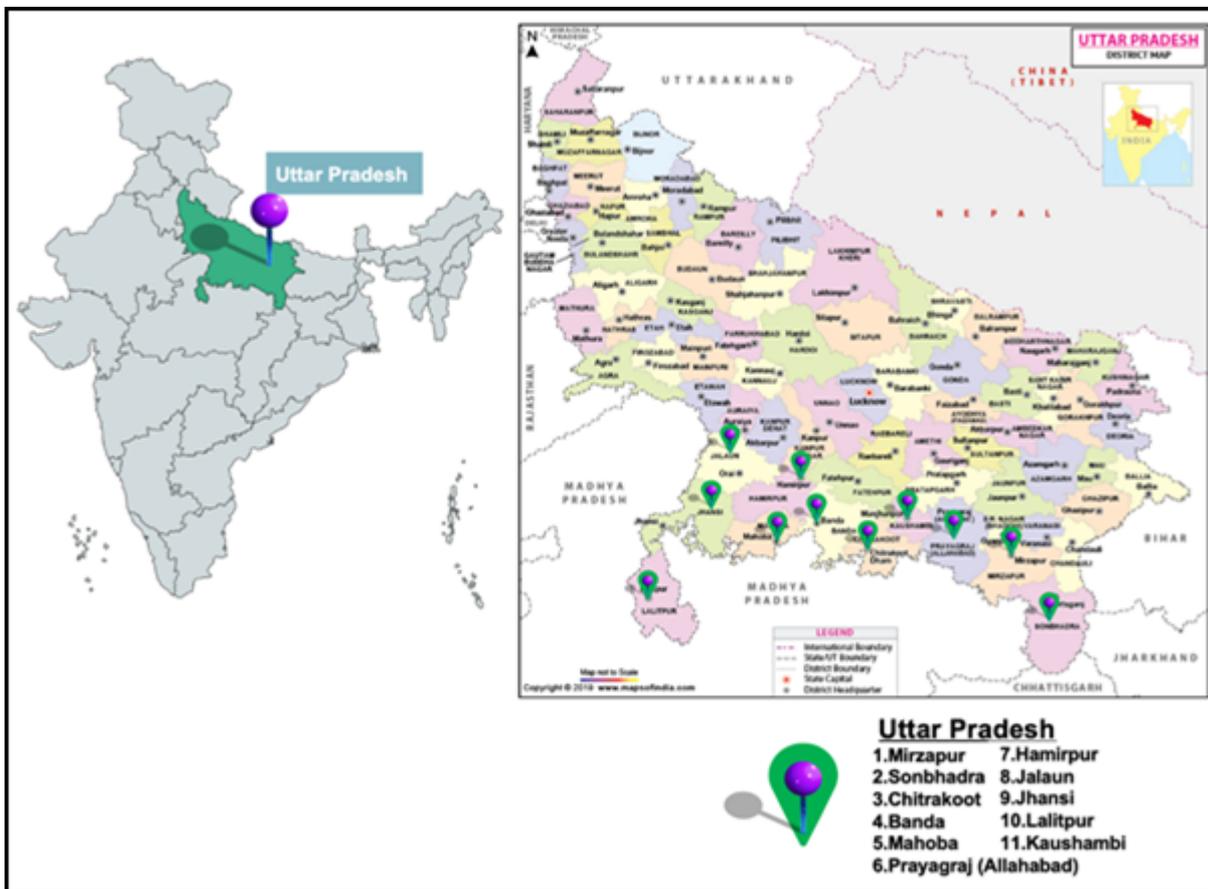


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**Intervention area**





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## WATER, THE LOOMING FRONTIER

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

While we are still in the grip of the COVID-19 pandemic, which is airborne, we have forgotten that another such blight could well come from contaminated water. NITI Ayog and WaterAid, amongst others, have found that over 70% of India's surface and groundwater is contaminated by human and other waste and is likely to carry viruses. Indiscriminate human activity is often the reason for environmental degradation and pandemics. The practice of keeping animals locked together for mass production of meat produces an artificial environment that can birth mutations in erstwhile dormant viruses. Earlier, in the wild, animals were far away from human habitats. The viruses they harboured remained isolated. But today's practices can spawn viruses that can easily transfer to the human population.

Once the virus has found its way into the human population, it is bound to proliferate in wastewater. For example, in England, Wales and Scotland, several wastewater samples were tested and were found to carry traces of SARS-CoV-2. Remnants of the virus have also been detected in raw sewage across Sydney. Research at the University of Stirling in Scotland indicates that the SARS-CoV-2 virus can spread through sewage water.

But such water is often discharged into water bodies in India. This is an alarming prospect for us as river water or lake water, which carries human waste, sewage, and toxic waste, can be a very generous host for viruses of different kinds and we do not know where and how they can mutate and strike. Some water-transmitted viral pathogens are astrovirus, hepatitis A and norovirus. Unlike in the developed world, a huge section of the population in India uses polluted water from sources like rivers, lakes, or groundwater for drinking.

Are we prepared for this? Certainly not. Can we be prepared? Very unlikely, even if we understood the viruses, and we are not there yet. Can we decontaminate our water bodies and groundwater? This could take several decades. The Rhine river in Germany, after 50 years of cleaning and stopping the inflow of pollutants and human waste, is still not fit for drinking. But despite the poor quality of water in India, the government has announced a 3 lakh crore 'Nal se Jal' scheme to provide drinking water connections to every rural household by 2024. Since most of the water sources are contaminated, the only way to purify water is through reverse osmosis (RO). But though RO removes contaminants, it also takes out all the healthy minerals and nutrients required by the human body. This is an unhealthy and exorbitantly priced proposition. To neutralise the virus, we would need at least an ultraviolet aquaguard treatment. While this won't take out chemical contaminants, it is also costly.

So, what is the solution? The simple answer is that there is no technological substitute for living natural resources like pristine natural water and soil. This means that we must conserve and use our natural living resources. The water beneath our forests is as good as natural spring water. We must safeguard it for our own lives and for future generations. We have destroyed our natural living resources in our rush for development. Our development model is always focused on artificial infrastructure, building highways, industrial plants, high-rise structures. In doing this, we kill our natural resources. As a result, we are running out of natural infrastructure at an alarming pace. Let's not forget that developed countries have stable landscapes and populations whereas India has a growing population, which means there will be growing consumption.

There are two unpolluted fresh water sources left in the country. The first is the water lying below our forests; the second is the aquifers that lie below the floodplains of rivers. Both these sources provide natural underground storage and are renewable – the rains provide natural

recharge year after year and it is this recharge which can be used to water our cities and towns. There is one sacred conservation condition: we should use only a fraction of the annual recharge.

The aquifers underlying forests can provide healthy mineral water purely for drinking purposes. Since a person drinks only 2-3 litres of water a day, the mineral water requirement is modest. Such a scheme can provide quality natural mineral water, comparable to Himalayan mineral water at 2 a litre, 20 times less than the market price. The river floodplains are a great source of water for cities. The Yamuna floodplains in Delhi already use such a scheme to provide water to a million people each year. Forests and floodplains must be declared as water sanctuaries. Such schemes work with nature rather than against it. They can be used around the globe. It is important to remember that these evolutionary resources, once lost, will be lost forever. It is time we understood this is natural infrastructure bequeathed to us by nature. If we don't realise this, it will only be our loss.

*Vikram Soni is Emeritus Professor at Jamia Millia and Jawaharlal Nehru University*

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

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## ADDING COAL TO THE FIRE

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

Protesters wearing giant puppet heads resembling Australian Prime Minister Scott Morrison and Australian Opposition Leader Bill Shorten are seen during a Stop Adani protest outside Parliament House in Canberra on February 12, 2019. Photo: AAP Image via Reuters

If India loses the fight against climate change, new investments in coal will be a decisive factor. India has reaffirmed its commitment to bold plans for switching to renewable energy. Yet, one of the world's largest new coal investments is Adani's \$16.5 billion dollar Carmichael coal mine project in Queensland. That this project is going ahead despite coal's declining competitiveness raises valid concerns that the new coal investments are viable only because they are supported by the Australian government's subsidies or incentives.

Coal mining provides incomes for Australia's local economy, but the health and environmental harm from mining and combustion represents a big net loss for the world. CO<sub>2</sub> emissions, the chief cause of climate change, totalled 36 billion metric tonnes globally in 2019, of which nearly 40% came from coal. The Carmichael mine is set to become Australia's largest coal mine, producing up to 60 million tonnes of coal annually and 2.3 billion tonnes over its 60-year lifespan. Of the nearly 8 billion tonnes of coal produced globally in 2019, a sixth is exported, with the largest share, one third, coming from Australia. In 2020, 16% of Australia's coal exports were shipped to India.

As India is the primary buyer of the Carmichael coal, the project will significantly add to its emissions. Australia's coal mining and coal exports generate incomes and jobs, but when the destruction from pollution, soil erosion, and biodiversity loss is included, the net contribution for India is negative. In south-western China, the environmental and social damage from burning coal exceeds the price of coal by four times. The health damages from coal-fired power stations in the U.S. are estimated at 1-6 times the value of the power output. In India, coal contributes to 1,00,000 premature deaths annually: the poor are hit hardest. With declining coal prices, the mine may be unable to generate sufficient revenue to get a return on investment. That the project might not be viable even financially — and this without considering the environmental, social and health impacts — is damning. It supports the worry that government subsidies underlie Adani's decision to proceed with the project. It bears mentioning that 17 international banks declined to fund the Carmichael mine based on its weak financials and environmental danger; State Bank of India's plan to provide financing is under scrutiny. A report by the Australia Institute points out that the spillover harm from extracting and burning coal is not included in the true cost of coal projects. One estimate puts the damage to health alone in Australia at \$2.6 billion annually. The mining of coal emits massive amounts of particle pollution, contributing to heart disease, lung disease and lung cancer. With exports of coal, India will be hurt too from burning coal, and the global harm is a multiple of Australia's.

Then there is the environmental and climate impact. Annual emissions of 79 million tonnes of carbon equivalent from the Carmichael mine is higher than Malaysia's 75 million tonnes and Austria's 76 million tonnes. The mine will also lead to the Galilee Basin being opened up to nine additional coal mines, which would cumulatively emit an estimated 705 million tonnes of CO<sub>2</sub> every year, more than 1.3 times Australia's current emissions. After facing heat waves, bushfires, and intense rainfall that are linked to climate change, Australia should be deeply concerned — and so should India. The Government of India is drawing up plans for carbon neutrality, following several others that have announced 2050 as their target date for this. Achieving a zero-carbon target will require vast investments in the production, storage, and

distribution of renewable energy. But the approval for Adani to mine and export coal to India makes reaching those targets much harder. It is time for India and Australia to leave coal underground.

*Vinod Thomas is a former senior vice president of the World Bank and Chitranjali Tiwari is alumnus of Lee Kuan Yew School of Public Policy*

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

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## ARSENIC AND HEAVY METALS IN GROUND WATER

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

Central Ground Water Board (CGWB) generates ground water quality data of the country on a regional scale as part of its ground water quality monitoring activity. The monitoring indicates the occurrence of contaminants such as Fluoride, Arsenic, Nitrate, Iron and Heavy Metals beyond permissible limits (as per BIS) for human consumption in isolated pockets in various States / UTs.

No specific information on the matter is available. However, it is stated that consuming water with contaminants beyond BIS limits may have some adverse health effects.

Water being State subject, initiatives on water management including taking corrective action related to ground water quality in the country is primarily States' responsibility. However, Central Pollution Control Board (CPCB) in association with State Pollution Control Boards/Pollution Control Committees (SPCBs/PCCs) is implementing the provisions of The Water (Prevention & Control) Act, 1974 & The Environment (Protection) Act, 1986 to prevent and control pollution.

Government of India in partnership with States, is implementing Jal Jeevan Mission (JJM) since August, 2019 to provide potable tap water supply of prescribed quality to every rural household in the country by 2024. Under JJM, while planning water supply schemes to provide tap water supply to households, priority is given to quality-affected habitations. While allocating the funds to States/ UTs in a particular financial year, 10% weightage is given to the population residing in habitations affected by chemical contaminants including Arsenic and Fluoride, as on 31st March of the preceding Financial Year.

Since, planning, implementation and commissioning of piped water supply schemes based on a safe water source likely to take time, States/ UTs have been advised to install community water purification plants (CWPPs) in such habitations, purely as an interim measure, to provide potable water to every household at the rate of 8–10 litre per capita per day to meet their drinking and cooking requirements.

Under Atal Mission for Rejuvenation and Urban Transformation (AMRUT) launched on 25th June, 2015 in selected 500 cities with focus on development of urban infrastructure in various sectors including water supply, States/UTs have the option to take projects on special water supply arrangements for difficult areas, hill and coastal cities, including those having water quality problems with Arsenic, Fluoride etc.

CGWB has constructed several exploratory and observation wells in the Country tapping the Arsenic safe deeper aquifer zones delineated through exploration aided detailed aquifer mapping under National Aquifer Mapping programme. Successful wells have been handed over to the State Governments for their purposeful utilization. Further, CGWB is providing technical assistance to the States by sharing the cement sealing technology for tapping contamination free aquifers in Gangetic flood plains.

This information was given by the Minister of State for Jal Shakti & Social Justice and Empowerment Shri Rattan Lal Kataria in Lok Sabha today.

**BY/AS**

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## INDIA WILL NOT EXTEND 2022 DEADLINE FOR TIGHTER FUEL EFFICIENCY RULES: REPORT

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

The corporate average fuel efficiency (CAFE) requirements are designed to reduce carbon emissions from vehicles as India pushes auto manufacturers to invest in more fuel-efficient cars or in cleaner technologies like electric and hybrid.

India will not extend an April 2022 deadline to tighten fuel efficiency standards, in a potential setback for carmakers which are lobbying for more time, government and industry sources told Reuters.

The corporate average fuel efficiency (CAFE) requirements are designed to reduce carbon emissions from vehicles as India pushes auto manufacturers to invest in more fuel-efficient cars or in cleaner technologies like electric and hybrid.

"The deadline to meet CAFE norms will not be extended," a senior government official told Reuters, adding that some concessions could be considered if it sees serious intent by automakers to invest in clean technologies.

The push to delay the rules by two years is being led by the Society of Indian Automobile Manufacturers (SIAM), a trade group that represents major carmakers in India including top sellers Maruti Suzuki and Hyundai Motor Co.

On 2 March, executives from SIAM met India's transport ministry officials to discuss, among other things, a delay in implementation of the norms, three industry sources said.

India introduced the first phase of CAFE rules in April 2017, giving carmakers until the end of March next year to cut carbon emissions from new passenger cars to under 130 grams per kilometer.

In a second phase starting from April 1, 2022, India has proposed tightening carbon emissions to 113 grams per kilometer.

Carmakers have argued that they would find it difficult to make further investments to meet the stricter requirements, especially as profits have been hit by slumping sales over the last two years, three industry sources said.

An economic slowdown in 2019 and the coronavirus pandemic in 2020 caused annual passenger vehicle sales to fall by around 30% over the period.

Sticking to the deadline, however, would allow India to cut its fuel import bill and curb pollution.

Prime Minister Narendra Modi has set aggressive carbon reduction targets under the Paris Accord and not extending the deadline to tighten the CAFE requirements could be part of this agenda, one industry source said.

"There eventually might be a middle path that does not hurt the companies financially but also allows the government to maintain its aggressive attitude towards carbon reduction," the source said.

(Reporting by Aftab Ahmed and Aditi Shah; Editing by Kirsten Donovan)

*This story has been published from a wire agency feed without modifications to the text.*

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## MOU SIGNED TOWARDS EXECUTION OF PLANNED ACTIONS IN TIME BOUND MANNER IN 132 CITIES UNDER NATIONAL CLEAN AIR PROGRAMME(NCAP)

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

In the presence of Minister of Environment, Forest and Climate Change, Shri Prakash Javadekar the Memorandum of Understanding (MoU) was signed today by representatives of State Pollution Control Boards, Urban Local Bodies and Institutes of Repute for 132 identified cities for implementation of city specific action plans under National Clean Air Programme (NCAP).



Speaking on the occasion Shri Javadekar said that concerted efforts are required by the State Governments and all concerned for improving air quality in the country towards realizing the vision of 'Swachh Bharat, Swachh Vayu' and exhorted all to work in mission mode.

"Today's initiative is in line with the vision of Prime Minister Shri Narendra Modi of curbing air pollution by 20% in the next 4 years in over 100 cities... it is not an easy task but a tough challenge which we all need to achieve together." said the Union Environment Minister.



The minister took the opportunity to urge the States to quickly procure e-buses for public transport purpose sanctioned under the FAME Scheme. Regretting that despite allocation of funds for 6000 e-buses to different cities across the country only 600 buses have been procured and are operational, he said if any city fails to utilise the funds sanctioned for procurement of e-buses the allocation will go to other cities.

The National Clean Air Programme (NCAP) is a long-term, time-bound, national level strategy to tackle air pollution problem across the country in a comprehensive manner with targets to achieve 20% to 30% reduction in Particulate Matter concentrations by 2024 (with 2017 as base year).

The city action plans have been prepared to control specific air pollution sources through multidimensional actions by bringing several implementation agencies together. Expansion of ambient air quality network, source apportionment studies, public awareness, grievance redressal mechanism and sector specific action points are part of these action plans.

For successful implementation, there was a paramount need for cooperation and coordination among State agencies and technical supervision by expert Institutions of Repute. This MoU will facilitate smooth and binding execution of planned actions in time targeted manner. A National Knowledge Network comprising leading air quality specialists has also been constituted as a technical advisory group to support activities under NCAP and guide local Institutes of Repute (IoRs) in conducting air quality researches.

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# OVER THE LAST CENTURY, OUR CONSUMPTION RATE OF FRESHWATER HAS GONE UP RAPIDLY

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

An annual event that started in 1993, World Water Day — observed on March 22 — was established to celebrate freshwater and raise awareness on its importance. The realisation of the value freshwater holds is evident as early as 10,000 years ago, during the first known permanent urban settlement of Jericho (a Palestinian city in the West Bank) which was located near springs and other freshwater sources.

We all know that our existence is highly dependent on the freshwater we have available. However, over the last century, our consumption rate of the resource has gone up rapidly. As the world's population continues to increase, we can expect the demand for freshwater to further rise. This will exacerbate water stress and the risk of water scarcity given the fact that the global freshwater availability is limited. Only 3% of the earth's water is freshwater out of which less than 1% is accessible for our use.

In our densely populated cities, the level of available freshwater is decreasing and the amount of waste water that we are letting out is increasing, which ends up polluting whatever available freshwater we are left with. We need to be mindful about the amount of water we use and play our part to ensure this resource lasts us for a long time.

There are a few measures we can all take to reduce or minimise domestic water use. Here are a few:

Reduce our water consumption by using fixtures and taps that allow for a lower water flow rate

Treat our wastewater and reuse the treated water as appropriate

Ensure 100% of the rainwater (which is fresh, clean) that falls on our property is being collected for use or being percolated into the ground to increase the ground freshwater table.

Install water meters as they provide us with a measure of our actual consumption of water. An awareness of how much water we are actually consuming is one of the first steps in ensuring mindful water use.

Other than water used for domestic purposes, there is a lot of freshwater utilised in other sectors, construction being one of them. One way to minimise water usage during construction is to avoid unnecessary plastering. The use of a plaster is mostly seen as an additional layer to cover up imperfections in masonry work. If the joints in the external masonry can be pointed well using waterproofing compounds, a plaster cover can be avoided. Such exposed masonry walls speak of the history of a building and also stand testimony to the skill involved in masonry coursework. This is just one of several ways in which water use in construction can be reduced.

A mindful and judicious use of freshwater without taking its availability for granted will go a long way in ensuring water security.

*The author is the founder of Green Evolution, a sustainable architecture firm*

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## NEW SPECIES OF RED ALGAE SEEN IN WEST, SOUTH EAST INDIAN COAST

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

Ocean farm: Species of *Hypnea* contain the biomolecule carrageenan, which is widely used in the food industry. | Photo Credit: [Felix Bast](#)

Two new species of seaweed have been discovered by a group of marine biologists from Central University of Punjab, Bathinda. Named *Hypnea indica* (after India) and *Hypnea bullata* (because of the blisterlike marks on its body – bullate), the seaweeds are part of the genus *Hypnea* or red seaweeds.

They grow in the intertidal regions of the coast, namely the area that is submerged during the high tide and exposed during low tides. The discovery was recorded in the journal *Botanica Marina*.

The genus *Hypnea* consists of calcareous, erect, branched red seaweeds. “There are 61 species of which 10 were reported in India. With our two new species, the total number of species now would be 63,” says Felix Bast, from the Department of Botany, in the University, who led the research.

While *Hypnea indica* was discovered Kanyakumari in Tamil Nadu, and Somnath Pathan and Sivrajpur in Gujarat, *Hypnea bullata* was discovered from Kanyakumari and Diu island of Daman and Diu.

To rule out the possibility that the species had been around earlier, but that now had been documented, the researchers compared characteristics of these specimens with all the 61 currently accepted species of *Hypnea* one by one.

“Comparison not only included morphology, but also DNA sequences. Such a polyphasic approach combining morphology (traditional) with DNA sequencing (modern) is the gold standard in species discoveries in taxonomy these days,” says Dr. Bast.

The researchers were on a routine survey and collected a large number of species. “Our heuristics involve making a checklist of obviously known species (by carefully examining the morphology) and shortlisting unique specimens that do not conform to existing species descriptions. Such unique specimens would be subjected to DNA barcoding to check homology with other sequences worldwide (to reduce the costs).” Dr. Bast explains.

Species of *Hypnea* contain the biomolecule carrageenan, which is widely used in the food industry.

As the two species have been found on the west and south east coasts of India, it suggests good prospects for their cultivation which can be put to good use economically.

The study also reports one other species of *Hypnea* for the first time in Indian coasts, *Hypnea nidifica*.

The extensive calcareous deposits on the body that has been observed also provides room for thought. Several recent studies have shown that algae with calcareous mineral deposits are

prone for the damage from ocean acidification – an aftermath of climate change.

As carbon dioxide in the atmosphere gets dissolved in ocean waters, the seawater becomes more acidic. Algae like *Hypnea* cannot survive in acidic seawater, hence, the only way to help these species is to reduce atmospheric carbon dioxide levels by adopting sustainable lifestyle choices.

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# AFRICAN ELEPHANTS FACE GROWING RISK OF EXTINCTION: IUCN RED LIST

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

An African elephant calf, which was born at Africam Safari zoo as part of its breeding programme, is seen with its mother at their enclosure, in Valsequillo, Mexico August 12, 2020. | Photo Credit: [REUTERS](#)

African elephants living in forests and savannas are increasingly threatened with extinction, the Red List of species in trouble showed on Thursday, as conservationists called for an urgent end to poaching.

The new assessments by the International Union for Conservation of Nature underscore the persistent pressures faced by the two species of elephants in Africa due to poaching for ivory and human encroachment.

“We must urgently put an end to poaching and ensure that sufficient suitable habitat for both forest and savannah elephants is conserved,” said Bruno Oberle, IUCN Director General.

The Swiss-based body’s latest survey said the savanna elephant was “endangered” and the much smaller, lighter forest elephant was “critically endangered” — its highest category before extinction in the wild.

Previously IUCN had treated both elephants together which it considered as “vulnerable” but opted to separate them following genetic evidence that they are different species.

The IUCN cited data showing that the populations of Africa’s savanna elephants found in a variety of habitats had decreased by at least 60% over the last 50 years while the number of forest elephants found mostly in Central Africa had fallen by 86% over 31 years. Combined, around 415,000 remain, it said.

Despite the overall decline, some populations of forest elephants were rebounding due to successful conservation measures such as those taken by Gabon and Republic of Congo. In Southern Africa’s Kavango–Zambezi Transfrontier Conservation Area, savanna elephant numbers were also stable or growing, IUCN said.

IUCN’s latest assessment — the first of three annual updates — assessed 134,425 species of plants, fungi and animals of which more than a quarter are threatened with extinction.

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## 27 MIGRATORY BIRDS FOUND DEAD AT WILDLIFE SANCTUARY IN HIMACHAL

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

Alarming situation: Bar-headed geese flying at the Pong Dam wetlands in Himachal Pradesh. file photo

As many as 27 migratory birds have been reported dead on account of avian influenza in the Pong Dam Wildlife Sanctuary area of Himachal Pradesh since March 25, setting off alarm bells and forcing authorities to shut down the sanctuary.

Archana Sharma, Principal Chief Conservator of Forests (wildlife), told *The Hindu* on Sunday that 14 migratory birds, mostly bar-headed geese, were found dead at the sanctuary on March 25. "Another 12 birds were found dead over the next two days. We have sent the samples to the Regional Diseases Diagnostic Laboratory in Jalandhar. Any confirmation about the presence of avian flu could be ascertained only after the reports come," she said.

"At this time of the year, migratory birds are on their way back to their breeding grounds in central Asia. Some of them may be infected because immunity levels are low as they are coming from different wetlands. We are assuming that it could be avian influenza — H5N1 or H5N8 — but until the reports come nothing can be confirmed," she said.

"As a precautionary measure, we have closed the sanctuary area for now. The wildlife wing of the Forest department is working actively to monitor the situation and field staff have been directed to maintain strict vigil and active surveillance on the situation," added Ms. Sharma.

Earlier in January this year, avian influenza (H5N1) led to the death of over 5,000 migratory birds in the Pong Dam Wildlife Sanctuary area in Kangra district of the State.

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## RESEARCHERS FIND NEW BUTTERFLY SPECIES

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

The new species found in the Agasthyamalai.

A group of lepidopterists have added a species to the expanding list of butterflies in India. The discovery of the species *Nacaduba sinhala ramaswamii* Sadasivan, 2021 in the Agasthyamalais in the Western Ghats a decade ago has now found place in the *Journal of Threatened Taxa*.

The new taxon of Lycaenid butterflies belonging to the *Nacaduba* genus had been first sighted by a team comprising Kalesh Sadasivan and Baiju K. representing the Travancore Nature History Society, Rahul Khot of the Bombay Natural History Society, and Ramasamy Naicker from Theni. Line Blues are small butterflies belonging to the subfamily Lycaenidae and their distribution ranges from India and Sri Lanka to the whole of southeastern Asia, Australia and Samoa.

It is the first time that a butterfly species was discovered by an all-Indian research team from the Western Ghats.

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