

India's #1 Self-Study Notes

crack
IAS.com

92170 70707
crackiasquery@gmail.com

The Baap of
CURRENT
AFFAIRS!!

www.crackIAS.com

Introduces the most scientific & easiest way of preparing

CURRENT AFFAIRS

Topic Wise NEWS

SOURCES

**PIB » The Hindu » Live Mint » HT » TOI » RBI ET » Indian Express
PRS Blog » IDSA » Government of India & UNO Official Sites
NASA & Nature into these subject separately.**

MoJo 30

**Topic Wise News for
GS (Pre-cum-Mains)
every Month**

Download your copy from crackIAS.com

Monthly Archive on **topic** wise news for **GS Pre & Mains**

Index

Russia registers world's 1st Covid vaccine Carnivac-Cov for animals.....	2
New meat-eating dinosaur fossil discovered in Argentina.....	4
Google Maps will soon direct you to low carbon footprint routes.....	6
India pushes deadline for coal-fired utilities to adopt new emission norms.....	7
File report on Musi river encroachments, says HC.....	8
India delays anti-pollution rules for coal power plants again.....	9
The day of the ural.....	11
Why India needs a plan for climate talks.....	13
Europe's heat and drought crop losses tripled in 50 years: study.....	17
Reworking net-zero for climate justice.....	19
Climate change shrinks marine life richness near equator: study.....	21
Deconstructing declarations of carbon-neutrality.....	23
New species from Arunachal added to India's bird list.....	26
Beyond zero sum: The Hindu Editorial calling rich countries to commit technology and funds towards net zero carbon emissions.....	28
Third of Antarctic ice shelf area at collapse risk due to global warming: Study.....	30
Bar Headed Goose at Hadinaru with a Mongolian 'address' around its neck.....	32
Dolphin boom in Odisha's Chilika lake.....	34
Breathing trilobites.....	36
Indus and Ganges river dolphins are two different species.....	37
Beast of five teeth: Chilean scientists unearth skunk that walked among dinosaurs.....	39
India-Denmark join hands through Atal Innovation Mission for global collaboration towards world class innovative solutions addressing water challenges& SDGs.....	40
In climate change noise, India's role as conductor.....	45
Bohag Bihu Bird Count 2021 begins on April 14.....	47
Earth Day special Apple's customers can also take part in supporting the efforts mentioned in this story. For each Apple Pay purchase from now through Earth Day (April 22), Apple will make a donation to Conservation International to support its efforts to preserve and protect the environment. However, India does not support Apple Pay at the moment.....	49
Bustard poaching in Pak. desert shocks activists.....	52
The story of 220-million-year-old rat-like creatures via microfossils.....	53
How bycatch along Indian coast is posing a significant threat to enigmatic marine megafauna... ..	55
National climate vulnerability assessment identifies eight eastern states as highly vulnerable....	57
The Ken-Betwa project reflects the ill-conceived rationale behind river-linking.....	63
Bat with sticky discs found in Meghalaya.....	66
A huge, costly mistake.....	67
India and Germany sign agreement on 'Cities combating plastic entering the marine environment'.....	69
'Godzilla' shark discovered in New Mexico gets formal name.....	72
Now, masks that grow into plants upon disposal.....	74

RUSSIA REGISTERS WORLD'S 1ST COVID VACCINE CARNIVAC-COV FOR ANIMALS

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

The world's first animal [vaccine](#) against the novel coronavirus has been registered in Russia, the country's agriculture safety watchdog Rosselkhoznadzor on Wednesday said.

The immunity lasts for six months after the vaccination, but the dose's developers are continuing to analyse this, the watchdog said, according to a *Reuters* report.

Mass production of the Covid-19 vaccine could start as early as next month, Rosselkhoznadzor said.

The use of this vaccine, as per Russian scientists, can prevent the development of virus mutations.

Know everything about the vaccine for animals

The vaccine for animals, developed by a unit of Rosselkhoznadzor (Federal Service for Veterinary and Phytosanitary Surveillance), was named Carnivac-Cov, the watchdog's deputy head Konstantin Savenkov has said.

"The clinical trials of Carnivac-Cov, which started last October, involved dogs, cats, Arctic foxes, minks, foxes and other animals," said Savenkov.

"It is the world's first and only product for preventing Covid-19 in animals," he said.

"The results of the trials allow us to conclude that the vaccine is harmless and highly immunogenic as all the vaccinated animals developed antibodies to the coronavirus in 100% of cases."

Russia already has three Covid-19 vaccines for humans, the most well-known of which is Sputnik V. Moscow has also given emergency approval to two others, EpiVacCorona and CoviVac.

Meanwhile, Russia's coronavirus cases rose by 8,711 to 4,528,543 on 29 March, the anti-coronavirus crisis centre had said.

Click here to read the [Mint ePaper](#) Mint is now on Telegram. Join [Mint channel](#) in your Telegram and stay updated with the latest [business news](#).

Log in to our website to save your bookmarks. It'll just take a moment.

Oops! Looks like you have exceeded the limit to bookmark the image. Remove some to bookmark this image.

Your session has expired, please login again.

You are now subscribed to our newsletters. In case you can't find any email from our side, please check the spam folder.

END

Downloaded from crackIAS.com

© **Zuccess App** by crackIAS.com

CrackIAS.com

NEW MEAT-EATING DINOSAUR FOSSIL DISCOVERED IN ARGENTINA

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

An artist's impression of the Cretaceous Period meat-eating dinosaur *Llukalkan aliocranianus* that lived about 80 million years ago in the Patagonia region of Argentina is seen in this handout photo obtained by Reuters on March 30, 2021. | Photo Credit: [REUTERS](#)

Scientists in Argentina have unearthed the well-preserved skull of a meat-eating dinosaur that roamed northern Patagonia about 85 million years ago — a beast with a short snout, keen hearing and stout bite strength that made it a daunting predator.

The dinosaur, named *Llukalkan aliocranianus*, measured roughly 16 feet (5 meters) long and was a member of a carnivorous group called abelisaurids that prospered in South America and other parts of Earth's Southern Hemisphere during the Cretaceous Period, researchers said on Tuesday.

Llukalkan, meaning “one who causes fear” in the local native Mapuche language, may have competed directly against a cousin that was equally impressive and slightly larger. Only about 700 meters away from where Llukalkan's fossilized skull was found, scientists previously had dug up the remains of another meat-eating dinosaur called *Viavenator exxoni*.

Both were abelisaurids, a group of two-legged predators with short skulls, sharp and serrated teeth, extremely short arms with tiny fingers and heads sometimes featuring unusual ridges and small horns. Abelisaurids generally were medium-sized compared to huge carnivorous dinosaurs such as *Tyrannosaurus rex*, which lived in North America approximately 15 million years after Llukalkan, and *Giganotosaurus*, which lived in Patagonia about 15 million years before Llukalkan.

“Yes, it is very unusual to find two abelisaurids that lived in the same locality and at approximately the same time,” said paleontologist Federico Gianechini of Argentina's National Scientific and Technical Research Council (CONICET) and the National University of San Luis, lead author of the [study published](#) in the *Journal of Vertebrate Paleontology*.

“Llukalkan was a little smaller than *Viavenator*, although, if they lived together, they surely shared the same ecological niche and fed on the same prey, so they would have competed with each other and — why not — even eaten each other,” Gianechini added. “Today, predators of different species but from the same family co-exist in the same ecosystem, such as lions, leopards and cheetahs.”

Llukalkan's skull measured about 50 cm long. A large percentage of the cranial bones were found, including a nicely preserved braincase.

“A peculiarity of this dinosaur is that it has cavities in the ear area that other abelisaurids did not have, which could have given this species different auditory capacities, possibly a greater hearing range,” Gianechini said. “The good preservation allowed us to make studies of the internal part of the braincase through tomography and thus infer the shape of the brain.”

Llukalkan had a powerful bite, based on the musculature of its jaws, and its teeth could tear flesh from its prey. Unlike some abelisaurids, its skull was not bumpy.

No bones from the rest of its body were found, though the researchers have a good idea of its body plan based on other abelisaurids. They estimate Llukalkan weighed between one and five tons.

Patagonia has produced important dinosaur finds in recent decades. Llukalkan's discovery allows for a deeper understanding of northern Patagonia's ecosystems during the Cretaceous, the final chapter of the dinosaur age. Llukalkan inhabited a semi-arid environment with a seasonal climate, hunting a variety of plant-eating dinosaurs.

Please enter a valid email address.

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com

CrackIAS.com

GOOGLE MAPS WILL SOON DIRECT YOU TO LOW CARBON FOOTPRINT ROUTES

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

Google Maps will soon direct you to low carbon footprint routes. | Photo Credit: [Special Arrangement](#)

(Subscribe to our Today's Cache newsletter for a quick snapshot of top 5 tech stories. Click [here](#) to subscribe for free.)

Google Maps will start directing users to the route with the lowest carbon footprint when it has the same estimated time of arrival as the fastest route.

Using insights from the U.S. Department of Energy's National Renewable Energy Lab, the tech giant is building a new route model based on factors like road incline and traffic congestion.

Where the eco-friendly route increases ETA, Maps will let users compare the relation carbon impact between routes. The feature will launch in the US on Android and iOS later this year.

For cities with established low emission zones, Google is working on alerts to help drivers know when they navigate through these zones so that they can switch to an alternative mode of transportation in case their personal vehicle is not allowed.

The low emission zone alerts will launch this June in Germany, the Netherlands, France, Spain and the UK.

Google is also launching a new feature that will let users compare destination times between different modes of transportation. Through automation, Maps will automatically prioritize preferred modes and boost modes that are popular in the city.

This feature will roll out globally in the coming months.

To get a sense of air quality, Google will add new weather layer that will show current and forecast temperature, and weather conditions in an area. The feature powered by data from The Weather Company, AirNow.gov and the Central Pollution board will be available for users in India, Australia, and the US.

Please enter a valid email address.

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.

END

Downloaded from [crackIAS.com](#)

© **Zuccess App** by crackIAS.com

INDIA PUSHES DEADLINE FOR COAL-FIRED UTILITIES TO ADOPT NEW EMISSION NORMS

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

India has pushed back deadlines for coal-fired power plants to adopt new emission norms by up to three years and allowed utilities that miss the new target to continue operating after paying a penalty, according to a government notice.

India had initially set a 2017 deadline for thermal powerplants to install Flue Gas Desulphurization (FGD) units that cut emissions of sulphur dioxides. But that was postponed to varying deadlines for different regions, ending in 2022.

The new order dated April 1 from the Environment Ministry says plants near populous regions and the capital New Delhi will have to comply by 2022, while utilities in less polluting area shave up to 2025 to comply or retire units.

Operators of coal-fired utilities including State-run NTPC Limited and industry groups representing private companies such as Reliance Power and Adani Power have long been lobbying for dilution of the pollution standards, citing high compliance costs.

The latest notice follows suggestions from the Power Ministry that plants be given deadlines to adopt norms in line with the severity of pollution in the region where they are located.

A task force will be constituted by the Central Pollution Control Board to categorise plants in three categories “on the basis of their location to comply with the emission norms”, the Environment Ministry said in its order.

In case of non-compliance, a penalty of up to 0.20 rupees (\$0.0027) will be levied for every unit of electricity produced.

The Power Ministry said in January that a “graded action plan” could help avoid immediate increase in power prices in various relatively clean areas of India and avoid unnecessary burden on power utilities and consumers. Indian cities have some of the world’s most polluted air.

Thermal power companies, which produce three-fourths of the country’s electricity, account for some 80% of its industrial emissions of particulate matter, sulphur- and nitrous-oxides, which cause lung diseases, acid rain and smog.

Please enter a valid email address.

END

Downloaded from crackIAS.com

© **Zuccess App** by crackIAS.com

FILE REPORT ON MUSI RIVER ENCROACHMENTS, SAYS HC

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

Expressing concern over failure of the authorities in checking illegal constructions on the buffer zones of Musi river, the Telangana High Court has instructed them to file an action taken report.

The direction was passed recently by a bench of Chief Justice Hima Kohli and Justice B. Vijaysen Reddy while hearing a Public Interest Litigation (PIL) petition on illegal encroachments of the areas on Musi river buffer zone.

Asking government counsel what the authorities were doing even as unauthorised structures were coming up on the buffer zone, the High Court bench directed the authorities concerned with the matter to furnish pictures while submitting the action-taken report.

The bench of the High Court headed by the Chief Justice sought to know why the Greater Hyderabad Municipal Corporation (GHMC) Commissioner, Khairatabad zonal commissioner, Rajendranagar Revenue Divisional Officer and Rajendranagar tahsildar failed to file counter affidavits despite the High Court directing them to do so within four weeks of the previous hearing.

Monsoon rains

Observing that within next few months monsoon rains would set in, the High Court said that illegal structures would obstruct the flow of water. The bench wondered if the authorities wanted to transform Musi buffer zone areas into breeding grounds for mosquitoes.

The failure of the authorities to contain illegal constructions would compel one to think if they were hand in glove with persons raising such illegal structures, the bench felt. It was surprising that the authorities had failed to control unauthorised constructions despite having the infrastructure and paraphernalia, the bench said.

The PIL plea was filed by a resident of Kulsumpura M. Laxman, alleging that some private persons were illegally occupying Musi buffer zone area in Jiyaguda of Attapur.

The High Court had earlier directed the authorities to conduct field inspection and file reports in the court. It came up for hearing three days ago.

The High Court posted the matter to June 3 for next hearing.

END

Downloaded from crackIAS.com

© Zuccess App by crackIAS.com

INDIA DELAYS ANTI-POLLUTION RULES FOR COAL POWER PLANTS AGAIN

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

Coal-fired plants located close to populated cities, including capital New Delhi, will now have to meet the standards by December 2022, a seven-year extension from the original plan to cap toxic emissions

India's environment ministry delayed anti-pollution guidelines for coal-fired power plants further, extending the compliance deadline by as long as two years.

Plants located close to populated cities, including capital New Delhi, will now have to meet the standards by December 2022, a seven-year extension from the original plan to cap toxic emissions, including particulate matter, sulfur dioxide and oxides of nitrogen, according to a March 31 notification.

Units close to critically-polluted areas have until end-2023 to comply, while those located in less polluted smaller towns can wait on retrofits until the end of 2024. Plants approaching closure have been exempt from the exercise, according to the notification.

Most Indian coal-fired generators have resisted installing the retrofits, citing financial stress and lack of clarity on recovery of their investments. They have found support from the power ministry, which successfully pushed for extending the original deadline and later made a case to the environment ministry for sparing plants in areas with good ambient air quality.

The cost of retrofits has added to concerns of owners of coal-fired plants that their electricity prices will become less competitive against renewable power, whose prices have been declining.

"It is very unfortunate that environment ministry sides with the polluters and law offenders time and again to give them extensions and dilutions rather than with the common public who is suffering from severe pollution and health impacts and whose interest the ministry is duty-bound to protect," Sunil Dahiya, a New Delhi-based analyst at the Centre for Research on Energy and Clean Air, said in a text message.

Coal, which helps produce about 65% of India's electricity, has been linked to the choking air pollution in its cities, as well as diseases and premature death of thousands of citizens.

The environment ministry introduced the pollution guidelines in 2015, giving the power companies two years to meet the targets. The deadline was later extended in a revised schedule that stretched until 2022, but most plants are expected to miss that too.

In its latest notification, the environment ministry placed a monetary penalty on those who miss the deadlines. Plants will pay as much as 0.2 rupees a kilowatt hour of power they generate, with the amount varying on with their location and the duration of default.

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

Click here to read the [Mint ePaper](#) Mint is now on Telegram. Join [Mint channel](#) in your Telegram

and stay updated with the latest [business news](#).

Log in to our website to save your bookmarks. It'll just take a moment.

Oops! Looks like you have exceeded the limit to bookmark the image. Remove some to bookmark this image.

Your session has expired, please login again.

You are now subscribed to our newsletters. In case you can't find any email from our side, please check the spam folder.

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com

CrackIAS.com

THE DAY OF THE URIAL

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

The heads of urial rams resemble a bandy-legged letter 'm' with their thick horns describing a flamboyant arc. Photo: Udayan Rao Pawar

For Munib Khanyari, the species which symbolises his mountain home isn't the snow leopard, Tibetan wolf, or any of the iconic animals of Ladakh. Although the arid plateau is home to seven other species of ungulates, a little known wild sheep called the urial has wormed its way into the researcher's heart.

Despite growing up in Kashmir, Khanyari didn't know of the urial until after he had set out to become a researcher. While conducting a survey of blue sheep, he came upon a skull that looked different. A shepherd identified it as shapu, a local name for the urial. It wasn't a surprise that herders knew the species. Through the course of their workday, they kept tabs on the urial herds in their meadows.

An intrigued Khanyari spent eight days looking for the species without success, and on the ninth day, he was rewarded by the sight of 200 urial. He described the beauty of the animal's rich russet coat glinting in the light. The distant purple mountains offered a breathtaking backdrop.

"Other mountain ungulates are a drab greyish white, the better to blend with their surroundings," he says. "But the urial's magnificence blew my mind. From a distance, when you see them running, they flow like the river with an ebb and flow."

The veteran biologist George Schaller had termed all the wild goats, sheep, and antelopes of the high elevations as 'Mountain Monarchs', but to Khanyari, the urial, in particular, epitomised the term.

Sleeping on the horn

The heads of rams resemble a bandy-legged letter 'm' with their thick horns describing a flamboyant arc. When Khanyari spotted a group resting on a slope, a ram rested its head at such an awkward angle that he thought the animal was dead. Only when it shook its head did he realise it had been sleeping on its horn. Later, he examined the bedding site and saw the clear impression of the appendage's grooves embedded into the snow.

Despite the impressive size of their horns, urial rams rarely fight. Instead, they study their rival's posture, sizing them up, and usually, the one with an inferiority complex gives way.

"The horns are a proxy for strength," says Khanyari. "Indirect communication may not be as glamorous as fighting, but it saves the rams from wasting their energy."

When two evenly matched challengers meet, however, their silent argument escalates to head-on battering which sounds like a pistol shot. Eventually, brawn prevails in the brawl.

The urial also communicate orally. When every member of the herd has its head down chomping greenery, one stands on a ridgeline keeping watch. If she spots danger, she blasts a snort-like whistle to alert the rest. Their heads pop up and they whistle nervously in response.

"It's funny to watch them," says Khanyari. "Some don't have a clue what's going on and don't

realise the gravity of the situation. They go right back to grazing if she stops calling.”

If she flees, the whole herd follows her like a wave.

Many dangers

The species' preference for undulating meadows makes them vulnerable not only to snow leopards and packs of wolves and stray dogs but also humans. While hunting still remains a threat, people pose another, more insidious form of danger. The terrain favoured by the urial is ideal for growing crops, rearing sheep and goats, and building military and tourism infrastructure. All of these activities cut off urial populations from each other, leaving herds as small as 15 isolated from others.

“Even if a valley has only a small flock, it is worth conserving,” Khanyari says. “Instead of seeing the situation as a glass half-empty, we could see it as half-full.”

Despite the severe stress on the species and its declining numbers, the fact that the urial continues to hang on has come to symbolise something else for Khanyari: resilience.

Janaki Lenin is not a conservationista but many creatures share her home for reasons she is yet to discover.

Please enter a valid email address.

END

Downloaded from crackIAS.com

© **Zuccess App** by crackIAS.com

Cracki

WHY INDIA NEEDS A PLAN FOR CLIMATE TALKS

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

At a time when the government is battling a covid-19 surge and trying to nurse an economic recovery, it may seem odd to focus on longer-term issues such as climate change. But the global climate change agenda leaves us with no option.

The 26th Conference of Parties of the United Nations Framework Convention on Climate Change (UNFCCC), which will review the experience since the Paris agreement of 2015, is to be held in November 2021 (CoP 26). Before that is US President Joe Biden's climate summit in April and the G7 Summit in June—Prime Minister Narendra Modi has been invited to both of these summits.

The five years since Paris have seen some positive developments. Public awareness about the dangers of climate change has increased all over the world; the growth of solar energy has been impressive; and electric vehicles have made more progress than once thought likely. However, the goal of limiting global warming above pre-industrial levels to "well below 2°C, and ideally to 1.5°C" is nowhere in sight.

Instead, the world looks set for warming of at least 3.2°C, which will be disastrous. We also know that India would be among the worst sufferers.

There is much that countries can do to reduce emissions. This includes rational energy pricing to encourage energy-efficient choices; carbon pricing to incentivise a shift from fossil fuels to green energy; upgrading the efficiency and cleanliness of coal-based thermal plants, combined with a phasing down of these plants; setting higher energy-efficiency standards for buildings; sensible urban planning to reduce the dependence on personalised motor transport; increasing forest cover, etc.

All these issues are in the realm of domestic policy and CoP 26 can only encourage governments to act. However, there are two areas where it can give a strong signal. One is to call for stronger national targets for reducing emissions while leaving it to the governments to do what needs to be done. The other is to agree on mechanisms for financing the massive investments that are needed in developing countries in order to reduce emissions.

Setting national targets

Advanced countries have begun to push for setting stronger national targets by announcing 2050 as their target date for reaching net-zero emissions. China has declared that it will get there a little later by 2060. As the fourth-largest emitter after China, the US and Europe, India is bound to come under pressure to announce a net-zero target date.

Any national targets we agree have to meet the test of "climate justice", which has been an important part of the negotiations thus far. The IPCC has reported that global emissions must drop to zero by 2050 if global warming is to be limited to 1.5°C above pre-industrial levels. But this does not mean all countries must reach net-zero by that date.

Climate justice requires that the advanced countries get there before 2050, allowing the developing countries to get there later. The developed countries should perhaps even aim at becoming net negative by 2050, which may become feasible if technologies for carbon capture from the air become economic and afforestation can be increased.

Setting national targets solely in terms of net-zero dates is also potentially misleading. Since global warming results from an increase in carbon concentration in the atmosphere, the logical approach should be to determine the global carbon budget in terms of the additional carbon that can be added to the atmosphere given the global warming target; agree upon a fair way of allocating the global budget across countries; and define an emissions trajectory for each country that is consistent with its share of the budget.

The important point is that the trajectory must keep emissions within the country's budget. There is no merit in a country reaching the net-zero date on schedule if it blows its carbon budget in the process.

We know the global carbon budget from the work of the IPCC. The carbon that can be released from 2020 onwards cannot exceed 985 gigatonnes (Gt) if global warming is to be limited to 2°C. At current rates of emission, this global budget would be exhausted by 2043. If the target is to limit the rise to 1.5°C, the global carbon budget is only 395 Gt, which would be exhausted in nine years at current rates of emission.

Converting the global carbon budget into "fair" carbon budgets for each country, from which country trajectories can be derived, presents a major problem since there is no international agreement on what might be an acceptable way of determining country shares.

Hypothetical carbon budgets

Michael Raupach et al (2014) have pointed out that the most equitable approach would be to give each country its share in world population. The most inequitable would be to determine the share based on current emissions. They have suggested a compromise that gives equal weights to the two criteria.

Chart 1 takes the carbon budgets for the four large emitters (US, Europe, China, India) and projects an emissions trajectory for each based on a formula that takes into account the current level of emissions and their recent growth. The projected emissions exhaust the carbon budget, reaching net-zero asymptotically.

Where emissions have already peaked and begun to decline—Europe and the US—they are projected to continue to decline in the future. Where emissions are low and rising, as in India, and growth compulsions call for more space for larger emissions, the projection allows for emissions to increase for a while, reach a peak, and then decline.

The 2°C target requires the US to reduce its emissions by 4.9% per year in the next 10 years and Europe by 3.2% per year in the same period. These are faster rates of reduction than the decline of about 1% per year achieved in recent years.

If the target is to limit warming to 1.5°C, then the rates of reduction required are 16.8% for the US and 11% for Europe.

For China, the projection shows a reduction in emissions by about 2.9% per year for the 2°C target compared with a growth of 0.7% per year in recent years. For the 1.5°C target a much faster rate of reduction of 11.9% would be needed.

For India, the 2°C target would allow India's emissions to rise and peak in 2026, but the increase allowed is only 0.7% per year, much slower than the 3.75% average growth rate of emissions in recent years. In the 1.5°C target scenario, India would have to peak much sooner, and reduce emissions by 3.3% per year over the next 10 years. In this scenario, India's net-zero date is

2081.

These projections are based on the Raupach formula giving equal weights for current emission share and population share. Moving the needle to give greater weight to population share would imply that advanced countries would have to get to net-zero before 2050.

Implications for India

In the absence of agreed country carbon budgets, one way of determining a net-zero date for India is to take China's self-declared net-zero date of 2060 as a reference and argue that we should reasonably be expected to reach net-zero when our per capita GDP reaches the same level as China will have reached by 2060.

The OECD long-term projections of growth in per capita GDP for China and India suggest India would get to China's 2060 level of per capita GDP sometime around 2082.

Since net-zero dates far into the future are of little use in monitoring performance, it is more useful to set targets for the next 10 or 15 years or so and then revise them on the basis of experience. Given India's very low levels of emissions per capita, we need to present our case for a period of rising emissions for some time, peaking at a certain point, and declining thereafter. This aspect has been emphasised by researchers such as Vaibhav Chaturvedi in the Council for Energy Environment and Water and Rahul Tongia in Center for Social and Economic Progress.

Ideally, NITI Aayog should study the many global climate change models which are in use and which provide different estimates of emissions reduction by major countries, consult relevant stakeholders, and come up with a feasible path ahead for reducing total emissions.

With almost 80% of our electricity coming from coal, we should also consider announcing a national target for phasing down coal-based generation of electricity. This is necessary not only to reduce carbon emissions, but also to control air pollution. Phasing down will be difficult but we do need to set some quantitative target and undertake energy planning.

On financing, where the global community could really help in containing global warming is by putting in place mechanisms for financial support to developing countries that want to build the infrastructure that is needed for a low emissions pathway. Performance in this area has been disappointing.

The Paris agreement envisaged climate-related finance for developing countries being ramped up to \$100 billion per year by 2020. The OECD estimates suggest that the actual flow was only \$79 billion in 2018, and it is not clear how much of this was additional and how much is a redirection of existing flows.

There is little doubt that if developing countries are to transit to a low emissions path, they will need much larger resources than they have. The additional investments in the energy sector needed in developing countries are estimated to exceed \$400 billion per year between 2016 and 2050 even to meet the 2°C target. In addition, these countries have to bear adaptation costs that the UN estimates at about \$70 billion per year, rising to \$390 billion by 2050.

These are large amounts, but they are not impossible given the size of the stimulus packages unveiled by advanced countries to cope with the short run effect of the pandemic. With the world awash with liquidity, and central banks promising a prolonged period of low interest rates, it should be possible to use the existing multilateral institutions to channel much larger volumes of

finance for the development of green infrastructure.

This would encourage developing countries to take stronger steps to invest in low carbon infrastructure. Every year's delay in this only locks the developing countries further on a high emissions path. Increased investments in these areas in developing countries would also impart a much-needed expansionary stimulus to the global economy.

We conclude that limiting global warming to 1.5°C will require advanced countries to reach net-zero well before 2050 while developing countries are allowed more time to get there. This will have the advantage of ensuring faster development of technology which, in turn, will help developing countries make their own transition.

India could make quantitative commitments on a peaking date for emissions and perhaps announce a plan to phase down coal-based electricity generation. Needless to say, we should make clear that our national targets can only be achieved as part of a global agreement in which advanced countries do their bit.

Montek Singh Ahluwalia is a Distinguished Fellow, Center for Social and Economic Progress; Utkarsh Patel is an Associate Fellow, CSEP.

Click here to read the [Mint ePaper](#) Mint is now on Telegram. Join [Mint channel](#) in your Telegram and stay updated with the latest [business news](#).

Log in to our website to save your bookmarks. It'll just take a moment.

Oops! Looks like you have exceeded the limit to bookmark the image. Remove some to bookmark this image.

Your session has expired, please login again.

You are now subscribed to our newsletters. In case you can't find any email from our side, please check the spam folder.

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com

EUROPE'S HEAT AND DROUGHT CROP LOSSES TRIPLED IN 50 YEARS: STUDY

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

An aerial view shows a harvester cutting corn on a hot summer day in Haltern, Germany, July 4, 2015. | Photo Credit: [REUTERS](#)

(Subscribe to Science For All, our weekly newsletter, where we aim to take the jargon out of science and put the fun in. [Click here.](#))

The severity of crop losses driven by heat waves and drought have tripled in the last fifty years in Europe, [according to a study](#) that highlights the vulnerability of food systems to climate change.

Research published recently in the journal *Environmental Research Letters*, looked at agricultural production in 28 European countries — the current European Union and United Kingdom — from 1961 to 2018.

They compared this to data on extreme weather events — droughts, heat waves, floods and cold snaps — and found evidence suggesting "climate change is already driving increasing crop losses in observational records".

While all four became significantly more frequent over the 50-year time period, "the severity of heatwave and drought impacts on crop production roughly tripled", from losses of 2.2% between 1964 and 1990 to 7.3% from 1991 to 2015.

The study found that droughts in particular, which are becoming more frequent, are also becoming more and more intense: "the most severe events become disproportionately more severe".

Scientists link Europe heat wave to man-made global warming

Overall, European crop yields still increased in the period, by almost 150 % between 1964-1990 and 1991-2015, said lead author Teresa Bras, from the Nova School of Science and Technology in Lisbon.

But losses connected to extreme weather were different depending on the crop. "Cereals, a staple that occupies nearly 65 % of the EU's cultivated area and is mainly used for animal feed, is the crop most severely affected," said Bras. These showed "consistently larger losses" linked to droughts and heat spells than other crops, the report said, intensifying by more than 3 % for every drought year.

Researchers said this could be explained by the more widespread irrigation of other crops like vegetables, grape vines and fruit.

Climate change is expected to multiply weather extremes, including heat waves and droughts and the study warned of "ripple effects" from impacts on Europe across the global food system and on food prices.

The study said the punishing heat wave and drought of 2018 in Europe caused a decrease in

grain production of 8% compared to the average of the previous five years, "which caused fodder shortages for livestock and triggered sharp commodity price increases".

Since the 2015 Paris climate deal, the world has experienced its five hottest years on record.

The UN's Food and Agriculture Organization has warned that food production is "extremely sensitive" to climate change.

Earlier this month [a study published in the journal](#) *Nature Geoscience* found that recent summer droughts in Europe were the most severe the region has seen in 2,110 years and noted a sudden intensification since 2015.

Please enter a valid email address.

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com

CrackIAS.com

REWORKING NET-ZERO FOR CLIMATE JUSTICE

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

Global transformation is affecting the planet. But there is no uniform transformation across the world. Global temperature increased sharply only after 1981 with little contribution from the developing countries as their industrialisation and urbanisation had yet to begin.

In 2015, at the UN General Assembly when the Sustainable Development Agenda 2030 was adopted and at the Paris Conference, Prime Minister Narendra Modi stressed a reframing of climate change to climate justice, arguing that just when countries such as India were becoming major industrial and middle class nations, they should not pay the price for the pollution caused by the West. The Paris Agreement, explicitly recognises that peaking will take longer for such countries and is to be achieved in the context of “sustainable development and efforts to eradicate poverty”.

This balance is now being upset for a common target and timetable, with non-governmental organisations (mostly foreign funded) in support and negotiators (mostly public servants) opposing the pressure. India will meet its Paris Agreement target for 2030, its per-capita emissions are a third of the global average, and it will in future remain within its share of ecological space. The pressure arises from the way the agenda has been set.

First, inequity is built into the Climate Treaty. Annual emissions make India the fourth largest emitter, even though climate is impacted by cumulative emissions, with India contributing a mere 3% compared with 26% for the United States and 13% for China. According to the United Nations, while the richest 1% of the global population emits more than two times the emissions of the bottom 50%, India has just half its population in the middle class and per capita emissions are an eighth of those in the U.S. and less than a third of those of China.

Second, the diplomatic history of climate negotiations shows that longer term goals without the strategy to achieve them, as in the case of finance and technology transfer, solve a political problem and not the problem itself. The focus on physical quantities, emissions of carbon dioxide and increase in global temperature, measures impacts on nature whereas solutions require an analysis of drivers, trends and patterns of resource use. The current framework considers symptoms, emissions of carbon dioxide, and was forced onto developing countries to keep the discussion away from the causes of the problem, the earlier excessive use of energy for high levels of well-being.

Third, models on which global policy recommendations for developing countries are based consider achieving ‘reasonable’ not ‘comparable’ levels of well-being to show that early capping of energy use will not affect their growth ignoring costs on the poor. The different means to achieve the goals are not on the agenda because the rising prosperity of the world’s poor does not endanger the planet and the challenge is to change wasteful behaviour in the West.

The vaguely worded ‘net zero’ emissions, balancing emissions and removals, could be disastrous for development latecomers like India because the current frame fails to recognise that more than half the global cumulative emissions arose from infrastructure, essential for urban well-being.

First, infrastructure has a defining role in human well-being both because of the services it provides outside the market and the way it shapes demand distinct from manufacturing (production) and lifestyles (consumption), which alone are captured in model projections.

Second, the global trend is that in an urbanised world, two thirds of emissions arise from the demand of the middle class for infrastructure, mobility, buildings and diet. There is no substitute to cement, steel and construction material, and worldwide they will need half the available carbon space before comparable levels are reached around 2050, while developed countries use most of the rest. For developed countries, peaking of emissions came some 20 years after infrastructure saturation levels were reached and net-zero emissions are being considered some two decades even later to take advantage of aging populations and technology.

Third, because of its young population and late development, much of the future emissions in India will come from infrastructure, buildings and industry, and we cannot shift the trajectory much to reach comparable levels of well-being with major economies. For example, China's emissions increased three times in the period 2000-2015, driven largely by infrastructure.

A global goal-shaping national strategy requires a new understanding. India must highlight unique national circumstances with respect to the food, energy and transportation systems that have to change. For example, consumption of meat contributes to a third of global emissions. Indians eat just 4 kg a year compared with around 68 kg per person for the European Union and twice that in the U.S. where a third of the food is wasted by households. Transport emissions account for a quarter of global emissions, are the fastest growing emissions worldwide and have surpassed emissions from generation of electricity in the U.S., but are not on the global agenda.

Coal accounts for a quarter of global energy use, powered colonialism, and rising Asia uses three-quarters of it as coal drives industry and supports the renewable energy push into cities. India with abundant reserves and per-capita electricity use that is a tenth that of the U.S. is under pressure to stop using coal, even though the U.S. currently uses more coal. India wants to eliminate the use of oil instead with renewable energy and hydrogen as a fuel for electrification, whose acceleration requires international cooperation around technology development and transfer.

In the Paris Agreement, 'climate justice' was relegated to the preamble as a political, not policy, statement. It needs to be fleshed out with a set of 'big ideas'. The first is a reframing of the global concern in terms of sustainable development for countries with per capita emissions below the global average, in line with the Paris Agreement. Second, the verifiable measure should be well-being within ecological limits. Third, international cooperation should centre on sharing technology of electric vehicles and hydrogen as a fuel, as they are the most effective response to climate change.

Mukul Sanwal is former Director, United Nations Framework Convention on Climate Change, climate negotiator and public servant

Please enter a valid email address.

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

END

Downloaded from crackIAS.com

© **Zuccess App** by crackIAS.com

CLIMATE CHANGE SHRINKS MARINE LIFE RICHNESS NEAR EQUATOR: STUDY

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

This undated handout photo provided by Marinelifephotography.com shows a reef slope densely covered by soft corals in Southeast Sulawesi, Indonesia. | Photo Credit: [AP](#)

During some summers, as the Caribbean water temperatures climb, the luminous coral colonies of gold, green and blue that ring the island nation of Cuba give way to patches of skeletal white. The technicolor streaks of darting tropical fish flash less frequently. The rasping sounds of lobsters go quiet.

While Cuba's marine life has suffered from overfishing and pollution, there is mounting evidence that the warming of waters due to climate change may be taking a large toll as well — both off the island's coast and globally.

[Research published Monday](#) finds that the total number of open-water species declined by about half in the 40 years up to 2010 in tropical marine zones worldwide. During that time, sea surface temperatures in the tropics rose nearly 0.2.

"Climate change is already impacting marine species diversity distribution," with changes being more dramatic in the Northern Hemisphere where waters have warmed faster, said study co-author Chhaya Chaudhary, a biogeographer at Goethe University.

While numerous factors like overfishing have impacted tropical species, the study published in the *Proceedings of the National Academy of Sciences* found a strong correlation between species decline and rising temperature. Fish species diversity tended to either plateau or decline at or above 20, the researchers found.

While past studies have shown that ocean warming is driving some species to migrate to cooler waters, the new study attempts to gauge that impact more broadly — analyzing data on 48,661 marine species including fish, mollusks, birds and corals since 1955.

The dataset is a representative sample of 20% of all named open-water and seabed-dwelling marine species - like corals and sponges, researchers said.

The number of species attached to the seafloor remained somewhat stable in the tropics between the 1970s and 2010, according to the study. Some were also found beyond the tropics, suggesting they had expanded their ranges. In other words, scientists say, species that can move are moving.

"In geological history, this has occurred in the blink of an eye," said Sebastian Ferse, an ecologist at the Leibniz Centre for Tropical Marine Research who was not involved with the study. "To see such changes occurring so rapidly is something quite alarming."

For fixed species like corals, moving is not an option.

"One of the big questions is 'Will coral reefs as ecosystems and corals as species be able to move north or south enough fast enough to adjust to a changing climate?'" Ferse said.

Having fleets of fish and other swimmers shift rapidly to more temperate waters could devastate the coral ecosystems they leave behind — along with any fishing and tourism industries that rely on them.

Such changes “can have a really huge impact on some of the most vulnerable human communities around the planet,” said Stuart Pimm, a conservation scientist at Duke University not involved in the study.

For Cuba, such an impact could unravel the island nation’s efforts to manage its underwater gardens although its corals have been less stressed by coastal development and pollution than corals elsewhere. They are considered more resilient to ocean warming.

“It’s impressive to return to an area that experienced significant bleaching the year before, but looks perfectly healthy a year later,” said Daniel Whittle, who heads the Caribbean program at the Environmental Defense Fund.

Cuba opened its first coral reef nursery four years ago to research which species coped best with warming and eventually to repopulate depleted reefs. The country is also restoring coastal mangroves, which serve as fish nurseries and shelter.

Chaudhary and her colleagues plan next to look at which tropical species were in decline or were migrating.

Please enter a valid email address.

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com

Crack

DECONSTRUCTING DECLARATIONS OF CARBON-NEUTRALITY

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

At the latest count by the non-profit Energy and Climate Intelligence Unit (ECIU), at the beginning of April, 32 countries had declared, [in some documented form](#), their proposed intention to achieve carbon neutral status by mid-century or thereabouts. Of these, only eight have any firm status, the rest being in the form of proposed legislation or mentions in policy documents. Since some months ago, the UN Secretary General has taken the lead in sparking off an international chorus, led by global civil society organisations based in the developed countries and encouraged by their governments, that is urging all countries, especially India, to make explicit declarations.

The impetus for such declarations arises from Article 4.1 of the Paris Agreement (<https://bit.ly/3wzicF4>) that states that “In order to achieve the long-term temperature goal set out in Article 2, Parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country Parties, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty”.

The temperature goal referred to is the much better known declaration of intent of the Paris Agreement, of limiting temperature rise to well below 2°C and further pursuing efforts to restrict it to 1.5°C above pre-industrial levels.

It is evident that the balance of emissions and removal of greenhouse gases is not sought on a country-wise basis but for the world as a whole. Though both developed country governments and civil society outfits commonly state this as an individual commitment by all countries, the text of the Paris Agreement clearly indicates, based on considerations of equity and differentiation, that this is a global goal.

However, there are two, related and more critical, issues that are often ignored. The first is the compatibility of the intent of Article 4.1 and Article 2. Is the achievement of carbon neutrality compatible with achieving the 1.5°C or 2°C. goal? And whether the mid-century carbon neutrality goals of developed countries are compatible with Article 2.2 that declares that the Paris Agreement “will be implemented to reflect equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances”.

The hard scientific reality is that such a three-way compatibility between temperature goals, carbon neutrality, and equity is not only not guaranteed, but cannot be achieved for the 1.5°C temperature goal at all. And even for the 2°C goal, the current pledges are highly inadequate. This harsh conclusion follows from straightforward scientific considerations, based on the global carbon budget, which indicates the limits on global cumulative emissions, from the pre-industrial era to the time when net emissions cease, that correspond to definite levels of global temperature rise.

According to the The Intergovernmental Panel on Climate Change Special Report on Global Warming of 1.5° warming (<https://bit.ly/39Sag8p>), what remains of this global carbon budget

from 2018 onwards, for a 50% probability of restricting temperature rise to less than 1.5°C, is 480 Giga-tonnes (billion tonnes) of carbon dioxide equivalent (GtCO₂eq). At the current rate of emissions of about 42 GtCO₂eq per year, this budget would be consumed in 12 years. To keep within the 480 Gt budget, at a steady linear rate of decline, global carbon neutrality must be reached by 2039. While this is quite clearly infeasible, other pathways that either frontload or backload the period of most rapid decline have even greater barriers to realisation.

For a 50% probability of restricting temperature rise to below 2°C, the budget is considerably more generous, amounting to about 1,400 GtCO₂eq, that provides considerably greater room for manoeuvre.

But the hollowness of nation-level carbon neutrality declarations by developed countries is brought out more starkly when we consider the details, as in the case of the United States and the European Union. Emissions in the U.S. (not considering land use and land use change and forest related emissions) (LULUCF), peaked in 2005 and have declined at an average rate of 1.1% from then till 2017, with a maximum annual reduction of 6.3% in 2009, at the height of a recession. Even if it did reach net-zero by 2050 at a steady linear rate of reduction, which is unprecedented, its cumulative emissions between 2018 and 2050 would be 106 GtCO₂, which is 22% of the total remaining carbon budget for the whole world — so high, that unless others reduced emissions at even faster rates, the world would most certainly cross 1.5°C warming.

Indeed, if the U.S. has to stay within its fair share of the remaining carbon budget, it would have to reach net zero emissions (with linear reduction) by 2025. It would still owe a carbon debt of 470 GtCO₂ to the rest of the world for having used more than its fair share of carbon space in the past. At a very moderate carbon price of \$30 per tonne of CO₂, this translates to a carbon debt of over \$14 trillion, that the U.S. owes the world.

Similarly, the European Union, to keep to its fair share of the remaining carbon budget would have to reach net zero by 2033, with a constant annual reduction in emissions. Individual countries will have different dates for a fair net zero — Germany's is 2030. If the EU reaches net zero only by 2050 it would consume at least 71 GtCO₂, well above its fair share. Either way, the EU owes the world a carbon debt of about \$9.3 trillion (at the same price of \$ 30/tCO₂) for past emissions.

Regrettably, a section of the climate policy modelling literature has promoted the illusion that this three-way compatibility is feasible through speculative “negative emissions”, ostensibly through dramatic expansion of carbon capture, primarily by the biosphere. They have also been promoting the other illusion that not resorting to any serious emissions increase at all is the means to guarantee the successful development of the Third World.

India clearly should not join this game of carbon neutrality declarations, for a number of reasons. For one, India has to stay focused on development — both as its immediate need as well as its aspirational goal. While sustainability is desirable, the question of how low India's future low-carbon development can be is highly uncertain. India's current low carbon footprint is a consequence of the utter poverty and deprivation of a majority of its population, and not by virtue of sustainability.

Second, India does not owe a carbon debt to the world. India's emissions (non-LULUCF) are no more than 3.5% of global cumulative emissions prior to 1990 and about 5% since till 2018. Nor are India's current annual emissions such as to seriously dent the emissions gap between what the world needs and the current level of mitigation effort, even as India's mitigation efforts are quite compatible with a 2°C target. Any self-sacrificial declaration of carbon neutrality today in the current international scenario would be a wasted gesture reducing the burden of the

developed world and transferring it to the backs of the Indian people.

Much of the argument for India declaring a target year for net-zero derives unfortunately from some form of climate hubris, accompanied by the hype that India risks being “left out” of some imagined global convergence in the climate arena. One variant of the hubris sees India taking the lead in some global ecological alternative driven by frugality, minimal consumption and little technological advance. Another imagines that India will somehow, in very short order, emerge as a global leader of green manufacturing and industry. While the latter is belied by the character of India’s overall growth trajectory, the former is clearly socio-politically infeasible and morally unacceptable.

India’s twin burden of low-carbon development and adaptation to climate impacts, is onerous and no doubt requires serious, concerted action.

India’s approach to eventual net-zero emissions is contingent on deep first world emissions reductions and an adequate and unambiguous global carbon budget. Meanwhile, India must reject any attempt to restrict its options and be led into a low-development trap, based on pseudo-scientific narratives.

T. Jayaraman is with the M.S. Swaminathan Research Foundation, Chennai. Tejal Kanitkar is with the National Institute of Advanced Studies, Bengaluru

Please enter a valid email address.

END

Downloaded from crackIAS.com

© **Zuccess App** by crackIAS.com

Crackki

NEW SPECIES FROM ARUNACHAL ADDED TO INDIA'S BIRD LIST

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

First look: The new species was found during a survey of finches across the Eastern Himalayas.

A bird spotted in Arunachal Pradesh at an altitude higher than its recorded perch in adjoining China has become the 1,340th species of the bird family in India.

The three-banded rosefinch is a resident of southern China and a vagrant in Bhutan. A team of scientists from Bombay Natural History Society (BNHS) spotted and photographed this rare species of bird in Arunachal Pradesh on February 8.

The team comprising BNHS assistant director Girish Jathar and researchers Atharva Singh and Himadri Sekhar Mondal published their finding in the latest issue of the journal *Indian Birds*.

The new species of bird was found during an intensive survey of finches across the Eastern Himalayas as a part of an ongoing study. The survey team members spotted the three-banded rosefinch with a flock of white-browed rosefinch, a species commonly seen in this landscape.

"A male and a female three-banded rosefinch were seen at Sela (mountain pass on the border between Tawang and West Kameng districts of Arunachal Pradesh) at an altitude of 3,852 metres above sea level," Dr. Jathar said.

"The altitudinal record of the sighting of this species from India is higher than its previous known altitudinal record from China. This has opened up interesting ecological research on this species," he added.

The three-banded rosefinch belongs to the family Fringillidae, which are seed-eating passerine birds with a distinctively conical bill.

"The three-banded rosefinch may be using the high altitude temperate coniferous forest of Arunachal Pradesh as a passage while migrating from China to Bhutan," said Mr. Singh, the lead author of the paper on the new species.

"Little information is available on the ecology of this species," Mr Mondal said.

Prior to the addition of the three-banded rosefinch in the bird list of India, there were 1,339 avian species reported from across the country.

Since 2016, the bird checklist has increased by 104 species new to India. There were three additions to the checklist of India while the three-banded rosefinch was the fifth new species recorded during the current year.

Please enter a valid email address.

END

CrackIAS.com

BEYOND ZERO SUM: THE HINDU EDITORIAL CALLING RICH COUNTRIES TO COMMIT TECHNOLOGY AND FUNDS TOWARDS NET ZERO CARBON EMISSIONS

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

The [visit of the U.S. Special Presidential Envoy for Climate, John Kerry](#), ahead of a leaders' summit convened by President Joe Biden later this month on the climate challenge, has prompted a review of India's long-term policy course. To the developed world, India presents a study in contrasts, with carbon dioxide emissions that rank in the top five globally, while millions of its citizens remain mired in energy poverty and underdevelopment. Ironically, to many smaller countries, including island nations hit by intense storms, lost farm productivity, droughts and heat waves linked to a changing climate, India contributes to the problem with its total annual emissions. It is unsurprising, therefore, that the clamour is growing for India to join many other big economies and commit itself to net zero emissions: to balance carbon emissions with their removal from the atmosphere, by a specific date. Evidently, Mr. Kerry sought to explore the possibility of raising national ambition, with the assurance that the U.S., pursuing major green technology initiatives in the post-Donald Trump era, would support such a road map. His meeting with Prime Minister Narendra Modi has been positive. It would, of course, reassure not just India but other emerging nations as well, if the climate diplomacy of the North under the Paris Agreement is underpinned by funding and technology transfer guarantees to reduce emissions. If climate change is the biggest crisis today, the solutions require the U.S, the U.K., Europe and others who occupied the bulk of the world's carbon budget to give up further emissions in favour of the developing world and fund the transition.

Even if India does not commit itself to a net zero deadline, and prefers to wait for the post-pandemic development pathways to become clear, it cannot afford to ignore the impact that its project decisions — such as deforestation — will have on the climate. At the peak of COVID-19 last year, the Centre saw it fit to press ahead with environmental clearances that would have a serious negative impact. It extended the deadline for coal plants to adopt strict pollution control, and proposed gross dilution of norms to assess environmental impact of projects. Fuel prices, at historic highs due to taxation, pay no specific environmental dividend, and the poorest are worst hit by its inflationary effects. What India should be doing in the run-up to the UN Convention on Climate Change in Glasgow, scheduled later this year, is to come up with a domestic climate plan that explains to the citizen how it will bring green development in this decade, specifying a target by sector for each year. This would align internal policies with the justifiable demand that rich countries uphold the principle enshrined in the UN Framework Convention on Climate Change, of common but differentiated responsibilities to build equity. Taxing luxury emissions, whether it is cars, air-conditioners, big properties or aviation, for specified green development outcomes, will send out a convincing message.

Please enter a valid email address.

From the abrogation of the special status of Jammu and Kashmir, to the landmark Ayodhya verdict, 2019 proved to be an eventful year.

END

CrackIAS.com

THIRD OF ANTARCTIC ICE SHELF AREA AT COLLAPSE RISK DUE TO GLOBAL WARMING: STUDY

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

An ice shelf in Antarctica. File photo for representation. | Photo Credit: [AP](#)

Over a third of the Antarctic's ice shelf area may be at risk of collapsing into the sea if global temperatures reach four degrees Celsius above pre-industrial levels, according to a study.

The research, published in the *Geophysical Research Letters* journal, found that 34 % of the area of all Antarctic ice shelves – around half a million square kilometers – including 67 % of ice shelf area on the Antarctic Peninsula, would be at risk of destabilisation under such a warming scenario.

The team also identified Larsen C – the largest remaining ice shelf on the peninsula, which split to form the enormous A68 iceberg in 2017 – as one of four ice shelves that would be particularly threatened in a warmer climate.

"Ice shelves are important buffers preventing glaciers on land from flowing freely into the ocean and contributing to sea level rise," said Ella Gilbert from the University of Reading in the UK.

"When they collapse, it's like a giant cork being removed from a bottle, allowing unimaginable amounts of water from glaciers to pour into the sea," Ms. Gilbert said.

The researchers noted that limiting temperature rise to two degrees Celsius rather than four degrees Celsius would halve the area at risk, and potentially avoid significant sea level rise.

They noted that when melted ice accumulates on the surface of ice shelves, it can make them fracture and collapse spectacularly.

Previous research has given the scientists the bigger picture in terms of predicting Antarctic ice shelf decline.

However, the new study uses the latest modelling techniques to fill in the finer detail and provide more precise projections.

"The findings highlight the importance of limiting global temperature increases as set out in the Paris Agreement if we are to avoid the worst consequences of climate change, including sea level rise," said Ms. Gilbert.

The study used state-of-the-art, high-resolution regional climate modelling to predict in more detail than before the impact of increased melting and water runoff on ice shelf stability.

The team said the ice shelf vulnerability from this fracturing process was forecast under 1.5, 2 and 4 degrees Celsius global warming scenarios, which are all possible this century.

Ice shelves are permanent floating platforms of ice attached to areas of the coastline and are formed where glaciers flowing off the land meet the sea, they said.

The researchers identified the Larsen C, Shackleton, Pine Island and Wilkins ice shelves as

most at-risk under four degrees Celsius of warming, due to their geography and the significant runoff predicted in those areas.

"If temperatures continue to rise at current rates, we may lose more Antarctic ice shelves in the coming decades," Ms. Gilbert added.

Please enter a valid email address.

Here are some of the most interesting research papers to have appeared in top science journals last week.

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com

CrackIAS.com

BAR HEADED GOOSE AT HADINARU WITH A MONGOLIAN 'ADDRESS' AROUND ITS NECK

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

A collared Bar Headed Goose at Hadinaru lake near Mysuru. The bird had been tagged at Arkhangai province in Central Mongolia. Photo: MS Darshan

A banded migratory bird in its non-breeding ground comes with the easy traceability of a postal-letter with a 'from' address scribbled on the back flap.

Deciphering the band, the whereabouts of where the bird 'builds' its 'home' can be established with a degree of accuracy. Unless the bird had been banded at what constitutes just a pit stop on its migratory journey.

April marks the return of migratory bird species visiting India, back to their breeding grounds. The Bar Headed Goose (*Anser Indicus*) winters at Hadinaru lake (which takes its name after a village near Mysuru) usually in numbers so significant that their chorus of clucks can reduce the world's most loquacious classroom to a barely-audible whisper.

After a migratory season marked by greater gregariousness, Bar Headed Geese are checking out of Hadinaru.

An IT professional from Chennai, MS Darshan works remotely from his hometown Mysuru due to the pandemic, a factor that has enabled him to make frequent weekend visits to the freshwater lake during the 2020-21 migratory season, and study its signature migratory-species.

Now, Darshan knows can now predict where a good number of these Bar Headed Geese are headed. At the least, where one bird would likely spend the next four to five months.

On February 27, he photographed a Bar Headed Goose with a colour-coded neck collar at Hadinaru. His efforts to decrypt the band by connecting with Mongolian conservation scientists bore fruit this month, as he heard from Tsevenmyadag N. of Wildlife Science and Conservation Center of Mongolia.

In the communication to Darshan, Tsevenmyadag wrote:

"This green color band F88 bird was captured and marked Wildlife Conservation and Science Center in Mongolia on 13 July 2019 at the Salt lake near Tsakhir soum in province Arkhangai of the Central Mongolia. Capture location is N48.126314, E99.143451. This bird was identified as an adult male, weighed 2815 g. Also marked aluminum band X000542 in tarsus and Track tag KE1916."

The Bar-Headed Goose's breeding grounds include Central Mongolia and Tibet. There is even documentation of the species breeding in Ladakh, India.

The band now makes it possible to tick a box with some certainty.

From a citizen-science point of view, interest in banded migratory birds, accompanied by an equal keenness to learn what the bands reveal and share the findings, can turn birding into an activity that shores up conservation efforts. Data and observations from the field, obtained

through field glasses and zoom-lenses of citizen-birders, are crucial to assessing the size of bird populations and the status of habitats.

Darshan points out he made 14 visits to Hadinaru lake during this migratory season, with the last one on 27 March, 2021.

At the height of this season, he says, there would have been around a thousand Bar Headed Geese at the lake.

“This year, the highest I counted is 980,” discloses Darshan, adding

The high number was sustained till it was time for the birds to start their return migration.

“There is a specific reason for that. This year water was released to the canals by the first week of March. So, farmers started preparing their paddy fields. The paddy shoots attracted them in more numbers. Usually, we do not see them on ground near Hadinaru. They just come to roost, but because of the paddy, their number also increased and they even started to feed here,” explains Darshan.

“Despite this, the villagers do not disturb the Bar Headed Geese. They are aware the species comes from another country. They are even aware that it makes the return journey after the first rain of summer. They know it is now time for the species’ return journey; and so not much damage to the crops is possible.”

Besides, as Darshan underlines, it is only rarely that the Bar Headed Goose takes to the cultivation fields adjacent to the Hadinaru lake.

“Most of the time, Bar Headed Geese do not visit these farmlands. Because, the crop would have been harvested long before their arrival in large numbers. Only if canal water is released, farmers start preparation for the second crop.”

Please enter a valid email address.

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com

DOLPHIN BOOM IN ODISHA'S CHILIKA LAKE

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

An Irrawaddy dolphin spotted in Chilika lake. Photo: Special Arrangement

The population of dolphins in Chilika, India's largest brackish water lake, and along the Odisha coast has doubled this year compared with last year.

The wildlife wing of the State Forest and Environment Department released the final data on the dolphin census conducted in January and February this year, indicating a spectacular growth in numbers.

Divided into 41 units, wildlife activists, academicians, Forest Department officials, NGO members, boat operators and researchers from the Bombay Natural History Society, Mumbai, participated in the estimation exercise.

The population estimation exercise for dolphins and other cetacean species covered almost the entire coast of Odisha.

Three species were recorded during the census, with 544 Irrawaddy, bottle-nose and humpback dolphins sighted this year, compared with 233 last year.

Wildlife activists are elated over the sizeable growth in the population of endangered Irrawaddy dolphins, which are mostly found in Chilika lake, jumping from 146 in 2020 to 162 this year. Apart from Chilika, 39 Irrawaddy dolphins were sighted in the Rajnagar mangrove division, though their number has come down from 60 in 2020.

The highest growth has been noticed in the case of humpback dolphins. Only two humpbacks were sighted in the Rajnagar mangrove in 2020. In 2021, however, this population grew astronomically to 281.

"In 2020, the weather conditions were really bad. This year, our teams came across some large groups of humpback dolphins near Ekakula and Habelikhati areas, close to the Gahirmatha Olive Ridley nesting ground," said Bikash Das, Divisional Forest Officer, Rajanagar (Mangrove) Division.

"These humpback dolphins were not part of any riverine systems, so they cannot be identified as residential mammals. They were spotted travelling along the Odisha coast and the number is likely to fluctuate in the next census," Mr. Das added.

The number of bottle-nose dolphins grew from 23 in 2020 to 54 this year.

"The rise in the Irrawaddy [dolphin] population in Chilika can be attributed to the eviction of illegal fish enclosures. After thousands of hectares of Chilika water were made encroachment-free, Irrawaddy dolphins found unobstructed area for movement. Moreover, due to the COVID-19 lockdown last year, there were comparatively fewer tourist boats on Chilika lake, which made it conducive for dolphins to move from one part [of the lake] to another," said Susanta Nanda, Chief Executive of Chilika Development Authority.

Please enter a valid email address.

END

Downloaded from crackIAS.com

© **Zuccess App** by crackIAS.com

CrackIAS.com

BREATHING TRILOBITES

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

How did ancient marine creatures breathe?

A major milestone in evolutionary history occurred about 370 million years ago – the water-to-land transition – when a certain fish species converted its fins to limbs and modified its respiratory organ for air-breathing. So how did the creatures breathe when in water? A new study (*Science Advances*) has found evidence of advanced breathing organs in 450-million-year-old sea creatures called Trilobites.

Fossil studies showed that trilobites used gill-like structures hanging off their thighs to breathe. This went unnoticed for decades as scientists thought the upper branch of the leg was non-respiratory just like the upper branch seen in present-day crustaceans.

Advanced Computer tomography or CT scanner helped read the fossil and surrounding rock and 3D models of the gill structures were created. Paleontologist Melanie Hopkins, a research team member at the American Museum of Natural History explained in a release that the new technique helped get a view that would even be hard to see under a microscope. The gill structures were just 10 to 30 microns wide. For comparison, a human hair is about 100 microns thick.

The researchers write that blood would have filtered through chambers in these tiny structures and helped pick up oxygen. They note that this ancient gill is similar to those found in present-day crabs and lobsters.

Please enter a valid email address.

Researchers expect this finding to help manufacturers further develop smart hearing aids

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com

INDUS AND GANGES RIVER DOLPHINS ARE TWO DIFFERENT SPECIES

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

Closely protected: Dolphin tissue or sample cannot be transferred outside the country without permission. | Photo Credit: [Mansur-WCS Bangladesh](#)

“What’s in a name? A rose by any other name would smell as sweet,” wrote Shakespeare. But ask a taxonomist and she will tell you how naming plays an important role in understanding and organising the diverse life forms on our planet. Now, a new study has once again shown the importance of taxonomic classification. Detailed analysis of South Asian river dolphins has revealed that the Indus and Ganges River dolphins are not one, but two separate species.

Currently, they are classified as two subspecies under *Platanista gangetica* and this needs a revision. The study estimates that Indus and Ganges river dolphins may have diverged around 550,000 years ago.

The international team studied body growth, skull morphology, tooth counts, colouration and genetic makeup and published the findings last month in *Marine Mammal Science*.

The corresponding author of the study Gill T. Braulik from the University of St. Andrews, U.K. explains about the DNA analysis to *The Hindu*: “To collect mitochondrial DNA, one would normally use skin samples or blood and hair. But in this instance, we didn’t really have access to fresh tissue samples. So we got ancient DNA out of skulls and skeletons, which were 20 to 30 to even 150 years old. Looking at the sequences in the DNA, it was quite clear that the Ganges dolphins and the Indus dolphins were quite different.”

The paper notes that “comparative studies of animals in the two river systems are complicated by the fact that they occur in neighboring countries separated by an unfriendly international border...Thus, sharing of samples or data between countries is extremely challenging.”

One of the authors of the paper Ravindra K. Sinha from Patna University explains: “The Ganges dolphin is a Schedule I animal under the Indian Wildlife (Protection) Act 1972, and has been included in Annexure – I of Convention on International Trade in Endangered Species (CITES), so you cannot transfer any tissue or sample to foreign countries without getting CITES permission from the Competent Authority of Government of India.” Another reason was that finding dead animals were uncommon because they either float downstream or sink, and museum collections worldwide contain only a few specimens and most of them are damaged.

The Indus and Ganges River dolphins are both classified as ‘Endangered’ species by the International Union for Conservation of Nature (IUCN). Dr. Sinha who has been studying Ganges dolphins for almost four decades explains that physical barriers such as dams and barrages created across the river reduced the gene flow to a great extent making the species vulnerable; He adds that river flow is also declining very fast as river water is being diverted through the barrages and this has affected the dolphin habitats. “Previously fishermen used to hunt dolphins and use their oil as bait, but though that practice of directed killing has stopped and they are not being hunted intentionally they end up as accidental catches. Also, before the 1990s, we had oar boats and country boats; but now mechanised boats are also causing accidental injury to the dolphins.”

Being a part of the Ganga Action Plan, Dr. Sinha monitored a large stretch of the river and noted that both point and non-point sources of pollution are affecting the dolphin habitat. “Recently we saw the Chinese river dolphin go extinct. Though the Indian government has given legal protection to the dolphin, more ground action and close work with local communities are needed to help them survive,” adds Dr. Sinha.

Please enter a valid email address.

Researchers expect this finding to help manufacturers further develop smart hearing aids

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com

CrackIAS.com

BEAST OF FIVE TEETH: CHILEAN SCIENTISTS UNEARH SKUNK THAT WALKED AMONG DINOSAURS

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

An artist impression of a new species of mammal, baptized with the name *Orretherium tzen* and which inhabited Patagonia during the Upper Cretaceous | Photo Credit: [REUTERS](#)

A fossil of a skunk-like mammal that lived during the age of dinosaurs has been discovered in Chilean Patagonia, adding further proof to recent evidence that mammals roamed that part of South America a lot earlier than previously thought.

A part of the creature's fossilized jawbone with five teeth attached were discovered close to the famous Torres del Paine national park.

Christened *Orretherium tzen*, meaning 'Beast of Five Teeth' in an amalgam of Greek and a local indigenous language, the animal is thought to have lived between 72 and 74 million years ago during the Upper Cretaceous period, at the end of the Mesozoic era, and been a herbivore.

Prior to its discovery, and the teeth of the *Magallanodon baikashkenke*, a rodent-like creature, in the same area last year, only mammals living between 38 and 46 million years ago had been found in the southernmost tip of the Americas, the team that discovered it said.

(Subscribe to *Science For All*, our weekly newsletter, where we aim to take the jargon out of science and put the fun in. [Click here.](#))

The finds are critical to completing the evolutionary puzzle of the Gondwanatheria, a group of long-extinct early mammals that co-existed with dinosaurs, said Sergio Soto, a University of Chile paleontologist.

"This and other discoveries that we are going to make known in the future are revealing that there is enormous potential in terms of paleontology in the southern tip of Chile," said Soto. "We are finding things that we did not expect to find and that are going to help us answer a lot of questions that we had for a long time about dinosaurs, mammals and other groups."

[The discovery was published](#) in the journal *Scientific Reports* by experts from the University of Chile working with researchers from Argentina's Natural History and La Plata museums and the Chilean Antarctic Institute.

The scientists think *Orretherium tzen* cohabited with *Magallanodon baikashkenke*, which was thought to have been an evolutionary step between a platypus or marsupial, and dinosaurs such as the long-necked titanosaur.

Please enter a valid email address.

Researchers expect this finding to help manufacturers further develop smart hearing aids

END

INDIA-DENMARK JOIN HANDS THROUGH ATAL INNOVATION MISSION FOR GLOBAL COLLABORATION TOWARDS WORLD CLASS INNOVATIVE SOLUTIONS ADDRESSING WATER CHALLENGES & SDGS

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

As part of Indo-Danish bilateral Green strategic partnership, India is all set to take a giant leap towards building a world class innovation ecosystem as Atal Innovation Mission (AIM) of India's premier policy think tank NITI Aayog and Embassy of Denmark to India today officially announced their collaboration.

Under this ambitious partnership, Innovation Center Denmark in India will collaborate with AIM to support various current and future initiatives of AIM, NITI Aayog and its beneficiaries in India as well as develop global innovation Green economy partnerships addressing SDG goals.



A Statement of Intent (SoI) was signed between AIM, NITI Aayog and Embassy of Denmark to India here at NITI Aayog premises. The purpose of SoI is to jointly work towards promoting innovation and entrepreneurship amongst the aspiring entrepreneurs. The partnership would be executed through Innovation Center Denmark (ICDK) under the aegis of Embassy of Denmark.

Vice Chairman NITI Aayog Dr Rajiv Kumar while lauding the step said "I look forward to this collaboration very much and I hope that whatever we do, we will also focus on water use in agriculture that takes up to 92 percent of the water. I hope with this collaboration we can bring something very innovative in this field as well besides the others."

The partnership between India and Denmark holds great potential said CEO NITI Aayog

Amitabh Kant while sharing his thoughts on the occasion. "For impactful innovation across multiple sectors, this partnership upholds a great potential. Through such global collaborations we can align research and development efforts to achieve results in an accelerated manner even in these challenging times." He asserted.

Freddy Svane, Denmark's ambassador to India in his address said that water is a substance that cannot be replaced and we need to use all kinds of innovative thinking to make use of it so that the future generations do not face a lot of water challenges as compared to current scenario.

The ambassador stressed on three key and crucial points Water, Women, and the World. He said "water is the stream of life hence its importance for present and future generations cannot be stressed enough. Women empowerment is key to the growth of a nation and to the sustainability goals of the World. If we do not solve water management and challenges issue, regardless of the location, it will impact lives across the world."

He stressed upon the 10 innovations that Denmark and India recently identified through the water innovation challenge that was organised in collaboration with AIM. He said the 10 innovations would play a crucial role in solving water issues and many such innovation collaborations should be taken up through this partnership to address a wide range of issues. He also said that the collaborations would also allow Danish innovations to work on addressing water issues faced in India.

In his address, Mission Director Atal Innovation Mission, NITI Aayog R Ramanan said that "This is a very comprehensive collaboration of all our initiatives and particularly focusing on SDG goals and how the SDG goals can be translated into products that can be rolled out to global markets. Our recently launched water challenge with Innovation Center Denmark (ICDK) and the Denmark Technical University (DTU) was also great success and has resulted in a strong relationship with Denmark."

He added that the 10 innovation teams identified in the challenge are being provided support to develop their products through partners onboarded specifically for the purpose. The Indian teams along with their peers from 5 countries will now participate in the global finals to be held in May 2021. The collaboration between AIM and ICDK, Embassy of Denmark to India would enable both parties to take up more such innovation challenges.

Meanwhile, as part of the SoI, The Collaboration between AIM and Embassy of Denmark in India will help Indian innovators access Danish technical expertise and allow Danish Innovators to work on India specific solutions.

AIM-ICDK shall also explore various areas of collaboration such as AIM-Denmark school students innovation exchange and co-innovation development, hosting Indo-Denmark innovation challenges, facilitating startup-incubator collaborations and exchanges, and promotion of startup and entrepreneurship events and competitions through the networks and channels of both parties.

AIM and ICDK have previously collaborated to host AIM-ICDK Water challenge and the Sol between the two would pave the way for such future collaborations that allow innovation exchanges between two countries.

DS /AKJ

As part of Indo-Danish bilateral Green strategic partnership, India is all set to take a giant leap towards building a world class innovation ecosystem as Atal Innovation Mission (AIM) of India's premier policy think tank NITI Aayog and Embassy of Denmark to India today officially announced their collaboration.

Under this ambitious partnership, Innovation Center Denmark in India will collaborate with AIM to support various current and future initiatives of AIM, NITI Aayog and its beneficiaries in India as well as develop global innovation Green economy partnerships addressing SDG goals.



A Statement of Intent (Sol) was signed between AIM, NITI Aayog and Embassy of Denmark to India here at NITI Aayog premises. The purpose of Sol is to jointly work towards promoting innovation and entrepreneurship amongst the aspiring entrepreneurs. The partnership would be executed through Innovation Center Denmark (ICDK) under the aegis of Embassy of Denmark.

Vice Chairman NITI Aayog Dr Rajiv Kumar while lauding the step said “I look forward to this collaboration very much and I hope that whatever we do, we will also focus on water use in agriculture that takes up to 92 percent of the water. I hope with this collaboration we can bring something very innovative in this field as well besides the others.”

The partnership between India and Denmark holds great potential said CEO NITI Aayog Amitabh Kant while sharing his thoughts on the occasion. “For impactful innovation across multiple sectors, this partnership upholds a great potential. Through such global collaborations we can align research and development efforts to achieve results in an accelerated manner even in these challenging times.” He asserted.

Freddy Svane, Denmark’s ambassador to India in his address said that water is a substance that cannot be replaced and we need to use all kinds of innovative thinking to make use of it so that the future generations do not face a lot of water challenges as compared to current scenario.

The ambassador stressed on three key and crucial points Water, Women, and the World. He said “water is the stream of life hence its importance for present and future generations cannot be stressed enough. Women empowerment is key to the growth of a nation and to the sustainability goals of the World. If we do not solve water management and challenges issue, regardless of the location, it will impact lives across the world.”

He stressed upon the 10 innovations that Denmark and India recently identified through the water innovation challenge that was organised in collaboration with AIM. He said the 10 innovations would play a crucial role in solving water issues and many such innovation collaborations should be taken up through this partnership to address a wide range of issues. He also said that the collaborations would also allow Danish innovations to work on addressing water issues faced in India.

In his address, Mission Director Atal Innovation Mission, NITI Aayog R Ramanan said that “This is a very comprehensive collaboration of all our initiatives and particularly focusing on SDG goals and how the SDG goals can be translated into products that can be rolled out to global markets. Our recently launched water challenge with Innovation Center Denmark (ICDK) and the Denmark Technical University (DTU) was also great success and has resulted in a strong relationship with Denmark.”

He added that the 10 innovation teams identified in the challenge are being provided support to develop their products through partners onboarded specifically for the purpose. The Indian teams along with their peers from 5 countries will now participate in the global finals to be held in May 2021. The collaboration between AIM and ICDK, Embassy of Denmark to India would enable both parties to take up more such innovation challenges.

Meanwhile, as part of the Sol, The Collaboration between AIM and Embassy of Denmark in India will help Indian innovators access Danish technical expertise and allow Danish Innovators to work on India specific solutions.

AIM-ICDK shall also explore various areas of collaboration such as AIM-Denmark school students innovation exchange and co-innovation development, hosting Indo-Denmark innovation challenges, facilitating startup-incubator collaborations and exchanges, and promotion of startup and entrepreneurship events and competitions through the networks and channels of both parties.

AIM and ICDK have previously collaborated to host AIM-ICDK Water challenge and the Sol between the two would pave the way for such future collaborations that allow innovation exchanges between two countries.

DS /AKJ

END

Downloaded from crackIAS.com

© **Zuccess App** by crackIAS.com

CrackIAS

IN CLIMATE CHANGE NOISE, INDIA'S ROLE AS CONDUCTOR

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

[The recent visit to India](#) by United States Special Presidential Envoy for Climate John Kerry gave an opportunity for both sides to discuss cooperation on climate change and the balance between near-term priorities and long-term targets. U.S. President Joe Biden's 'Leaders' Summit on Climate' scheduled for April 22-23 will also set the stage for major countries to outline their plans. One thing is clear: Climate action and climate leadership are being increasingly measured against a planetary imperative of emissions reducing to net-zero by 2050. This presents a conundrum for fast-growing developing countries such as India. They need the carbon space to develop but they are also among the most vulnerable countries to climate change. Is there an equitable way to achieve net-zero greenhouse gas emissions for the planet?

Recent debates on whether India should declare a net-zero year or withstand mounting pressure have centred around two alternative strategies. The first is to delegitimise long-term targets. This view proposes focusing on measurable near-term progress, and paints the long-term (the year 2050 and beyond) as too far to be meaningful in terms of progress towards a deeply decarbonised world. The alternative approach argues that without long-term targets, the path to decarbonisation has little certainty.

This polarised debate needs some nuance. Consider the analogy of a retirement plan. It is a must for everyone. However young, we need to start saving now to meet the goals of a financially secure retirement. It would be foolish to not have a retirement plan on the grounds that it is in the distant future, that medical sciences might advance, or that we could consider retirement properly when we are richer in middle age. To only focus on smaller savings in our youth would ignore the compounding effect that actions today have in the long run. Planning for emissions mitigation is similar: The short- and the long-term cannot be delinked.

Ambitious renewable energy targets, improvements in energy efficiency and fast penetration of electric vehicles are among India's critical low-carbon objectives in the next decade. Yet, rapid advances in these do not substitute for the need to set a clear direction of travel with the aim to reduce emissions to net-zero. Avoiding this choice makes India look like a climate laggard when its actions actually speak louder than the words of many developed countries.

India should, instead, reframe the net-zero debate from the perspective of the planet and for the prosperity of its people. India had ensured that "climate justice" was inserted in the preamble to the Paris Agreement. As the climate crisis unfolds, climate justice should imply that humanity respects the planetary boundary of permissible greenhouse gases but also ensures that countries assume equitable responsibility based on their past and future emissions. This approach would be different from merely blaming developed countries for historical emissions and, instead, would establish the criteria by which economic advancement and climate responsibility could go hand-in-hand.

We propose a formulation that combines per capita income and aggregate emissions. The World Bank classifies a high-income economy as one with gross national per capita income of \$12,536 or more in 2019 prices. Any high-income country should not get more than 15-20 years to achieve net-zero emissions from 2020 onwards. This would imply that the European Union or the United States reach net-zero no later than 2035-40, rather than 2050 as they currently propose. China will enter this income category after 2025, so it should achieve net-zero by 2045,

rather than 2060 as it proposes. India is expected to become a high-income economy around 2050, and it should target net-zero close to 2070. As a recent [Council on Energy, Environment and Water report](#) shows, today's high-income countries would still have a much longer transition period between peaking emissions and net-zero than India would get.

However, per capita income cannot be an excuse for inaction in correcting emissions-intensive development pathways. Aggregate emissions also matter. The historical (past century) and future (this century) aggregate emissions of each country not yet in the high-income category should aim to be progressively smaller than those which have achieved high-income status. This approach acknowledges the potential to tap into technological advances and cost reductions and reinforces the need to give a long-term net-zero signal. (This is how India benefited from falling solar costs over the past decade and was able to aim higher for its renewable energy ambitions.) This approach would trigger a rethink about each country's sustainable development priorities and sectoral pathways — and create the conditions for further innovation and investment in climate-friendly infrastructure, technologies, business models, and lifestyle and behavioural changes. As the suite of mitigation technologies becomes more widely available and cheaper, all countries could achieve net-zero much earlier.

The debate between prioritising only near-term actions versus announcing long-term net-zero goals presents a false binary. Both are needed to establish certainty of action, credibility of promises and create incentives for markets to respond. The real debate should be about climate justice for people and the planet. India would do well to propose alternative formulations that establish equity, differentiate the pace of desired action, and yet be progressive in its ambitions.

Vaibhav Chaturvedi is Fellow and Arunabha Ghosh is CEO, Council on Energy, Environment and Water

Please enter a valid email address.

END

Downloaded from [crackIAS.com](#)

© **Zuccess App** by crackIAS.com

Crack

BOHAG BIHU BIRD COUNT 2021 BEGINS ON APRIL 14

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

Scarlet-backed Flowerpecker | Photo Credit: [Rejoice Gassah](#)

It's that time of the year in Assam when the Indian cuckoo (*keteki*) and Asian koel (*kuli*) call out across the Brahmaputra plains. And, graceful bursts of pink-spotted white flowers of an exotic orchid streak the skyline. "The blooming of the foxtail orchid, the State flower of Assam, signifies the start of a new Assamese year when we celebrate Rongali or Bohag Bihu," says Jaydev Mandal, a birder based in Assam, over the phone.

Jaydev is part of Assam Bird Monitoring Network which, along with Bird Count India (BCI), will host the Bohag Bihu Bird Count from April 14 to April 17 across districts of Assam. The initiative emphasises the use of eBird.org, a citizen science platform for the birders to register their observations in a systematic manner. "We have three Bihus — Magh, Bohag and Kati — during winter, spring and autumn every year and we plan to document avian diversity across these seasons. All these festivals are closely connected with Nature. We want people to enjoy Nature, encourage birding as a family activity and spare a thought to conservation."

While this is the time for winter migratory birds that took abode in Assam as well as the surrounding regions to start flying back to their homes in the Northern hemisphere, endemic species like the swamp grass babbler, marsh babbler and black-breasted parrot bill come into the spotlight.

In Tamil Nadu, though the big birding counts are the Pongal Bird Count and the Great Backyard Bird Count, birders can now observe courtship displays, and nest building of resident species in and around their homes. birders can now observe courtship displays, and nest building of resident species in and around their homes. "As most winter migrants have started their return flight to their summer breeding grounds, this is the best time to watch resident birds," says PB Balaji, co-author of *Birds of Coimbatore*, a handy guide on over 400 species of birds that can be seen across Tamil Nadu. "Assam gets a lot of passage migrants. Most migrant birds from the Himalayas stop over in the region. I was at Nameri last weekend and spotted some of the rarities including river lapwing, pin-striped tit-babbler and greater adjutant storks."

A *chithirai thirunaal* birding is exciting as resident birds are active now, says birder K Selvaganesh from Valparai, near Coimbatore. "One can look for birds in a neighbouring park, nearby streams and water bodies and also at forest periphery, farmlands or terraces of homes. Asian koels are calling out. Egrets can be seen in breeding plumage. Among water birds, you can see coots, grey-headed swamphens, and bronze-winged jacanas with their chicks enjoying a splash."

There is buzz on social media too. The IndiAves community on Twitter, that encourages people to tweet photographs of wildlife, birds and animals, plans to have #wildTN for the Tamil New Year. Chandrakala Ratnam, a wildlife enthusiast, says, "It's all about new beginnings. The fledglings are out. The ibises, mynas, baya weavers, raptors, and munias are busy bodies collecting nesting material. We want to highlight habitat loss. The #wild TN will be an eye-opener on not just birds, but also endemic mammals like lion-tailed macaques and Nilgiri langurs. Such themes drive engagement among youth and thereby conservation."

While the festival is celebrated as Baisakhi in Punjab, Vishua Sankranti in Odisha, Gudi Padwa in Maharashtra and Ugadi in Karnataka, Arun Kumar Raju Urs of Bengaluru Butterfly Club based

in Mysuru talks of the *roti habba* celebrated by the Soliga tribes of the Biligiri Ranganna Hills adjoining the Satyamangalam ghats. “The tribes offer their first produce to Nature, to the tree-god, mammals and birds in the forest.” Arun says the Ugadi weekend draws families to birding hotspots in Coorg, Bandipur, Nagarhole, and the Biligiri Ranganna Hills. “After the pre-monsoon shower, the forests are lush with greenery. While the *koels* and *bulbuls* enjoy tender *neem* leaves, flower peckers relish on neem fruits.”

Ramesh Iyer of Travancore Natural History Society says that in Kerala, Vishu, observed on the first day of the Malayalam Medam month has a strong connection with the Indian cuckoo, a solitary, shy bird that is found in forests and open woodlands and breeds in the Himalayas. “It is called *Vishu pakshi* (the Vishu bird) as its distinctive call heralds the festival. The festival is also the time when we receive mid-summer showers spreading cheer not just to mankind but also to the flora and fauna. An ideal time to watch birds actively feeding on Nature’s bounty.”

Pay a visit to a nearby woodland or forest patch, you can witness the raucous calls of racket-tailed drongo (*kadu muzhakki*), mimicking calls of hill mynahs, the metallic hammering call of the coppersmith barbet (*chembukottan*) and the melodious calls of Asian fairy bluebird (*Lalita*). The fluting whistles of black-hooded and Indian Golden Orioles, besides the chirping of many leaf warblers makes the forests lively. “Even in towns, the cackle of the rufous treepie, known locally as *olenjali* and the repetitive calls of white-cheeked barbets (*Kutturavan*), and the chirping of mynahs can be heard distinctly at dawn or dusk,” says Ramesh.

One can also see migratory butterflies — the double-branded black crow, common crow, dark blue tiger and blue tiger — on their return migration journey from the Ghats to the plains of southern India, just before the onset of the South-West monsoon.

Please enter a valid email address.

END

Downloaded from crackIAS.com

© **Zuccess App** by crackIAS.com

Crack

EARTH DAY SPECIAL APPLE'S CUSTOMERS CAN ALSO TAKE PART IN SUPPORTING THE EFFORTS MENTIONED IN THIS STORY. FOR EACH APPLE PAY PURCHASE FROM NOW THROUGH EARTH DAY (APRIL 22), APPLE WILL MAKE A DONATION TO CONSERVATION INTERNATIONAL TO SUPPORT ITS EFFORTS TO PRESERVE AND PROTECT THE ENVIRONMENT. HOWEVER, INDIA DOES NOT SUPPORT APPLE PAY AT THE MOMENT.

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

The Apple logo sporting a green leaf to mark the upcoming Earth Day is seen on a window of the company's store in Bangkok on April 14, 2021. | Photo Credit: [MLADEN ANTONOV / AFP](#)

(Subscribe to our Today's Cache newsletter for a quick snapshot of top 5 tech stories. Click [here](#) to subscribe for free.)

On April 15 2021, Apple announced a first-of-its-kind carbon removal initiative — called the Restore Fund — that will make investments in forestry projects to remove carbon from the atmosphere while generating a financial return for investors. Launched with American non-profit Conservation International and multi-national investment company Goldman Sachs, Apple's \$200 million fund aims to remove at least one million metric tons of carbon dioxide annually from the atmosphere, equivalent to the amount of fuel used by over 2,00,000 passenger vehicles, while demonstrating a viable financial model that can help scale up investment in forest restoration.

Lisa Jackson, Apple's Vice President of Environment, Policy, and Social Initiatives, believes Nature provides some of the best tools to remove carbon from the atmosphere, in that forests, wetlands, and grasslands draw carbon from the atmosphere and store it away permanently in their soils, roots, and branches. She continues, "Through creating [the Restore Fund] that generates both a financial return as well as real, and measurable carbon impacts, we aim to drive broader change in the future — encouraging investment in carbon removal around the globe. Our hope is that others share our goals and contribute their resources to support and protect critical ecosystems."

Read More | [Apple's renewable energy practices power up with 110-plus suppliers, including those from India](#)

This effort is part of Apple's broader goal to become carbon neutral across its entire value chain by 2030. While the company will directly eliminate 75% of emissions for its supply chain and products by 2030, the fund will help address the remaining 25% of Apple's emissions by removing carbon from the atmosphere. Trees absorb carbon as they grow, with researchers estimating that tropical forests hold more carbon than humanity has emitted over the past 30 years from burning coal, oil, and natural gas, despite ongoing deforestation. The partnership aims to unlock the potential of this natural solution by scaling it in a way that makes it attractive to businesses.

To ensure that the carbon stored in forests is being accurately quantified, and permanently locked out of the atmosphere, the Restore Fund will use robust international standards developed by recognised organisations such as Verra, the Intergovernmental Panel on Climate Change, and the UN Climate Convention. And it will prioritise investments in working forests that improve biodiversity through the creation of buffer zones and natural set-asides.

Conservation International is a co-investor in the fund and is ensuring that projects meet strict environmental and social standards. Goldman Sachs is managing the fund. The three parties will identify new projects later this year.

Dina Powell, Global Head of Sustainability and Inclusive Growth, Goldman Sachs, explains, “We all agree that the urgency of climate transition requires private capital to work alongside new and established efforts aimed at sustainably removing carbon from the atmosphere with rigour and high standards. We believe launching [the Restore Fund] can catalyse significant additional investment capital for climate impact.”

The Restore Fund builds on Apple’s legacy of work in forestry conservation. For three years running, Apple has used 100% responsibly-sourced fibres in its packaging and improved the management of more than one million acres of forests globally to date. Apple has also pioneered ground-breaking carbon projects with Conservation International that protect and restore grasslands, wetlands, and forests.

“Investing in nature can remove carbon far more effectively — and much sooner — than any other current technology. As the world faces the global threat climate change presents, we need innovative new approaches that can dramatically reduce emissions,” says Dr. M. Sanjayan, CEO, Conservation International.

In 2018, Apple partnered with Conservation International, local government, and conservation organisations in Colombia to protect and restore a 27,000-acre mangrove forest in Cispatá Bay on the Caribbean coast of the country. The aim is to sequester one million metric tons of carbon dioxide over the project’s lifetime. These mangroves not only protect the coasts and help support the livelihoods of residents in those communities where they grow, but they also store up to 10 times more carbon than forests on land.

This project is the first to use ‘blue carbon’ methodology to rigorously value the entire mangrove system — both above and below the waterline — for its climate mitigation impacts.

Apple and Conservation International have also partnered with local conservation organisations in Kenya to restore degraded savannas in the Chyulu Hills region, an area between three national parks in Kenya and just across the border from Kilimanjaro National Park, Tanzania. Scaling up this work across the degraded rangeland and natural savannas across Africa could remove hundreds of millions of tons of carbon from the atmosphere each year, while also benefiting local communities and wildlife.

Since 2017, 100% of the virgin wood fibre used in Apple’s packaging has come from responsible sources — the same sort of responsibly managed working forests in which the Restore Fund intends to invest. This represents the company’s first closed-loop material as part of its goal to one day make products using only recycled or renewable materials.

Progress towards the tech giant’s packaging goals has involved steady innovations that have the potential to change the future of sustainable packaging. After launching the first iPhone with majority-fibre packaging in 2016, Apple’s iPhone 12 lineup now arrives to customers in packaging that comprises 93% fibre-based materials. This includes the fibre-based screen cover

that protects the display and for the first time replaced the standard plastic film.

Suppliers in India part of Apple's Supplier Clean Energy Programme include Yuto and CCL, which are supporting efforts to use renewable and sustainably managed materials in its packaging.

Apple has also taken direct steps to support the responsible production of wood fibre. Through partnerships with The Conservation Fund and World Wildlife Fund, Apple has improved the management of more than 1 million acres of working forests in the United States and China since 2015.

Please enter a valid email address.

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.

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com

CrackIAS

BUSTARD POACHING IN PAK. DESERT SHOCKS ACTIVISTS

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

A group of poachers led by a retired Major of Pakistan Army (in circle) with the carcasses of two GIBs in Cholistan desert.

The recent shooting of two Great Indian Bustards (GIBs) in Pakistan's Cholistan desert, with the poachers brazenly getting themselves photographed with the carcasses of birds in their hands and guns on their shoulders, has left wildlife activists in Rajasthan shocked and outraged. The GIB, which is the State bird of Rajasthan, is considered India's most critically endangered bird.

A group of hunters, allegedly led by a retired Major of the Pakistan Army, shot down two GIBs in a protected area of southern Punjab's Cholistan game reserve in Pakistan earlier this month. Retired Major Tanveer Hussain Shah, a resident of Rahim Yar Khan district, and his accomplices, also attacked wildlife officials of that country when they tried to stop the group from hunting GIBs and chinkara deer.

The grassland habitat with grass cover in the Cholistan desert, where the GIBs were foraging, is similar to the habitat in Rajasthan's Desert National Park (DNP), where the GIB's last remnant wild population is found. The DNP, situated near the towns of Jaisalmer and Barmer, forms a part of the mighty Thar desert.

The GIB's population of fewer than 100 in Rajasthan accounts for 95% of its total world population. The International Union for Conservation of Nature and Natural Resources (IUCN), a global authority on species survival, which categorised the GIBs as "endangered" in 1994, was forced to upgrade the species to the status of "critically endangered" in 2011 because of continued threats faced in the survival of these large birds.

The Tourism & Wildlife Society of India (TWSI) has condemned the poaching of GIBs, while expressing surprise that the people in the neighbouring country continued to kill this rare species of birds. "It cannot take place without the cover provided by the government authorities in Pakistan. This incident should be probed thoroughly," TWSI honorary secretary Harsh Vardhan said here on Friday. Mr. Vardhan said the wildlife authorities in Rajasthan had permitted captive breeding of GIB, protected under the Wildlife Protection Act, in the DNP through a project executed by the Dehradun-based Wildlife Institute of India in 2019 after a prolonged debate. Sixteen chicks of GIB are in hands now being reared in DNP by a team supported by the Houbara Breeding Centre of UAE.

"As Rajasthan shares the international border with Pakistan's Sindh and Punjab provinces, it is suspected that Indian-bred GIBs will fly across to Pakistan's desert and will be easy prey for the gun-toting poachers there," Mr. Vardhan said.

END

Downloaded from crackIAS.com

© **Zuccess App** by crackIAS.com

THE STORY OF 220-MILLION-YEAR-OLD RAT-LIKE CREATURES VIA MICROFOSSILS

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

Lively ancestor: Artist's impression of a cynodont, a group that ultimately gave rise to the present-day mammals. | Photo Credit: [Julio Lacerda](#)

The Tiki Formation in Madhya Pradesh, a treasure trove of vertebrate fossils, has now yielded a new species and two genera of cynodonts, small rat-like animals that lived about 220 million years ago.

The researchers from the Indian Institute of Technology Kharagpur, used scanning electron microscopy to study about 10 teeth samples collected from the village of Tihki in Shahdol District, Madhya Pradesh.

The teeth were studied for size, crown shape, structure of the cusps and compared with previously reported cynodonts. The results showed that they had found a new species, and they named it *Rewaconodon indicus*, indicating India, the country it was discovered from.

The team also identified two new genera from the area. The first was named *Inditherium floris*, after India and the Latin word *therium* meaning beast. As the teeth had a flower-shaped crown, it earned the species name *floris*. The second was named *Tikiodon cromptoni*, after Tiki Formation and Greek word *odon* meaning tooth. The species name is after paleontologist A.W. Crompton.

Sanghamitra Ray, the corresponding author of the work, explains: "Cynodonts are important in evolutionary studies as this group ultimately gave rise to the present-day mammals. By studying their molar and premolar teeth, we see how they slowly evolved and modified. Their crown shape shows that these animals are actually intermediate forms that are very near to the mammalian line of evolution." She is from the Department of Geology and Geophysics at the Indian Institute of Technology, Kharagpur.

Advait M. Jukar from the Department of Paleobiology at the National Museum of Natural History, Smithsonian Institution, who was not involved in the work explains some more: "Cynodonts and living mammals both belong to a group of egg-laying vertebrates (amniotes) called synapsids. The close relationship of cynodonts with living mammals is seen in their bones. They also have differentiated teeth (for example, different teeth in the front of mouths compared with the back), a secondary palate in their mouths, which, like humans, allowed them to breathe and eat at the same time. Some cynodonts show evidence for the inferred presence of whiskers and fur."

When asked if DNA studies can be done on these teeth Dr. Ray explained that as the samples are extremely old, the organic matter would have completely degraded making it impossible to look at DNA.

About eighty cynodont genera have been reported from around the world. The ones similar to the newly discovered ones were previously found in Laurasia which includes North America, England, Germany, Switzerland, France, and Belgium. "This possibly suggests abiotic interchange between India and Laurasian regions and/or similarity in paleoclimatic conditions, but this requires further study," according to the paper, which is recently published in the *Journal of Paleontology*.

Please enter a valid email address.

The new study suggests interbreeding was more common than previously known for the first Homo sapiens in Europe.

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com

CrackIAS.com

HOW BYCATCH ALONG INDIAN COAST IS POSING A SIGNIFICANT THREAT TO ENIGMATIC MARINE MEGAFUNA

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

A recent drone shot of a whale shark snagged by a fishing net along the Visakhapatnam coast has brought the spotlight on the issue of bycatch (the incidental capture of non-target species such as dolphins, marine turtles and rays) and its threat to marine megafauna. The video was taken by Sanjay Kothapalli, a member of Visakhapatnam-based organisation Wildlife Conservation Through Research and Education (WCTRE). The recent Netflix documentary *Seaspiracy* highlights the unfathomable levels of bycatch happening across the world and made a strong criticism for bottom trawling and “death nets”.

According to researchers, bycatch poses a significant threat to marine megafauna such as elasmobranchs comprising sharks, rays, skates and sawfish. Recent research suggests that with fishing effort increasing worldwide, there is a need to evaluate strategies intended to reduce marine megafauna bycatch.

About 9,000 to 10,000 aquatic mammals are killed by gillnets every year along the Indian coast, as highlighted by the Union Environment Ministry in the Marine Mega Fauna Stranding Management Guidelines released earlier this year. Research data indicates that India has one of the highest elasmobranch landings (catches of marine fish) globally.

The absence of regulations with respect to bycatch has made the issue more complex. Marine life researcher Meghana Binraj says she has never seen a live manta and mobula ray during the three years of her research in the East coast of India. “I have seen hundreds of dead rays in this region in the past one and half years,” she says and adds that the situation is similar in the Indian West coast as well. Elasmobranchs are particularly vulnerable to exploitation due to their slow growth and are one of the most threatened marine animal groups across the world.

Meghana, who is currently researching on the mobula rays, says that these have low reproductive rates. “It takes five years for the mobula to attain maturity and a biennial cycle of reproduction, with one pup produced every two to four years,” she says. The life expectancy of a mobula is estimated to be between 15 and 20 years. A pressure on its population due to targeted or non-targeted fishing can potentially lead to further depletion of this species.

While traditionally fishing for these cartilaginous animals was avoided, researchers say that fishermen and the seafood markets across the world have turned from the occasional artisanal consumption of elasmobranchs for food, to commercial fisheries for their flesh and to sell their gill plates as “an increasingly sought after ingredient in some Asian medicines”.

However, these species pose a complex conservation challenge in India today; while most of their catch is through bycatch, they also support - in some ways - the livelihood of fishers and in some cases are a food source as well.

Efficient modern fishing gear exacerbates the extent of bycatch as the net often covers an extensive area which is highly unselective. While modifying fishing gear so that fewer non-target species are caught can be one of the ways of mitigating the issue of bycatch, researchers point out that for a long-term solution it is imperative to study the socio-economic aspects of bycatch.

“The issue of bycatch is multi-layered. Bycatch reduction efforts should aim to apply a multi-disciplinary approach with strong collaboration with fishing communities,” says Vardhan Patankar, Marine Programme Head, Wildlife Conservation Society. Lack of extensive research on bycatch in India, unreported data on bycatch and absence of scientific information on the ecology of elasmobranchs have been a major hindrance in formulating meaningful conservation strategies.

Please enter a valid email address.

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com

CrackIAS.com

NATIONAL CLIMATE VULNERABILITY ASSESSMENT IDENTIFIES EIGHT EASTERN STATES AS HIGHLY VULNERABLE

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

The National climate vulnerability assessment report released today has identified Jharkhand, Mizoram, Orissa, Chhattisgarh, Assam, Bihar, Arunachal Pradesh, and West Bengal as states highly vulnerable to climate change. These states, mostly in the eastern part of the country, require prioritization of adaptation interventions, the report pointed out.

The report titled 'Climate Vulnerability Assessment for Adaptation Planning in India Using a Common Framework', which identifies the most vulnerable states and districts in India with respect to current climate risk and key drivers of vulnerability, was released by DST Secretary Professor Ashutosh Sharma.

"We have seen how extreme events are on rise both in terms of their number and severity. Mapping the parts of India that are vulnerable to such changes will help initiating climate actions at the ground level. The report should be made easily accessible to all stakeholders so that it can benefit climate-vulnerable communities across India through development of better-designed climate change adaptation projects," said Secretary Department of Science and Technology (DST) Professor Ashutosh Sharma. He also suggested that the maps should be made available through mechanisms like apps to people who need it.

"Assessing vulnerability was the first step towards assessing climate risk. There are two other components like Hazard and Exposure that need to be also assessed to arrive at overall climate risk. DST would take up these assessments in the next phase along with sectoral vulnerability assessments and assessments at sub-district levels," said Dr. Akhilesh Gupta, Head, Climate Change Programme (CCP), DST.

Prof N H Ravindranath, retired climate change expert from the Indian Institute of Science (IISc), who steered the story, explained that the report has helped identify the most vulnerable states, districts & panchayats and will aid in prioritizing adaptation investment, developing and implementing adaptation programs.

Director of IIT Mandi, Professor Ajit Kumar Chaturvedi, and Director of IIT Guwahati T G Sitharaman hoped that the report will be taken up by the states for initiating climate action.

Ms. Corinne Demenge, Head, Swiss Cooperation Office, Embassy of Switzerland in India, hoped that the assessments will contribute to the development of more targeted climate change projects and that they will support the implementation and the potential revisions of the State Action Plans on Climate Change.

"The assessments can further be used for India's reporting on the Nationally Determined Contributions under the Paris Agreement. And finally, these assessments will support India's National Action Plan on Climate Change," she added.

A total of 94 representatives from 24 states and 2 Union Territories participated in the nation-wide exercise jointly supported by the DST and the Swiss Agency for Development & Cooperation (SDC).

Dr. Nisha Mendiratta, Associate Head, Climate Change Programme (CCP), DST, highlighted DST's initiatives as part of implementation of two national missions and need for connecting the centre, state, and user community in the implementation of adaptation programmes.

The assessments undertaken with the active involvement and participation of States and Union Territory governments and hands-on training and capacity-building exercises have identified vulnerable districts. Among all states, Assam, Bihar, and Jharkhand have over 60% districts in the category of highly vulnerable districts.

“Vulnerability scores in all districts in India lies in a very small range. It shows that all districts & states are somewhat vulnerable with respect to current climate risk in India,” Dr. Shyamashree Dasgupta, Professor, IIT Mandi

The assessment will help Policymakers in initiating appropriate climate actions. It will also benefit climate-vulnerable communities across India through development of better-designed climate change adaptation projects.

Dr. Anamika Barua, Professor, IIT Guwahati, underlined that this vulnerability assessment is unique as we use a common framework across the states & union territory to make them comparable and also because of the active participation of state & union territory governments.

In a developing country such as India, vulnerability assessment is considered as an important exercise to develop suitable adaptation projects and programmes. While climate vulnerability assessments for various states and districts already exist, the states and districts cannot be compared to each other as the framework used for assessments are different, thereby limiting decision-making capabilities at the policy and administrative levels. This necessitated an assessment using a Common Vulnerability Framework.

Keeping this requirement in mind, DST and SDC supported the development of a Common Framework for Vulnerability Assessment for the Himalayan region based on the definition provided in the latest 5th Assessment report of the Intergovernmental Panel on Climate Change (IPCC) [AR5]. The Common Framework, along with a manual to apply the framework, was developed by IIT Mandi, IIT Guwahati, and Indian Institute of Science (IISc), Bangalore. The framework was applied to the Indian Himalayan Region, involving all 12 States (including pre-divided J&K) through capacity building process.

The outcome of the exercise undertaken was shared with the Himalayan States, have led to several positive developments in terms of some of these already prioritizing and implementing climate change adaptation actions based on these vulnerability assessments.

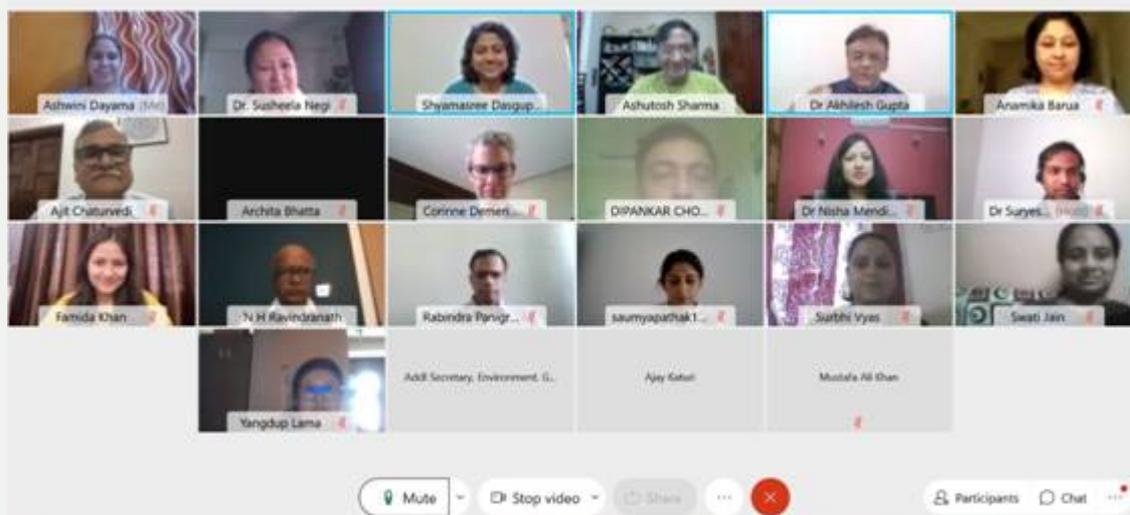
Based on the positive feedback received from the states and its usefulness to the Himalayan states for implementing climate change adaptation actions, it was decided to roll out the climate vulnerability assessment exercise for the entire country through capacity building of the States.

The task was assigned to the same team, which coordinated to carry out a series of training workshops for the state governments in India towards capacity building for vulnerability assessment.

DST has been implementing 2 national missions on climate change as part of the National Action Plan on Climate Change. These are National Mission for Sustaining the Himalayan Ecosystem (NMSHE) and National Mission on Strategic Knowledge for Climate Change (NMSKCC). As part of these missions, DST has been supporting the State Climate Change Cells in 25 States and Union Territories. Besides other tasks assigned to these State CC Cells,

carrying out assessment of vulnerability due to climate change at district and sub-district levels has been their primary responsibility, and the national level vulnerability assessment an extension of the same.

Full Report: <https://dst.gov.in/sites/default/files/Full%20Report%20%281%29.pdf>



RP/ (DST Media Cell)

The National climate vulnerability assessment report released today has identified Jharkhand, Mizoram, Orissa, Chhattisgarh, Assam, Bihar, Arunachal Pradesh, and West Bengal as states highly vulnerable to climate change. These states, mostly in the eastern part of the country, require prioritization of adaptation interventions, the report pointed out.

The report titled 'Climate Vulnerability Assessment for Adaptation Planning in India Using a Common Framework', which identifies the most vulnerable states and districts in India with

respect to current climate risk and key drivers of vulnerability, was released by DST Secretary Professor Ashutosh Sharma.

“We have seen how extreme events are on rise both in terms of their number and severity. Mapping the parts of India that are vulnerable to such changes will help initiating climate actions at the ground level. The report should be made easily accessible to all stakeholders so that it can benefit climate-vulnerable communities across India through development of better-designed climate change adaptation projects,” said Secretary Department of Science and Technology (DST) Professor Ashutosh Sharma. He also suggested that the maps should be made available through mechanisms like apps to people who need it.

“Assessing vulnerability was the first step towards assessing climate risk. There are two other components like Hazard and Exposure that need to be also assessed to arrive at overall climate risk. DST would take up these assessments in the next phase along with sectoral vulnerability assessments and assessments at sub-district levels,” said Dr. Akhilesh Gupta, Head, Climate Change Programme (CCP), DST.

Prof N H Ravindranath, retired climate change expert from the Indian Institute of Science (IISc), who steered the story, explained that the report has helped identify the most vulnerable states, districts & panchayats and will aid in prioritizing adaptation investment, developing and implementing adaptation programs.

Director of IIT Mandi, Professor Ajit Kumar Chaturvedi, and Director of IIT Guwahati T G Sitharaman hoped that the report will be taken up by the states for initiating climate action.

Ms. Corinne Demenge, Head, Swiss Cooperation Office, Embassy of Switzerland in India, hoped that the assessments will contribute to the development of more targeted climate change projects and that they will support the implementation and the potential revisions of the State Action Plans on Climate Change.

“The assessments can further be used for India’s reporting on the Nationally Determined Contributions under the Paris Agreement. And finally, these assessments will support India’s National Action Plan on Climate Change,” she added.

A total of 94 representatives from 24 states and 2 Union Territories participated in the nation-wide exercise jointly supported by the DST and the Swiss Agency for Development & Cooperation (SDC).

Dr. Nisha Mendiratta, Associate Head, Climate Change Programme (CCP), DST, highlighted DST’s initiatives as part of implementation of two national missions and need for connecting the centre, state, and user community in the implementation of adaptation programmes.

The assessments undertaken with the active involvement and participation of States and Union Territory governments and hands-on training and capacity-building exercises have identified vulnerable districts. Among all states, Assam, Bihar, and Jharkhand have over 60% districts in the category of highly vulnerable districts.

“Vulnerability scores in all districts in India lies in a very small range. It shows that all districts & states are somewhat vulnerable with respect to current climate risk in India,” Dr. Shyamashree Dasgupta, Professor, IIT Mandi

The assessment will help Policymakers in initiating appropriate climate actions. It will also benefit climate-vulnerable communities across India through development of better-designed

climate change adaptation projects.

Dr. Anamika Barua, Professor, IIT Guwahati, underlined that this vulnerability assessment is unique as we use a common framework across the states & union territory to make them comparable and also because of the active participation of state & union territory governments.

In a developing country such as India, vulnerability assessment is considered as an important exercise to develop suitable adaptation projects and programmes. While climate vulnerability assessments for various states and districts already exist, the states and districts cannot be compared to each other as the framework used for assessments are different, thereby limiting decision-making capabilities at the policy and administrative levels. This necessitated an assessment using a Common Vulnerability Framework.

Keeping this requirement in mind, DST and SDC supported the development of a Common Framework for Vulnerability Assessment for the Himalayan region based on the definition provided in the latest 5th Assessment report of the Intergovernmental Panel on Climate Change (IPCC) [AR5]. The Common Framework, along with a manual to apply the framework, was developed by IIT Mandi, IIT Guwahati, and Indian Institute of Science (IISc), Bangalore. The framework was applied to the Indian Himalayan Region, involving all 12 States (including pre-divided J&K) through capacity building process.

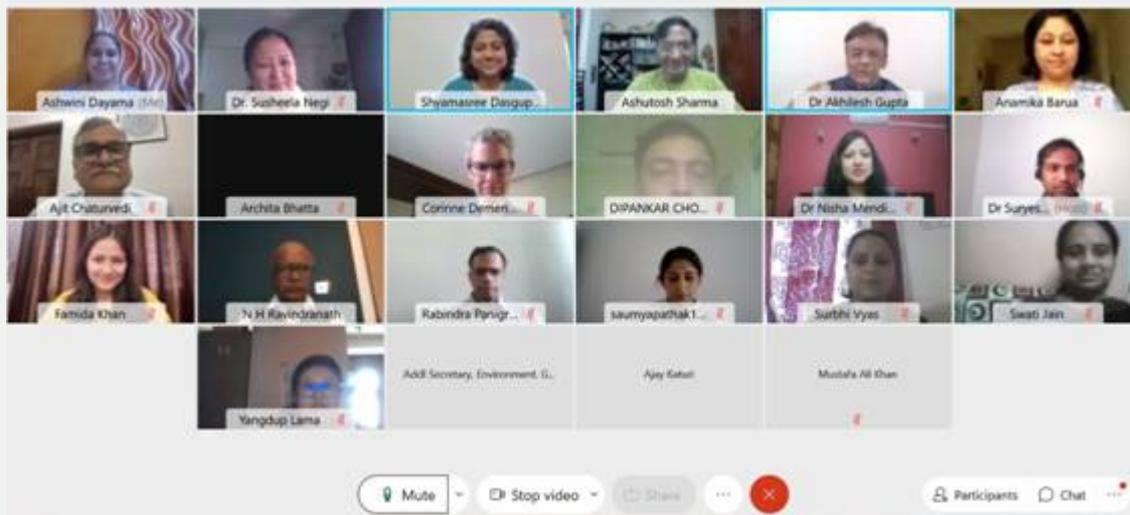
The outcome of the exercise undertaken was shared with the Himalayan States, have led to several positive developments in terms of some of these already prioritizing and implementing climate change adaptation actions based on these vulnerability assessments.

Based on the positive feedback received from the states and its usefulness to the Himalayan states for implementing climate change adaptation actions, it was decided to roll out the climate vulnerability assessment exercise for the entire country through capacity building of the States.

The task was assigned to the same team, which coordinated to carry out a series of training workshops for the state governments in India towards capacity building for vulnerability assessment.

DST has been implementing 2 national missions on climate change as part of the National Action Plan on Climate Change. These are National Mission for Sustaining the Himalayan Ecosystem (NMSHE) and National Mission on Strategic Knowledge for Climate Change (NMSKCC). As part of these missions, DST has been supporting the State Climate Change Cells in 25 States and Union Territories. Besides other tasks assigned to these State CC Cells, carrying out assessment of vulnerability due to climate change at district and sub-district levels has been their primary responsibility, and the national level vulnerability assessment an extension of the same.

Full Report: <https://dst.gov.in/sites/default/files/Full%20Report%20%281%29.pdf>



RP/ (DST Media Cell)

END

Downloaded from crackIAS.com

© Zuccess App by crackIAS.com

THE KEN-BETWA PROJECT REFLECTS THE ILL-CONCEIVED RATIONALE BEHIND RIVER-LINKING

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

The dried-up bed of Betwa river on the outskirts of Bhopal. | Photo Credit: [File photo/PTI](#)

On a mid-March morning in 2008, as our convoy of cars entered the Panna Tiger Reserve in Madhya Pradesh, I could see wheat crops on either side of a mostly kutcha road in various states of readiness. Signs of a waning winter and waiting spring were all around me in the forest vegetation. The flame of the forest was already brightly in bloom. But the southwest monsoon, the previous year, had been 30% below normal in this region of Bundelkhand (which straddles Uttar Pradesh and Madhya Pradesh), and the depleted Ken River reflected the shortfall.

I was part of an expert committee on the Interlinking of Rivers (ILR) programme, constituted by the Union Ministry of Water Resources in 2005-06, on my way to talk to the people of Daudhan village in Chhatarpur district, through which the Ken River flows. ILR envisaged 30 river links both in the Himalayas and peninsular India, an ambitious project that was first conceptualised in the 1980s as part of the National Perspective Plan by the irrigation ministry to link rivers with 'surplus water' to those with 'deficit water'. The detailed scheme, made public in 2002, included the Ken-Betwa Link Project that proposed to link the Ken River that flows through Panna in Madhya Pradesh, and the Betwa River that runs through central Madhya Pradesh and southern Uttar Pradesh. The rationale was to augment water in the Betwa by linking it with the Ken, which, it was claimed, has surplus water. The proposal picked up momentum in the early 2000s, and was finally given environment clearance in 2017.

Spirited opposition

I did not anticipate the storm of spirited opposition that hit us from the people of Daudhan village, which is located close to the proposed Greater Gangau Dam site, the main dam that would facilitate the proposed Ken-Betwa Link Project through a 230 km long canal. Ten villages, including Daudhan, were expected to be submerged, with over 10,000 people displaced.

No one expected the people of Daudhan to know about our visit. But they did, and the atmosphere at the meeting was charged. An elderly woman, Dadi, made it abundantly clear that they wouldn't leave their village, come what may. Everyone at the meeting was vehemently opposed to the project.

A memorandum in Hindi, submitted by the people of Daudhan village, read thus: "The whole village is against displacement to another place. We have clean water, air, forests and land for agriculture, which won't be available to us at a new place. All of us want basic facilities like electricity, roads, schools and health facilities, so we can enjoy a basic standard of living. So, instead of displacing us, kindly help us get these basic facilities." We received about a dozen memorandums during the visit.

Cut to 13 years later. On March 22, 2021, Prime Minister Narendra Modi presided over the signing of a memorandum of agreement between the chief ministers of Uttar Pradesh and Madhya Pradesh, which talks about the water distribution between the two States. The current cost of the Ken-Betwa project is 38,000 crore, and the contours of the ecological destruction that the project will wreak are clearer now: 9,000 ha of submergence, most of it in the Panna Tiger Reserve. This would include the felling of 23 lakh trees with a girth of 20 cm or more. The key

wildlife species that will be affected include tigers, endangered vultures, mahseer fish, and gharials in the Ken Gharial Sanctuary.

The primary question, however, is this. Even after all this unbelievable destruction in the Bundelkhand region, will the project help the people? As early as 2005-8, Panna's district magistrate wrote a series of letters to the Planning Commission and the principal secretary of water resources in Madhya Pradesh and he concluded: "Ken Betwa Project is [a] disaster for Ken Basin People, there is NO surplus water in Ken Basin". The claim by the National Water Development Agency (NWDA), formed in the 1980s to study the proposed ILR, is that the Ken has surplus water; but these hydrological figures have never passed independent scrutiny.

There are bottlenecks to the project's clearance. NWDA applied for forest clearance in 2015 but the Stage I forest clearance accorded in May 2017 stipulates several conditions that would imply a fundamental restructuring of the project. The conditions include that the proposed 78 MW power house shall not be constructed in the forest area and that no building material is to be taken from the forest, among others.

Unique ecosystem

Then, the wildlife clearance recommended by the standing committee of the National Board of Wildlife in a meeting in 2016 has also been challenged by the central empowered committee (CEC) of the Supreme Court in a scathing report of August 2019. The CEC concluded that the standing committee had not examined the "Impact of the project on the downstream Gharial Sanctuary and the vulture nesting sites", and has "not taken into account the decision of this Hon'ble court... wherein it is held that our approach should be eco-centric and not anthropocentric".

The CEC report notes "the loss of the special and unique ecosystem of gorges, rocky cliffs and riverine flora and fauna on either [bank] of the River Ken." It adds: "The wildlife including micro flora and fauna which have evolved in this ecosystem will, on commissioning of the project, perish forever... Most of the important geological sites are going to be affected either by submergence upstream of the proposed dam or would dry up when the full flow of [the] river is arrested by the proposed dam. No amount of mitigative measures can create this kind of unique ecosystem which has evolved over millions of years to reach the present level of biodiversity." Indeed, during a 2017 visit, I was mesmerised by the beauty of the Ken River downstream of Panna Tiger Reserve; it is rightly likened to a mini Grand Canyon and Niagara Falls.

A challenge to the environmental clearance given to the Ken-Betwa project is pending before the National Green Tribunal. The environmental impact assessment of the project, based on which the project was given environmental clearance in 2017, was shamefully shoddy: there is little in it about the biodiversity that will be destroyed. A number of official agencies, including the Forest Advisory Committee within the environment ministry, have noted factual errors and inadequacies in the assessment.

Huge manipulation

The recommendation of environmental clearance for the project by the expert appraisal committee of the environment ministry in 2016 was a huge exercise in manipulation. In fact, there has been opposition, manipulation, non-transparency and compromised decision making at every step of the project. The project has to get a final forest clearance, and even here, there could be legal challenges. The entire process exemplifies how a development project should not be undertaken.

At the heart of India's river linking project is a 'surplus-deficit' claim. But a scientific case for such a claim can be made only with an exhaustive assessment of all available options of water resource development in any basin or sub-basin, including rainwater harvesting, groundwater recharge, watershed development, protecting wetlands, forests, soil moisture, optimising existing storage infrastructure, sustainable cropping patterns, demand-side management, reuse and recycling of sewage, and so on. No such assessment has been made for any basin or sub-basin in India. The equating of floods with surplus and drought with deficit is also fundamentally flawed because these could be seasonal phenomena.

In fact, there is general acceptance of the fact that groundwater is, and has been, at least for the last four decades, India's water lifeline. The focus of our water resources policy, plans, projects and practices, therefore, should be about nurturing this lifeline. This would include identifying and protecting existing groundwater recharge mechanisms, enhancing recharge where feasible, installing artificial recharge where possible and necessary, and also regulating groundwater use at aquifer level.

One thing is clear. River linking projects are not going to help us save this lifeline.

The writer is the coordinator of the South Asia Network on Dams, Rivers & People.

Please enter a valid email address.

END

Downloaded from crackIAS.com

© **Zuccess App** by crackIAS.com

CrackIAS

BAT WITH STICKY DISCS FOUND IN MEGHALAYA

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

New discovery: A disk-footed bat has been recorded for the first time in India. SPECIAL ARRANGEMENTS SPECIAL ARRANGEMENT

Meghalaya has yielded India's first bamboo-dwelling bat with sticky discs, taking the species count of the flying mammal in the country to 130.

The disc-footed bat (*Eudiscopus denticulus*) was recorded in the northeastern State's Lailad area near the Nongkhylllem Wildlife Sanctuary, about 1,000 km west of its nearest known habitat in Myanmar.

A team of scientists from the Zoological Survey of India (ZSI) and a few European natural history museums stumbled upon this "very specialised" small bat with "disc-like pads in the thumb and bright orange colouration" while sampling in a bamboo patch almost a year ago.

The finding by the ZSI's Uttam Saikia, Rohit Chakravarty, Vishwanath D. Hegde and Asem Bipin Meetei has been published in the latest edition of *Revue Suisse de Zoologie* , a Swiss journal.

The European authors of this report are Sergei Kruskop from the Zoological Museum of Moscow State University, Gabor Csorba of the Hungarian Natural History Museum, and Manuel Ruedi of Switzerland's Muséum d'Histoire Naturelle.

"There are a couple of other bamboo-dwelling bats in India. But the extent of adaptation for bamboo habitat in this species is not seen in the others," one of the ZSI scientists involved in the study said, declining to be quoted.

The newly recorded bat was presumed to be a bamboo-dwelling species, but its flattened skull and adhesive pads helped in identifying it as the disc-footed known from specific localities in southern China, Vietnam, Thailand and Myanmar.

Dr. Saikia and his colleagues found that the flattened skull and sticky pads enabled the bats to roost inside cramped spaces, clinging to smooth surfaces such as bamboo internodes. The disc-footed bat was also found to be genetically very different from all other known bats bearing disc-like pads.

Scientists analysed the very high frequency echolocation calls of the disc-footed bat, which was suitable for orientation in a cluttered environment such as inside bamboo groves.

The disc-footed bat has raised Meghalaya's bat count to 66, the most for any State in India. It has also helped add a genus and species to the bat fauna of India, the ZSI scientists said.

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com

A HUGE, COSTLY MISTAKE

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

A river project which remained a pipe dream for more than three decades after it was first mooted may now become a reality. Last month, Uttar Pradesh, Madhya Pradesh and the Centre signed a tripartite agreement to transfer “surplus” water from the Ken basin in M.P. to the “deficit” Betwa basin in U.P. The Ken-Betwa project is part of the national river linking project which proposes to connect 14 Himalayan and 16 peninsular rivers with 30 canals and 3,000 reservoirs in order to irrigate 87 million hectares of land. It has the status of a national project, as the Centre will contribute 90% of the cost. It is India’s first river linking project and will take eight years to complete.

First mooted in the 1980s, the Ken-Betwa project was taken up seriously only during former Prime Minister Atal Bihari Vajpayee’s regime. Since then, former Union Water Resources Minister Uma Bharti has been the torch-bearer of the project. The project, the government says, will enhance the irrigation potential of the water-starved Bundelkhand region in U.P. and M.P., facilitate groundwater recharge and reduce the occurrence of floods. According to the Memorandum of Agreement signed, the to-be-built Daudhan dam is expected to irrigate nearly 6,00,000 hectares in four districts in M.P. and 2,51,000 hectares in four districts in U.P. and provide drinking water supply to 41 lakh people in M.P. and 21 lakh in U.P.

However, the excitement of planners and politicians about this project, which costs 37,611 crore (2018 figure), is reportedly missing on the ground. The people of the region who are going to be affected by the project seem resigned to their fate. In public hearings held in the past, they were divided on political lines and also worried about the loss of the ecosystem and displacement.

The project was on the drawing board for years mainly due to environmental concerns. Of the 12,500 hectares of land to get submerged by the project, more than 9,000 ha are categorised as forest land. The submergence area includes a critically important section of the Panna Tiger Reserve. The Reserve is considered as a shining example of conservation after it successfully improved the tiger and vulture populations. Echoing the concerns of environmentalists, Congress president Sonia Gandhi wrote to Union Environment Minister Prakash Javadekar asking him not to implement the project. She said “around 40% of the area of the tiger reserve will be irretrievably damaged” if the project is implemented. Also, the project may destroy about 7.2 lakh trees. South Asia Network on Dams, River and People convener Himanshu Thakkar fears that this will affect rainfall in the already parched region.

The claims of Ken having surplus water may be unrealistic as the river is not perennial — in the past sometimes, it has slowed to a trickle. Another difficulty will be that the Ken flows 60-70 feet lower than the Betwa and at least 30% of the 103 MW power generated will be used for pumping the water up. The Union Ministry and the National Water Development Agency, which is entrusted with the project, have some issues to sort out. These include getting clearance from the Central Empowered Committee of the Supreme Court, which had raised concerns about the project. The cost-benefits calculations of the project also don’t take into consideration the environmental and social impacts. Thus, the benefits do not seem certain and are far outweighed by the costs on the environment.

It is surprising that alternatives such as water-conservation and water-harvesting methods without building a dam haven’t been seriously considered in the region. Large-scale solutions such as this are not always viable and the best. Given the serious doubts about the benefits of the project and the monumental toll that it would have on the ecosystem, including on carefully

preserved wildlife, the Ken-Betwa project seems like a huge, costly mistake.

Sunny Sebastian is a former Vice-Chancellor and member, Rajasthan State Board for Wildlife

Please enter a valid email address.

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

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com

CrackIAS.com

INDIA AND GERMANY SIGN AGREEMENT ON 'CITIES COMBATING PLASTIC ENTERING THE MARINE ENVIRONMENT'

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

The Ministry of Housing and Urban Affairs (MoHUA), Government of India and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH India on behalf of the German Federal Ministry of Environment, Nature Conservation and Nuclear Safety signed an agreement on Technical Cooperation titled 'Cities Combating Plastic Entering the Marine Environment' at a virtual ceremony in New Delhi today. Speaking at the signing ceremony, Shri Durga Shanker Mishra, Secretary, MoHUA said, "2021 marks 63 years of fruitful development cooperation between our two countries. It gives me great pleasure to kickstart this new endeavour with our German partner. The project's outcomes are completely in line with the objectives of Swachh Bharat Mission-Urban focusing on sustainable solid waste management and Hon'ble Prime Minister's vision to phase out single use plastic by 2022".

Shri Kamran Rizwi, Additional Secretary, MoHUA, Dr Regina Dube, Director General, German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), Dr. Antje Berger, First Secretary, Climate & Environment, Embassy of the Republic of Germany and Dr. Julie Reviere, Country Director GIZ India attended the event. The virtual event also saw representatives from the state governments of Uttar Pradesh, Kerala and Andaman & Nicobar Islands and from the implementing cities of Kanpur, Kochi and Port Blair.

This project is envisaged under the contours of the Joint Declaration of Intent regarding cooperation in the field of 'Prevention of Marine Litter' signed between Republic of India and Federal Republic of Germany in 2019. The project, aimed at enhancing practices to prevent plastic entering the marine environment, will be undertaken at the national level (at MoHUA), select states (Uttar Pradesh, Kerala and Andaman & Nicobar Islands) and in the cities of Kanpur, Kochi and Port Blair for a period of three and a half years.

Marine litter threatens ecosystems and adversely affects fishery and tourism industries around the globe. In addition to negative economic impact, it affects public health with increased concerns about micro-plastic and risk of particles entering the food chain. In recent times, the level of plastic waste that has accumulated in our oceans and marine ecosystems through the increasing production and use of durable synthetic materials has alarmed the public and policy makers alike. It is estimated that 15-20% of all plastics are entering oceans via riverine ecosystems of which 90% are contributed by 10 of the world's most polluting rivers. Two of these river systems are located in India, namely Ganga and Brahmaputra.

Whilst accurate data on plastic waste and marine litter in particular is largely unavailable for most parts of the country, this project will support the Swachh Bharat Mission-Urban's implementation with special focus on preventing plastic litter entering the rivers and water bodies at source. To this end, cities will be enabled to improve collection, segregation and marketing of plastic waste, to prevent plastic disposal to water bodies, and to improve handling of port and marine waste. This will be combined with data management and reporting systems, civil society involvement and increased cooperation with recyclers and the recycling industry through a digital platform. This is expected to foster improvements in segregation, collection, transportation, treatment and disposal of waste in municipalities, thereby establishing an efficient system, that ensures no waste finds its way into rivers or oceans.

The new project is envisaged to be another successful collaborative effort under the Indo-German Bilateral Development Corporation working on sustainable urban transformation.

For more information, please follow:

Facebook [Swachh Bharat Mission - Urban](#) | @SUID.India

Twitter - [@SwachhBharatGov](#) | @giz_gmbh, giz_india

RJ/NG

The Ministry of Housing and Urban Affairs (MoHUA), Government of India and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH India on behalf of the German Federal Ministry of Environment, Nature Conservation and Nuclear Safety signed an agreement on Technical Cooperation titled 'Cities Combating Plastic Entering the Marine Environment' at a virtual ceremony in New Delhi today. Speaking at the signing ceremony, Shri Durga Shanker Mishra, Secretary, MoHUA said, "2021 marks 63 years of fruitful development cooperation between our two countries. It gives me great pleasure to kickstart this new endeavour with our German partner. The project's outcomes are completely in line with the objectives of Swachh Bharat Mission-Urban focusing on sustainable solid waste management and Hon'ble Prime Minister's vision to phase out single use plastic by 2022".

Shri Kamran Rizwi, Additional Secretary, MoHUA, Dr Regina Dube, Director General, German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), Dr. Antje Berger, First Secretary, Climate & Environment, Embassy of the Republic of Germany and Dr. Julie Reviere, Country Director GIZ India attended the event. The virtual event also saw representatives from the state governments of Uttar Pradesh, Kerala and Andaman & Nicobar Islands and from the implementing cities of Kanpur, Kochi and Port Blair.

This project is envisaged under the contours of the Joint Declaration of Intent regarding cooperation in the field of 'Prevention of Marine Litter' signed between Republic of India and Federal Republic of Germany in 2019. The project, aimed at enhancing practices to prevent plastic entering the marine environment, will be undertaken at the national level (at MoHUA), select states (Uttar Pradesh, Kerala and Andaman & Nicobar Islands) and in the cities of Kanpur, Kochi and Port Blair for a period of three and a half years.

Marine litter threatens ecosystems and adversely affects fishery and tourism industries around the globe. In addition to negative economic impact, it affects public health with increased concerns about micro-plastic and risk of particles entering the food chain. In recent times, the level of plastic waste that has accumulated in our oceans and marine ecosystems through the increasing production and use of durable synthetic materials has alarmed the public and policy makers alike. It is estimated that 15-20% of all plastics are entering oceans via riverine ecosystems of which 90% are contributed by 10 of the world's most polluting rivers. Two of these river systems are located in India, namely Ganga and Brahmaputra.

Whilst accurate data on plastic waste and marine litter in particular is largely unavailable for most parts of the country, this project will support the Swachh Bharat Mission-Urban's implementation with special focus on preventing plastic litter entering the rivers and water bodies at source. To this end, cities will be enabled to improve collection, segregation and marketing of

plastic waste, to prevent plastic disposal to water bodies, and to improve handling of port and marine waste. This will be combined with data management and reporting systems, civil society involvement and increased cooperation with recyclers and the recycling industry through a digital platform. This is expected to foster improvements in segregation, collection, transportation, treatment and disposal of waste in municipalities, thereby establishing an efficient system, that ensures no waste finds its way into rivers or oceans.

The new project is envisaged to be another successful collaborative effort under the Indo-German Bilateral Development Corporation working on sustainable urban transformation.

For more information, please follow:

Facebook [Swachh Bharat Mission - Urban](#) | @SUID.India

Twitter - [@SwachhBharatGov](#) | @giz_gmbh, giz_india

RJ/NG

END

Downloaded from [crackIAS.com](#)

© **Zuccess App** by crackIAS.com

CrackIAS

'GODZILLA' SHARK DISCOVERED IN NEW MEXICO GETS FORMAL NAME

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

In this undated photo provided by John-Paul Hodnett are a row of teeth on the lower jaw of a 300-million-year-old shark species named this week following a nearly complete skeleton of the species in 2013 in New Mexico. | Photo Credit: [AP](#)

The 300-million-year-old shark's teeth were the first sign that it might be a distinct species. The ancient chompers looked less like the spear-like rows of teeth of related species. They were squatter and shorter, less than an inch long, around 2 centimeters.

"Great for grasping and crushing prey rather than piercing prey," said discoverer John-Paul Hodnett, who was a graduate student when he unearthed the first fossils of the shark at a dig east of Albuquerque in 2013.

This week, Hodnett and a slew of other researchers published their findings in a bulletin of the New Mexico Museum of Natural History & Science identifying the shark as a separate species.

He named the 6.7-foot (2 meter) monster *Dracopristis hoffmanorum*, or Hoffman's Dragon Shark, in honor of the New Mexico family that owns the land in the Manzano Mountains where the fossils were found. Hodnett says the area is rife with fossils and easy to access because of a quarry and other commercial digging operations.

The name also harkens to the dragon-like jawline and 2.5-foot (0.75-meter) fin spines that inspired the discovery's initial nickname, "Godzilla Shark."

The formal naming announcement followed seven years of excavation, preservation and study.

The 12 rows of teeth on the shark's lower jaw, for example, were still obscured by layers of sediment after excavation. Hodnett only saw them by using an angled light technique that illuminates objects below.

The recovered fossil skeleton is considered the most complete of its evolutionary branch — ctenacanth — that split from modern sharks and rays around 390 million years ago and went extinct around 60 million years later.

Back then, eastern New Mexico was covered by a seaway that extended deep into North America. Hodnett and his colleagues believe that Hoffman's dragon shark most likely lived in the shallows along the coast, stalking prey like crustaceans, fish and other sharks.

New Mexico's high desert plateaus have also yielded many dinosaur fossils, including various species of tyrannosaurus that roamed the land millions of years ago when it was a tropical rain forest.

Please enter a valid email address.

Fermilab, which houses the American particle accelerator, has released the first results from its 'muon g-2' experiment

END

Downloaded from crackIAS.com

© **Zuccess App** by crackIAS.com

CrackIAS.com

NOW, MASKS THAT GROW INTO PLANTS UPON DISPOSAL

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

A seed mask made by Paper Seed.

One-time face mask users now have the option of using cotton masks which grow into plants upon their disposal.

A social entrepreneurship called Paper Seed, set up near Mangaluru, has come out with masks that contain seeds of tulsi and tomato.

Paper Seed founder and artist Nitin Vas of Pakshikere told *The Hindu* that these masks have been made using cotton rags. "They are made from recycled rags and the inner linings are made with cotton cloth. They are thick enough to prevent infection," he said.

Mr. Vas added, "Masks reach the ocean, other waterbodies, and landfill sites, thus polluting the environment. Eco-friendly masks like the one having seeds will add to the growth of plants." Paper Seed has made about 400 such masks now.

The artist said that these masks cannot be reused after washing and are meant for one-time use. "We will add such seeds which can grow into trees while making the next batch of masks," he said, adding that demands for these masks have been placed from people in Chennai, Bengaluru, Madikeri, and other places where he has contacts. There is a demand for mass production too.

Earlier, Paper Seed had made eco-friendly rakhis having seeds of tomato, cucumber, capsicum, tulsi, and the like for Raksha Bandhan.

Paper Seed also makes eco-friendly jewellery, earrings, keychains, ladles, cups from coconut shells, driftwood sculptures, and baskets from locally available creepers and climbers. Some of the other products include seed pen, bamboo toothbrush, designed paper mache, seed paper notepad, paper straw, recycled paper cards, newspaper seed pencils, and organic agarbati.

It has also made paper flags for Independence Day. The other latest products include toys made from paper mache or paper pulp. Mr. Vas has named them as Mangaluru toys on the lines of the Channapatna toys which are made of soft wood, to reflect the local culture.

Please enter a valid email address.

END

Downloaded from crackIAS.com

© **Zuccess App** by crackIAS.com

A LOW-CARBON FUTURE THROUGH SECTOR-LED CHANGE

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

In the build-up to the 'Leaders' Climate Summit' organised by the United States this week (April 22-23), there has been a flurry of articles about whether India should announce a 'net-zero' emissions target, and by when. The Intergovernmental Panel on Climate Change (IPCC) 1.5°C report called for global carbon emissions to reach net-zero by 2050, which the pressure cooker of climate diplomacy has quickly transformed into a call for all countries to announce 2050 as the net-zero target year. Yet, global net zero may require some countries reaching net-zero before 2050 in order for others to have some additional time. Since a disproportionate share of the carbon space has been used up by developed countries, it is important that they act boldly at home, to match the vigour of their diplomatic efforts.

Nonetheless, as a climate-vulnerable country, India must also up its game to contribute to limiting global temperature rise, ideally below 1.5°C. While doing so, it should not lose sight of the history of global climate negotiations and its own developmental needs. Though a large country and economy, we are still a very poor country with a significant development deficit — for example, our per-capita carbon emissions are less than half the world average.

So, what is the way forward for India? Saying India will take only modest steps until richer countries do more is not viable in the context of a global climate crisis. Yet, announcing an Indian 2050 net-zero commitment risks taking on a much heavier burden of decarbonisation than many wealthier countries, and could seriously compromise India's development needs.

We suggest a third path, focused on concrete, near-term sectoral transformations through aggressive adoption of technologies that are within our reach, and an earnest effort to avoid high carbon lock-ins. This is best accomplished by focusing on sectoral low-carbon development pathways that combine competitiveness, job-creation, distributional justice and low pollution in key areas where India is already changing rapidly. This approach is directionally consistent with India moving towards net-zero, which should be our long-term objective. Over time, India can and should get more specific about future economy-wide net-zero targets and dates. Here, we detail what such an approach would look like, by laying out the contours of an enhanced national pledge for the electricity sector, to illustrate how it can be both ambitious and in India's interest. A similar approach should be adopted for other sectors.

To achieve net-zero emissions, a key piece of the puzzle is to decarbonise the electricity sector, which is the single largest source (about 40%) of India's greenhouse gas emissions. Decarbonised electricity would also allow India to undertake transformational changes in urbanisation and industrial development, for example by expanding the use of electricity for transport, and by integrating electric systems into urban planning.

So far, our efforts in the electricity sector have focused on expanding renewable electricity capacity, with targets growing by leaps and bounds from 20GW of solar to 175GW of renewable capacity by 2022, further growing to 450GW of renewable capacity by 2030. While useful as a direction of travel, India now needs to shift gears to a comprehensive re-imagination of electricity and its role in our economy and society.

One way to do this is to go beyond expanding renewables to limiting the expansion of coal-based electricity capacity. This will not be easy: coal provides firm, dispatchable power and

accounts for roughly 75% of electricity today; supports the economy of key regions; and is tied to sectors such as banking and railways. These connections need to be unravelled to truly shift to a decarbonised future.

A first, bold, step would be to pledge that India will not grow its coal-fired power capacity beyond what is already announced, and reach peak coal electricity capacity by 2030, while striving to make coal-based generation cleaner and more efficient. There is a strong rationale for this: coal is increasingly uneconomic and phasing it out over time will bring local gains, such as reduced air pollution, aside from climate mitigation. Such a pledge would give full scope for development of renewable energy and storage, and send a strong signal to investors.

A second, necessary step is to create a multi-stakeholder Just Transition Commission representing all levels of government and the affected communities to ensure decent livelihood opportunities beyond coal in India's coal belt. This is necessary because the transition costs of a brighter low-carbon future should not fall on the backs of India's poor.

Third, a low-carbon electricity future will not be realised without addressing existing problems of the sector such as the poor finances and management of distribution companies, which requires deep changes and overcoming entrenched interests.

Finally, India will need to work hard to become a leader in technologies of the future such as electricity storage, smart grids, and technologies that enable the electrification of other sectors such as transportation. Through careful partnership with the private sector, including tools such as production-linked incentives, India should use the electricity transition to aim for job creation and global competitiveness in these key areas.

Thus, an electricity-supply focused component of India's climate pledge could provide the overarching framework to envision and drive transformative change.

Enhancing the efficiency of electricity use is an important complement to decarbonising electricity supply. Growing urbanisation and uptake of electricity services offer a good opportunity to shape energy consumption within buildings through proactive measures. Cooling needs are expected to increase rapidly with rising incomes and temperatures. Air conditioners, fans and refrigerators together consume about 60% of the electricity in households. Today, the average fan sold in the market consumes more than twice what an efficient fan does, and an average refrigerator about 35% more. India could set aggressive targets of, say, 80% of air conditioner sales, and 50% of fan and refrigerator sales in 2030, being in the most efficient bracket. In addition to reducing green house gas emissions, this would have the benefit of lowering consumer electricity bills. India can leverage this transition too as an opportunity to become a global leader in production of clean appliances.

Such a sector-by-sector approach, which can and should be developed for other sectors, can demonstrate concrete, yet ambitious, domestic action that sets India on the path toward net zero emissions. It empowers India to insist that developed countries complement their distant net-zero targets by enacting concrete near-term measures that are less reliant on unsure offsets. This approach also allows India to nimbly adapt its sectoral transition plans as technologies mature and enable it to ratchet up its pledges periodically as required by the Paris Agreement.

Going further, India may even consider committing to submit plausible pathways and timelines to achieving net-zero emissions as part of its future pledges. This would allow India adequate time to undertake detailed assessments of its development needs and low-carbon opportunities, the possible pace of technological developments, the seriousness of the net-zero actions by developed countries, and potential geo-political and geo-economic risks of over-dependence on

certain countries for technologies or materials. India can also use this period to develop a strategic road map to enhance its own technology and manufacturing competence as part of the global clean energy supply chain, to gain benefits of employment and export revenues. Such an integrated approach, which is ambitious, credible and rooted in our developmental needs — including climate mitigation needs — will represent an ambitious, forward-looking and results-oriented India.

Ashok Sreenivas is a Senior Fellow at Prayas (Energy Group). Navroz K. Dubash is a Professor at the Centre for Policy Research. Rahul Tongia is Senior Fellow at the Centre for Social and Economic Progress

Please enter a valid email address.

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com

CrackIAS.com

SCIENTISTS IN CHILE DISCOVER REMAINS OF PLANT-EATING DINOSAUR

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

An artist's impression of a plant-eating dinosaur whose remains scientists discovered in the Atacama Desert in Chile. | Photo Credit: [REUTERS](#)

Scientists studying Chile's parched Atacama desert, the world's driest, have discovered the remains of a previously unknown species of dinosaur that millions of years ago lived among lush greenery in what is now a moonscape of rock and sand.

A team led by Chilean geologist Carlos Arévalo unearthed the remains of *Arackar licanantay*, which means "Atacama bones" in the Kunza language, 75 kilometers south of the desert city of Copiapó. The so-called titanosaur had a small head and long neck and tail, as well as an unusually flat back compared with others like it.

Recent paleontological studies suggest Arackar lived amid flowering plants, ferns and palm trees during the Cretaceous period 66-80 million years ago. Parts of the Atacama today, by contrast, have gone without rain for one hundred years and support little plant or animal life.

The discovery of a titanosaur on the west side of South America's Andes Mountains is rare, though several species have been found in Argentina and Brazil, further east.

The dinosaur's remains were first discovered in the 1990s and were [described by the scientists in the journal](#) *Cretaceous Research*.

Arackar also appears smaller in size compared with some other titanosaurs. The Argentinosaurus, discovered on the east side of the Andes in neighbouring Argentina, was more than four times as long, scientists say.

The dinosaur's remains will eventually be exhibited in Chile's Museum of Natural History, though that is currently closed due to coronavirus restrictions.

Please enter a valid email address.

It was among the largest carnivorous dinosaurs, possessing a skull about 5 feet (1.5 meters) long, massive and muscular jaws with a bite force capable of crushing bone

END

Downloaded from [crackIAS.com](#)

© **Zuccess App** by crackIAS.com

A FRESH PUSH FOR GREEN HYDROGEN

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

India's first hydrogen bus flagged off by Tata Motors in Kerala in collaboration with the Indian Oil Corporation. Photo: Special Arrangement

India will soon join 15 other countries in the hydrogen club as it prepares to launch the National Hydrogen Energy Mission (NHEM). The global target is to produce 1.45 million tonnes of green hydrogen by 2023. Currently, India consumes around 5.5 million tonnes of hydrogen, primarily produced from imported fossil fuels.

In 2030, according to an analysis by the Council on Energy, Environment and Water (CEEW), green hydrogen demand could be up to 1 million tonnes in India across application in sectors such as ammonia, steel, methanol, transport and energy storage. However, several challenges in scaling up to commercial-scale operations persist. We propose five recommendations.

Also read | [Companies form initiative to scale up green hydrogen production](#)

First, decentralised hydrogen production must be promoted through open access of renewable power to an electrolyser (which splits water to form H₂ and O₂ using electricity). Currently, most renewable energy resources that can produce low-cost electricity are situated far from potential demand centres. If hydrogen were to be shipped, it would significantly erode the economics of it. A more viable option would be wheeling electricity directly from the solar plant. For instance, wheeling electricity from a solar plant in Kutch to a refinery in Vadodara could lower the transportation cost by 60%, compared to delivering hydrogen using trucks. However, the electricity tariffs could double when supplying open-access power across State boundaries. Therefore, operationalising open access in letter and spirit, as envisioned in the Electricity Act, 2003, must be an early focus.

Second, we need mechanisms to ensure access to round-the-clock renewable power for decentralised hydrogen production. To minimise intermittency associated with renewable energy, for a given level of hydrogen production capacity, a green hydrogen facility will typically oversize the electrolyser, and store hydrogen to ensure continuous hydrogen supply. However, such a configuration would also generate significant amounts of excess electricity. Therefore, as we scale up to the target of having 450 GW of renewable energy by 2030, aligning hydrogen production needs with broader electricity demand in the economy would be critical.

Third, we must take steps to blend green hydrogen in existing processes, especially the industrial sector. Improving the reliability of hydrogen supply by augmenting green hydrogen with conventionally produced hydrogen will significantly improve the economics of the fuel. This will also help build a technical understanding of the processes involved in handling hydrogen on a large scale.

Also read | [Code of standards need of the hour to develop hydrogen economy in India](#)

Fourth, policymakers must facilitate investments in early-stage piloting and the research and development needed to advance the technology for use in India. The growing interest in hydrogen is triggered by the anticipated steep decline in electrolyser costs. India should not be a mere witness to this. Public funding will have to lead the way, but the private sector, too, has significant gains to be made by securing its energy future.

Finally, India must learn from the experience of the National Solar Mission and focus on domestic manufacturing. Establishing an end-to-end electrolyser manufacturing facility would require measures extending beyond the existing performance-linked incentive programme. India needs to secure supplies of raw materials that are needed for this technology. Further, major institutions like the DRDO, BARC and CSIR laboratories have been developing electrolyser and fuel-cell technologies. There is a need for a manufacturing strategy that can leverage the existing strengths and mitigate threats by integrating with the global value chain.

Even before it has reached any scale, green hydrogen has been anointed the flag-bearer of India's low-carbon transition. Hydrogen may be lighter than air, but it will take some heavy lifting to get the ecosystem in place.

The authors are with the Council on Energy, Environment and Water (CEEW)

Please enter a valid email address.

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

END

Downloaded from [crackIAS.com](https://crackias.com)

© **Zuccess App** by crackIAS.com

CrackIAS

'U.S. WILL CUT EMISSIONS BY 52% BY 2030'

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

Clarion call: U.S. President Joe Biden speaking at the Leaders Summit on Climate on Thursday. AP

U.S. President Joe Biden announced that the U.S. would cut its greenhouse gas emissions by 50%-52% by 2030 relative to 2005 levels, in a clean break with the Trump administration policies on climate action.

Mr. Biden also announced that the U.S. would double, by 2024, its annual financing commitments to developing countries, including a tripling of its adaptation finance by 2024.

The President made the new target announcements at a 'Leaders Summit on Climate', which he is hosting on Thursday and Friday and in which 40 heads of state and government are invited — including Prime Minister Narendra Modi, President Xi Jinping of China and President Vladimir Putin of Russia.

The emissions targets — part of the Paris Agreement on climate — are non-binding and the details of how they will be achieved are not available. However, in announcing the targets, the Biden administration is hoping to encourage other countries to increase their commitments. It is also seeking to bring America back into a leadership role on climate action after Mr. Trump had withdrawn the country from the Paris Agreement.

Mr. Biden's financing announcements are part of a \$100 billion a year commitment from developed countries to developing countries for the period 2020-25, "an investment that is going to pay significant dividends for all of us", Mr. Biden said.

The withdrawal of the U.S. from the Paris Agreement means it has not yet met its financing commitments either. The Obama administration had promised \$3 billion to the Green Climate Fund (to help developing countries), only \$1 billion has been paid.

Jobs and growth

In selling climate action to the American public, which until recently was governed by an administration sceptical of the climate crisis, President Biden and his administration have linked climate action and clean technology to jobs and economic growth. On Thursday, Mr. Biden extended this message to other countries.

"And meeting this moment is about more than preserving our planet. It's also about providing a better future for all of us. That's why, when people talk about climate, I think jobs. Within our climate response lies an extraordinary engine of job creation and economic opportunity ready to be fired up," he said.

"By maintaining those investments and putting these people to work, the United States sets out on the road to cut greenhouse gases in half — in half — by the end of this decade," Mr. Biden said.

"The signs are unmistakable. The science is undeniable," he said. The first guests to speak at the summit were UN Secretary-General Antonio Guterres, Mr. Xi, Mr. Modi, Prime Minister Boris Johnson of the U.K. and Prime Minister Yoshihide Suga of Japan.

END

Downloaded from crackIAS.com

© **Zuccess App** by crackIAS.com

CrackIAS.com

A WHALE CHORUS REVEALS HOW CLIMATE CHANGE MAY BE SHIFTING MIGRATION

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

This June 2017 photo provided by the Norwegian Polar Institute shows a bowhead whale in the Fram Strait between Greenland and Svalbard. | Photo Credit: [AP](#)

Eerie wails, explosive trumpets and ghostly moans. The sounds from the underwater recorders had a story to tell, even without a single intelligible word: the whales had stayed put.

The recordings gathered during the 2018-2019 winter in the freezing Arctic waters off Canada proved that a population of bowhead whales had skipped their usual migration south.

Scientists believe this behaviour — never previously detected — could be driven by the effects of climate change, and be a potential harbinger of shifting dynamics across the region's ecosystem.

Ordinarily, the approximately 20,000 bowheads that make up the Bering-Chukchi-Beaufort (BCB) population around Canada have a fairly predictable migration pattern spanning 6,000 kilometres. They spend the winter in part of the Bering Sea, which lies between Russia and Alaska, and head north then east to the Beaufort Sea and Canada's Amundsen Gulf in the summer, before returning in the autumn.

But in winter 2018-2019, something different happened. Residents in the Canadian region reported seeing bowheads long after they would normally have disappeared south.

A team of scientists decided to comb through hours of audio recorded by underwater devices that are dotted around the region for regular data collection, listening for unusual sounds.

They found them: the distinctive calls of bowhead whales that should have been in their southern winter grounds but had stayed put.

Assisted by a trained computer programme, they even found recordings of bowheads singing, a behaviour believed to be associated with mating, which has never been recorded in the summer grounds before.

The whale noises appeared in between 0.5 to 3.0 percent of recording files collected between October to April at four summer spots.

The finding was highly unusual: recordings from some of the same and separate sites in the summer grounds in previous years picked up no whale sounds after October or December, depending on the location.

"The evidence is clear that BCB bowheads overwintered in their summer foraging region in the eastern Beaufort Sea and Amundsen Gulf during the 2018-2019 winter and as far as we know, this is the first time it has been reported," [says the study published Wednesday](#) in the *Royal Society Open Science* journal.

Less clear however is why this happened, with the authors positing various theories mostly linked to climate change.

One possible factor could be shifting ice cover, with less ice than usual seen in the summer grounds during the 2018-2019 winter season.

But the record minimum ice concentration actually came in 2015-2016.

That suggests "ice, and particularly timing and locations, is important but not the only factor," said Stephen Insley of the Wildlife Conservation Society Canada, who helped lead the study.

Another possible explanation is "predator avoidance," with the bowheads steering clear of orca whales that are more frequently seen in some areas as warming seas lead to decreased ice cover.

Other phenomena linked to climate change could also be at play, like the increasingly erratic and early summer plankton bloom — whales could be spending winter in their summer grounds to ensure they catch the key food source, the scientists suggest.

Insley suspects water temperature is playing a key role in the unusual behaviour, with bowheads known to avoid water outside a narrow range of around -0.5 to 2 degrees centigrade.

So could the behaviour be an adaptation to climate change, and if so, what does that mean for bowheads? "It may be positive now, but not down the road when water temperature is warmer," said Insley. "It's hard to say and that's why we're trying to keep an eye on it."

Bowheads certainly wouldn't be alone in reacting to a warming climate.

"The whole region is undergoing dramatic change and we're just seeing the beginning of it. Many sub-Arctic species are moving north," Insley added. "It's a complete ecosystem shift under way and there will be winners and losers."

The team is continuing to record in the region and hopes to correlate its data with information about ocean temperatures to determine any link.

"If the avoidance of warm ocean temperatures were the primary driver of this anomalous behaviour, it may be a significant warning sign for bowhead whales," the study cautions.

Please enter a valid email address.

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com

GOOGLE DOODLE CELEBRATES EARTH DAY 2021 HIGHLIGHTING THE IMPORTANCE OF PLANTING TREES

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

On the 51st anniversary of Earth Day, Google has come up with an animated video doodle highlighting the importance of planting seeds for a brighter and greener future.

Google described that their doodle showing a variety of trees being planted within natural habitats underlines one of the many ways in which people can do their part to keep the Earth healthy for future generations.

Earth Day is celebrated worldwide on April 22 annually to raise public awareness about the environment and inspire people to save and protect it.

The theme for this year's Earth Day is "Restore Our Earth" which focuses on natural processes and emerging green technologies that can restore the world's ecosystems. In this way, the theme rejects the notion that mitigation or adaptation are the only ways to address climate change.

Biden seeks to rally world on climate as summit momentum builds

According to Earth.org, more than 1 billion people in 192 countries now participate in Earth Day activities each year, making it the largest civic observance in the world.

Earth Day is widely recognised as the largest secular observance in the world, marked by more than a billion people every year as a day of action to change human behavior and create global, national and local policy changes.

Please enter a valid email address.

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com

COTTON PYGMY GOOSE: IS THIS THUMBELINA AMONG WATER LILIES REDUCED IN NUMBERS TOO?

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

A male Cotton Pygmy Goose at Nemam lake. Photo: Rama Neelamegam

Amidst work-from-home, many now organise their *soirees* around the telly and root for their IPL team, with diehard supporters wearing face paint and twirling a real white cricket ball.

So, here are two ready images from these unusual times to get a grasp of the Cotton Pygmy Goose's dimensions.

Hold that cricket ball in the paw to feel this bird's weight. Expect the bird to be a couple of grams lighter. Hold that 10.1-inch WFH tablet to picture the bird's length from bill to retrices. Expect the bird to be a couple of millimetres shorter.

The Cotton Pygmy Goose is the Thumbelina of the *anatidae* family which is constituted by ducks, geese and swans. While Hans Christian Andersen's Thumbelina emerged out of a flower, the Cotton Pygmy Goose commonly glides around water lilies.

Reasonably undisturbed freshwater lakes on the outskirts of Chennai and sections of Kancheepuram and Thiruvallur are known to support small populations of this pint-sized resident bird.

Sufficiently filled, if not to the brim, waterbodies that have always enthusiastically hosted the Cotton Pygmy Goose come across as even more of a generous host.

Over the last one month, birder E Arun Kumar has found Cotton Pygmy Teals paddling around in relatively good numbers at Nayapakkam, Nemam and Chembarambakkam lakes.

"I have been seeing a good population of this bird at all these three lakes. At Nemam, on an average, 15 to 20. At Chembarambakkam, 8 to 12. At Nayapakkam, which is readily associated with Cotton Pygmy Goose sightings, it is 15 to 20," elaborates Arun Kumar.

For most other species, flocks of this size are hardly anything to chirrup about. For the Cotton Pygmy Goose, they make a significant number.

Let us recall that the State of India's Birds 2020 report has placed the Cotton Pygmy Goose under a concerning list — "Common Birds Showing Strong Long-term Declines".

Freshwater lakes and even ponds, its precincts rarely hoofed, and its expanse generously sprinkled with aquatic vegetation, particularly lilies, make a rule-of-thumb formula for assessing which habitats would suit the Cotton Pygmy Goose.

"Wherever you have suitable vegetation, particularly constant lily growth, there is a good chance of sighting the Cotton Pygmy Goose. Thenneri and Nayapakkam are among those places. Right outside SSN, there is a small lake marked by lily growth, and it has a flock of ten birds," says eBird reviewer Vikas Madhav Nagarajan. "Chembarambakkam lake is the best place to sight this species. It has a very healthy population, so does Nayapakkam"

The bird is conspicuously rare within urban Chennai, a fact underlined by the scant records of the species from habitats one would intuitively expect it to be drawn to.

It is remarkable that freshwater lakes in the outskirts that are not significantly marred by pollution fare better in drawing the Cotton Pygmy Goose. A study of the records of the bird in and around Chennai bear this out. It suggests that the bird has a lower tolerance threshold for polluted waterbodies.

“The Pygmy Cotton Goose prefers waterbodies a little cleaner than the ones found in the urban environment. That is an area that needs to be validated with more observations,” says ornithologist V Santharam.

Is this bird likely to be found in ponds?

What applies to the lakes apply to the ponds as well? At pain of repetition, ponds with suitable vegetation, particularly lilies, may appeal to the Cotton Pygmy Goose, provided they meet two other critical requirements.

“Any lily pond found in a place marked by quiet, and where the birds would not be easily disturbed can technically be a place for this species,” says Vikas. Arun Kumar weighs in: “I have not seen them in ponds around our place, only in Rajasthan and Gujarat. In Gujarat, a guide once took me to a place to show me what he called a rare bird. He led me to a small pond and showed me the Cotton Pygmy Goose. I did not want to dampen his excitement, and so played along, sounding surprised.”

(‘Home Ground’ is a weekly column about the resident birds of Chennai and surrounding areas that are not commonly seen)

Please enter a valid email address.

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com

Crack

A GREEN PARTNERSHIP: THE HINDU EDITORIAL ON U.S.-INDIA CLIMATE PACT

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

The [U.S.-India Climate and Clean Energy Agenda 2030 Partnership](#) raises expectations that the coming decade will see sustained financial and technological cooperation between the two countries to cut greenhouse gas emissions. At the [Leaders Summit on Climate organised by U.S. President Joe Biden](#), the world's attention was focused on countries responsible for the highest carbon emissions. India ranks third, behind the U.S. and China, although its per capita CO₂ emissions are less than 60% of the global average, as Prime Minister Narendra Modi pointed out. There is little confidence in a pandemic-stricken world, however, that future growth pathways will be aligned away from fossil fuels. The International Energy Agency, in fact, expects a dramatic rise in emissions as countries race to shake off the impact of the coronavirus, as they did after the 2008 financial crisis. Yet, the years to 2030, as President Biden put it, are part of a "decisive decade", and action to scale up funding and innovation can help all countries move closer to keeping global warming well below 2°C or even 1.5°C, as the [Paris Agreement](#) envisages. There are many aspects to the [bilateral pact](#) that could be transformative for energy-intensive sectors in India, starting with renewable power expansion to 450 GW. With open source technologies, India could incorporate innovative materials and processes to decarbonise industry, transport and buildings, the biggest emitters, apart from power.

Many developed countries tend to view India's reluctance to commit to a net zero emissions target as recalcitrance, but the climate change crisis originated not here but in the industrialised world, which has used up much of the world's carbon space. A forward-looking policy should, therefore, envision green development anew, providing funding and green technologies as compensation for the emissions space lost by poorer countries. This is a win-win game, since it would aid sustainable development, boost employment, clean up the environment and, crucially, help all countries emerge healthier from the pandemic. British Prime Minister Boris Johnson, who announced enhanced ambition at the summit for Britain to cut carbon emissions by 78% by 2035 over 1990 levels, advanced the agenda by calling for climate funding by rich nations to exceed the decade-old goal of \$100 billion. For the India-U.S. agreement to yield results, Mr. Biden would have to persuade industry and research institutions at home to share knowledge and subsidise transfer of technologies. He has won commendations for steering America around from the science-deprived Trump years and announcing enhanced ambition: cuts in emissions by 50% to 52% by 2030 over 2005 levels. But much of his climate effort will rely on executive authority, rather than bipartisan support. With political will on both sides, the engagement with India can become a model.

Please enter a valid email address.

From the abrogation of the special status of Jammu and Kashmir, to the landmark Ayodhya verdict, 2019 proved to be an eventful year.

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com

MARKING THE BEGINNING OF A GREEN ERA

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

A picture taken with a drone shows palm trees in al-Ula, Saudi Arabia on April 8, 2021. | Photo Credit: [REUTERS](#)

One of the lessons learned from the ongoing COVID-19 pandemic is the need for collective action among members of the international community to effectively address global challenges such as pandemics and climate change. The pandemic has created an unprecedented crisis that demands an exceptional global response. Even as countries rightly continue to focus on tackling the immediate health emergency, the need is to have a long-term vision to build a climate-resilient global economy for the future.

Ambition alone cannot attain goals. Good results depend on our ability to act. That is precisely what defines the two recent initiatives launched by Crown Prince Mohammed bin Salman bin Abdulaziz, Deputy Prime Minister of the Kingdom of Saudi Arabia, to combat the threat of climate change — the ‘Saudi Green Initiative’ and the ‘Middle East Green Initiative’.

In fact, one of the main pillars of the Saudi G20 presidency was to “safeguard the planet”. The Saudi leadership of the summit highlighted how climate change had negatively impacted the planet, people’s lives and their well-being. The G20 introduced initiatives like establishing a Global Coral Reef Research and Development Accelerator Platform to accelerate scientific knowledge and technology development in support of coral reef survival, conservation, resilience, adaptation and restoration. G20 leaders also acknowledged the Circular Carbon Economy (CCE) Platform as a tool towards affordable, reliable, and secure energy and economic growth.

Saudi Arabia is committed to lead regional efforts to address climate change and has been making steady progress in this direction.

The Saudi Green Initiative aims to raise the vegetation cover, reduce carbon emissions, combat pollution and land degradation, and preserve marine life. As part of the initiative, 10 billion trees will be planted in the Kingdom. It aims to reduce carbon emissions by more than 4% of global contributions, through a renewable energy programme that will generate 50% of Saudi’s energy from renewables by 2030. With the understanding that the need of the hour is to do more than enough, Saudi Arabia is working towards raising the percentage of its protected areas to more than 30% of its total land area, representing roughly 6,00,000 sq km, exceeding the global target of 17%.

As part of the Middle East Green initiative, Saudi Arabia will work with the Gulf Cooperation Council countries and regional partners to plant an additional 40 billion trees in the West Asian region. It represents 5% of the global target of planting one trillion trees and reducing 2.5% of global carbon levels. Saudi Arabia has been sharing its expertise and know-how with its neighbouring countries to reduce carbon emissions resulting from hydrocarbon production in the region by 60% and globally by 10%.

Saudi Arabia currently operates the largest carbon capture and utilisation plant in the world, turning half a million tonnes of CO₂ annually into products such as fertilizers and methanol. It also operates one of the region’s most advanced CO₂-enhanced oil recovery plants that captures and stores 8,00,000 tonnes of CO₂ annually. Plans are afoot to deploy additional carbon capture, utilisation and storage infrastructure. Saudi Arabia believes that nature-based

solutions will play an important role in removing carbon as part of the CCE. We have already joined hands in February 2019 with India when Saudi Arabia joined the International Solar Alliance during the Crown Prince's state visit to the country, hence promoting cooperation in the renewable energy sector. Later that year, when the Indian Prime Minister visited Saudi Arabia, several MoUs and agreements in key sectors including renewable energy were signed.

To ensure momentum and continuity, Saudi Arabia will convene an annual summit called the Middle East Green Initiative which will host leaders from the government, scientists and environmentalists to discuss the details of implementation. The aim is start implementing the plan in the fourth quarter of this year and continue for the next two decades. Saudi Arabia also recognises the scarcity of financial resources to irrigate the terrain. Therefore, in partnership with participating countries, innovative methods will be researched to irrigate from treated water, cloud seeding and other purpose-driven solutions such as planting native trees which requires support for three years to grow and will then be able to survive on their own with natural irrigation.

In 2016, the Crown Prince unveiled Vision 2030, a comprehensive road map to improve the quality of life of the citizens of the country. As part of this, Saudi Arabia carried out a comprehensive restructuring of the environmental sector and established the Environmental Special Forces in 2019. With NEOM and The Line, Saudi Arabia has already redefined the idea of sustainable habitats. NEOM's location also gives Saudi Arabia many advantages in the field of hydrogen production. According to the World Bank, for every dollar invested in resilient infrastructure, \$4 in benefits are generated. With the Public Investment Fund recently pumping in \$15 billion in the NEOM project and another \$10 billion in renewable and solar energy projects, it is clear that the pandemic has only strengthened Saudi Arabia's resolve to realise the goals of Vision 2030 and become one of the major producers of renewable energy with a capacity to generate 9.5 GW by 2023.

Our close friend and strategic partner India has also made remarkable commitments to tackle climate change and is on track to achieve its Paris Agreement targets. India's renewable energy capacity is the fourth largest in the world. India has an ambitious target of achieving 450 gigawatts of renewable energy capacity by 2030. We admire India's endeavour to build a safe and clean environment for future generations.

Saudi Arabia hopes that the launch of the Saudi Green Initiative and the Middle East Green Initiative marks the beginning of a green era and that these initiatives provide momentum to other countries to unify their efforts to save our planet.

Saud Mohammed Al-Sati is Saudi Arabia's Ambassador to India

Please enter a valid email address.

END

Downloaded from [crackIAS.com](https://www.crackIAS.com)

© **Zuccess App** by crackIAS.com

CARBON EMISSIONS ARE MORE THAN COUNTRIES ARE REPORTING: STUDY

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

In this June 3, 2017, file photo, the coal-fired Plant Scherer stands in the distance in Juliette, Georgia | Photo Credit: [AP](#)

(Subscribe to Science For All, our weekly newsletter, where we aim to take the jargon out of science and put the fun in. [Click here.](#))

Scientists said on Monday they have detected a large gap, equal to about what the United States emits annually, between the amount of climate-warming emissions that countries report and the amount that independent models say reaches the atmosphere.

The gap of about 5.5 billion tonnes of carbon dioxide per year arises not because any country is doing anything wrong. Rather, it is due to differences between scientific methods used in national inventories that countries report under the 2015 Paris agreement on climate change and methods used by international models.

"If models and countries speak a different language, assessing country climate progress will be more difficult," said Giacomo Grassi, an author of a study on the gap and a scientific officer at the Joint Research Center of the European Commission. "To address the problem, we need to find a way to compare these estimates."

India's percentage CO2 emissions rose faster than the world average

The emissions gap, explained in the [study](#) published on Monday in the monthly journal *Nature Climate Change*, could mean some countries will have to adjust their emissions reductions. For instance, the country models done by the United States and other nations show more carbon-absorbing managed forest land than the independent models indicate. The study finds the national estimates, which allow more flexible definitions for those lands, show about 3 billion hectares more of managed forest land around the world than in the independent models.

The risk is that some countries could claim managed forests are absorbing large amounts of emissions and not do enough to cut emissions from cars, homes and factories.

"We are lucky to have those natural carbon sinks," Christopher Williams, an expert on forests at Clark University told the Washington Post, about the study. "However, that carbon uptake is a freebie from nature for which we do not really get to take credit in our battle against climate change."

Also read: [The Hindu Explains | What are the implications of U.S. President Joe Biden rejoining the Paris climate agreement?](#)

As countries work to keep their commitments to cut emissions as part of the Paris agreement to limit the global temperature rise to 1.5 degrees Celsius above pre-industrial levels, the discrepancy could become a larger issue. The study said further work is required to develop country-specific adjustments, "but countries that had previously used an incomparable benchmark may eventually need to update their target."

Please enter a valid email address.

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com

CrackIAS.com

MINING ROBOT STRANDED ON PACIFIC OCEAN FLOOR IN DEEP-SEA MINING TRIAL

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

Patania II, a 25-tonne seabed mining robot, is lowered into the Pacific Ocean to begin a descent to the sea floor, in the Clarion Clipperton Zone of the Pacific Ocean, April 2021. | Photo Credit: [GSR/Handout via REUTERS](#)

A seabed mining robot being tested on the Pacific Ocean floor at a depth of more than 4 km (13,000 ft) has become detached, the Belgian company running the experimental trial said on Wednesday.

Global Sea Mineral Resources (GSR), the deep-sea exploratory division of dredging company DEME Group, has been testing Patania II, a 25-tonne mining robot prototype, in its concession in the Clarion Clipperton Zone since April 20.

The machine is meant to collect the potato-sized nodules rich in cobalt and other battery metals that pepper the seabed in this area, and was connected to GSR's ship with a 5km cable.

"On its final dive in the GSR area, a lifting point separated and Patania II now stands on the seafloor," a GSR spokesman said in an emailed statement. "An operation to reconnect the lifting point begins this evening and we will provide an update in due course."

The GSR trial is being observed by independent scientists from 29 European institutes who will analyse data and samples collected by the robot in order to measure the impact of seabed mining.

While several companies and countries have seabed exploration contracts, regulations governing deep-sea mining have not yet been finalised by the International Seabed Authority, a U.N. body.

Explained | What is India's Deep Ocean Mission

Critics, including environmentalist David Attenborough, say seabed mining is untested and has a largely unknown environmental impact. Google, BMW, AB Volvo, and Samsung SDI have backed a call for a moratorium on deep-sea mining.

Dr Sandra Schoettner, deep-sea biologist at Greenpeace, said: "Losing control of a 25-tonne mining machine at the bottom of the Pacific Ocean should sink the idea of ever mining the deep sea."

A spokesman for GSR said the company has not lost control of Patania II, and that projects like this always have challenges to contend with.

GSR has said it will only apply for a mining contract if the science shows deep seabed minerals have advantages, from an environmental and social perspective, over relying solely on land mining.

Please enter a valid email address.

END

Downloaded from crackIAS.com

© **Zuccess App** by crackIAS.com

CrackIAS.com

GORILLA AMONG 200 ENDANGERED SPECIES THREATENED BY CONFLICT: CONSERVATIONISTS

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

Two one-year old baby mountain gorillas swing from branches as they play together in the forest of Bwindi Impenetrable National Park in southwestern Uganda Saturday, April 3, 2021. | Photo Credit: [AP](#)

Civil unrest and military exercises pose heightened risks to more than 200 threatened species, including elephant populations and the critically-endangered Eastern gorilla, conservationists warned Wednesday.

[A report](#) from the International Union for Conservation of Nature(IUCN) examined the close interplay between the environment and armed conflict, warning that human violence and unrest were taking a devastating toll on nature.

The report stressed that sustainable management of natural resources should be seen as a tool to help preserve peace.

"Degradation of nature increases the likelihood of conflict, while wars devastate not only lives, but also the natural environment," IUCN director general Bruno Oberle said in a statement.

The report found that armed conflicts were particularly prevalent in some of the world's more bio-diverse regions.

IUCN said 219 endangered species were facing threats from "war, civil unrest and military exercises", including the direct killing of wildlife, degradation of ecosystems and the disruption of conservation efforts.

While this is only a fraction of the more than 30,000 animal and plant species listed as threatened on IUCN's Red List, the report stressed it included "iconic species".

Among them is the critically-endangered Eastern gorilla, found in conflict-prone Democratic Republic of Congo, Rwanda and Uganda. One of the threats to the world's largest living primate, according to IUCN chief scientist Thomas Brooks, is "direct killing, sometimes for target practice, sometimes for food."

But the bigger threat conflicts posed to the species, he told *AFP*, was the "undermining of conservation efforts".

The report pointed to the dramatic impact on a range of species from conflicts.

During the 1994 war in Rwanda for instance, 90% of the large mammals in the Akagara National Park were killed for food or trade, it said, with the genocide sending thousands of people fleeing through protected areas, killing animals for food and clearing trees along the way.

It also highlighted a report by the United Nations Office on Drugs and Crime indicating that militia from Sudan were responsible for the deaths of some 2,000 elephants in the Central African Republic in 2007 alone.

The report also said the Vietnam War "almost certainly accelerated the slide into extinction" of the Javan rhinoceros, as the Viet Cong shot them to supplement a meagre diet.

"There is no question that conflict does have increased species extinction risk," Brooks said.

At the same time, the report found that degradation of nature was associated with increased risk of conflict.

Looking at more than 85,000 armed conflict events over the past 30 years, which have been responsible for the deaths of more than two million people, the report determined they were more likely to erupt where there is less productive agricultural land available and when droughts are frequent.

"These findings suggest that conservation, restoration and sustainable management of natural resources can help reduce the pressures that drive conflict by improving the condition and productivity of the landscape," IUCN chief economist Juha Siikamaki said in the statement.

The report pointed to research showing that armed conflict events, defined as organised actors using armed force resulting in death, have increased significantly in recent decades.

Today, there are more than 7,000 such events each year, mainly in sub-Saharan Africa and in West and South Asia.

"As environmental degradation and climate change intensify, it is becoming increasingly important to factor in the links between conflict and nature when formulating security, development and environmental policy," Siikamaki said.

The report meanwhile found that conflicts were less frequent within the boundaries of natural reserves and other protected areas.

Such areas cover an estimated 15% of land, but overlap with only three percent of the armed conflict events analysed by the report.

"Conservation, sustainable and equitable management of nature plays an important role in preventing conflict and in rebuilding peace," said Kristen Walker, who chairs the IUCN commission on environmental, economic and social policy. "It supports livelihoods and well-being of indigenous and local communities in times of peace and helps reduce the risk of conflicts breaking out."

The report listed policy recommendations to mitigate and prevent armed conflict, including establishing safeguards for staff in protected areas, environmental defenders and other conservationists.

It also called for "sanctions against those who commit environmental war crimes".

Please enter a valid email address.

END

Downloaded from crackIAS.com

© **Zuccess App** by crackIAS.com