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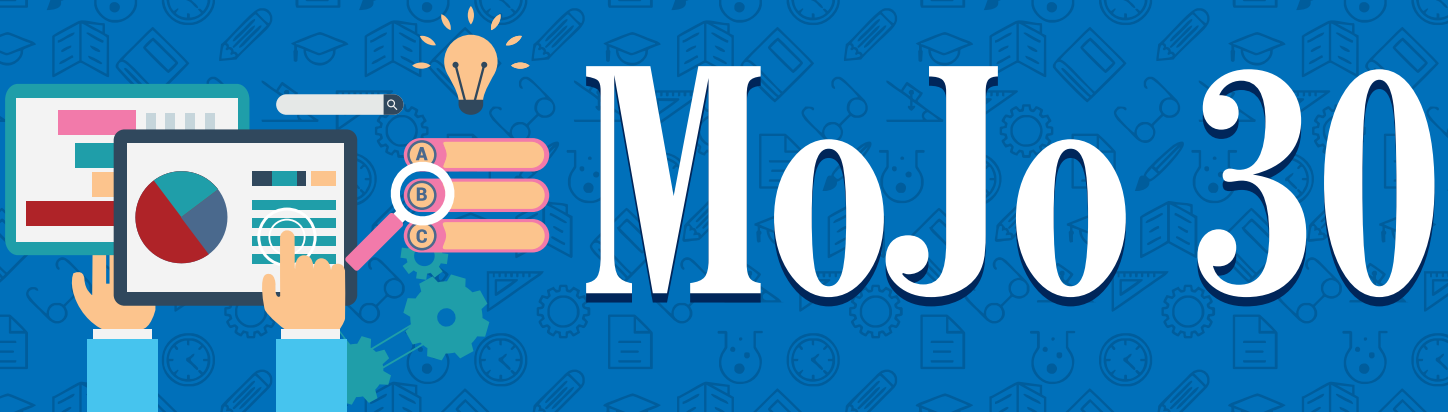
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# Index

The Hindu Explains .....	2
Locust attack in India .....	5
Cabinet approves MoU between India and Bhutan on Cooperation in the areas of Environment ..	7
23,182 instances of man-animal conflict in State since August 2016 .....	10
Disasters displace lakhs: study .....	12
Close to 28% of Sunderbans damaged in Cyclone Amphan .....	14
Development of Urban Forests will contribute to India's decision to sequester 2.5 to 3 billion tonnes of carbon dioxide equivalent in the country's forests, they will also function as urban lungs: Environment Minister Prakash Javadekar .....	16
Warje Urban Forest in Pune now a role model for the country .....	22
Saving Biodiversity through Effective Waste Management .....	26
Air pollution can pose serious threat to brain health: Study .....	29
Flattening the climate curve .....	31
Gujarat's pride grows as it now hosts 674 Gir lions .....	35
CPCB to classify railway stations based on waste water generation .....	37
FLOOD WARNING SYSTEM FOR MUMBAI "IFLOWS-Mumbai" to be launched on June 12, 2020 .....	39
Government issues advisory to streamline the process for import and possession of exotic live species in India .....	42
High ozone pollution .....	44
Illegal wildlife trade a global threat: FATF report .....	46
Decline in Arctic sea ice does not sound good for the environment, warns NCPOR .....	49
Rise in carbon emission may lead to more extreme rainfall events in Chennai .....	52
Centre unveils new rules to regulate exotic animal trade .....	54

## THE HINDU EXPLAINS

Relevant for: Environment | Topic: Disaster and disaster management

**The story so far:** India is gearing up for what could be [one of its worst locust invasions](#) in decades. Outbreaks of the insect attack have been reported from Gujarat, Rajasthan, Maharashtra, Madhya Pradesh, Punjab, Haryana and Uttar Pradesh. On Thursday, May 28, the Delhi government issued an advisory to farmers to spray pesticides and keep a possible attack at bay. Last year, Gujarat and Rajasthan had reported infestations. But it could be worse this year because of a chain of climate events, administrative laxity in several countries and the difficult circumstances brought on by the COVID-19 pandemic. Experts have warned of huge crop losses if the swarms are not stopped by June when the monsoons will lead to a new season of sowing rice, sugarcane, cotton and other crops.

The last big infestation was in 2010. There were 13 locust plagues between 1964 and 1997. From 1997 to 2010, there were five outbreaks that were controlled. From 2010 to 2018, there were no major swarms or breeding reported, according to the Locust Warning Organization (LWO), in Jodhpur. In 2019, Gujarat and Rajasthan reported a significant surge in locust infestations. Nearly 3.5 lakh hectares of cumin, rapeseed and mustard were damaged and officials had then said that it was the worst attack since 1993. This was partly due to an unusually long monsoon but also because pest-control operations were inadequate; therefore, nascent populations of the insect had not been wiped out.

Also read | [Locust surge may turn into global plague: expert](#)

As a result of the 1926-1931/1932 locust plague, India, under the British Raj at the time, began research into the desert locust, beginning in 1931. It then led to the establishment, in 1939, of a permanent Locust Warning Organization (LWO), with a station in Karachi (undivided India). Its main job was to keep an eye for a specific sub-species of the insect, the desert locust, that sprang into the region from the Thar desert. There is a wealth of scientific and newspaper reports that point to locust attacks being a major scourge to the colonial administration and hence the references to it as a “plague” which is how they continue to be recorded to the present. There were serious outbreaks in 1812, 1821, 1843-44, 1863-67, 1869-73, 1876-81, 1889-98, 1900-1907, 1912-1920. A particularly bad season in 1926-1931 prompted the imperial administration to establish the Karachi warning centre and after Independence, India established its own centre at Jodhpur, Rajasthan, as a part of the Directorate of Plant Protection Quarantine and Storage, under the Ministry of Agriculture.

Also read | [Grasshoppers mistaken for locusts across T.N.](#) | [Swarm of grasshoppers leads to locust scare in A.P.](#)

A pattern of warming in the Indian Ocean may be a trigger. A phenomenon called the Indian Ocean Dipole, in which the western and eastern parts of the ocean, warm differentially, tend to have an outsized impact in bringing excessive rains to India and West Asia. A ‘positive’ dipole is when the western part is hotter by a degree or more than the eastern. Last year saw one of the strongest positive dipoles in the Indian neighbourhood which brought on a difference of more than two degrees.

The Indian Ocean Dipole was so strong that it over-rode concerns of a drought in India last June and brought torrential rainfall — the most India has seen in decades. It also lasted nearly a month more than what is normal. This extended rainfall continued in several parts of West Asia, Oman, Yemen and in the Horn of Africa — Ethiopia, Somalia, Kenya — so much so that that the

dry sand became heavily moisture laden, facilitating the formation of several locust swarms. While this dipole was beginning to take shape by late 2018 — and locust outbreaks were growing in Africa — it increased last year. Due to favourable winds, it helped swarms to fly and breed in traditional grounds in Iran, Afghanistan, Pakistan and India. The Food and Agriculture Organization (FAO), a specialised agency of the United Nations has been sending alerts on developing swarms. Somalia announced a national state of emergency due to the outbreak in February 2020, while Pakistan declared a national emergency for the second time this year, in April. The unusually mild summer this year, which saw several bouts of rainfall over north and western India from March to May, also helped the insects breed. The normal locust season in India spans June-November and coincides with the kharif season. So far swarms have been recorded in nearly 50,000 hectares in Rajasthan and Madhya Pradesh and if they continue to thrive as the monsoon arrives, it could cause serious agricultural damage.

[Editorial](#) | [The swarm](#)

A locust attack has to be dealt with by spraying pest control and plant protection chemicals. According to the FAO's locust situation bulletin of May 27, adult locusts were forming groups and small swarms in spring breeding areas in Baluchistan, Indus Valley (Pakistan) and southern coast and parts of Sistan-Baluchistan. These infestations are likely to move to the summer breeding areas along India-Pakistan from Cholistan to Tharparkar.

In India, existing groups of swarms have continued to move east and to the central States of Madhya Pradesh and Maharashtra. Much of these movements were associated with the strong westerly winds of Cyclone Amphan. Several successive waves of invasions are likely until July in Rajasthan, with eastward surges across northern India as far as Bihar and Odisha followed by westward movements and a return to Rajasthan on the changing winds associated with the monsoon. These movements will cease as swarms begin to become less mobile. The swarms are less likely to reach Nepal, and Bangladesh and south India, according to experts.

Also read | [Locust threat is bigger this year, warns Agriculture Ministry monitor](#)

Indian officials, last year and this year too, have blamed Pakistan for not spraying adequate pesticide to stem the nascent population. It has been part of the protocol for many years, for entomologists from India and Pakistan to conduct border meetings and divide pest control responsibilities. While the lack of funds and inadequate monitoring have been a problem for many years, as the FAO has frequently pointed out, the novel coronavirus pandemic this year has caused unusual focus on natural disasters such as cyclones as well as locust attacks.

While locusts are unlikely to be a threat in urban centres as they do not have much to feed on, the national lockdown has made the availability of pesticide as well as its transportation difficult. With labour also not being available easily due to the lockdown, this could affect spraying operations and, as a result, allow locusts to cause significant damage.

Experience shows that a locust plague usually follows a one to two year cycle after which there is a lull for eight to nine years. However, strong Indian Ocean Dipoles are expected to become more frequent whetted by an overall trend of warming oceans. This phenomenon could trigger regular locust infestations.

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A huge challenge is likely to emerge when the swarms flying over 20 districts in Rajasthan start breeding.

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# LOCUST ATTACK IN INDIA

Relevant for: Environment | Topic: Disaster and disaster management

Swarms of locusts have invaded vast swathes of land in India since April 11th this year. They [entered several districts of Rajasthan](#) via [Pakistan's Sindh province](#). Few days later, they entered the neighbouring State of Madhya Pradesh. Many districts in [Uttar Pradesh have now been put on alert](#).

This locust attack has affected about 90,000 hectares across 20 districts in Rajasthan. Favourable rain-bearing winds aided their transport towards India. This quickly growing swarm is now threatening to amplify into an agrarian disaster.

Also read | [Swarms of locusts spotted in border villages of Punjab](#)

[A huge challenge is likely to emerge](#) when they start breeding. Last year, mature locusts had entered parts of India after a gap of 26 years. But the locusts that have come in this year are immature. Immature locusts are not fully grown and have the capacity to cause more harm. They also have a longer lifespan.

The locusts which entered India were about 10-12 days old and were flying huge distances in search of food. Since the Rabi crop harvesting is over and the Kharif sowing season is yet to begin, they were unable to find any vegetation.

[The Hindu Explains | Why is the locust surge posing a threat to agriculture in India?](#)

They will now start laying eggs after the onset of monsoon and continue breeding for two more months. According to the Food and Agriculture Organisation, the destructive power of a typical locust swarm can be enormous. The size of these swarms can vary - from less than one square kilometre to several hundred square kilometres.

A one square kilometre swarm contains about 40 million locusts. They can eat as much food as 35,000 people assuming that each individual consumes 2.3 kg of food per day.

[Editorial | The swarm: On locust attack](#)

Most countries combating locust swarms are mainly relying on organophosphate chemicals. These are applied in small concentrated doses by vehicle-mounted and aerial sprayers. [Drones have been deployed for controlling locusts](#) in Rajasthan. A drone can spray pesticide on nearly 2.5-acres during a flight of 15 minutes.

In Uttar Pradesh, local villagers have been asked to make noise by beating 'thalis' and bursting crackers. Officials say these measures will help in controlling or eliminating locusts at their resting place.

The U.N. Food and Agriculture Organisation, however, has warned of more such attacks along both sides of the India-Pakistan border. But for a country which is already battling a pandemic, [this is yet another challenge](#).

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# CABINET APPROVES MOU BETWEEN INDIA AND BHUTAN ON COOPERATION IN THE AREAS OF ENVIRONMENT

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

The Union Cabinet chaired by the Prime Minister, Shri Narendra Modi has given its approval for signing the Memorandum of Understanding between the Government of the Republic of India and the Royal Government of Bhutan on Cooperation in the areas of Environment.

## Details:

The Memorandum of Understanding will enable establishment and promotion of closer and long-term cooperation between the two countries in the field of environment protection and management of natural resources on the basis of equity, reciprocity and mutual benefits, taking into account the applicable laws and legal provisions in each country.

Keeping in view the bilateral interest of both sides and mutually agreed priorities, a Memorandum of Understanding covering the following areas of environment has been considered:

- Air;
- Waste;
- Chemical Management;
- Climate Change;
- Any other areas jointly decided upon.

This Memorandum of Understanding shall enter into force on the date of signature and shall continue to remain in force for a period of ten years. The Participants intend to encourage organizations, private companies, government institutions at all levels and research institutions on both sides to establish cooperation activities aimed at fulfilling the objectives of the Memorandum of Understanding. The Participants also intend to hold Joint Working Group / bilateral meetings to review and analyze the progress of activities and shall keep their respective Ministries/Agencies, duly informed of progress and achievements.

## Major Impact including Employment Generation Potential:

The Memorandum of Understanding shall facilitate exchange of experiences, best practices and technical knowhow through both public and private sectors and shall contribute to sustainable development. The Memorandum of Understanding provides the possibility for joint projects in areas of mutual interest. However, no significant employment generation is envisaged.

## Expenditure:

The financial implications of the proposed Memorandum of Understanding are limited to holding of the bilateral meetings / Joint Working Group meetings which shall meet alternatively in India



and Bhutan. The sending side shall bear the travel cost of their delegation while the receiving side is to meet the cost of organizing the meetings and other logistic arrangements. These are the limited financial implications of the proposed Memorandum of Understanding.

**Background:**

A Memorandum of Understanding (MoU) was signed between the Central Pollution Control Board (CPCB), Ministry of Environment, Forest and Climate Change (MoEFCC) of the Government of the Republic of India and the National Environment Commission (NEC) of the Royal Government of Bhutan on 11th March, 2013. This MoU expired on 10th March, 2016. Noting the benefits of the earlier MoU, both sides have decided to continue cooperation and collaboration in the field of Environment.

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**VRRK/SH**

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VRRK/SH

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## 23,182 INSTANCES OF MAN-ANIMAL CONFLICT IN STATE SINCE AUGUST 2016

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

A total of 23,182 instances of man-animal conflicts causing death or injury to people were recorded in the State between August 1, 2016 and June 4, 2020.

The State paid a compensation of Rs. 29.39 crore in connection with the cases.

There were 17,116 instances of crop raid by animals during this period while incidence of cattle lift stood at 1,214, according to data available with the State Forest Department.

A total of Rs. 12.25 crore was paid to farmers by way of compensation for crop loss while a sum of Rs. 2.65 crore was paid as compensation for loss of cattle.

Between 2015 and 2019, a total of 514 people lost their lives in conflict with animals. Twenty-three animals too died in these incidents.

Senior forest officials said that while the State had taken numerous measures to reduce incidence of man-animal conflict, there was no way this could be completely halted.

Solar fencing was done along 2,413.7 km of forest area, elephant trenches were dug along 631 kms, and stone-pitched trenches were made over a six km area while concrete walls were raised along 178.13 kms as a defence against elephants in certain stretches and sanctuaries.

This is apart from biofencing, hedges and crash guard rope fences done to prevent both animals and people living in the vicinity of forests from coming to conflict with each other.

A senior forest official said that the SMS alert system, set up in places like Wayanad, Munnar and Aralam in Kannur to alert villagers on presence of radio-collared rogue elephants, was working well. The Jana Jagratha Samithis set up in panchayats and the Rapid Response teams of forest officials for turning back to forests animals wading into human habitation were also effective mechanisms, he said.

### Fencing animals

“Whether we should construct a huge wall to fence animals in is a philosophical question. Animals cannot be contained like that and we should be able to approach the issue with a large heart,” says Surendrakumar, Chief Wildlife Warden, Kerala.

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## DISASTERS DISPLACE LAKHS: STUDY

Relevant for: Environment | Topic: Disaster and disaster management

Shifting sands: In this photo dated May 4, 2019, houses and fishing boats damaged by Cyclone Fani are seen at Penthakata village in Odisha. Biswaranjan Rout

India had one in five of all internal displacements caused by disasters across the world in 2019, mostly caused by floods, cyclones and drought, according to the *State of India's Environment in Figures 2020* report released on Thursday. Also, 19 major extreme weather events claimed 1,357 lives last year.

There were more than 50 lakh internal displacements in India last year, the highest in the world. This refers to the number of movements, not people, as individuals can be displaced several times, said research and advocacy organisation Centre for Science and Environment (CSE), which published the report.

Flooding caused by the southwest monsoon led to 26 lakh displacements, while Cyclone Fani alone led to 18 lakh displacements, followed by cyclones Vayu and Bulbul. On the other hand, drought conditions in 19 States led to another 63,000 displacements.

Apart from such forced migrations, many move for work. With migrant workers in the news due to the impact of the COVID-19 pandemic and lockdown, the report also broke down 2011 census data on migrant populations. There were over 45 crore migrants in the country at the time, with the vast majority migrating within their own State. In 2011, over 1.7 crore new migrants had moved for employment purposes, mostly from rural to urban areas.

### Shrinking forests

The compilation also offers a snapshot of data on forests, water, waste, air, land, wildlife and other natural resources. It notes that there were 747 more tigers in 2018 than in 2014. However, the net area meant for tiger conservation shrunk by 179 sq.km. Forest cover has shrunk in 38% of districts, while five out of 21 river basins are now in a state of absolute water scarcity.

CSE also publishes the environment magazine *Down to Earth*. Its managing editor Richard Mahapatra, in a foreword to the report, said, "Each data is a story. It will raise your curiosity towards a development and will help you understand its impact better."

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## CLOSE TO 28% OF SUNDERBANS DAMAGED IN CYCLONE AMPHAN

Relevant for: Environment | Topic: Disaster and disaster management

Heavy destruction: A strip of damaged land seen at Sunderbans after the cyclone receded. AP

About 28% of the Sunderbans have been damaged by Cyclone Amphan, Chief Minister Mamata Banerjee said on Friday at the launch of a drive for planting mangroves and trees to mark World Environment Day.

She said 1,200 sq km of the 4,263 sq km forests had been “destroyed”. The Indian Sunderbans, an area south of the Dampier Hodges line, is spread over 9,630 sq km, of which the mangrove forest accounts for 4,263 sq km.

Principal Chief Conservator of Forest Ravi Kanta Sinha said the damage was mostly in the Patharpratima and Kultali areas of South 24 Parganas. “The damage has been much more on the Indian side and not on the Bangladesh side,” he said.

On trees turning yellow and red after the cyclone, he said the phenomenon was mostly due to salinity. “The trees that turned yellow were not mangrove trees, it was mostly due to the dense fog of saline water. We are not sure whether the trees will survive. Maybe if the salinity of the soil comes down, some trees can survive,” he said.

Despite the massive plantation drives, it may take years to restore the mangroves, officials said. Experts say the mangroves not only reduce wind speed but also break the waves during a cyclone.

The Chief Minister said the Forest Department should be prepared to plant 3.5 crore mangrove trees by July 14, World Forest Day.

Ms. Banerjee said 16,000 trees were damaged in Kolkata. About Rs. 100 crore would be spent on plantation drives in Kolkata and adjoining areas. Trees had been lost not only on the streets but also in parks and gardens.

The Chief Minister wrote on Twitter, “We must all work together to restore the greenery in our State.”

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## **DEVELOPMENT OF URBAN FORESTS WILL CONTRIBUTE TO INDIA'S DECISION TO SEQUESTER 2.5 TO 3 BILLION TONNES OF CARBON DIOXIDE EQUIVALENT IN THE COUNTRY'S FORESTS, THEY WILL ALSO FUNCTION AS URBAN LUNGS: ENVIRONMENT MINISTER PRAKASH JAVADEKAR**

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

**: New Delhi/ Mumbai, June 5, 2020**

We have forests in rural areas, but not much in urban areas of the country. In many major cities and urban centres in the world, there are forest areas. But we need more. There are gardens in cities/urban areas, but not forests. Stating this, Union Environment, Forests and Climate Change (MoEFCC) and Information and Broadcasting Minister Shri Prakash Javdekar called for planting and growing more trees which will be our oxygen bank, in a virtual celebration of World Environment Day 2020 today. He referred to PM Modi's similar message in the recent Mann Ki Baat programme and said, PM has always emphasized on environment.

Shri Javdekar said, development of Urban Forests will contribute to India's decision to sequester 2.5 to 3 billion tonnes of carbon dioxide equivalent in the country's forests. They will also function as urban lungs, he added. In this connection, he spoke about the Warje City Forest in Pune, which is a good example of Private-Public Partnership for developing urban forests and can act as a model for building urban forests under MoEFCC's Nagar Van scheme in 200 cities across the country. Assistance under CAMPA Fund will be provided for this initiative.

Shri Javdekar appealed to the municipal corporations to map forest and degraded land in cities and to reserve them for development of urban forests, making it a people's movement. The Environment Ministry is also thinking of introducing prizes for good city forests created by public participation, announced the Minister.

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Shri Javadekar said, India has 16% of world's human & cattle population, both require land, water & food. But we have only 2.5% of world's landmass & 4% of natural water resources. Still, we are able to preserve 8% of world's biodiversity. This is no small feat, said the Minister. He also stated, it is Indian culture to protect biodiversity despite constraints. Our lifestyle is such that it is connected with nature and all species and animals are a part of our lives. In our unique culture, people worship trees, animals and all kind of lives. 300 people of Rajasthan gave their lives in order to protect forests, he mentioned. In every village we have a forest in the name of God where tree felling and clearing forests does not happen. Invoking a sanskrit shloka, the Minister said, nature protects those who worship nature.

Speaking on the occasion, MoS, MoEFCC Shri Babul Supriyo said, nature is letting us know and reminding us through the COVID-19 pandemic that we need to take more careful and concerted efforts in protecting nature. Stating that World Environment Day reminds us about our commitment to protecting the environment and biodiversity and conservation, he said, the Centre has decided to make tree plantation a people's movement. He urged that if all of us plant at least one tree in our vicinity, it will help the cause of climate change and reduce carbon emission. The Minister said, we should pledge to protect and preserve the forest areas in the cities. He further said, with a view to enhance biodiversity in urban landscapes, MoEFCC has chosen Nagar Van as the theme of World Environment Day this year.

Shri Babul Supriyo also stated, we should make a conscious and concerted effort to minimise the use of natural resources and feed all living creatures on the earth, including wild animals with compassion. This year, MoEFCC, in coordination with state governments, has planned to enhance the target for tree plantation to 145 crores, which can be achieved with people's participation. The Government has also decided to take up the regulation of major river basins in the country, with forestry interventions, tree plantations and soil moisture conservation, further stated the Minister.

Speaking on the occasion, DG, Forests and Special Secretary, Shri Sanjay Kumar said, a large part of our world population lives in urban areas today. So, unless we cater to them and understand nature and biodiversity in urban areas, our goals of sustainable development will not be successful.

On this occasion, Warje Urban Forest in Pune has been showcased as it can become a role model for the country in implementation of the Nagar Van scheme. Warje Forest Area within Pune Municipal Limit, has been

developed over about 22 hectares of forest land amounting to about 9000 acres. It bears 6,500 trees as on date and about a thousand people visit the place everyday.

Warje was once located outside the limits of municipal corporation, but with the expansion of urbanisation and population explosion, this area has now come almost at the centre of the city. Warje is one such area where people were settling earlier and lot of filth was strewn around.

Speaking about Warje Smriti Van, Shri Vivek Khandekar, Chief Conservator of Forest in Pune, said, in the 25 acres of Warje, the forest department pioneered a project to develop the forest area into an urban forest park in 2015. A stake of local people was developed in this forest land by converting the area into a recreational, ecological and environmental green spot for the people around, which also helped to take care of their physical and mental health. This can be replicated all over India to secure and protect the forest lands within the limits of a city to provide them with green areas.

Warje City Forest gives pure air to Pune-kars. This is the first step towards fighting climate change. I exhort everyone to grow forests and walk and get pure air everyday, said Dr. Vinitaa Apte, TERRE Policy Centre. The CMD of Persistent Systems, Dr. Anand Deshpande expressed delight about Warje turning into a beautiful biodiversity spot. He said, it is really commendable to see officials set up an urban forest within Pune city and it is our privilege for them to play a part in it.

Warje, situated on the bank of the Mutha river has a catchment area in the western hills that brings along fertile soil and sufficient water. The Union Government took a significant and ambitious step to increase the green cover on barren lands. The project 'Urban Forest' was then started by Ministry of Environment, Forests and Climate Control (MoEFCC) with assistance from the Forest Department, Government of Maharashtra. The total area of the hill is about 16.8 hectares and until some years ago, it was totally barren and used as a dump yard by the residents in the vicinity. Stressing on the need for creating a balance between development and environment conservation, big corporates like Tata Motors, Persistent Foundation and Terre Policy Centre, a Pune based NGO extended their support. Public Private Participation as seen in Warje is one of its best examples. A number of residents have planted and adopted trees in memory of their loved ones at Smriti Van in Warje. A total of 9500 trees were planted in the area under CSIR initiative between 2015 to 2017. The neglected land has now been transformed into an area of rich biodiversity of various species of plants, birds, butterflies, reptiles and mammals. The project also helps in absorbing approximately 129,000 Kg carbon-dioxide and producing about 5,62,000 Kg oxygen per year. Presently, water is supplied from five water ponds located within the project area and with water tankers which supplement water supply in the dry season. However, the ground water level in the area is on the rise and the surplus will be useful for others also in the near future. Undoubtedly, Project Urban Forests is helping in maintaining the ecological balance, serving both environmental and social development goals.

This is the beginning of creating 200 forests under the Nagar Van scheme, within the next couple of years.

Also read: [Warje Urban Forest in Pune now a role model for the country](#)

Here is [the brochure released on Urban Forests](#), released by the Ministers today.

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: New Delhi/ Mumbai, June 5, 2020

We have forests in rural areas, but not much in urban areas of the country. In many major cities and urban centres in the world, there are forest areas. But we need more. There are gardens in cities/urban areas, but not forests. Stating this, Union Environment, Forests and Climate Change (MoEFCC) and Information and Broadcasting Minister Shri Prakash Javdekar called for planting and growing more trees which will be our oxygen bank, in a virtual celebration of World Environment Day 2020 today. He referred to PM Modi's similar message in the recent Mann Ki Baat programme and said, PM has always emphasized on environment.

Shri Javadekar said, development of Urban Forests will contribute to India's decision to sequester 2.5 to 3 billion tonnes of carbon dioxide equivalent in the country's forests. They will also function as urban lungs, he added. In this connection, he spoke about the Warje City Forest in Pune, which is a good example of Private-Public Partnership for developing urban forests and can act as a model for building urban forests under MoEFCC's Nagar Van scheme in 200 cities across the country. Assistance under CAMPA Fund will be provided for this initiative.

Shri Javadekar appealed to the municipal corporations to map forest and degraded land in cities and to reserve them for development of urban forests, making it a people's movement. The Environment Ministry is also thinking of introducing prizes for good city forests created by public participation, announced the Minister.



Shri Javadekar said, India has 16% of world's human & cattle population, both require land, water & food. But we have only 2.5% of world's landmass & 4% of natural water resources. Still, we are able to preserve 8% of world's biodiversity. This is no small feat, said the Minister. He also stated, it is Indian culture to protect biodiversity despite constraints. Our lifestyle is such that it is connected with nature and all species and animals are a part of our lives. In our unique culture, people worship trees, animals and all kind of lives. 300 people of Rajasthan gave their lives in order to protect forests, he mentioned. In every village we have a forest in the name of God where tree felling and clearing forests does not happen. Invoking a sanskrit shloka, the Minister said, nature protects those who worship nature.

Speaking on the occasion, MoS, MoEFCC Shri Babul Supriyo said, nature is letting us know and reminding us through the COVID-19 pandemic that we need to take more careful and concerted efforts in protecting nature. Stating that World Environment Day reminds us about our commitment to protecting the environment and biodiversity and conservation, he said, the Centre has decided to make tree plantation a people's movement. He urged that if all of us plant at least one tree in our vicinity, it will help the cause of climate change and reduce carbon emission. The Minister said, we should pledge to protect and preserve the forest areas in the cities. He further said, with a view to enhance biodiversity in urban landscapes, MoEFCC has chosen Nagar Van as the theme of World Environment Day this year.

Shri Babul Supriyo also stated, we should make a conscious and concerted effort to minimise the use of natural resources and feed all living creatures on the earth, including wild animals with compassion. This year,

MoEFCC, in coordination with state governments, has planned to enhance the target for tree plantation to 145 crores, which can be achieved with people's participation. The Government has also decided to take up the regulation of major river basins in the country, with forestry interventions, tree plantations and soil moisture conservation, further stated the Minister.

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# WARJE URBAN FOREST IN PUNE NOW A ROLE MODEL FOR THE COUNTRY

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

**Mumbai / Pune, June 5, 2020**

Urban forests play an important role in ecology of human habitats in many ways. Aside from the beautification of the urban environment, they offer many benefits like impacting climate and the economy while providing shelter to wildlife and recreational area for city dwellers.

The World Economic Forum says that cities that have more trees are less noisy, with lower pollution levels. A fully-grown tree can annually absorb up to 150kg of carbon dioxide (CO<sub>2</sub>) – one of the main greenhouse gases contributing to global warming. Trees can moderate temperatures in heavily built cities, where heat radiated from concrete on buildings and roads, makes these areas hotter than the surrounding countryside, in a phenomenon known as ‘heat island’ effect. Food and Agriculture Organization adds that trees in urban areas reduce ozone, sulphur dioxide and particulate matter; remove large quantities of carbon dioxide from the atmosphere, and release oxygen.

In many countries there is a growing understanding of the importance of urban forests. Cities like Rio de Janeiro and Johannesburg have large forests within their urban areas. In India, most cities have gardens and parks, but not forests.

In this regard, an initiative that began in 2015-16 in Pune under the leadership of Union Environment Minister Prakash Javadekar, has now become a success story in urban area rejuvenation.

## **Welcome to Warje Urban Forest or Smriti Van.**

Before becoming a pioneering urban forest, Warje Hill was a barren land under the Maharashtra Forest Department. As the city grew, it caused many encroachments by slums and builders.





Photo Source: TERRE

Four years ago, under an unique experiment the Maharashtra Forest Department joined hands with TERRE Policy, a city based NGO, Tata Motors and Persistent Foundation to turn the barren hill into a green forest. To begin with, 8 feet saplings of variety of trees were planted. The plantation includes around 23 indigenous plants species namely Banyan, Peepal, Sonchafa, Apta, Neem, Kanchan, Golden Bamboos, Badam, Kaat, Amla, Umbar etc. To ensure that this project remained sustainable, peoples' participation was encouraged. People can adopt trees in memory of their loved ones.

Four years down the line, the results are there for everyone to see. Smriti Van today boasts of more than 6,500 grown up trees. Some have become 25-30 feet tall. This year more trees would be planted. Today, the forest is rich in biodiversity with 23 plant species, 29 bird species, 15 butterfly species, 10 reptiles and 3 mammal species. Five water ponds have been built and two watch towers constructed.

Not only the Urban Forest project is helping maintain ecological balance, but also providing the Pune-kars a good walk way and a place to be in for the morning and evening walks. Nearly 1000- 1500 people visit Smriti Van every day. The Warje Urban Forest has become a role model for the rest of the country, even as on this World Environment Day, the Environment Minister Shri Prakash Javadekar launched an ambitious Urban Forestry programme covering 200 city corporations in the country.

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# SAVING BIODIVERSITY THROUGH EFFECTIVE WASTE MANAGEMENT

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

In commemoration of World Environment Day 2020, Shri Hardeep Singh Puri, Minister of State (I/C), Ministry of Housing & Urban Affairs (MoHUA) launched a series of advisories at Nirman Bhavan, New Delhi. The program titled '**Saving Biodiversity through Effective Waste Management**' was webcast live and was also attended by Shri DurgaShanker Mishra, Secretary, MoHUA and Shri V.K. Jindal, Joint Secretary and National Mission Director, Swachh Bharat Mission-Urban (SBM-U).

The three key advisories released included the '**Advisory on Material Recovery Facilities (MRFs) for Municipal Solid Waste (MSW)**', '**Advisory on Landfill Reclamation**' and a '**Consultative Document (draft) on On-site and Off-site Sewage Management Practices**' prepared by the Central Public Health and Environmental Engineering Organisation (CPHEEO) under SBM-U. Speaking at the event, the Minister said, "On this day, we get the chance to reinforce the intrinsic connection between biodiversity conservation and effective waste management. Swachhata and conservation of biodiversity indeed go hand in hand". He further added, "When the Hon'ble Prime Minister launched SBM-U in 2014, it was with the twin objective of making urban India Open defecation Free along with 100% scientific solid waste management. We have made significant strides in both these areas. Almost all of urban India is today ODF and scientific processing of solid waste, which stood at a mere 18% at the start of the Mission in 2014, has more than tripled and now stands at 65%. However, there is still a long way to go. The documents being released today by my Ministry is an effort to find and facilitate sustainable solutions to some of the key problems hindering holistic sanitation and solid waste management." The Ministry also released a **toolkit for a communication campaign on faecal sludge management titled 'Malasur- The Demon of Defeca'** which aims to heighten the risk perception of faecal sludge. Conceptualized and designed in support from BBC Media Action, the toolkit has a host of creative outputs in 10 Indian languages along with English.

Elaborating on the importance of the day and the need for these documents, the Minister said, "The launch of these documents cannot come at a more opportune occasion. MoHUA has been constantly working on capacity building of Urban Local Bodies (ULBs) to focus on various components of solid waste management and holistic sanitation including wastewater treatment not just through the creation of infrastructure but through capacity building and behaviour change communication. The release of these documents is another step in this direction. On the occasion of World Environment Day, I once again want to reiterate MoHUA's commitment to conserving all forms of life on earth. This can only happen when we take the mandate of Swachhata forward and **truly unlock the potential of 3Rs, circular and blue economy**. I am confident that this will lead to improved public health and quality of life apart from generating jobs, integration of informal workers into the formal workforce, generation of revenue and creation of new products from waste streams finally **leading to not just a Swachh (clean) but a Swasth (healthy), Sashakt (empowered), Sampann (prosperous) and Atmanirbhar (self-reliant) Bharat**. Let us therefore, once again, reaffirm our pledge to clean our air, land and water and thus preserve the bounties of nature for now and the future".

The launch was followed by a consultative virtual workshop on the 'Draft Advisory for On-Site & Off-Site Sewage Management Practices in India' which was attended by over 100 participants comprising representatives from States and ULBs along with academicians and subject matter experts.

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# AIR POLLUTION CAN POSE SERIOUS THREAT TO BRAIN HEALTH: STUDY

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

Although the impact of inhaling polluted air on the lungs is well known, now the researchers have revealed that it can pose a serious threat to brain health as well. The study, published in the journal *Chemical & Engineering News*, details how researchers are connecting air pollution to dementia, autism and other neurological diseases.

Air pollution has become a fact of modern life, with a majority of the global population facing chronic exposure and scientists at American Chemical Society in the US are now beginning to understand how it affects the brain.

Arising from vehicle emissions, power plants and factories, air pollution is a complex soup of gases, metals, organic contaminants and other materials. "Over 90 per cent of the world's population is continually exposed to particulate matter (PM) pollution, which is known to penetrate deep into the lungs, at levels above the World Health Organisation's (WHO) guidelines," Contributing Editor Janet Pelley, wrote. "Inhaling these substances causes inflammation, which is the body's healthy response to injury or infection, but over time chronic inflammation can damage healthy tissues," Pelley added.

Although the correlation between PM and lung damage is clear, scientists believe that these harmful particles can also impact the brain, either directly or indirectly. In a recent study, infant mice exposed to air pollution showed altered social behaviours similar to those of autistic children. Postmortem observations revealed inflammation and other abnormalities in the mice's brains resembling changes seen in children with autism. Researchers suspect that iron particles in PM could play a role, as they are known to cause cell death in Parkinson's and Alzheimer's diseases.

In mice, inflammation caused by breathing polluted air also appears to boost the production of amyloid plaques, the sticky protein fragments associated with neurological diseases like Alzheimer's. While the evidence is mounting that air pollution can pose a serious threat to brain health, scientists emphasize that their research must coincide with policy changes to reduce pollution worldwide.

Last month, another study, presented at the European Academy of Neurology (EAN) Virtual Congress, revealed that air pollution could be a risk factor for the development of multiple sclerosis (MS) among people residing in urbanised areas. Multiple sclerosis (MS) is a disease in which the immune system eats away at the protective covering of nerves.

—IANS

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## FLATTENING THE CLIMATE CURVE

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

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

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

Actually, the CO<sub>2</sub> curve began its upward march about 18,000 years ago when it was a little under 200 parts per million (ppm) and earth was much colder. By the time it reached 270 ppm about 11,500 years ago, the warmer conditions accompanying this curve made it possible for the emergence of agriculture. Over the past million years, CO<sub>2</sub> levels never exceeded 280-300 ppm. They always went back to 200 ppm before rising again in a cyclical fashion. They remained steady at close to 280 ppm for 10,000 years until, beginning in the mid-19th century, they began to rise again as humans burnt coal and oil to fuel the industrial revolution, and burnt forests to expand agriculture and settlements. From a mere 0.2 billion tonnes of CO<sub>2</sub> emissions in 1850, annual emissions increased to 36 billion tonnes by 2018. If all this CO<sub>2</sub> had accumulated in the atmosphere, we can say that human life would have been altered beyond recognition. Nature has been rather kind to us so far — about one-half of all CO<sub>2</sub> emissions have been sanitised from the atmosphere, equally by growing vegetation on land and by absorption in the oceans. Thus, the levels of CO<sub>2</sub> in the atmosphere reached 407 ppm in 2018, a level last experienced by earth some three million years ago.

Also read | [‘COVID-19 is alarm bell for climate change, more outbreaks may follow’](#)

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

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

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

Also read | [Learning about climate change from a pandemic](#)

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



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

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

Also read | [COVID-19 lockdown-like interventions may help combat air pollution in India, say scientists](#)

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

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

Opinion | [No, the lockdown is not a green moment](#)

COVID-19 has elicited an unprecedented response worldwide. Only cognitive psychologists can explain why the spectre of dangerous climate change impacting human civilizations has not yet evoked a comparable response. There seems to be wishful thinking that technology can be used to suck out billions of tonnes of CO<sub>2</sub> from the atmosphere and store this safely somewhere, but available ones are extremely slow and expensive. Harebrained schemes to regulate solar radiation by geo-engineering are bound to bring nasty surprises. There is no substitute to reducing GHG emissions. Technologists, economists and social scientists must plan for a sustainable planet based on the principles of equity and climate justice within and across nations. It is the responsibility of leaders to alter their mindset and act on the looming climate

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

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

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

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# GUJARAT'S PRIDE GROWS AS IT NOW HOSTS 674 GIR LIONS

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

Lions at Gir National Park. Photo: Special Arrangement

Gujarat prides itself on hosting Asiatic lions exclusively, and their numbers have now risen to an estimated 674 in the Gir forest region and other revenue areas of coastal Saurashtra.

Once seen as threatened by extinction, the lion population has grown by almost 29% from the [last count in 2015](#). Today, Asiatic lions are present in Protected Areas and agro-pastoral landscapes of Saurashtra covering nine districts, over an expanse of about 30,000 sq. km.

Also read | [The lions that live outside the Gir forest are subsidised by people](#)

The State Forest Department says the population is 674 including males, females and cubs. During 2015, the baseline was 523 lions. Moreover, the distribution of the lions expanded from 22,000 sq. km in 2015 to 30,000 sq. km in 2020.

As soon as the State shared the details of the census conducted on June 5-6 by over 1,400 staffers of the Forest Department, Prime Minister Narendra Modi praised his home State. "Two very good news: Population of the majestic Asiatic Lion, living in Gujarat's Gir Forest, is up by almost 29%. Geographically, distribution area is up by 36%. Kudos to the people of Gujarat and all those whose efforts have led to this excellent feat," Mr. Modi said in a Twitter post.

"Over the last several years, the lion population in Gujarat has been steadily rising. This is powered by community participation, emphasis on technology, wildlife healthcare, proper habitat management and steps to minimise human-lion conflict. Hope this positive trend continues!" he added.

Forest officials said there was a consistent increase in the population and distribution. The department had implemented strategies and interventions like community participation, use of technology, habitat management and increase in prey base, human-lion conflict mitigation and healthcare including import of vaccines after some lions were infected with Canine Distemper Virus (CDV).

This year, the department carried out a "population estimation exercise" on the night of June 5-6 because the five-yearly regular census in May could not be held due to COVID-19. In October 2018, [Gir witnessed an outbreak of CDV](#) in which 36 lions died. The Prime Minister had then directed the State authorities to import vaccines.

Also read | [A lioness takes care of a leopard cub in Gir national park](#)

As per Forest Department data, there are 161 male, 260 female, 45 sub adult male, 49 sub adult female, 22 unidentified and 137 cubs. Experts said the male-female ratio was healthy in the Gir region with 161 males vs 260 females.

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## CPCB TO CLASSIFY RAILWAY STATIONS BASED ON WASTE WATER GENERATION

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

The Central Pollution Control Board will classify railway stations under the red, orange and green categories based on the quantity of waste water generated.

After the National Green Tribunal directed the Indian Railways to get a No Objection Certificate (NOC) from the CPCB under the provisions of the Water Act & Air Act, a clarification was sought since railway stations did not figure in the classified list of industries requiring permission to establish and operate.

The CPCB issued a clarification stating that railway stations would be classified into red, orange and green based on the quantity of waste water generation and disposal of untreated water into the municipal drain systems.

While railway stations generating waste water equal to or more than 100 Kilo Litres per Day would be categorised as red, those greater than 10 KLD but less than 100 KLD would come under the orange category. Railway stations with less than 10 KLD waste water generation would be branded green.

In a note to all Zonal Railways, the Railway Board said it had become imminent to reduce the waste water generation at railway stations and urged the need to identify quantity of sewage/non-sewage waste water separately to plan installation of water recycling plants accordingly.

The Chairman, CPCB, by invoking powers under the provisions of the Water (prevention & Control of Pollution) Act, 1974, had issued a direction to all State Pollution Control Boards (SPCBs) to categorise railway stations and send an action taken report.

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## FLOOD WARNING SYSTEM FOR MUMBAI “IFLOWS-MUMBAI” TO BE LAUNCHED ON JUNE 12, 2020

Relevant for: Environment | Topic: Disaster and disaster management

Extreme precipitation events are on the rise in India driven by warming temperatures and changes in the monsoon due to climate change. **The capital of the state of Maharashtra, Mumbai**, a megapolis and the financial capital of India has been experiencing floods with increased periodicity and recent flood in 29 August 2017, brought the city to a standstill. The flood during 26th July 2005, is probably etched in the memory of every Mumbai citizen, when the city received a rainfall of 94cm, a 100 year high in a span of 24 hours paralyzing the city completely. As a preparedness for floods before they occur, people to be warned so that they can be prepared in advance for flooding conditions.

In a bid to aid in the mitigation activities of the flood prone city, Municipal Corporation of Greater Mumbai, Govt of Maharashtra approached the Ministry of Earth Sciences (MoES) to develop an **Integrated Flood Warning System for Mumbai** referred to as, **IFLOWS-Mumbai**. MoES initiated the development of **IFLOWS-Mumbai** in July 2019 using the in-house expertise available within the Ministry of Earth Sciences in close coordination with Municipal Corporation of Greater Mumbai. IFLOWS-Mumbai is developed as a state of art Integrated Flood Warning system for Mumbai to enhance the resilience of the city of Mumbai by providing early warning for flooding specially during high rainfall events and cyclones.

I-FLOWS is built on a modular structure and comprises of seven modules, namely Data Assimilation, Flood, Inundation, Vulnerability, Risk, Dissemination Module and Decision Support System. The system incorporates weather models from National Centre for medium Range Weather Forecasting (NCMRWF), India Meteorological Department (IMD), field data from the rain gauge network stations setup by Indian Institute of Tropical Meteorology (IITM), Municipal Corporation of Greater Mumbai (MCGM) and IMD, thematic layers on land use, infrastructure etc provided by MCGM. Based on inputs from weather models, Hydrologic models are used to transform rainfall into runoff and provides inflow inputs into the riversystems. Hydraulic models are used to solve equations of fluid motion to replicate the movement of water to assess flooding in the study area. Since, Mumbai is an island city with its connectivity to sea, hydrodynamic models and storm surge model are used to calculate the tide and storm surge impacts on the city. The system has provisions to capture the urban drainage within the city and predict the areas of flooding, which will be incorporated in the final system. The data on river bathymetry was collected in all rivers namely Mithi, Dahisar, Oshiwara, Poisar, Ulhas, lakes and creeks by NCCR in association with MCGM and IMD, Mumbai. The land topography, land use, infrastructure, population etc., was provided by MCGM and it was integrated into a Decision Support System to accurately estimate flood levels at ward level using thematic layers in GIS. A web GIS based decision supports system is build to calculate the vulnerability and risk of elements exposed to flood.

The Flood Warning System will be formally launched jointly by Honorable Shri Uddhavji Balasaheb Thackeray Hon Chief Minister, Government of Maharashtra and Dr Harsh Vardhan,



Hon Union Minister for Health & Family Welfare, Science & Technology, Earth Sciences, Govt of India on 12<sup>th</sup> June 2020 at Mumbai at 1230 hours.

NB/KGS/(MoES-IMD release)

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## GOVERNMENT ISSUES ADVISORY TO STREAMLINE THE PROCESS FOR IMPORT AND POSSESSION OF EXOTIC LIVE SPECIES IN INDIA.

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

Exotic live species are animal or plant species moved from their original range (location) to a new one. These species are introduced to a new location most often by people. Many citizens of the country have kept CITES (Convention of International Trade in Endangered Species)

enlisted exotic animal species in their possession but there is no unified information system available of such stock of species at the State/Central level. Ministry of Environment, Forest and Climate Change has decided to collect stock information from the holders of such species through voluntary disclosure in next six months.

The registration will be done for the stock of animals, new progeny, as well as for import and exchange. This will help in better management of the species and guide the holders about proper veterinary care, housing and other aspects of well-being of the species. The database of exotic animals will also help in control and management of zoonotic diseases on which guidance would be available from time to time to ensure safety of animals and humans.

The declarer would not be required to produce any documentation in relation to the exotic live species if the same has been declared within six months of the date of issue of the advisory. For any declaration made after 6 months, the declarer shall be required to comply with the documentation requirement under the extant laws and regulations.

Holders of such species have to visit the website ([www.parivesh.nic.in](http://www.parivesh.nic.in)) and fill up the requisite forms in order to complete the stock registration process.

For detailed advisory [Click here](#)

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# HIGH OZONE POLLUTION

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

Sparse traffic during the lockdown brought down the levels of particulate matter in Delhi's air.

While particulate matter and nitrous oxide levels fell during the lockdown, ozone — also a harmful pollutant — increased in several cities, according to an analysis by the Centre for Science and Environment (CSE).

Ozone is primarily a “sunny weather problem” in India, said CSE researchers, that otherwise remains highly variable during the year. It is a highly reactive gas; even short-term exposure of an hour is dangerous for those with respiratory conditions and asthma and that's why an eight-hour average is considered for ozone instead of the 24-hour average for other pollutants.

The analysis was based on Central Pollution Control Board (CPCB) data from 22 cities in 15 States in lockdown days considered from March 25 to May 31. It emerged that more than two-thirds of the lockdown days in Delhi-NCR cities and Ahmedabad had at least one observation station that exceeded the standard. In Ahmedabad, the city-wide maximum eight-hour average of ozone exceeded the standard on 43 days; in Ujjain, it exceeded on 38 days.

The city-wide maximum average of ozone in Gurugram exceeded the standard on 26 days — at least one observation station exceeded the standard on 57 days. The city-wide eight-hour maximum average in Ghaziabad exceeded the standard on 15 days, with at least one station exceeding on 56 days. In Noida, Uttar Pradesh, the city-wide maximum average exceeded the standard on 12 days; at least one station exceeded on 42 days. In Delhi, the maximum eight-hour average exceeded the standard on four days, and at least one station exceeded the standard on 67 days.

In Kolkata, the city-wide average of ozone was exceeded on eight days; at least in one station the standard was exceeded on 17 days. Chennai and Mumbai did not register a single day of excess ozone at the city-wide level, but at least one station in both exceeded the standard on 61 days and five days, respectively.

Ozone is not directly emitted by any source but is formed by photochemical reactions between oxides of nitrogen (NO<sub>x</sub>) and other volatile organic compounds (VOCs) and gases in the air under the influence of sunlight and heat. It can be curtailed only if gases from all sources are controlled.

“This pandemic-led change in air quality has helped us understand summer pollution. Normally, every year, winter pollution is what draws our attention. The characteristics of summer pollution are different: there are high winds, intermittent rains and thunderstorms, and high temperature and heat waves,” Anumita Roychowdhury, executive director-research and advocacy, CSE, said.

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# ILLEGAL WILDLIFE TRADE A GLOBAL THREAT: FATF REPORT

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

Photo: Twitter/@FATFNews

In its first global report on the illegal wildlife trade, the Financial Action Task Force (FATF) has described it as a “global threat”, which also has links with other organised crimes like modern slavery, drug trafficking and arms trade.

The illegal trade is estimated to generate revenues of up to \$23 billion a year. The report says financial probe is key to dismantling the syndicates involved, which can in turn significantly impact the associated criminal activities.

[‘Easy to blame China; but India’s wildlife trade is thriving too’](#)

Findings of the study, which expressed concern over the lack of focus on the financial aspects of the crime, are based on inputs from about 50 jurisdictions across the FATF global network, as well as expertise from the private sector and civil society.

The “Money Laundering and the Illegal Wildlife Trade” report said “criminals are frequently misusing the legitimate wildlife trade, as well as other import-export type businesses, as a front to move and hide illegal proceeds from wildlife crimes. They also rely regularly on corruption, complex fraud and tax evasion”.

The study has highlighted the growing role of online marketplaces and mobile and social media-based payments to facilitate movement of proceeds warranting a coordinated response from government bodies, the private sector and the civil society.

The FATF found that jurisdictions often did not have the required knowledge, legislative basis and resources to assess and combat the threat posed by the funds generated through the illegal trade.

The report recommended that jurisdictions should consider implementing the good practices, as observed during the study. They include providing all relevant agencies with the necessary mandate and tools; and cooperating with other jurisdictions, international bodies and the private sector.

The FATF said legislative changes were necessary to increase the applicability of anti-money laundering laws to the illegal wildlife trade-linked offences.

The report noted that in 2012, India amended the Prevention of Money Laundering Act removing a value threshold — of 30 lakh and above — that was earlier applicable to the wildlife trade predicates.

During the study, 22 of the 45 respondent countries considered themselves as source for wildlife crime, 18 as transit countries and 14 as destination countries. All but nine reported to be impacted by the risks from financial flows linked to the trade, with the majority of exceptions being European countries.

According to the report, criminal syndicates are misusing formal financial sector to launder the proceeds. Funds are laundered through cash deposits, under the guise of loans or payments, e-banking platforms, licensed money value transfer systems, and third-party wire transfers via banks. Accounts of innocent victims are also used and high-value payments avoided to evade detection.

Front companies, often linked to import-export industries, and shell firms are used for the movement of goods and trans-border money transfers. Another common trend is the misuse of front companies with links to the legal wildlife trade, said the report.

### [Poaching and trade in golden jackals may be widespread in India](#)

“Other industries that may be more vulnerable to misuse include traditional medicine, décor and jewellery and fashion,” it said. Respondent countries said the criminals were also buying high-value goods, such as real estate and luxury items, to launder the proceeds.

According to the 2016 UN World Wildlife Crime report, criminals are illegally trading products derived from over 7,000 species of wild animals and plants across the world.

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## DECLINE IN ARCTIC SEA ICE DOES NOT SOUND GOOD FOR THE ENVIRONMENT, WARNS NCPOR

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

The National Centre of Polar and Ocean Research (NCPOR) has found a dramatic decline in the Arctic sea ice due to global warming. The decline of sea ice has led to localized increase in evaporation, air humidity, cloud cover, and rainfall. Arctic sea ice is a sensitive indicator of climate change and has strong retaliatory effects on other components of the climate system.

In its observations, NCPOR has noted that the largest decline in Arctic sea ice in the past 41 years happened in July 2019. In the last 40 years (1979-2018), the sea ice has been declining at a rate of '-4.7%' per decade, while its rate was found to be '-13%' in July 2019. If this trend continues, there would be no ice left in the Arctic sea by 2050, which would be dangerous for humanity and the entire environment.

With the help of satellite data collected from 1979 to 2019, NCPOR has tried to understand the rate of surface warming and the changes in global atmospheric circulation. The study has also pointed out that the decrease of the Arctic sea ice area and the increase in the duration of summer and autumn seasons have affected the local weather and climate over the Arctic Ocean and its marginal seas. Being a sensitive indicator of climate change, the loss of ice cover in the Arctic sea has had strong feedback effects on other components of the climate system such as prevention or reduction of heat and momentum, water vapour, and other material exchange between the atmosphere and the sea. The worrying element to note is that the volume of ice formation during winters is unable to keep pace with the volume of ice loss during summers.

"In the background of the global warming scenario, the study reveals that global ocean-atmospheric warming has enhanced the Arctic sea ice loss. The study demonstrated the application of satellite observations and model reanalysis data for the determination and validation; the 2019 sea-ice extent tied to the second-lowest sea-ice minimum record. Although there are no extreme weather events recorded this year, an accelerated decline in sea-ice extent and sea-ice volume in summer 2019 was dominant, and also the northern hemisphere has experienced record high-temperature rise especially during the spring and summer months," Dr Avinash Kumar, a senior scientist at NCPOR, who is involved in the research, said.

"The sea-ice loss at this rate, concerning to all the lives on Earth, can have a catastrophic impact due to rising global air temperature and slowing down of global ocean water circulation," he added. Led by Dr Avinash Kumar, the research team comprised Juhi Yadav and Rahul Mohan of NCPOR, Ministry of Earth Sciences, Goa. The research paper has been published in the *Journal of Natural Hazards*.

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NB/KGS/(India Science Wire)

The National Centre of Polar and Ocean Research (NCPOR) has found a dramatic decline in the Arctic sea ice due to global warming. The decline of sea ice has led to localized increase in evaporation, air humidity, cloud cover, and rainfall. Arctic sea ice is a sensitive indicator of climate change and has strong retaliatory effects on other components of the climate system.

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## RISE IN CARBON EMISSION MAY LEAD TO MORE EXTREME RAINFALL EVENTS IN CHENNAI

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

**--By Jyoti Singh**

India has the second highest fatality average due to hazards of climate change. The situation is not going to get any better in the future also, especially for those living in coastal areas, including Chennai. A modelling study carried by the researchers of the Indian Institute of Technology (IIT) Chennai points to such uncomfortable climate-change-related scenarios in the future.

The researchers say that high carbon emissions provide more favourable environment for extreme rainfall events in the Chennai region. The modelling results suggest that the projected precipitation in Chennai can increase by 17.37% on a peak rainy day in the future compared to the current levels. These projections have been made for year 2075. Chennai is one of the cities in India where the per capita greenhouse gas (GHG) emissions fall in the higher category.

“The increased intensity and geographical spread of such rainfall events could lead to severe flood events that are likely to continue for more days in the future, thereby posing further risk and potential for damage to the local communities” said Prof. C Balaji, Lead Researcher, IIT Madras. The research also emphasised that the amount of precipitation is likely to increase dramatically by 183.5%, 233.9%, and 70.8%. These percentages represent the daily increase in precipitation in the future compared to the present for 2nd, 3rd, and 4th December, respectively, for the 2015 Chennai rainfall event. In addition to the above, the geographical extent of the region receiving extreme rainfall event is likely to get worse as the duration of the event would get longer. The south Indian states have encountered an increased number of heavy rainfall events leading to massive floods.

This study considers only one event, and thus the results are suggestive of increased rainfall and flooding. “Several cases during different seasons like pre-monsoon and post-monsoon need to be studied to arrive at better conclusions for providing a scientifically reliable quantitative responses of extreme rainfall events to climate change for all the stakeholders,” said Dr Balaji. Apart from seasons, ocean also plays a big part in these extreme rainfall events; studying these collective factors would lead to more precise conclusions.

This research has been carried out as part of the project ‘Climate change impacts on coastal infrastructure and the adaptation strategies’ funded by the Department of Science and Technology, Government of India, under the SPLICE-climate change programme. The study used Weather Research and Forecasting (WRF) model for predictions.

Dr P. Jyoteeshkumar and Dr P. V. Kiran are other two researchers who were involved in the study. The findings of the research have been published in *Current Science*.

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# CENTRE UNVEILS NEW RULES TO REGULATE EXOTIC ANIMAL TRADE

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

A file photo of exotic animals seized in Thane, Maharashtra.

The Environment Ministry's wildlife division has introduced new rules to regulate the import and export of 'exotic wildlife species'.

Currently, it is the Directorate-General of Foreign Trade, Ministry of Commerce, that oversees such trade.

Under the new rules, owners and possessors of such animals and birds must also register their stock with the Chief Wildlife Warden of their States.

## Select animals

Officials of the Wildlife Department will also prepare an inventory of such species and have the right to inspect the facilities of such traders to check if these plants and animals are being housed in salubrious conditions.

Additionally, stockists will have six months to declare their stock.

The advisory, issued earlier this month, also says 'exotic live species' will mean animals named under Appendices I, II and III of the Convention on International Trade in Endangered Species (CITES) of Wild Fauna and Flora.

It will not include species from the Schedules of the Wild Life (Protection) Act, 1972.

The CITES is part of a multilateral treaty that includes plant, animals and birds under varying categories of threat of extinction and which will be jointly protected by members of the International Union for Conservation of Nature. India is a signatory to this.

According to World Wildlife Crime Report 2016 of the UN, criminals are illegally trading products derived from over 7,000 species of wild animals and plants across the world.

## 'Global threat'

In its first global report on the illegal wildlife trade, released last week, the Financial Action Task Force (FATF) described wildlife trafficking as a "global threat", which also has links with other organised crimes such as modern slavery, drug trafficking and arms trade.

The illegal trade is estimated to generate revenues of up to \$23 billion a year.

India continues to battle wildlife crime, with reports suggesting that many times such species are available for trade on online market places.

The Wildlife Crime Control Bureau is an organisation that is tasked with monitoring illegal trade.

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