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**ENVIRONMENT MINISTRY FRAMES
NEW DRAFT COASTAL REGULATION
ZONE (CRZ) NOTIFICATION 2018**

THE NEWS

The Ministry of Environment, Forest and Climate Change (MOEF&CC) has framed a draft Coastal Regulation Zone (CRZ) notification, 2018.

SALIENT FEATURES OF THE CRZ

The important features of the new CRZ Notification, 2018 are as follows:

- **High Tide Line (HTL):** The HTL has been demarcated by the National Centre for Sustainable Coastal Management (NCSCM) and shall be reckoned as a universal standard for the HTL for all regulatory purposes.
- **Hazard line:** The mapping of Hazard Line has also been carried out by the Survey of India. However, it has been delinked from the CRZ regulatory regime and shall be used only as a tool for Disaster Management and planning for adaptive and mitigation measures.
- **No Development Zone (NDZ):** A NDZ of 20 meters has been proposed to be stipulated for all Islands close to the mainland coast and for all Backward Islands in the mainland.
- **CRZ-III:** For CRZ-III areas, following two separate categories have been proposed:
 - CRZ-III A- Densely populated rural areas with a population density of 2161 per square kilometre. Such areas shall have an NDZ 50 meters from the HTL as against 200 meters from the HTL stipulated in the CRZ Notification, 2011.
 - CRZ-III B- Rural areas with a population density of below 2161 per square kilometre as per 2011 Census. Such areas shall continue to have an NDZ of 200 meters from the HTL.
- **Simplified Procedure:** Procedure for CRZ clearances has been simplified. Only those projects, which are located in the CRZ-1 & IV areas shall be dealt with for CRZ clearance by the MOEF&CC and for all other projects located in CRZ-II/III areas, CRZ clearance shall be considered at the level of the CZMA.
- **Temporary Tourism Facilities:** Temporary tourism facilities have been proposed in beaches and they are also proposed to be permissible in the No Development Zone (NDZ) of CRZ-III areas.
 - In the case of National or State Level Highway passing through the NDZ in CRZ-III areas, temporary tourism facilities have been proposed to be taken up on the seaward side of the roads.
 - On the landward side of such roads in the NDZ, tourism facilities have also been proposed to be permitted subject to the extant regulations of the concerned State.
- **Limestone Mining:** Regulated limestone mining is also proposed to be permitted, subject to strict Environmental safeguards, in areas adequately above the height of HTL.

MAJOR CHANGES

The Coastal Regulation Zone Notification was the last reviewed and issued in 2011, with periodic amendments to some clauses. The major changes with respect to CRZ Notification, 2011 are as given below:

- As per CRZ Notification, 2011 for CRZ-II areas, Floor Space Index (FSI) or the Floor Area Ratio (FAR) had been frozen at 1991 Development Control Regulation (DCR) levels.
- Now, in the draft CRZ Notification, 2018, it has been proposed to de-freeze the same and permits FSI for construction projects.
- **Allowing tourism activities:** Eco-tourism activities- Mangrove walks, tree huts, and others are permitted, in subjected areas, which are not permitted in CRZ Notification, 2011.
- **Reduction in HTL limit:** As per the current law, CRZ, 2011, coastal region is the region from the HTL to 100 m of the creek or the width of the creek, whichever is less. The CRZ, 2018 have reduced this limit to 50 meters or the width of the creek, whichever is less.

ABOUT CRZ

- Coastal Regulation Zone (CRZ) is the coastal land up to 500m from the HTL and a stage of 100m along banks of creeks, estuaries and rivers subject to tidal fluctuations.
- They have been placed in the following four categories:
 - CRZ I: Ecologically sensitive areas lie between 0 to 100 metres.
 - CRZ II: Covers area close to the shoreline
 - CRZ III: Between 100 metre to 500 metre
 - CRZ IV: Aquatic area to the territorial limits.

COMMITTEE

- The Environment Ministry had constituted a Committee under the Chairmanship of Dr Shailesh Nayak to examine the various issues and concerns of Coastal States/UTs and various other stakeholders, to recommend appropriate changes in the CRZ Notification, 2011.

BENEFITS

- **Economic Growth:** The new proposal will make India's coast more accessible to tourism and industrial infrastructure, which will lead to a boost to economic growth.
- **'State'- Deciding authority:** Moreover, it will also give individual states the power to decide on their own about any development in the region.

THE ROAD AHEAD

The draft CRZ Notification, 2018 is prepared for India's 7,500km coastline, it encompasses protection of ecologically sensitive areas, safeguarding aquatic system and marine life, plastic waste disposal, and simultaneously allowing eco-tourism and development of coastal zones. The recommendations, suggestions and objections from the public, on the draft will be examine by the committee under the ministry one more time

and after proper examining a final notification will be issued.

Source: xaam.in

Scientists accidentally create mutant enzyme that eats plastic bottles

Scientists have created a mutant enzyme that breaks down plastic drinks bottles – by accident. The breakthrough could help solve the global plastic pollution crisis by enabling for the first time the full recycling of bottles.

The new research was spurred by the discovery in 2016 of the first bacterium that had naturally evolved to eat plastic, at a waste dump in Japan. Scientists have now revealed the detailed structure of the crucial enzyme produced by the bug.

The international team then tweaked the enzyme to see how it had evolved, but tests showed they had inadvertently made the molecule even better at breaking down the PET (polyethylene terephthalate) plastic used for soft drink bottles. “What actually turned out was we improved the enzyme, which was a bit of a shock,” said Prof John McGeehan, at the University of Portsmouth, UK, who led the research. “It’s great and a real finding.”

The mutant enzyme takes a few days to start breaking down the plastic – far faster than the centuries it takes in the oceans. But the researchers are optimistic this can be speeded up even further and become a viable large-scale process.

“What we are hoping to do is use this enzyme to turn this plastic back into its original components, so we can literally

recycle it back to plastic,” said McGeehan. “It means we won’t need to dig up any more oil and, fundamentally, it should reduce the amount of plastic in the environment.”

About 1m plastic bottles are sold each minute around the globe and, with just 14% recycled, many end up in the oceans where they have polluted even the remotest parts, harming marine life and potentially people who eat seafood. “It is incredibly resistant to degradation. Some of those images are horrific,” said McGeehan. “It is one of these wonder materials that has been made a little bit too well.”

However, currently even those bottles that are recycled can only be turned into opaque fibres for clothing or carpets. The new enzyme indicates a way to recycle clear plastic bottles back into clear plastic bottles, which could slash the need to produce new plastic.

“You are always up against the fact that oil is cheap, so virgin PET is cheap,” said McGeehan. “It is so easy for manufacturers to generate more of that stuff, rather than even try to recycle. But I believe there is a public driver here: perception is changing so much that companies are starting to look at how they can properly recycle these.”

The new research, published in the journal Proceedings of the National Academy of Sciences, began by determining the precise structure of the enzyme produced by the Japanese bug. The team used the Diamond Light Source, near Oxford, UK, an intense beam of X-rays that is 10bn times brighter than the sun and can reveal individual atoms.

The structure of the enzyme looked very similar to one evolved by many bacteria to break down cutin, a natural polymer used as a protective coating by plants. But when the team manipulated the enzyme to explore this connection, they accidentally improved its ability to eat PET.

“It is a modest improvement – 20% better – but that is not the

point,” said McGeehan. “It’s incredible because it tells us that the enzyme is not yet optimised. It gives us scope to use all the technology used in other enzyme development for years and years and make a super-fast enzyme.”

Industrial enzymes are widely used in, for example, washing powders and biofuel production, They have been made to work up to 1,000 times faster in a few years, the same timescale McGeehan envisages for the plastic-eating enzyme. A patent has been filed on the specific mutant enzyme by the Portsmouth researchers and those from the US National Renewable Energy Laboratory in Colorado.

One possible improvement being explored is to transplant the mutant enzyme into an “extremophile bacteria” that can survive temperatures above 70C, at which point PET changes from a glassy to a viscous state, making it likely to degrade 10-100 times faster.

Earlier work had shown that some fungi can break down PET plastic, which makes up about 20% of global plastic production. But bacteria are far easier to harness for industrial uses.

Other types of plastic could be broken down by bacteria currently evolving in the environment, McGeehan said: “People are now searching vigorously for those.” PET sinks in seawater but some scientists have conjectured that plastic-eating bugs might one day be sprayed on the huge plastic garbage patches in the oceans to clean them up.

Microplastic pollution in oceans is far worse than feared, say scientists

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“I think [the new research] is very exciting work, showing there is strong potential to use enzyme technology to help with society’s growing waste problem,” said Oliver Jones, a chemist at RMIT University in Melbourne, Australia, and not

part of the research team.

“Enzymes are non-toxic, biodegradable and can be produced in large amounts by microorganisms,” he said. “There is still a way to go before you could recycle large amounts of plastic with enzymes, and reducing the amount of plastic produced in the first place might, perhaps, be preferable. [But] this is certainly a step in a positive direction.”

Prof Adisa Azapagic, at the University of Manchester in the UK, agreed the enzyme could be useful but added: “A full life-cycle assessment would be needed to ensure the technology does not solve one environmental problem – waste – at the expense of others, including additional greenhouse gas emissions.”

- This article was amended on 17 April 2018 to make clear that PET becomes viscous above 70C. Its melting point is above 250C.

Source: xaam.in

900-year drought wiped out Indus civilisation: IIT-Kharagpur

The [Indus Valley](#) civilisation was wiped out 4,350 years ago by a 900-year-long drought, scientists at the [Indian Institute of Technology](#) in Kharagpur (IIT-Kgp) have found. Evidence gathered during their study also put to rest the widely accepted theory that the said drought lasted for only about 200 years.

The study will be published in the prestigious Quaternary

International Journal by Elsevier this month.

Researchers from the geology and geophysics department have been studying the monsoon's variability for the past 5,000 years and have found that the rains played truant in the northwest Himalayas for 900 long years, drying up the source of water that fed the rivers along which the civilisation thrived. This eventually drove the otherwise hardy inhabitants towards the east and south, where rain conditions were better.

The IIT-Kgp team mapped a 5,000-year monsoon variability in the Tso Moriri Lake in Leh-Ladakh – which too was fed by the same glacial source – and identified periods that had continuous spells of good monsoon as well as phases when it was weak or nil.

“The study revealed that from 2,350 BC (4,350 years ago) till 1,450 BC, the monsoon had a major weakening effect over the zone where the civilisation flourished. A drought-like situation developed, forcing residents to abandon their settlements in search of greener pastures,” said Anil Kumar Gupta, the lead researcher and a senior faculty of geology at the institute