Environmental Science
Current Affairs

Target Prelims 2017

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1. LOKTAK LAKE

RELEVANCE
The Environment Ministry has constituted a four-member team for conservation and management of Loktak Lake in Manipur.

About Loktak Lake
- Loktak Lake (26,600 ha) in the Manipur is designated as Ramsar site in 23/03/90
- Loktak Lake is the largest fresh water lake in Northeast India.
- Loktak Lake is known as the only floating lake in the world due to the floating phumdis (heterogeneous mass of vegetation, soil, and organic matters at various stages of decomposition) on it.
- Included on the Montreux Record in 1993 as a result of ecological problems such as deforestation in the catchment area, infestation of water hyacinth, and pollution.
- Keibul Lamjao NP in Manipur is the only floating park in the world, and is situated on the south bank of loktak lake.
- The Brow-antlered deer, which was first discovered in Manipur, in the Keibul Lamjao Park area, is now confined to a single small population at the southern end of Loktak Lake in Manipur, India.

2. CHANDRABHAGA RIVER

RELEVANCE
After an expert panel recently confirmed the existence of the mythical Saraswati river in India’s North-West, scientists at the Indian Institute of Technology-Kharagpur now claim they have found evidence of another ‘lost’ Indian river (Called Chandrabhaga).

- The ancient river Chandrabhaga, is believed to have existed at a distance of about two km from the 13th century Sun Temple at Konark, a Unesco World Heritage Site in Odisha.
- Almost all myths regarding Konark, including illustrations and photographs, indicate the presence of the Chandrabhaga river in the proximity of the temple
- To verify this myth the IIT did integrated geological and geophysical exploration in conjunction with historical evidence and analysis of satellite data.
- According to the report, the satellite imagery and Google Earth image showed a “sinusoidal” trace, characteristic of a typical palaeo channel — remnant of an inactive river — passing north of the Sun Temple extending approximately parallel to the coast.
- The existence of a palaeo channel was further corroborated through profiling the surface using “ground-penetrating radar” that showed the existence of a V-shaped subsurface river valley.

3. 1ST INTERNATIONAL AGROBIODIVERSITY CONGRESS

RELEVANCE
The Indian Society of Plant Genetic Resources (ISPGR) and Bioversity International, in collaboration with the Indian Council of Agricultural Research (ICAR), Protection of Plant Varieties and Farmers’ Right Authority (PPV&FRA) (Ministry of Agriculture and Farmers’ Welfare), National Biodiversity Authority (Ministry of Environment, Forest and Climate Change), Trust for Advancement of Agricultural Science (TAAS), National Academy of Agricultural Sciences (NAAS) and Global Crop Diversity Trust (GCDT), organized the 1st International Agrobiodiversity Congress in New Delhi, India.

About the Congress
- The objective of the Congress is to provide a platform to all the stakeholders engaged in genetic resource conservation and management to deliberate on thematic issues of global importance, with major emphasis on rational and effective use of agrobiodiversity for food, nutrition and environmental security.
- Agricultural biodiversity or agrobiodiversity is the foundation of sustainable agricultural development and is an essential natural resource to ensure current and future food and nutrition security.
The Congress provoke discussion and knowledge-sharing on issues for the effective and efficient management of genebanks; science-led innovations in the field of genetic resources; livelihood, food and nutrition security though crop diversification, including use of lesser known crops and the role of crop wild relatives in crop improvement; issues relating to quarantine, biosafety and biosecurity; and Intellectual Property Rights and Access and Benefit Sharing in the context of exchange of germplasm.

**RELATED INFORMATION**

1. **Bioversity International**
   - Bioversity International is a global research-for-development organization.
   - Bioversity International delivers scientific evidence, management practices and policy options to use and safeguard agricultural and tree biodiversity to attain sustainable global food and nutrition security.

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### 4. GREAT INDIAN BUSTARD

**RELEVANCE**

The recent population count of the Great Indian Bustard taken up after six years has raised serious questions on conservation efforts. The count taken revealed that there are only six Great Indian Bustards left in Naliya-Kutch, as against 48 recorded in 2010 - a drop of 88% in numbers. Further, almost no breeding activity was recorded.

- In order to protect the Great Indian Bustard, locally known as “Godawan”, the Desert National Park authorities have developed a mobile application to monitor the movements of the avian.

**About Great Indian Bustard**

- It inhabits arid and semi-arid grasslands with scattered short scrub, bushes and low intensity cultivation in flat or gently undulating terrain.
- The IUCN has already classified the bird as a critically endangered species.
- It has an extremely small population that has undergone an extremely rapid decline owing to a multitude of threats including habitat loss and degradation, hunting and direct disturbance.
- Historically, widespread hunting for sport and food precipitated its decline, accelerated by vehicular access to remote areas. It is legally protected in India and there are severe penalties for killing an individual.
- According to the IUCN report, encroachment, industrial expansion and change in cropping pattern are the major threats to the Great Indian Bustard.
- The IUCN report further pointed out that with water availability increasing due to government irrigation policies, agriculture activity has spread over vast stretches of arid and semi-arid grasslands. Better irrigation facilities and changing lifestyles have led to a shift in the crop pattern from bustard-friendly monsoon crops (sorghum, millet among others) to cash crops, which are not suitable for survival of the species.
- Due to ill-defined land distribution policies and the ambiguity arising from segregated ownership between private, community and government bodies, encroachment is a major problem in many areas which are habitats of the Great Indian Bustard, especially in and around bustard sanctuaries in Maharashtra, Kutch and Rajasthan.

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### 5. FLY ASH UTILISATION POLICY

**RELEVANCE**

Maharashtra has become the first state to adopt Fly Ash Utilisation Policy, paving way for prosperity by generating "wealth from waste", and environment protection.

- Maharashtra Cabinet approves a policy for 100 per cent use of fly ash generated from thermal power plants and biogas plants for construction activities.
- Fly ash or coal dust is the ash produced in small dark flecks due to the burning of powdered coal during electricity generation and is harmful to health and environment.
This fly ash will be used to make bricks, blocks, tiles, wall panels, cement and other construction materials.

It will save soil excavation and protect environment. Earlier, use of fly ash was allowed within 100 kms radius of power plant, now it has been extended to 300 kms.

The policy will create new employment opportunities in the power plant areas and also make available raw material for construction at low cost to help 'Housing for All' projects.

It has been made mandatory for the use of fly ash in government projects such as construction of roads, dams, housing schemes, industrial townships, and special economic zones.

This will also control sand mining from rivers.

Wherever it is compulsory to use fly ash, the contractor will have to produce a certificate stating that a power generation company has supplied fly ash before his dues are settled.

A new fly ash council under the chief secretary will monitor the policy's implementation. The council will also comprise representatives from the energy department, power plants, technical experts and firms using fly ash in construction.

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6. GREAT BARRIER REEF

RELEVANCE
A mass bleaching event on the Great Barrier Reef this year killed more corals than ever before. The 2,300-kilometre long reef — the world's biggest — suffered its most severe bleaching in recorded history, due to warming sea temperatures during March and April, with the northern third bearing the brunt.

Bleaching occurs when abnormal environmental conditions, such as warmer sea temperatures, cause corals to expel tiny photosynthetic algae, draining them of their colour.

Algae are vital to the coral, which uses the organic products of photosynthesis to help it grow.

The loss of algae makes the host vulnerable to disease and means it will eventually die.

However, coral can recover if the water temperature drops and the algae are able to recolonise them.

Southern two-thirds of the reef has escaped with minor damage. On average, six percent of bleached corals died in the central region in 2016, and only one percent in the south. The corals have now regained their vibrant colour, and these reefs are in good condition.

About Corals
Coral reefs are the skeletons of stony coral polyps cemented together.

It is a diverse underwater ecosystem held together by calcium carbonate structures secreted by corals.

The four major coral reefs areas identified for intensive conservation and management in India since 1987 are:

i) Gulf of Mannar,
ii) Gulf of Kutch;
iii) Lakshadweep; and
iv) Andaman and Nicobar Islands.
7. Miscellaneous Information’s

i) Mission Electrification
   o Ministry of Railways through Institution of Railways Electrical Engineer (IREE) in partnership with ASSOCHAM India is organized the International Conference on Decarbonization of Indian Railways - Mission Electrification in New Delhi.
   o The Conference covered aspects relating to policy, technological modernization, mechanization, innovations and financing models for railway electrification and de-carbonization.
   o It is an initiative of the Railway Ministry to reduce dependence on diesel by electrifying nearly 90% of railway tracks in the next five years.
   o A new App for monitoring energy conservation scheme was also launched at the event.

ii) Giant snowballs In Siberian beach
   o Thousands of natural snowballs have been formed on an 18-km stretch of a beach in the Gulf of Ob in northwest Siberia
   o The sculptural shapes range from the size of a tennis ball to almost 1 metre across.
   o They result from a rare environmental process where small pieces of ice form, are rolled by wind and water, and end up as giant snowballs.
   o First there is a primary natural phenomenon - sludge ice, slob ice. Then comes a combination of the effects of the wind, the lay of the coastline, and the temperature and wind conditions. It can be such an original combination that it results in the formation of balls like these.

iii) Salt tolerant plant garden in TN
   o A genetic garden of naturally occurring salt-tolerant plants called halophytes at the coastal town of Vedaranyam in Tamil Nadu is inaugurated.
   o Halophytes plants are important in the context of increasing salinisation of land
   o Halophytes tolerate salinity and could grow in saline affected regions. Their seeds contain high oil (30 per cent) and protein (35 per cent) like soyabeans and other oilseed crops and the salt content is less than three per cent.
   o This genetic garden is probably the first such garden in the world and could be called a global garden - very important in the aspect of anticipatory research.
   o Experts from M S Swaminathan Research Foundation (MSSRF) said the potential of halophyte as food for people, fodder for livestock, bio fuel and for ornamental purposes was being explored and "could reap rich rewards in research for climate change."