

## **Ministry of Earth Sciences - Year End Review**

### **The Structural Aspects:**

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- The Government of India, constituted the Ministry of Earth Sciences (MoES) in 2006 and brought under its administrative control, the

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- India Meteorological Department (IMD)

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- Indian Institute of Tropical Meteorology (IITM)

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- National Centre for Medium Range Weather Forecasting (NCMRWF)

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- The Government also approved the setting up of Earth Commission on the pattern of Space Commission and Atomic Energy Commission.

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### **Major Programs of the Ministry:**

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#### **Ahmadabad - Air Quality & Weather Monitoring Stations**

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- An integrated early warning installation - "System for Air Quality and Weather Forecasting, and Research" (SAFAR) was opened in May 2017 at Ahmadabad.

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- Alongside, a health action plan "Ahmadabad- AIR (Air Information and Response)", was launched with a lead from 'Ahmadabad Municipal

Corporation’.

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## **Nellore - Open sea cage culture**

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- A project for the establishment of a “Marine Finfish Hatchery and Test Facility for Ballast Water Treatment Technologies’ were commenced in April, 2017, at the Nellore sea front facility.

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- These facilities will be further developed by National Institute of Ocean Technology, an autonomous institute under the Ministry.

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## **Pondicherry - Beach Restoration**

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- The coastline of Pondicherry and Tamil Nadu has suffered from severe coastal erosion due to natural and anthropogenic activities.

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- When short term measures like Seawalls and Groin field were attempted by the Pondicherry government the erosion problem shifted further north, with increased intensity.

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- Hence, with assistance from the Ministry of Earth Sciences, a detailed shoreline management plan was prepared using satellite data and process based measurements.

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- As part of this plan Puducherry government has implemented the beach nourishment scheme along a small section of about 500m using dredged sand from the harbour mouth.

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- The nourishment resulted in gaining of beach to an extent of 60m near Puducherry Light House and Puducherry New Pier.

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## **Koyna - Drilling at the Intra-Plate Seismic Zone**

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- Scientific deep drilling of the Koyna (Maharashtra) pilot borehole to a depth of 3 km and the acquisition of downhole geophysical data were completed.
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- The borehole passes through the 1.25 km thick succession of Deccan basalt flows and 1.75 km into the underlying granite-gneiss basement.
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- This is the deepest borehole ever drilled through crystalline rock formations in the country.
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- Cuttings were collected at 5 m intervals in basalt and 3 m intervals in basement rock along with some other discrete sections.
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### **Kochi - ST Radar at and Doppler Weather Radar**

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- “Stratosphere-Troposphere (ST) Radar Facility” was opened at the “Advanced Centre for Atmospheric Radar Research” at the Cochin University of Science and Technology (CUSAT) in July 2017.
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- The facility will aid monitor atmospheric wind conditions across altitudes up to 20 km and beyond.
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- The research has applications in meteorology, cloud physics, thunderstorms, convections, atmospheric electricity and climate change.
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- Also, state-of-the-art indigenous S-Band Doppler weather radar, which was made with support from ISRO and Bharat Electronics, was inaugurated.
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- It is capable of predicting weather events such as cyclone occurring in 500-km radius from Kochi with increased accuracy.
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### **Lakshadweep - Sea Water De-salination plants**

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- The Earth Science Ministry through its constituent unit, the National Institute of Ocean Technology (NIOT) has developed indigenized technologies for producing clean drinking water from the ocean.

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- Currently, there are three desalination plants operational at Kavaratti, Agatti and Minicoy islands, which are individually producing 1 lakh liters of drinking water per day.
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- NIOT is now installing another six more plants in Lakshadweep islands, each with a capacity to produce 1.5 lakh liters of water every day.
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- Two more plants will be commissioned by December 2018 and all the plants are being operated by local islanders.
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### **Monsoon Mission Program**

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- The Ministry of Earth Sciences (MoES), launched the “National Monsoon Mission” (NMM) in 2012, with a vision to develop a state of the art, dynamical prediction system for monsoon rainfall.
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- It has successfully completed its first phase by setting up high resolution coupled dynamical prediction system with reasonable accuracy.
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- This model was used by India Meteorological Department to prepare the seasonal forecast of 2017 monsoon rainfall over India.
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- The Ministry has now launched the Monsoon Mission Phase II program, for next 3 years (2017-2020) with emphasis on predicting extremes.
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**Source: PIB**

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