

## 20 April 2020: PIB Summary & Analysis

### 1. PM-KISAN

**Context:**

Under PM-KISAN Scheme Rs. 17,793 crores released for 8.89 crore farmers families during the lockdown.

To know more about [PM-KISAN](#), click on the linked article.

### 2. New Development Bank (NDB)

**Context:**

Finance Minister attends the 5<sup>th</sup> Annual Meeting of the Board of Governors of the New Development Bank through video-conference.

**About the New Development Bank:**

- The NDB was established by the [BRICS](#) countries (Brazil, Russia, India, China and South Africa) in 2014, at the 6<sup>th</sup> BRICS Summit at Fortaleza, Brazil.
  - In the **Fortaleza Declaration**, the leaders stressed that the NDB will strengthen cooperation among BRICS and will supplement the efforts of multilateral and regional financial institutions for global development, thus contributing to collective commitments for achieving the goal of strong, sustainable and balanced growth.
- The purpose of the Bank is to mobilise resources for infrastructure and sustainable development projects in BRICS and other emerging market economies and developing countries to complement the existing efforts of multilateral and regional financial institutions for global growth and development.
- NDB has so far approved 14 projects of India for an amount of \$ 4,183 million.
- The NDB's President is K. V. Kamath (former chairman of ICICI Bank).
- The NDB is headquartered in Shanghai, China.

### 3. Updates on COVID-19

For the latest updates on the COVID-19 situation in the country, check our [COVID-19 page](#).

### 4. SWAYAM and SWAYAM Prabha

**Context:**

Union HRD Minister chairs the review meeting on SWAYAM and SWAYAM Prabha in New Delhi.

**Details:**

- SWAYAM is an online portal where more than 1900 courses are available for students to pursue.
- SWAYAM Prabha is a group of 32 DTH channels devoted to the telecasting of high-quality educational programmes on a 24X7 basis using the GSAT-15 satellite.

For details on SWAYAM and SWAYAM Prabha, check the table below:

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| <a href="#">SWAYAM</a>                                  |
| <a href="#">SWAYAM Prabha - PIB dated 14 April 2020</a> |

## 5. Surplus rice available with FCI allowed to be converted to ethanol

### Context:

Surplus rice available with the FCI is allowed to be converted to ethanol for utilization in making alcohol-based hand-sanitizers and for blending in petrol.

### Details:

- The [National Policy on Biofuels, 2018](#) envisages that during an agriculture crop year when there is projected over supply of food grains as anticipated by the Ministry of Agriculture & Farmers' Welfare, the policy will allow conversion of these surplus quantities of food grains to ethanol, based on the approval of the National Biofuel Coordination Committee (NBCC).
- Accordingly, the NBCC held a meeting in which it approved that the surplus rice available with the Food Corporation of India (FCI) may be converted to ethanol for utilization in making alcohol-based hand-sanitizers and in blending for Ethanol Blended Petrol (EBP) programme.
  - The Government of India launched the EBP programme in 2003 for undertaking the blending of ethanol in petrol to address the environmental concerns due to fossil fuel burning, provide remuneration to farmers, subsidize crude imports and achieve forex savings.

For more on FCI, check [PIB dated 1st April 2020](#).

## 6. New model to predict ionospheric electron density can help communication/navigation

### Context:

Researchers from Indian Institute of Geomagnetism (IIG), Navi Mumbai, an autonomous institute of the Department of Science & Technology, Govt. of India, have developed a global model to predict the ionospheric electron density with larger data coverage—a crucial need for communication and navigation.

### Details:

- The research team has developed a new **Artificial Neural Networks based global Ionospheric Model (ANNIM)** using long-term ionospheric observations to predict the ionospheric electron density and the peak parameters.
- **Artificial Neural Networks (ANNs):**
  - ANNs replicate the processes in the human brain (or biological neurons) to solve problems such as pattern recognition, classification, clustering, generalization, linear and nonlinear data

fitting, and time series prediction, and very few attempts have been made to model the global ionosphere variability using ANNs.

- Tracking the variability of the Ionosphere is important for communication and navigation.
- The ionospheric variability is greatly influenced by both solar originated processes and the neutral atmosphere origin, and therefore, difficult to model.
- Scientists have tried to model the ionosphere using theoretical and empirical techniques; however, the accurate prediction of electron density is still a challenging task.
- In recent years, the Artificial Neural Networks (ANNs) are showing potential to handle more complex and non-linear problems.
- Keeping these aspects in mind, a novel machine learning approach was implemented by the IIG team in the ionospheric model development using global ionospheric observations.
- The researchers developed a neural network-based global ionospheric model by using an extensive database consisting of nearly two decades of global Digisonde (an instrument that measures real-time on-site electron density of the ionosphere by sending the radiofrequency pulses), Global Navigation Satellite System (GNSS) radio occultation and topside sounders observations.
- These datasets were processed with various quality control measures to eliminate spurious data points (outliers) and prepared for the training.
- Day number, Universal Time, latitude, longitude, F10.7 index (responsible for Photo-ionization), Kp (represents the disturbed space weather conditions), magnetic declination, inclination, dip latitude, zonal and meridional neutral winds were taken as inputs in the study.
- The target (output) of ANNs is the electron density as a function of altitude for any given location and time.
- The data was trained with the ANNs using a high-performance computer at IIG to develop the ANNIM.
- The ANNIM predictions done by the IIG team matched with the incoherent scatter radar and the satellite in situ electron density observations.
- Further, the ANNIM successfully reproduced large scale anomalies of the ionosphere.
- The ANNIM also captured the general morphological features of the ionosphere during disturbed space weather periods, such as geomagnetic storms which occurs when the magnetic cloud originated from Sun (known as Coronal Mass Ejection (CME)) interacts with the Earth's magnetosphere.
- The model developed by IIG researchers may be utilized as a reference model in the ionospheric predictions and has potential applications in calculating the Global Navigation Satellite System (GNSS) positioning errors.

## 7. DBT-BIRAC Call on COVID-19 Research Consortium

### Context:

The Department of Biotechnology and the Biotechnology Industry Research Assistance Council (BIRAC) had invited applications on COVID-19 Research Consortium.

### Details:

- A multifaceted approach is being adopted to ensure that vaccine candidates utilizing different platforms and at different stages of development are fast tracked through this Research Consortium under funding from National Biopharma Mission.
- Both, repurposing of existing vaccine candidates for immediate protection of high-risk groups, and novel vaccine candidate development were considered while selecting proposals under this call.
- Funding support has been recommended to Cadila Healthcare Ltd for advancing the development of a DNA Vaccine candidate against Novel Coronavirus SARS-CoV-2, and to Bharat Biotech International Ltd for COVID-19 vaccine candidate utilising the inactivated rabies vector platform.

- Furthermore, for the Phase III human clinical trials study of recombinant BCG vaccine (VPM1002) planned in high-risk population, Serum Institute of India Private Limited (SIPL) will be supported.
- The development of a novel vaccine evaluation platform at the National Institute of Immunology to support SARS-CoV-2 vaccine development has also been approved for financial support.
- Production of purified immunoglobulin G, IgG, at a commercial scale from COVID-19 convalescent sera and production of high titers of equine hyper immune globulin for the treatment of COVID infected patients on a large scale will be supported at Virchow Biotech Pvt Ltd.
- Financial support to OncoSeek Bio Pvt Ltd will be provided to create an in vitro Lung Organoid model.
- To boost indigenous production and to scale-up the production of molecular and rapid diagnostic tests, many companies will receive financial support.
- Development and deployment of contactless, affordable thermopile based ultrasonic sensors for screening of COVID-19 suspects and indigenous production of novel PPE for healthcare professionals will also be supported.