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**AN INITIATIVE BY PRADEEP KUMAR  
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# Learn FINITE

The information in this magazine is intended to provide users with resources and information which they may find useful and of interest.

We take all reasonable steps to keep this information current and accurate, but errors can occur.

We express our gratitude to all our team members and thankful to all the advisors for making first step in publishing a small magazine.

## Our Methodology for this Magazine

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We have used official website pib.nic.in to collect important press release important for Exam

The topics has been categorised subject wise so that is is easy for aspirants to read in flow and relate the topics

Background information has been provided so static related to current can be covered

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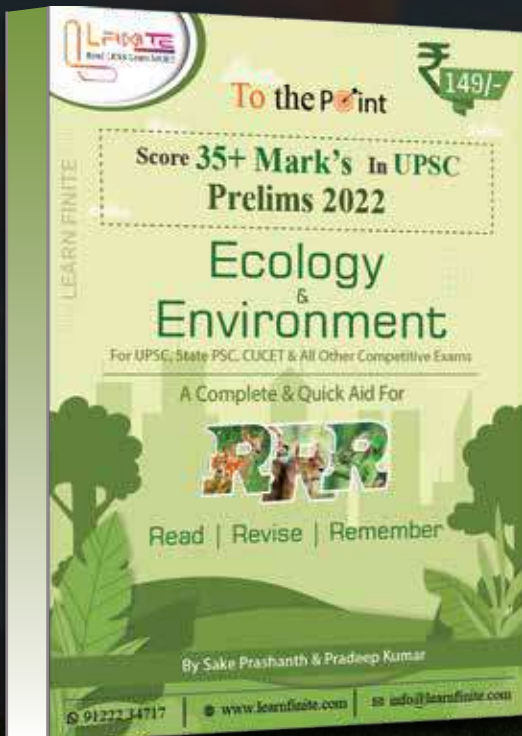
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An Initiative By Pradeep Kumar

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# INDEX

<b>HISTORY &amp; CULTURE.....</b>	<b>4</b>
MoU FOR COOPERATION IN DEVELOPMENT OF NATIONAL MARITIME HERITAGE COMPLEX.....	4
<b>POLITY &amp; GOVERNANCE .....</b>	<b>4</b>
MODEL TENANCY ACT.....	4
UNIQUE DISABILITY IDENTIFICATION CARD (UDID).....	5
PENCIL PORTAL.....	5
CABLE TELEVISION NETWORK RULES AMENDED.....	6
COMMON FORMAT FOR ISSUANCE OF PUC (POLLUTION CONTROL CERTIFICATE).....	6
SIX NEW JUDGES APPOINTED TO MP HIGH COURT.....	7
CONSUMER PROTECTION (E-COMMERCE) RULES, 2020.....	7
ITAT E-DWAR.....	8
<b>ECONOMY .....</b>	<b>8</b>
HISAB KI KITAAB.....	8
SENIORCARE AGEING GROWTH ENGINE INITIATIVE.....	9
TAXPAYER-FRIENDLY E-FILING PORTAL.....	9
GREEN ROOM AIR CONDITIONERS.....	10
SIXTEEN VARIETIES OF MANGOES EXPORTED TO BAHRAIN.....	10
DEMAND BASED TELE AGRICULTURE ADVISORIES.....	11
42ND SESSION OF FAO CONFERENCE.....	12
ETHANOL DISTILLATION CAPACITIES TO DOUBLE BY 2025.....	12
SUBSIDY FOR FERTILISERS.....	12
GI CERTIFIED JALGAON BANANA EXPORTED TO DUBAI.....	13
EXPERT GROUP ON FIXATION OF MINIMUM WAGES.....	14
AGREEMENT BETWEEN INDIA AND SAINT VINCENT AND THE GRENADINES.....	14
APEDA VIRTUAL BUYER SELLER MEET.....	15
US-INDIA STRATEGIC PARTNERSHIP FORUM (USISPF).....	15
EXOTIC DRAGON FRUIT EXPORTED TO DUBAI.....	16
EXPORTS OF BURMESE GRAPES 'LETEKU' TO DUBAI.....	16
<b>SCIENCE &amp; TECH .....</b>	<b>17</b>
AMBITAG.....	17
VAJRA KAVACH.....	18
ARTIFICIAL SYNAPTIC NETWORK.....	18
SWASTIIK TECHNOLOGY FOR SAFE AND HEALTHY DRINKING WATER.....	19
AI-DRIVEN PLATFORM FOR EARLY-COVID INTERVENTIONS OVER WHATSAPP.....	20
HIGH-STRENGTH ALUMINIUM (AL) ALLOYS.....	20
ESTIMATION OF BLACK CARBON OVER THE HIMALAYA.....	21
FIRST CAR-T CELL THERAPY.....	21
NOVEL TECHNIQUE COULD HELP DETECT TROPICAL CYCLONES.....	22
MARINE GEOHAZARDS.....	23
AEROSOL PARTICLES AND IT'S IMPACT.....	23
NEW WASTE WATER TREATMENT TECHNOLOGY.....	24
IDEX - DIO.....	25
JIVAN VAYU.....	25
CRYOGENIC-ELECTRON MICROSCOPY (CRYO-EM).....	26
IGSTC INDUSTRIAL FELLOWSHIP.....	27

IMPROVED METHOD OF IMAGING OBJECTS THROUGH FOG .....	27
SMART ENFORCEMENT APP FOR TRUCKS.....	28
SPACE-TIME INDUCES NEUTRINO OSCILLATIONS .....	29
NATIONAL INTERNET EXCHANGE OF INDIA .....	29
TECHNOLOGY FOR COATING CARBON ON LITHIUM .....	30
SEA WATER DESALINATION .....	31
SENSIT RAPID COVID-19 Ag KIT .....	31
COST-EFFECTIVE CATALYSTS FOR METAL-AIR BATTERY.....	32
COST-EFFECTIVE, BIO-COMPATIBLE NANOGENERATORS .....	32
ON-CHIP DATA COMMUNICATION AND PROCESSING .....	33
ADVANCE DEEP TECH-BASED RESEARCH IN INDIA.....	34
<b>HEALTH &amp; MEDICINE .....</b>	<b>35</b>
75TH SESSION OF UNGA.....	35
PROJECT O2 FOR INDIA .....	35
3D-PRINTED MASKS COATED WITH ANTI-VIRAL AGENTS.....	36
NAFED LAUNCHES FORTIFIED RICE BRAN .....	36
WORLD SICKLE CELL DAY .....	37
JAANHAI TO JAHANHAI” AWARENESS CAMPAIGN .....	37
MATHEMATICAL METRICS TO QUANTIFY AND MEASURE THE CORRECTNESS OF PERFORMANCE OF YOGA ASANAS .....	38
<b>ECOLOGY &amp; ENVIRONMENT.....</b>	<b>38</b>
12TH CHIEF ENERGY MINISTERIAL .....	38
LARGEST GREEN RAILWAYS .....	38
SALTWATER CROCODILES.....	39
AWARENESS CAMPAIGN ON SINGLE USE PLASTICS.....	39
PERFORM ACHIEVE AND TRADE (PAT) SCHEME.....	40
HIGH-LEVEL DIALOGUE ON DESERTIFICATION.....	41
DEEP OCEAN MISSION .....	41
DESERTIFICATION AND LAND DEGRADATION ATLAS OF INDIA .....	42
SUMMIT ON GREEN HYDROGEN INITIATIVES .....	43
BRICS GREEN HYDROGEN SUMMIT .....	43
ASSOCIATION OF CLOUD BURSTS WITH FOREST FIRES.....	44
<b>INTERNATIONAL RELATION.....</b>	<b>44</b>
MOU B/W INDIA AND MALDIVES .....	44
COOPERATION BETWEEN INDIA AND JAPAN.....	45
MOU B/W INDIA AND ARGENTINE.....	46
OPERATION SAGAR AARAKSHA II .....	46
47TH G7 SUMMIT.....	46
8TH ASEAN DEFENCE MINISTERS MEETING PLUS.....	47
INDIA AND BHUTAN SIGN MOU FOR ENVIRONMENT .....	48
INDIA AND FIJI SIGN MOU.....	48
G20 EDUCATION MINISTERS MEETING 2020.....	49
BHUTAN’S TAX INSPECTORS WITHOUT BORDERS (TIWB) PROGRAMME.....	49
INS TABAR VISITS ALEXANDRIA, EGYPT .....	49
<b>SCHEMES &amp; POLICIES, SOCIAL ISSUES.....</b>	<b>50</b>
VAN DHAN YOJANA TO BE EXPANDED .....	50
SWACHH BHARAT MISSION GRAMEEN - PHASE 2 .....	50
GUIDELINES FOR THE DEVELOPMENT OF E-CONTENT FOR CHILDREN WITH DISABILITIES .....	51
SURAKSHIT HUM SURAKSHIT TUM ABHIYAAN .....	51
CONDITIONAL EXEMPTION TO SURVEY OF INDIA FROM UNMANNED AIRCRAFT SYSTEM (UAS) RULES, 2021 .....	52

FARM MECHANIZATION .....	53
ICMED PLUS SCHEME .....	53
SPECIAL CALL UNDER BIOTECH KISAN PROGRAMME.....	54
PRADHAN MANTRI GARIB KALYAN ANNA YOJANA .....	54
6TH ANNIVERSARY OF SMART CITIES MISSION, AMRUT AND PMAY-U.....	55
AATMANIRBHAR IN PHOSPHATIC FERTILISERS .....	56
PRADHAN MANTRI FORMALISATION OF MICRO FOOD PROCESSING ENTERPRISES (PMFME) .....	56
SANKALP SE SIDDHI – MISSION VAN DHAN .....	58
ADI PRASHIKSHAN PORTAL.....	58
NISHTHA CAPACITY BUILDING PROGRAMME.....	59
TOYCATHON-2021 .....	59
<b>DEFENCE &amp; SECURITY .....</b>	<b>60</b>
INS SANDHAYAK DECOMMISSIONED .....	60
ADVANCED LIGHT HELICOPTERS INDUCTED .....	60
INDO-THAI COORDINATED PATROL .....	61
ALH MK-III INDUCTED .....	61
POLICY ON ARCHIVING, DECLASSIFICATION & COMPILATION OF WAR/OPERATIONS HISTORIES .....	62
EUNAVFOR EXERCISE IN GULF OF ADEN.....	62
EU-INDIA JOINT NAVAL EXERCISE .....	63
PROJECT SEABIRD .....	64
ENHANCED PINAKA ROCKET .....	64
INS TABAR .....	64
AGNI P BALLISTIC MISSILE.....	65
MOU BETWEEN INDIAN NAVY AND M/s BEL.....	65
<b>MISCELLANEOUS .....</b>	<b>66</b>
SDG INDIA INDEX.....	66
PERFORMANCE GRADING INDEX.....	67
REPORT OF ALL INDIA SURVEY ON HIGHER EDUCATION (AISHE) 2019-20 .....	68
PROJECT REPORTS OF LIDAR SURVEY .....	69
REPORT ON NOT-FOR-PROFIT HOSPITAL MODEL IN INDIA .....	70

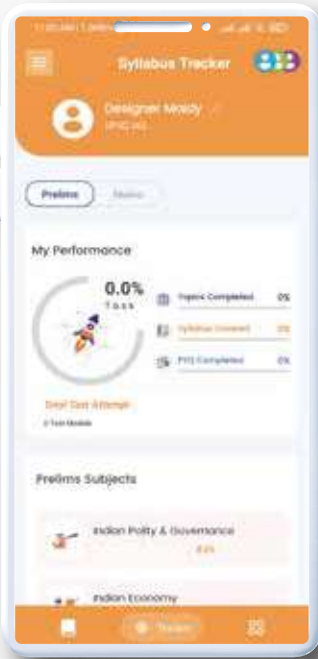
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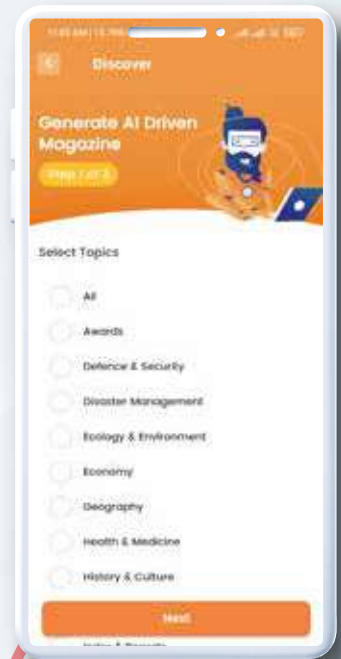
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# History & Culture

## MoU for Cooperation in Development of National Maritime Heritage Complex

### In news

Ministry of Ports, Shipping and Waterways and Ministry of Culture sign an MoU for Cooperation in Development of National Maritime Heritage Complex at Lothal.

### Highlights

- Gujarat MoU would facilitate to exhibit the robust maritime history and vibrant coastal tradition of our country.
- The MoU and the museum will play a big role in highlighting the cultural heritage of the country.
- National Maritime Heritage Complex, a world-class facility is to be developed in the vicinity of the ASI site of Lothal, located about 80 kms away from Ahmedabad, Gujarat.
- NMHC would be developed as an international tourist destination, where the maritime heritage of India from ancient to modern times would be showcased and an edutainment approach using the latest technology would be adopted to spread awareness about India's maritime heritage.

### Unique Features

- The unique feature of NMHC is the recreation of ancient Lothal city, which is one of the prominent cities of the ancient Indus valley civilization dating to 2400 BC.
- Apart from that, the evolution of India's Maritime Heritage during various eras would be exhibited through various galleries.
- NMHC would have pavilion for each coastal states and union territories to showcase the artifacts/maritime heritage of the respective states and union territories.
- Various theme parks would be developed at NMHC such as Maritime & Naval Theme Park, Monuments Park, Climate Change Theme Park, Adventure & Amusement Theme Park through public-private partnership which would provide a complete tourist destiny experience to the visitors.

# Polity & Governance

## Model Tenancy Act

### In news

Cabinet approves Model Tenancy Act for circulation to the States/Union Territories for adoption

### Aim

The Model Tenancy Act aims at creating a vibrant, sustainable and inclusive rental housing market in the country.

### Significance

- It will help overhaul the legal framework with respect to rental housing across the country, which would help spur its overall growth.
- It will enable creation of adequate rental housing stock for all the income groups thereby addressing the issue of homelessness.



- Model Tenancy Act will enable institutionalisation of rental housing by gradually shifting it towards the formal market.
- The Model Tenancy Act will facilitate unlocking of vacant houses for rental housing purposes.
- It is expected to give a fillip to private participation in rental housing as a business model for addressing the huge housing shortage
- Under the Model Tenancy Act, unless otherwise agreed in the tenancy agreement, the landlord will be responsible for activities like structural repairs except those necessitated by damage caused by the tenant, whitewashing of walls and painting of doors and windows, changing and plumbing pipes when necessary and internal and external electrical wiring and related maintenance when necessary.

## Unique Disability Identification Card (UDID)

### In news

Unique Disability Identification Card (UDID) now acceptable as a Photo ID for registration on Co-WIN 2.0

### Details

- The Union Government has developed the CoWIN digital platform to streamline the process of vaccination for various categories of beneficiaries across the country.
- CoWIN provides the technological backbone to effectively roll out and scale up the mechanism for COVID Vaccine Distribution System.
- It has been the constant endeavour of the Union Government to streamline the vaccination process for its universalization.
- As per the Guidance note for Co-WIN 2.0 issued on 2nd March 2021, seven prescribed Photo IDs were specified and prescribed for verification of beneficiary prior to their vaccination.

### About Unique Disability ID

- "Unique ID for Persons with Disabilities" project is being implemented with a view of creating a National Database for PwDs, and to issue a Unique Disability Identity Card to each person with disabilities.
- The project will not only encourage transparency, efficiency and ease of delivering the government benefits to the person with disabilities, but also ensure uniformity.
- The project will also help in stream-lining the tracking of physical and financial progress of beneficiary at all levels of hierarchy of implementation – from village level, block level, District level, State level and National level.

## PENCIL Portal

### In news

Smt. Smriti Zubin Irani Appeals to Citizens to Report Instances of Child Labour on PENCIL Portal or on Childline-1098  
The World Day Against Child Labour is observed on 12th June every year around the world. The International Labour Organization (ILO) launched the World Day Against Child Labour in 2002 to focus attention on the global extent of child labour and the action and efforts needed to eliminate it.

### PENCiL portal

- The PENCiL portal is an online platform that aims at engaging the Central Government, State Government, District, civil society and the public in eradicating child labour to achieve the target of child labor free society.
- This portal enables the citizens to raise a complaint and report incidents of child labour through effective tracking and monitoring mechanism. Let us look in detail about the PENCIL Portal in this article.

## Objective

The main objective of PENCIL Portal is to build a strong authentication mechanism for implementing and monitoring both the enforcement of the legislative provisions and effective implementation of the NCLP. It aims to facilitate convergence and provides better coordination between the Government departments and the general public.

## Component of portal

- Child Tracking System
- Complaint Corner
- State Government
- National Child Labour Project and
- Convergence.

## Cable Television Network Rules amended

### In news

The Central Government issued a notification amending the Cable Television Network Rules, 1994 thereby providing a statutory mechanism for redressal of grievances/complaints of citizens relating to content broadcast by television channels in accordance with the provisions of the Cable Television Network Act, 1995.

### Current scenario

- At present, there is an institutional mechanism by way of an Inter-Ministerial Committee to address grievances of citizens relating to violation of the Programme/Advertising Codes under the Rules.
- Similarly, various broadcasters have also developed their internal self-regulatory mechanism for addressing grievances.
- At present there are over 900 television channels which have been granted permission by the Ministry of Information and Broadcasting all of which are required to comply with the Programme and Advertising Code laid down under the Cable Television Network Rules.

### Changes

- In the aforementioned background, the Cable Television Network Rules have been amended to provide for this statutory mechanism, which would be transparent and benefit the citizens.
- At the same time, self-regulating bodies of broadcasters would be registered with the Central Government.

## Common Format for Issuance of PUC (Pollution Control Certificate)

### In news

Ministry of Road Transport & Highways has issued a notification dated 14th June 2021 for a common format of the PUC (Pollution Under Control) Certificate to be issued across the country, under Central Motor Vehicle Rules 1989

### The salient features of the PUCC are as under-

- Introduction of uniform Pollution Under Control Certificate (PUC) format across the country and linking the PUC database with the National Register.
- The concept of Rejection slip is being introduced for the first time. A common format of rejection slip is to be given to the vehicle owner in case the test result value is more than the maximum permissible value, as mandated concerning emission norms. This document can be shown at the service centre for getting the vehicle serviced or can be used, in case the PUCC center device is not working properly when tested at another center.

- The owner's mobile number has been made mandatory, on which an SMS alert will be sent for validation and fee.
- If the enforcement officer has reason to believe that a motor vehicle is not complying with provisions of Emission standards, he may communicate in writing or through electronic mode to direct the driver or any person in charge of the vehicle to submit the vehicle for conducting the test in any one of the authorized Pollution Under Control (PUC) testing stations. If the driver or person in charge of the vehicle fails to submit the vehicle for compliance or the vehicle fails to comply, the owner of the vehicle shall be liable for payment of penalty.
- If the owner fails to comply with this, the registering authority shall, for reasons to be recorded in writing, suspend the certificate of registration of the vehicle and any permit granted, until such time a valid "Pollution under Control" certificate is generated.
- Enforcement would be IT-enabled and would help in better control over polluting vehicles.
- The QR code shall be printed on the form. It will contain complete information about the PUC Centre.

### Pollution Under Control Certificate

- The smoke emitted from vehicles, if left unchecked, could pollute the environment to a great extent.
- PUC is a certification mark that is provided to vehicles that undergo the PUC Test successfully.
- The certification indicates that the vehicle's emissions are in alignment with standard pollution norms and are not harmful to the environment.
- All vehicles on Indian roads are mandated to carry a valid PUC certification.

## Six new Judges appointed to MP High Court

### In news

The President of India, in exercise of the power conferred by clause (1) of Article 217 of the Constitution of India, appointed six new judges to MP High Court.

### High Court Judge appointment

- High Court is termed as the second-highest in the country after the Supreme Court of India. Currently, India has 25 High Courts established in different states of the country.
- Every High Court shall consist of a Chief Justice and such other Constitution of **Judges as the President of India may from time to time appoint.**
- No appointment of any Judge of a High Court can be made unless it is in conformity with the opinion of the Chief Justice of India.
- **Article 217** of the Indian Constitution states that the Judge of a High Court shall be appointed by the President consultation with the Chief Justice of India, the Governor of the State, and, in the case of appointment of a Judge other than the Chief Justice, the Chief Justice of the High Court.
- THERE shall be a High Court in each State [Art. 214] but Parliament The High Court of has the power to **establish a common High Court for two or more States. The High Court stands at the head of the Judiciary in the State.**

## Consumer Protection (E-commerce) Rules, 2020

### In news

Government seeks comments /suggestions on proposed amendments in Consumer Protection Act by 6th July 2021.

## Details

- Proposed amendments aim to bring transparency in e-commerce platforms and further strengthen the regulatory regime.
- GOI has been holding series discussions with all the stake holders to strengthen the existing CPA in the light of these changes.
- Various new ideas and suggestions came up and many of those have incorporated in the new Draft Consumer Protection Act.

## The proposed amendments

- Appointment of a Chief Compliance Officer,
- Appointment of a "Resident Grievance Officer",
- Added "Cross-selling"
- "Fall back liability",
- "Flash sale",
- Registration of e-commerce entities,
- Noe-commerce entity shall allow any display or promotion of misleading advertisement whether in the course of business on its platform or otherwise.

## itat e-dwar

### In news

Law Minister Shri Ravi Shankar Prasad launches 'itat e-dwar', an e-filing portal of Income Tax Appellate Tribunal.

### Significance

- Portal will enable online filing of Appeals, Applications, documents etc. by various parties.
- 'itat e-dwar' will be widely accepted by the lawyers and tax litigants alike.
- The launch of e-Filing Portal 'itat e-dwar' will enhance the accessibility, accountability and transparency in the day to day working of the ITAT.
- It would not only result in economization of the use of paper, savings in costs but also rationalization of the fixation of cases leading to quicker disposal of cases.
- The newly developed e-Filing Portal would enable the parties to file their Appeals, Miscellaneous Applications, documents, paper books, etc., electronically.

# Economy

## Hisab Ki Kitaab

### In news

Union Minister of State for Finance and Corporate Affairs Shri Anurag Singh Thakur launched the six modules of short films of Investor Education & Protection Fund Authority (IEPFA) titled "**Hisab Ki Kitaab**"

### Details

- It is a series of 6 short films, developed by CSC eGov as a part of their training tool.
- There are 6 short films/ modules of 5 minutes duration each.

- The various modules highlights the importance of budget, saving, importance of Insurance schemes, various social security schemes of the government etc.
- The modules also interestingly portray the consequences of a common man falling prey to the schemes and how they should protect themselves from Ponzi schemes.
- These short films will be used by IEPFA and its partnering organisation for Investor Awareness Programs across the country.

### Significance

- Financial literacy and education, plays a crucial role in financial inclusion, inclusive growth and sustainable prosperity.
- In financial inclusion, a number of steps have been taken by the Government.
- As a result a large, sections of the population have been brought into the formal financial fold.
- In this context, promoting and deepening financial education would play a very important part in our endeavour to realise our collective potential.

## Seniorcare Ageing Growth Engine initiative

### In news

The Minister of Social Justice and Empowerment, virtually launched the SAGE (Seniorcare Aging Growth Engine) initiative and SAGE portal.

### Highlights

- SAGE will be a “one-stop access” of elderly care products and services by credible start-ups
- The start-ups will be selected on the basis of innovative products and services, which they should be able to provide across sectors such as health, housing, care centers, apart from technological access linked to finances, food and wealth management, and legal guidance.
- The number of elderly people is steadily increasing in our country, so there is a need to keep in mind that the elderly should remain happy, healthy, and financially and physically active for which a Senior Citizen Welfare Fund was started in 2016.
- SAGE programme and SAGE portal have been launched with a view to help such persons who are interested in entrepreneurship in the field of providing services for elderly care.

## Taxpayer-friendly e-filing Portal

### In news

New, Taxpayer-friendly e-filing Portal of the Income Tax Department To Be Launched on 7th June, 2021

### Aim

The new e-filing portal is aimed at providing taxpayer convenience and a modern, seamless experience to taxpayers.

### Highlights of the new portal

- New taxpayer friendly portal integrated with immediate processing of Income Tax Returns (ITRs) to issue quick refunds to taxpayers;
- All interactions and uploads or pending actions will be displayed on a single dashboard for follow-up action by taxpayer;
- Free of cost ITR preparation software available with interactive questions to help taxpayers for ITRs 1, 4 (online and offline) and ITR 2 (offline) to begin with; Facility for preparation of ITRs 3, 5, 6, 7 will be made available shortly;

- Taxpayers will be able to proactively update their profile to provide certain details of income including salary, house property, business/profession which will be used in pre-filing their ITR. Detailed enablement of pre-filing with salary income, interest, dividend and capital gains will be available after TDS and SFT statements are uploaded (due date is June 30th, 2021);
- New call center for taxpayer assistance for prompt response to taxpayer queries. Detailed FAQs, User Manuals, Videos and chatbot/live agent also provided;
- Functionalities for filing Income Tax Forms, Add tax professionals, Submit responses to Notices in Faceless Scrutiny or Appeals would be available.

## Green Room Air Conditioners

### In news

A new product category of Green Room Air Conditioners was launched on the Government e-Marketplace (GeM).

### Highlights

- Introducing SPP to this huge quantum of government procurement will further complement the country's climate policy objectives.
- The addition of Green Room Air Conditioners on GeM is another example of GeM being a futuristic and technology driven platform, focusing on environmental, social and economic pillars of sustainable public procurement.
- The GeM portal will enable and encourage all central and state government agencies to buy efficient and environment friendly green ACs, thereby paving a way for **Sustainable Public Procurement** in India.
- The purchase of Green RACs shall be a voluntary approach.
- The Government of India is taking proactive steps towards a circular and green economy.

### Government e-Market Place

- **GeM** is a short form of one stop **Government e-Market Place** hosted by **DGS&D** where common user goods and services can be procured.
- GeM is dynamic, self sustaining and user friendly portal for making procurement by Government officers.
- GeM eliminates human interface in vendor registration, order placement and payment processing, to a great extent.
- Being an open platform, GeM offers no entry barriers to bonafide suppliers who wish to do business with the Government.
- At every step, SMS and e-Mail notifications are sent to both buyer, his/her head of organization, paying authorities as well as sellers.

## Sixteen varieties of mangoes exported to Bahrain

### In news

The fruits have been sourced from farmers in Bengal and Bihar by APEDA registered exporter, DM enterprises, Kolkata and imported by Al Jazeera group, Bahrain.

### APEDA

- APEDA has been initiating measures to boost mango exports from the non-traditional regions and states.
- APEDA has been conducting virtual buyer seller meet and festival to promote mango exports.
- Recently in a bid to increase mangoes exports to South Korea, APEDA in collaboration with Indian embassy, Seoul and Indian Chamber of Commerce in Korea, organised a Virtual Buyer Seller Meet.

- APEDA has recently organised mango festival in Berlin, Germany.
- APEDA took a lead to organize virtual meet to provide a platform to the exporters and importers of mangoes from India and South Korea.

### Exports

- For the first time in this season, India has shipped a consignment of 2.5 Metric Tonne (MTs) of Geographical Indication (GI) certified **Banganapalli** & other variety **Survarnarekha** mangoes sourced from farmers in Krishna & Chittoor districts of Andhra Pradesh
- The mangoes exported to South Korea, were treated, cleaned & shipped from the APEDA assisted and registered packhouse & vapor heat treatment facility at Tirupati, Andhra Pradesh and exported by IFFCO Kisan SEZ (IKSEZ).

### Production

- Mango in India is also referred as 'king of fruits' and referred as *Kalpavriksha* (wish granting tree) in ancient scriptures.
- While most of the states in India have mango plantations, Uttar Pradesh, Bihar, Andhra Pradesh, Telangana, Karnataka have major share in total production of the fruit.
- *Alphonso*, *Kesar*, *Totapuri* and *Banganapalli* are leading export varieties from India.
- Mango exports primarily take place in three forms: fresh mango, mango pulp, and mango slice.

## Demand Based Tele Agriculture Advisories

### In news

Digital India Corporation & Indian Council of Agricultural Research signs MoU to provide 'Demand Based Tele Agriculture Advisories' to farmers

### Objective

To integrate the existing Interactive Information Dissemination System (IIDS) platform of DIC with the proposed Kisan Sarathi program of ICAR and its implementation through ICAR network to reach a large number of farmers across the country.

### Highlights

- ICAR and DIC have agreed to collaborate to develop and deploy ICT platforms to establish and operate a multi-media, multi-way advisory and communication system for supporting various agricultural activities at local level.
- The experts at the back end will have access to the farmers' database while responding to their queries.
- In this manner, experts would be able to understand the problems raised by farmers or field problems in a better way (KYF – Know Your Farmer) and expeditiously provide appropriate solutions to the farmer in a personalized manner.
- Currently the IIDS platform has been deployed in North Eastern states, Andhra Pradesh and Telangana which would be extended to all over the country with this MoU with ICAR.
- The DIC will be providing the entire technical solution with support for development, hosting and managing the requisite ICT platform.
- The ICAR will be managing & monitoring the entire operations through their extension services network in the form of Krishi Vigyan Kendras (KVKs), various domain specific research Institutes and network of agricultural universities etc., in a phased manner.

## 42nd Session of FAO Conference

### In news

Union Minister of Agriculture and Farmers' Welfare Shri Narendra Singh Tomar addresses the 42nd session of FAO Conference.

### Highlights

- Agriculture has always been a high priority for India and Government of India is always committed to the welfare of farmers.
- India has been working closely with FAO, extending technical expertise and assistance in incidences of trans-boundary pests mainly Fall Army Worm and Desert Locust.
- Agriculture has been one of the major success stories post independence in India.
- The Green Revolution, White Revolution, blue revolution along with the Public Distribution System and price support system for farmers are unparalleled in the World.

### Food and Agriculture Organization

India has come a long way since 1945 when it became one of the founding members of FAO as a low-income food-deficient country. Today the country is not only self-sufficient in rice and wheat, it also exports a range of food products. Moreover, at any given time India has up to 60 million tons of food grain buffer stocks. In this journey of success, FAO has been a staunch partner since 1948, when FAO operations in India first began.

## Ethanol distillation capacities to double by 2025

### In news

The roadmap for ethanol blending in India 2020-25 has been released by the Prime Minister Shri Narendra Modi on 5th June, 2021

### Highlights

- Ethanol blending with petrol (EBP) program will bring positive impact on country's economy too.
- It would promote ethanol as a fuel which is indigenous, non-polluting and virtually inexhaustible and would improve the environment and the eco-system as use of E20 fuel reduces carbon monoxide emission by 30-50% and hydrocarbon by 20%.
- To achieve blending targets, Government is encouraging sugar mills and distilleries to enhance their distillation capacities for which Government is facilitating them to avail loans from banks for which interest subvention up to 6% is being borne by Government.
- India is facing a situation of plenty with surplus sugar, leading to liquidity problem to sugar mills and delayed payments of cane dues.
- The Government is encouraging sugar mills to divert excess sugarcane to ethanol which is blended with petrol.
- About 5 crore sugarcane farmers & their families and 5 lakh workers associated with sugar mills & other ancillary activities would be benefitted with this intervention.
- Sugarcane farmers will get timely payment of sugarcane dues as the realization from sale of ethanol is much faster than sale of sugar.

## Subsidy for Fertilisers

### In news

Cabinet approves Nutrient Based Subsidy (NBS) rates for Phosphatic & Potassic (P&K) Fertilisers for the year 2021-22



## Highlights

- The government of India is making available fertilizers, namely Urea and 22 grades of P&K fertilizers (including DAP) to farmers at subsidized prices through fertilizer manufacturers/ importers.
- The subsidy on P&K fertilizers is being governed by the NBS Scheme w.e.f. 01.04.2010.
- In accordance with its farmer-friendly approach, the Government is committed to ensuring the availability of P&K fertilizers to the farmers at affordable prices.
- On the pricing front of DAP, Government has already asked all the fertilizer companies to sell their old stocks of DAP, etc. at the old prices only.
- In a similar manner, considering this crisis of pricing of DAP in India as an extraordinary situation & distress for the farmers, Gol has increased the subsidy rates under NBS Scheme as a special package for farmers in such a way that MRP of DAP (including other P&K fertilisers) can be kept at the last year's level till the present Kharif season.

## Way forward

- This has been done as a one-time measure as COVID -19 package to reduce the hardships of farmers.
- As anticipated that international prices may come down in few months, Gol may review the situation accordingly and decide regarding subsidy rates at that point of time.
- The estimated additional subsidy burden for such an arrangement will be around Rs 14,775 crore.

## GI certified Jalgaon banana exported to Dubai

### In news

In a major boost to exports of Geographical Indications (GI) certified agricultural produce, a consignment of fibre and mineral rich 'Jalgaon banana' has been exported to Dubai.

### Highlights

- The twenty-two metric tonnes of GI certified Jalgaon banana were sourced from progressive farmers of Tandalwadi village, part of Jalgaon district of Maharashtra, a banana cluster identified under Agri Export Policy.
- In 2016, Jalgaon Banana got GI certification which was registered with Nisargraja **Krishi Vigyan Kendra (KVK) Jalgaon**.
- India's banana export has been rising sharply because of adoption of farm practices as per the global standards.
- India is the world's leading producer of bananas with a share of around 25% in total output. Andhra Pradesh, Gujarat, Tamil Nadu, Maharashtra, Kerala, Uttar Pradesh, Bihar and Madhya Pradesh contribute more than 70% of the country's banana production.

### APEDA

- APEDA promotes exports of agricultural & processed food products by providing assistance to the exporters under various components of its scheme such as Infrastructure Development, Quality Development and Market Development. In addition, APEDA also conducts international Buyer Seller Meets, Virtual trade fairs with importing countries to promote agricultural & processed food products.
- Apart from this the Department of Commerce also supports exports through various schemes like Trade Infrastructure for Export Scheme, Market Access Initiative etc.

## Expert Group on fixation of Minimum Wages

### In news

The Central Government has constituted an Expert Group under the Chairmanship of Professor Ajit Mishra, a renowned economist, to provide technical inputs and recommendations on the fixation of Minimum Wages and National Floor Wages to the Government.

### Highlights

- The tenure of the Expert Group is three years.
- It has come to the notice that certain sections of the Press and some of the stakeholders have opined this as an attempt to delay the fixation of Minimum Wages and National Floor Wages by the Government.
- This is clarified that Government does not have any such intention and the Expert Group will submit its recommendations to the government as early as possible.
- The tenure of the Expert Group has been kept as three years so that even after the fixation of Minimum Wages and National Floor Wages, Government may seek technical inputs/advice from the Expert Group on subjects related to Minimum Wages and National Floor Wages, as and when required.
- The first meeting of this group was held on 14th June 2021, and the second meeting is scheduled for 29th June 2021.

## Agreement between India and Saint Vincent and The Grenadines

### In news

The Union Cabinet, chaired by Prime Minister Shri Narendra Modi has approved an agreement between the Republic of India and Saint Vincent and The Grenadines for the Exchange of Information and Assistance in Collection with respect to Taxes.

### Details of the Agreement

- This is a new Agreement between the Republic of India and Saint Vincent and The Grenadines.
- ***There was no such agreement in past between the two countries.***
- The agreement mainly proposes to facilitate the exchange of information between the two countries and to provide assistance to each other in collection of tax claims.
- Agreement also contains tax examination abroad provisions which provide that a country may allow the representatives of the other country to enter its territory (to the extent permitted under its domestic laws) to interview individuals and examine records for tax purposes.

### Impact

- Agreement between the Republic of India and Saint Vincent and The Grenadines will help in facilitating the exchange of information between the two countries including sharing of information held by the banks and other financial institutions encompassing the information regarding the legal and beneficial ownership.
- It will also facilitate the assistance in the collection of the tax claims between the two countries.
- Thus, it will strengthen India's commitment to fighting offshore tax evasion and tax avoidance practices leading to the generation of unaccounted black money.

### Background

There was no such agreement with Saint Vincent and The Grenadines in the past and India was negotiating this agreement for a long time. Finally, Saint Vincent and The Grenadines agreed to conclude this agreement with India which will promote tax cooperation between the two countries through the exchange of information and assistance

in the collection of outstanding tax claims between the two countries.

## APEDA virtual buyer seller meet

### In news

APEDA in collaboration with Indian embassy organize virtual buyer seller meet for boosting agricultural and processed food products exports to Algeria.

### Highlights

- More than 100 participants including exporters, processors and traders of agricultural commodities from India and Algeria participated in the VBSM titled 'Opportunities in Agri-sector between India and Algeria'.
- APEDA has been organizing a series of VBSMs with various countries for providing platform to the exporters and importers.
- In the VBSM held with trade and government officials from Algeria, the scope of increasing exports of India's Geographical Indications (GI) certified agricultural products were discussed.
- Export potential of products including cereals, animal product, non-basmati and basmati rice etc to Algeria were discussed during VBSM.

### APEDA

- The Agricultural and Processed Food Products Export Development Authority (APEDA) was established by the Government of India under the Agricultural and Processed Food Products Export Development Authority Act passed by the Parliament in December, 1985.
- The Act (2 of 1986) came into effect from 13th February, 1986 by a notification issued in the Gazette of India: Extraordinary: Part-II [Sec. 3(ii): 13.2.1986].
- The Authority replaced the Processed Food Export Promotion Council (PFEPCC).

## US-India Strategic Partnership Forum (USISPF)

### In news

Finance Minister Smt. Nirmala Sitharaman addresses US-India Strategic Partnership Forum (USISPF) Board of Directors Investment Roundtable

### Details

- The event provided investors with an opportunity to engage with the Union Finance Minister and senior officials of Indian Government to discuss potential investment opportunities and deliberate on the role of ongoing policy reforms that will enable greater Ease-of-Doing-Business in India.
- The Finance Minister remarked that macro-economic stability, infrastructure-led economic growth opportunities, financial sector reforms, and positioning as a strong player in global supply chains are just some of the ways India continues to rise as a global economic powerhouse.
- The US-India Strategic Partnership Forum (USISPF) is a non-profit organization, with the primary objective of strengthening the India-US bilateral and strategic partnership through policy advocacy in the fields of economic growth, entrepreneurship, employment-creation, and innovation.

### The broad messages conveyed to the investors were

- Significant drop in new COVID infections in the country and decline of second wave
- Strong Relief and Reforms undertaken by Government during the pandemic times
- Continued macro-economic stability and resilience in economic recovery in the recent months
- Vision to make India Self-Reliant (AatmaNirbhar Bharat)

- Steps taken for Infrastructure led economic growth
- Creating multi-sectoral opportunities for investors
- Strong track record of reform implementation in the last 6 years
- Other strengths/advantages of India as an investment destination
- Opportunities for investment in Climate, ESG and Sustainability focused investments.

## Exotic dragon fruit exported to Dubai

### In news

In a major boost to the export of exotic fruit, a consignment of fiber and mineral-rich 'Dragon Fruit', also referred as *Kamalam*, has been exported to Dubai.

### Highlights

- A consignment of Dragon Fruit for exports was sourced from the farmers of Tadasar village, Sangli district, Maharashtra and it was processed and packed at APEDA recognized exporter
- Scientifically referred to as *Hylocereusundatus*, the dragon fruit is grown in countries such as Malaysia, Thailand, the Philippines, the USA and Vietnam.
- Dragon fruit production commenced in India in the early 1990s and was grown as home gardens.
- Dragon Fruit has become increasingly popular in recent years in the country as it has been taken up for cultivation by farmers across various states.

### About the fruits

- At present, dragon fruit is grown mostly in Karnataka, Kerala, Tamil Nadu, Maharashtra, Gujarat, Odisha, West Bengal, Andhra Pradesh, and Andaman and Nicobar Islands.
- The cultivation requires less water and can be grown in various kinds of soils.
- There are three main varieties of dragon fruit: white flesh with pink skin, red flesh with pink skin, and white flesh with yellow skin.
- The fruit contains fiber, vitamins, minerals, and antioxidants.
- It can help in repairing the cell damage caused by oxidative stress and reduce inflammation, and also improving the digestive system.
- Since the fruit has spikes and petals resembling lotus, it is also referred as 'Kamalam'.

### APEDA

APEDA promotes exports of agricultural & processed food products by providing assistance to the exporters under various components such as Infrastructure Development, Quality Development and Market Development. Apart from this the Department of Commerce also supports exports through various schemes like Trade Infrastructure for Export Scheme, Market Access Initiative etc.

## Exports of Burmese grapes 'Leteku' to Dubai

### In news

In a major boost to harness the export potential of agricultural and processed food products from north-eastern states, a shipment of fresh Burmese grapes referred as 'Leteku' in Assamese language has been exported to Dubai from Guwahati by air route.

### Highlights

- A consignment of Leteku, which contains vitamin C and Iron, was sourced and packed at a collection centre in Darang district of Assam.

- The consignment was exported by APEDA registered Kiega EXIM Pvt Ltd from Guwahati airport to Dubai via Delhi.
- APEDA has been carrying out promotional activities to bring the North-Eastern states on the agricultural and processed food products export map of India.

### Recent Exports

- Recently, APEDA facilitated exports of the first consignment of 'red rice' to the USA from Assam. Iron rich 'red rice' is grown in Brahmaputra valley of Assam, without the use of any chemical fertilizer.
- The rice variety is referred to as 'Bao-dhaan', which is an integral part of Assamese food.
- APEDA assisted in exports of Geographical Indications (GI) certified *KajiNemu* (Assam lemon) to London. So far around 40 metric tonnes of Assam Lemon has been exported.
- Jackfruits sourced from the Tripura based Krishi SanyogaAgro Producer Company Ltd was exported to London.

### APEDA

- APEDA has provided financial assistance to the private sector to set up a pack house at Guwahati which has fulfilled the mandatory requirement or infrastructure for export of fresh fruits and vegetables to Europe.
- APEDA undertakes market promotion activities for evolving structured marketing strategies for export of food products, market intelligence for taking informed decisions, international exposure, skill development, capacity building and high-quality packaging.
- APEDA would continue to focus on the north eastern region both in terms of capacity building, quality upgradation, and infrastructure development.  
Linking buyers to farmers, strengthening the entire supply chain of agricultural produce from the north-eastern region would bring in dividends.

## Science & Tech

### AmbiTAG

#### In news

IIT Ropar develops "AmbiTAG"- India's first indigenous temperature data logger for the cold chain management.

#### Highlights

- Nation's first-of-its-kind IoT device for secure transportation of vaccines, blood and body organs, perishable products (food and dairy), etc.
- AmbiTag that records real-time ambient temperature during the transportation of perishable products, vaccines and even body organs and blood.
- That recorded temperature further helps to know whether that particular item transported from anywhere in the world is still usable or perished because of temperature variation.
- This information is particularly critical for vaccines including Covid-19 vaccine, organs and blood transportation.

#### Functioning

- Shaped as USB device, AmbiTag continuously records the temperature of its immediate surroundings "from -40 to +80 degrees in any time zone for a full 90 days on a single charge.

- Most of the similar devices available in the international market record data only for duration of 30- 60 days”.
- It generates an alert when the temperature goes beyond a pre-set limit.
- The recorded data can be retrieved by connecting the USB with any computer.
- The device has been developed under Technology Innovation Hub – AWaDH (Agriculture and Water Technology Development Hub) and its Startup ScratchNest.

Besides perishable items including vegetables, meat and dairy products it can also monitor the temperature of animal semen during transit. “So far, such devices are being imported by India in a massive quantity from other countries such as Singapore, Hong Kong, Ireland, and China.

## Vajra Kavach

### In news

A product aptly named *Vajra Kavach* removes the scourge of viral particles from equipment used by our Corona warriors.

### Highlights

- The disinfection system, developed by Mumbai-based startup Indra Water, removes any possible traces of the disease-causing SARS-Cov-2 virus from Personal Protective Equipment, N95 masks, coats, gloves and gowns.
- It thus enables reuse of PPEs and other materials used by healthcare workers.
- It thus protects not only them, but our environment too, by helping reduce biomedical waste generation.
- It is also making personal protective equipment more available, affordable, and accessible.
- Vajra Kavach’s UV disinfection of PPE is elegant, user friendly and convenient.
- The system is adequate for our 25-bed Covid Care Center.
- System is able to achieve a 1,00,000-fold reduction in the number of microorganisms; in scientific terms, tests showed (99.999%) reduction of viruses and bacteria.
- The system employs a multistage disinfection process consisting of advanced oxidation, corona discharge and UV-C light spectrum to inactivate the viruses, bacteria, and other microbial strains present on the PPE, achieving more than 99.999% efficiency.

## Artificial Synaptic Network

### In news

Scientists have fabricated a device that can mimic human brain cognitive actions and is more efficient than conventional techniques in emulating artificial intelligence

### AI

- Artificial intelligence is now a part of our daily lives, starting from email filters and smart replies in communication to helping battle the Covid-19 pandemic.
- But AI can do much more such as facilitate self-driving autonomous vehicles, augmented reality for healthcare, drug discovery, big data handling, real-time pattern/image recognition, solving real-world problems, and so on.
- These can be realised with the help of a neuromorphic device which can mimic the human brain synapse to bring about brain-inspired efficient computing ability.

### Human Brain

- The human brain comprises of nearly a hundred billion neurons consisting of axons and dendrites.

- These neurons massively interconnect with each other via axons and dendrites, forming colossal junctions called synapse.
- This complex bio-neural network is believed to give rise to superior cognitive abilities.
- Software-based artificial neural networks (ANN) can be seen defeating humans in games (AlphaGo and AlphaZero) or helping handle the Covid-19 situation.

### Issue

- The power-hungry (in megawatts) von Neumann computer architecture slows down ANNs performance due to the available serial processing while the brain does the job via parallel processing consuming just 20 W.
- It is estimated that the brain consumes 20% of the total body energy. From the calory conversion, it amounts to 20 watts.
- While the conventional computing platforms consume megawatts, i.e., 10 lakh watts of energy, to mimic basic human cognition.

### Solutions

A hardware-based solution involves an artificial synaptic device that, unlike transistors, could emulate the functions of human brain synapse.

## SWASTIIK technology for safe and healthy drinking water

### In news

Modern technology and Indian traditional knowledge of Ayurveda have been combined for a solution to disinfect water completely and also offer possible health benefits of natural oils.

### Details

- Disinfection of water is essential for removing pathogenic microorganisms that are responsible for causing a number of water-borne diseases.
- The common drawbacks of chemical methods such as chlorination include formation of harmful/ carcinogenic disinfection by-products.
- Therefore, it is pertinent to develop technology that provides safe and healthy drinking water at low cost with substantial ease of operation, scale-up, and without harmful disinfection by-products.
- Government of India, has developed the novel **hybrid technology called SWASTIIK'** that involves boiling of a liquid as a result of pressure reduction (cavitation) and also uses natural oils having antimicrobial properties.

### Significance

- It not only integrates Indian traditional knowledge of Ayurveda for complete disinfection of water but also may offer possible health benefits of natural oils.
- The novel strategy of SWASTIIK (Safe Water and Sustainable Technology Initiative from Indian Knowledgebase) can have significant benefits in terms of providing SAFE WATER and also possible health benefits that can also boost immunity, an important aspect as underlined in the current COVID-19 era.

### Technology

- The technique used ---hydrodynamic cavitation combines chemistry, biology, and chemical engineering along with natural resources in the form of natural oils and plant extracts.
- The process, which draws inspiration from Indian traditional knowledge, has resulted in increased efficiency and reduced cost of water treatment.
- The team achieved complete elimination for gram-negative *E. coli* and gram-positive *S. aureus* bacteria and even AMR bacteria/ difficult opportunistic pathogenic bacteria typically in 5-10 minutes.

- It was observed that increased rates of disinfection using oil can drastically reduce the time of operation and consequently reduce cost as compared to other advanced treatment processes.

## AI-driven platform for early-COVID interventions over Whatsapp

### In news

A new AI-driven platform will now help early intervention through rapid screening of COVID 19 with the help of Chest X-ray interpretation over WhatsApp for doctors who have access to X-ray machines.

### Details

- The solution called XraySetu can work with low-resolution images sent via mobiles, is quick and easy to use, and can facilitate detection in rural areas.
- ARTPARK (AI & Robotics Technology Park), a not-for-profit foundation has developed **XraySetu** specifically designed to identify COVID positive patients even from low-resolution Chest X-Ray images sent over Whatsapp.
- It also has semantic annotations of affected areas for review and localized heatmap by doctors to help them verify it easily with other modalities and has already served close to 1200+ reports so far from the interior parts of India.

### Significance

Technologies like XraySetu can enable cutting-edge AI-driven systems powering mobile PHCs, which can make healthcare more accessible even across rural India at a fraction of the cost.

### Process

- To conduct the health check, any doctor simply needs to visit [www.xraysetu.com](http://www.xraysetu.com) and click on the 'Try the Free XraySetu Beta' button.
- The platform will then redirect the person to another page, wherein he or she can choose to engage with the WhatsApp-based chatbot via web or smartphone application.
- Or the doctor can simply send a WhatsApp message to the phone number +91 8046163838 to start the XraySetu service.
- Besides COVID-19, the platform can also detect 14 additional lung-related ailments, including tuberculosis and pneumonia, alongside others.
- It can further be used for both analog and digital X-rays and has been successfully piloted by more than 300 doctors in rural areas over the last 10 months.

## High-strength aluminium (Al) alloys

### In news

Indian Scientists have developed an environmental-friendly process, which can provide excellent corrosion resistance to the high-strength aluminium (Al) alloys extensively used in aerospace, textile, and automotive applications.

### Highlights

- It involves an electrochemical method for the production of an oxide film on the metallic substrate.
- High-strength aluminium (Al) alloys are extensively used in aerospace, textile, and automotive applications owing to their low density and high specific strength.
- Aerospace components made out of Al alloys include landing gear, wing spar, which is the main structural part of the wing, fuselage (main body of an aircraft), aircraft skins or outer surface and pressure cabins.



- These parts often need resistance against wear, corrosion damages, and enhanced fatigue life.
- The widely used technique for Al alloys to improve corrosion resistance called hard anodizing (HA) process is an electrolyte-based coating deposition.
- It involves sulphuric/oxalic based electrolytes, which emits not only toxic fumes but are also hazardous to handle during processing.

### Micro-arc oxidation (MAO)

- In order to cater to the growing demand for cleaner industrial processes, an environmental-friendly process called micro-arc oxidation (MAO) has been developed at International Advanced
- Research Centre for Powder Metallurgy and New Materials (ARCI), an autonomous R&D Centre of the Department of Science and Technology, Govt. of India.
- The process which involves an alkaline electrolyte is capable of providing better wear and corrosion resistance compared to the HA process.
- MAO is a high-voltage driven anodic-oxidation process, which through an electrochemical method, produces an oxide film on a metallic substrates.
- ARCI team has further designed and developed a duplex treatment of shot peening (process used to modify the mechanical properties of metals and alloys) followed by MAO coating deposition.
- Systematic investigations conducted at ARCI have shown that the duplex treatment has led to the remarkable enhancement in aerospace Al alloys' fatigue life while retaining the outstanding corrosion and wear resistance of MAO coating.

## Estimation of black carbon over the Himalaya

### In news

A new study will help accurate estimation of black carbon over the Himalaya, a key contributor to global warming & improve weather & climate predictions.

### Finding

- A parameter called the mass absorption cross-section (MAC) specific to the Himalayan region that scientists have estimated.
- It will also improve the performance of numerical weather prediction and climate models.
- The researchers have derived the values of MAC – an essential parameter which is used for obtaining Black Carbon mass concentrations.
- It is found that these changes are caused by the seasonal variability of biomass burning, air mass variation, and meteorological parameters.

### Significance

- According to the ARIES team, these higher resolutions multi-wavelength and long-term observations used in calculating MAC will help improve the performance of numerical weather prediction and climate models in estimating the warming effects caused by BC emissions.
- The precise knowledge on BC at various wavelengths will help in source apportionment studies done to constrain the sources of BC emissions.
- This can thus serve as important information to form the mitigation policies.

## First CAR-T cell therapy

### In news

Department of Biotechnology supported First CAR-T cell therapy conducted at ACTREC, Tata Hospital in Mumbai.

## Highlights

- The Chimeric Antigen Receptor T-cell (CAR-T) therapy has emerged as a breakthrough in cancer treatment.
- Clinical trials conducted globally have shown promising results in end stage patients, especially in patients suffering from Acute Lymphocytic Leukemia.
- Though this technology has a remarkable therapeutic potential for cancer patients, at present this technology is not available in India.
- Each patient's CAR-T cell therapy costs 3-4 crore (INR).
- The challenge therefore is to develop this technology in cost-effective manner and make it available for the patients.
- The manufacturing complexity is a major reason for the therapy cost.
- In order to promote and support development of CAR-T cell technology against cancer and other diseases, BIRAC and DBT have taken initiatives and launched specialized calls to invite proposals in the last 2 years.

## About the first therapy

- The 4th June, 2021 was a historic day for TMH, IIT Bombay team and cancer care in India as the first CAR-T cell therapy (a type of gene therapy) was done at the Bone Marrow Transplant unit at ACTREC, Tata Memorial Center in Mumbai.
- The CAR-T cells were designed and manufactured at Bioscience and Bioengineering (BSBE) department of IIT Bombay.
- This is a “first in India” gene therapy in early phase pilot clinical trial and the dedicated efforts and excellent collaboration between IIT Bombay and Tata Memorial Hospital, Mumbai.

## About DBT

The Department of Biotechnology (DBT), under the Ministry of Science & Technology, promotes and accelerates the development of biotechnology in India, including growth and application of biotechnology in the areas of agriculture, healthcare, animal sciences, environment and industry.

## About BIRAC

Biotechnology Industry Research Assistance Council (BIRAC) is a not-for-profit Section 8, Schedule B, Public Sector Enterprise, set up by Department of Biotechnology (DBT), Government of India as an Interface Agency to strengthen and empower the emerging Biotech enterprise to undertake strategic research and innovation, addressing nationally relevant product development needs.

## Novel technique could help detect tropical cyclones

### In news

Indian Scientists have found a promising technique for early detection of development or strengthening of tropical cyclones in the atmospheric column prior to satellite detection over ocean surface in North Indian Ocean region.

### Previous Detection Method

- Early detection of Tropical cyclones has wide socio-economic implications.
- So far, remote sensing techniques have detected them the earliest.
- However, this detection was possible only after system developed as a well-marked low-pressure system over the warm ocean surface.
- A larger time gap between the detection and the impact of the cyclone could help preparation activities.

## New Technique

- A novel method using Eddy detection technique to investigate the formative stages and advance detection time of tropical cyclogenesis in the North Indian Ocean region.
- The method developed by the scientists' aims to identify initial traces of pre-cyclonic eddy vortices in the atmospheric column and track its Spatio-temporal evolution.
- They used coarser grid resolution of 27 km for identification and finer resolution of 9 km to evaluate the characteristics of eddy vortices. The study was conducted with cases of four post-monsoon severe cyclones – Phailin (2013), Vardah (2013), Gaja (2018), Madi (2013), and two pre-monsoon cyclones Mora (2017) and Aila (2009) that developed over North Indian Ocean.
- The team observed that the method could bring about genesis of prediction with a minimum of four days (~ 90 h) lead time for cyclones developed during the pre-and post-monsoon seasons.

## Marine geohazards

### Context

Deep down in the ocean, marine sediments move over the base of the ocean, shaping the probability of geohazards. Marine geohazards take place when the seafloor is unstable and is not able to withstand the transport processes of marine sediments from landwards deep into the ocean bottom. In such a situation, placement of drilling rigs becomes hazardous due to instability of the seabed.

### In news

Scientists have used 3D seismic data to understand the interaction between the bottom surface of marine sediments and the seafloor in the northern Taranaki basin offshore New Zealand.

### Significance

- This can help apprehend the precursors of marine geohazards.
- While understanding marine sediments' interaction during their flow over the seabed is crucial to detect triggers of marine hazards like landslides, associated morphological investigation is a very challenging task, and geophysical/seismic prospecting methods are essential for it.
- The study will help understand different flow mechanisms associated with sediment movement over the seafloor.
- It will also shed light on several flow indicators that define the dynamics of the sediment mass movement or the dominant transport directions and mechanism of the mass flow.
- Understanding these phenomena can help apprehend precursors of marine geohazards or the nature and physiography of the seafloor over which sediments can move.

## Aerosol particles and it's impact

### In news

Scientists tracing the concentration, size and evolution of aerosol particles smaller than 3 nanometres at an urban location in India have found the frequent formation of sub-3nm aerosol particles in the atmosphere.

### Highlights

- This has critical importance as a major fraction of these newly formed particles can reach to sizes of cloud condensation nuclei where they have climatic impacts.
- The formation of small molecular clusters of sub-3nm size is technically called aerosol nucleation, and subsequent growth of these newly formed clusters to the large sizes is called atmospheric new particle formation (NPF).

- NPF occurs everywhere in the terrestrial troposphere, and therefore it is a large source of aerosol numbers to the atmosphere.
- Though extensively studied globally using field observations, laboratory experiments and modelling approach, it is largely unexplored in India.

### Result of the study

- The research showed that a pool of sub-3nm particles is often present in the atmosphere, but how fast these clusters grow depends on various factors.
- The scientists observed that only half of these events showed newly formed molecular clusters growing past 10 nm size.
- Thus particle size distributions display a conventional banana-shaped aerosol growth, which is indicative of regional NPF event.
- The team found a strong positive correlation between sub-3nm particle concentrations and sulphuric acid concentrations, confirming the potential role of sulfuric acid in the formation of sub-3nm particles.
- While NPF often starts with sulphuric acid in the atmosphere, sulphuric acid alone fails to explain observed particle formation and growth rates in the atmosphere.
- Other vapours such as ammonia, amines and organics play a crucial role in the growth of newly formed particles.
- Moreover, these newly formed particles did not always grow to large sizes, and the team hypothesized that the particle growth was limited by lower concentrations of condensable vapours such as organic compounds, calling for research using state-of-the-art instrumentation to understand the mechanisms driving NPF in diverse environments across India.

## New waste water treatment technology

### In news

New wastewater treatment technology can reduce costs for low and medium scale enterprises

### Technology

- The technology uses a combination of Electrocoagulation and Electroflotation Enhanced Membrane Module (ECEFMM) techniques for waste water treatment.
- **Electrocoagulation** is a waste water treatment technique that uses electrical charge for changing the particle surface charge, allowing suspended matter to form aggregates, and **electroflotation** is the separation of suspended particles from water using hydrogen and oxygen bubbles generated by passing electricity through water.
- In the developed module, electrocoagulation and electroflotation are adjoined with membrane in a single indigenous setup.
- The turbulence created because of the hydrogen bubbling through the feed medium or the waste-water resists the deposition of oil over the membrane.
- The synergistic effect of hydrogen bubbling and rotation of the membrane module creates substantial turbulence within the solution and on membrane surface.
- On application of electric field during membrane separation, membrane fouling is substantially reduced, and membrane longevity is also enhanced by restricting the membrane ageing for prolonged time period.
- Thus, it requires less frequent membrane replacement, thereby reducing the maintenance costs to a great extent.

### Significance

- The recovered spent oil after oily wastewater treatment can be further used as an industrial burner oil, furnace oil, mould oil, hydraulic oil and so on.
- Thus, it creates a huge revenue generation scope for low-income groups by selling this collected spent oil.
- In a zone of densely concentrated garages, installation of one setup will serve the purpose of wastewater treatment and thereby extend the opportunity towards other low-income group users to control the water pollution level within PCB regulations.
- It is aligned with the **'Make in India'** initiative.

## iDEX - DIO

### In news

Raksha Mantri Shri Rajnath Singh has approved the budgetary support of Rs 498.8 crore to Innovations for Defence Excellence (iDEX) - Defence Innovation Organisation (DIO) for the next five years. The budgetary support will provide a big boost to the **'Aatmanirbhar Bharat Abhiyan'** of Prime Minister Shri Narendra Modi as iDEX-DIO has the primary objective of self-reliance and indigenisation in defence & aerospace sector of the country.

### iDEX

- The creation of the iDEX framework and establishment of the DIO by the Department of Defence Production (DDP) is aimed at creating an ecosystem to foster innovation and technology development in defence and aerospace by engaging Industries including MSMEs, start-ups, individual innovators, R&D institutes & academia and provide them grants/funding and other support to carry out R&D development which has good potential for future adoption for Indian defence and aerospace needs.
- The scheme, with budgetary support of Rs 498.8 crore for the next five years, is aimed at providing financial support to nearly 300 start-ups/MSMEs/individual innovators and 20 partner incubators under the DIO framework.
- The scheme aims to facilitate rapid development of new, indigenised and innovative technologies for the Indian defence and aerospace sector to meet their needs in shorter timelines; create a culture of engagement with innovative start-ups to encourage co-creation for defence and aerospace; empower a culture of technology co-creation and co-innovation within the defence and aerospace sector and boost innovation among the start-ups and encourage them to be a part of the ecosystem.

### Significance

- It will support increased awareness in the Indian innovation ecosystem about defence needs and, conversely, in the Indian Defence establishment about the potential of the Indian innovation eco-system to deliver innovative solutions to meet their needs.
- The long-term effect to be realised by the group is the establishment of a culture, where enlisting the effort of innovators by the Indian military is commonplace and frequent.

## Jivan Vayu

### In news

Indian Institute of Technology, Ropar has developed a device **'Jivan Vayu'** which can be used as a substitute of CPAP machine.

## Highlights

- This is the Nation's first such device that functions even without electricity and is adapted to both kinds of oxygen generation units like O<sub>2</sub> cylinders and oxygen pipelines in hospitals.
- These provisions are not available in otherwise existing CPAP machines.
- Continuous Positive Airway Pressure (CPAP) is a treatment method for patients having breathing problems during sleep called sleep apnea.
- The machine uses mild air pressure to keep the airways open for easy breathing.
- It is also used to treat infants whose lungs have not fully developed.

## Functioning

- The machine blows air into the baby's nose to help inflate his or her lungs.
- The treatment is all the more necessary during early stages of the Covid-19 infection.
- It reduces lung damage and allow patients to recover from the inflammatory effects.
- Jivan Vayu' is designed for a 22mm CPAP closed circuit tube. It can even be customized as per the size of the tube.

## Cryogenic-Electron microscopy (Cryo-EM)

### In news

Researchers in the country would soon have access to four Cryogenic-Electron microscopy (Cryo-EM) facilities paving the way towards the establishment of leadership in structural biology, enzymology, and drug discovery to combat new and emerging diseases.

### Highlights

- Cryo-EM has revolutionized structural investigations of macromolecules in recent times.
- It is a testimonial for a revolutionary technology for structural biologists, chemical biologists, and ligand discovery, which has gained a clear edge over contemporary x-ray crystallography.
- In light of these advancements, the cryo-electron microscopy technique was recognized with the Nobel Prize for the high-resolution structure determination of biomolecules in solution (2017).
- The revolution in resolution resulted in atomic-level understanding of the Zika virus surface proteins, thus aiding structure-based drug discovery, deciphering of structure of hard-to-crystallize membrane proteins and other macromolecular complexes.
- Housed with 200kV machines have added advantages like lesser maintenance and can help generate human resources through training, which can also help sustain the facility for longer duration.

### Way Forward

- While IIT Chennai will focus on nano-biointerfaces (e.g. materials–microbes, materials–human tissue), IIT Bombay will execute research on ribosome translation and its implication in disease and antibiotic resistance, neurodegenerative disorders and tackle problems to address solutions to cancer, membrane structure, composition, dynamics & transport.
- IIT Kanpur will conduct research focused on macromolecular structures and drug discovery with a specific focus on membrane proteins, and Bose Institute, Kolkata will focus on transforming the structure-guided drug discovery and therapeutics research for communicable and non-communicable diseases, allosteric drugs, transcription, and epigenetics.

## Background

- The first national cryo-EM facility was established at National Centre for Biological Sciences (NCBS) in 2017 and then subsequently in IISc, Bengaluru, and RCB Faridabad. However, it was felt that the existing cryo-EM research facilities in the country are not adequate to leave a mark at the global stage.
- Given significant advances in cryo-EM of large structures, SERB has taken the responsibility that concerted funding should be provided to establish leadership in this area to enable and empower Indian researchers to lead from the front.

## IGSTC Industrial Fellowship

### In news

The Indo-German Science & Technology Centre Industrial Fellowship launched to support young Indian researchers for industrial exposure at German industries and industrial R&D institutions.

### Launching

The programme was launched at a virtual meeting in the presence of the IGSTC Governing Body Co-Chairs & members, representatives from Indian & German Governments, Industries and Academia.

### Significance

- This fellowship would encourage capacity building and would encourage students to think of challenges faced by industry and research solutions for them.
- It will encourage applied research, technology development and industrial experience in German setup for young researchers.
- The IGSTC Industrial Fellowship shall support young Indian PhD students and Post-Doctoral researchers in Science & Engineering for industrial exposure at German industries and industrial R&D institutions.
- This programme will bring talented Indian researchers to Germany to work with German companies or government institutes for applied science.

## Improved method of imaging objects through fog

### In news

Imaging of objects in foggy weather conditions may now be clearer.

### Research

- Researchers have found a method that can improve the images captured on such days.
- The technique involves modulating the light source and demodulating them at the observer's end.
- The cost of the technique is low, requiring only a few LEDs and an ordinary desktop computer, which can execute the technique within a second.
- The researchers have demonstrated the technique by conducting extensive experiments on foggy winter mornings at Shiv Nadar University, Gautam Buddha Nagar, Uttar Pradesh.
- They chose ten red LED lights as the source of light. Then, they modulated this source of light by varying the current flowing through the LEDs at a rate of about 15 cycles per second.
- The researchers kept a camera at a distance of 150 metres from the LEDs.
- The camera captured the image and transmitted it to a desktop computer. Then, computer algorithms used the knowledge of the modulation frequency to extract the characteristics of the source. This process is called 'demodulation'.
- The demodulation of the image had to be done at a rate that was equal to the rate of modulation of the source of light to get a clear image.

- The team repeated the experiment a few times and observed the improvement each time.

### Significance

- The method can improve the landing techniques of aeroplanes by providing the pilot with a good view of beacons on the runway, significantly better than relying only on reflected radio waves as is presently the case.
- The technique can help reveal obstacles in the path that would otherwise be hidden by fog in rail, sea, and road transportation and would also help spotting lighthouse beacons.

## Smart Enforcement App for Trucks

### In news

Smart Enforcement App for Trucks to reduce compliance Logistics costs.

### Details

- An IT application that would fetch data related to goods being carried on the truck from the existing Goods and Services Tax Network (GSTN) database, and the information related to the vehicle from the VAHAN database.
- The Smart Enforcement App will have wide ranging economic benefits for the state and help in reduction of logistics costs.
- An effective enforcement will be critical in preventing not just revenue loss but also accidents and loss of human lives making Indian roads safer for trade and commuters.

### The key features of the integrated smart solution

- An IT application that would fetch data related to goods being carried on the truck from the existing Goods and Services Tax Network (GSTN) database, and the information related to the vehicle from the VAHAN database
- Make this data available to enforcement officers on the road in advance for approaching trucks
- Based on a risk matrix that uses historical patterns, the app assigns a risk profile to the truck helping the officers decide whether to stop it for further scrutiny
- It requires the officer to issue all fines, penalties, or any other punitive measure through the app, ensuring transparency
- The app includes features that keep records and help reduce ad-hoc implementation of these rules and regulations
- The application would have the ability to integrate with all the sensors, Weigh in Motion, and cameras available with the state government or National Highway Authority to allow remote enforcement.
- This would significantly reduce the need to deploy officers on the ground since the app would be able to alert officers whenever a vehicle is in violation.

### The benefits that would accrue from the adoption of the App

- Lead to decrease in number of physical checks of commercial vehicles by the enforcement officers
- Overall reduction in the number of cash challan by issuing e-challan using the system
- Reduction in deployment of work-force on Roads leading to better manpower utilization
- Higher revenue collection due to reduced human intervention
- Improved targeting of offenders
- Reduction in Logistics Cost (currently at 13% of GDP).



## Space-time induces neutrino oscillations

### In news

Scientists have shown that the geometry of space-time can cause neutrinos to oscillate. Neutrinos are mysterious particles, produced copiously in nuclear reactions in the Sun, stars, and elsewhere.

### Highlights

- They also "**oscillate**" meaning that different types of neutrinos change into one another – as has been found in many experiments.
- Probing of oscillations of neutrinos and their relations with mass are crucial in studying the origin of the universe.  
Neutrinos interact very weakly with everything else – trillions of them pass through every human being every second without anyone noticing; a neutrino's spin always points in the opposite direction of its motion, and until a few years ago, neutrinos were believed to be massless.
- It is now generally believed that the phenomenon of neutrino oscillations requires neutrinos to have tiny masses.
- Einstein's theory of general relativity says that gravitation is the manifestation of space-time curvature.
- According to the SNBNCBS team, neutrinos, electrons, protons and other particles which are in the category of fermions show a certain peculiarity when they move in presence of gravity.
- Space-time induces a quantum force in addition to gravity between every two fermions.
- This force can depend on the spin of the particles and causes massless neutrinos to appear massive when they pass through matter, like the Sun's corona or the Earth's atmosphere.
- Something similar happens for electroweak interactions, and together with the geometrically induced mass, it is enough to cause oscillation of neutrinos.

## National Internet Exchange of India

### In news

National Internet Exchange of India (NIXI) today celebrated its 18th Foundation Day

### Highlights

- For the last 18 years, NIXI has been contributing to Indian Internet Ecosystem.
- NIXI, the first Internet Exchange of the country facilitate peering of ISPs among themselves for the purpose of routing the domestic traffic within the country, instead of taking it all the way to
- US/Abroad, thereby resulting in a better quality of service and reduced bandwidth charges for ISPs by saving international currency on International Bandwidth.
- NIXI is also the .IN Registry managing India's country code top level domain (ccTLD) - .IN.
- NIXI also manages the National Internet Registry of the country delegating Internet Protocol addresses (IPv4 and IPv6) and Autonomous System numbers to the Indian Affiliates.

### Celebration

- On the occasion of completing 18 years, the National Internet Exchange of India hosted a webinar on "**Digital Economy – expanding footprints**".
- The efforts of the government and MeitY for pushing the digital agenda has resulted in India moving up the world digital competitiveness rankings.

## About NIXI

National Internet Exchange of India (NIXI) is a not-for-profit organization working since 2003 for spreading the internet technology to the citizens of India through the following activities:

- Internet Exchanges through which the internet data is exchanged amongst ISPs and CDNs.
- .IN Registry, managing and operation of .IN country code domain and. भारत IDN domain for India.
- IRINN, managing and operating Internet protocol (IPv4/IPv6).

## Achievement of NIXI

- NIXI is also credited with localizing internet domains and encouraging websites to register with the .in address.
- Its efforts have seen fruition as India surpassed 2.7 million registrations of .in domain, making India the third-largest nation in Asia in the country-centric, top-level domain growth.
- Further, the company has also set out to promote local content with its. भारत initiatives.

## Technology for coating carbon on lithium

### In news

Researchers have developed a non-expensive way to coat carbon on lithium metal oxide electrodes for lithium-ion batteries

### Details

- The life of the lithium-ion cells prepared using these electrode materials is expected to be doubled due to protective carbon coating.
- Lithium-ion batteries are the most commonly used power source for electric vehicles.
- However, its penetration to the daily usage against gasoline-based vehicles require drastic improvement in the lifetime and cost as well as mileage per charge.
- The active components of lithium-ion batteries are cathode, anode, and electrolyte.

### Electrolyte

- The electrolyte is a lithium salt dissolved in organic solvents.
- The capacity of the lithium-ion battery determines the mileage of the electric vehicle.
- Before the capacity reduces to 80%, the number of charging cycles determines the life of the battery.

### Significance

- Carbon being inert to most chemicals and stable under the operating window is the best choice of coating material to improve the cyclic stability of the active materials.
- Carbon coating on the active materials can double the lifetime of the lithium-ion cells.

### Issue

Coating carbon on lithium metal oxide is very challenging, because of the difficulty involved in coating carbon during the synthesis of lithium metal oxide material in a single step.

### Solution

- To address this issue, researchers at the International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI) have developed a technique to coat carbon in situ on lithium transition metal oxides in single step while synthesizing the oxide itself.
- Generally, carbon is coated on oxide materials using a second step, which is not uniform and is expensive as well.

- In ARCI method, a carbon precursor is trapped in between the transition metal hydroxide layers to minimize the reaction with oxygen even when heat-treated in the air during solid-state synthesis.

## Sea water desalination

### In news

Seawater desalination through solar thermal forward osmosis brings relief to drought-prone Tamil Nadu village

### Significance

- It will benefit from 20,000 liters per day of freshwater produced from seawater.
- The customized demand-driven convergent water solution through FO will supply two liters of good quality drinking water per person per day for 10,000 people in the village, successfully overcoming a major drinking water shortage in the village.
- The produced water will be supplied to the local people with the support of villagers and panchayat.
- This initiative of DST can pave way for scaling up the emerging technology in various coastal rural areas of the country to address drinking water shortage.

### Technology

- The FO system facilitates high recovery, low energy consumption, the potential for resource recovery, especially in solutions of high osmotic pressure, less fouling of the membrane because of low-pressure operation, easier and more effective cleaning of the membrane, longer membrane life, and lower operating costs.
- The sea water FO technology operates at near 2 bar pressure unlike sea water RO that operates at 50 bar pressure.
- It is versatile, has high energy efficiency and low operation and maintenance costs compared to other technologies.

## SENSIT Rapid COVID-19 Ag Kit

### Context

The entire world has been severely affected with the ongoing COVID-19 pandemic. The severity of symptoms that occur during the COVID-19 infection can range from undetectable to life-threatening. The quick testing procedure involves antigen testing which provides the result for hundreds of samples within a short span of time.

### In news

Under the aegis of COVID-19 Research Consortium, DBT-BIRAC supported product 'SENSIT Rapid COVID-19 Ag kit' has been developed by Ubio Biotechnology Systems Pvt. Ltd. for qualitative detection of SARS CoV-2 Nucleocapsid Protein with an assay time of 15 minutes.

### How does it work?

- The samples are collected using nasopharyngeal swabs from the suspected individual.
- This ICMR approved kit is a chromatographic immunoassay, which allows the healthcare personnel to visually read the test result.
- The test works on the principle of sandwich immunoassay and utilizes a pair of monoclonal antibodies which when bound to COVID-19 specific antigen, result in the appearance of a coloured line.
- The kit exhibits sensitivity and specificity of 86% and 100%, respectively and has a shelf life of 24 months.

### Significance

Such quick tests allow healthcare professionals to detect infected individuals quickly, saving their time and allowing them to provide better advice and treatment to the infected individual.

## Cost-effective catalysts for metal-air battery

### In news

International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), has developed the cost-effective electrocatalyst by anchoring transition metal ions into the sulfur-doped carbon framework via carbonization of a polymer called sPEEK (sulphonated polyether ether ketone).

### Details

- A new non-precious metal-based bi-functional electrocatalyst (capable of catalyzing two different types of reactions) can decrease cost and increase the efficiency of metal air batteries.
- With the rise in demand for different energy sources, worldwide efforts are being made to develop different kinds of energy devices, such as lithium-ion batteries, lead-acid batteries, redox flow batteries, lithium-air batteries, zinc-air batteries, etc. sodium-ion batteries, fuel cells, and supercapacitors.
- Among them, Zn-air batteries have drawn significant attention due to their low cost and high energy density.

### About the technology

- This catalyst synthesis method can also be used to recycle used ionomers (polymer composed of both neutral repeating units and ionized units).
- The scientists have used an ion-exchange strategy that positions the metal ions in the carbon framework homogeneously, limits the particle size and offers control on composition and size at a very low loading of transition metal.
- Cost-effectiveness is thus achieved by low loading of transition metal, high activity, and high cycling stability compared to many of the catalysts earlier reported in the literature.
- The catalyst also leads to reduced voltage polarization, enabling higher energy efficiency and a stable charge-discharge characteristic.
- The results obtained were comparable to that of conventionally used noble metal-based catalysts with metal loading of 20% or higher.

## Cost-effective, bio-compatible nanogenerators

### In news

Scientists have fabricated a simple, cost-effective, bio-compatible, transparent nanogenerator that can generate electricity from vibrations all around for use in optoelectronics, self-powered devices, and other biomedical applications.

### Highlights

- Searching for renewable energy resources with reduced carbon emissions is one of the most urgent challenges due to the increasing threat of global warming and energy crisis.
- Some of the unconventional methods to generate electricity include piezoelectric, thermoelectric, and electrostatic techniques used in devices like touch screens, electronic displays, and so forth.
- **The triboelectric nanogenerators (TENG)** make use of mechanical energy in the form of vibrations present everywhere in different forms to generate electricity.

- The fabricated device could light up eleven LEDs by gentle hand tapping and could be a potential candidate for use in optoelectronics, self-powered devices, and other biomedical applications.

### Mechanism

- The energy harvesting TENG works on the principle of creation of electrostatic charges via instantaneous physical contact of two dissimilar materials followed by generation of potential difference when a mismatch is introduced between the two contacted surfaces through a mechanical force.
- This mechanism drives the electrons to move back and forth between the conducting films coated on the back of the tribo layers.
- The method employed till date to design TENG use expensive fabrication methods like photolithography or reactive ion etching, and additional process like electrode preparation and so on.

## On-chip data communication and processing

### In news

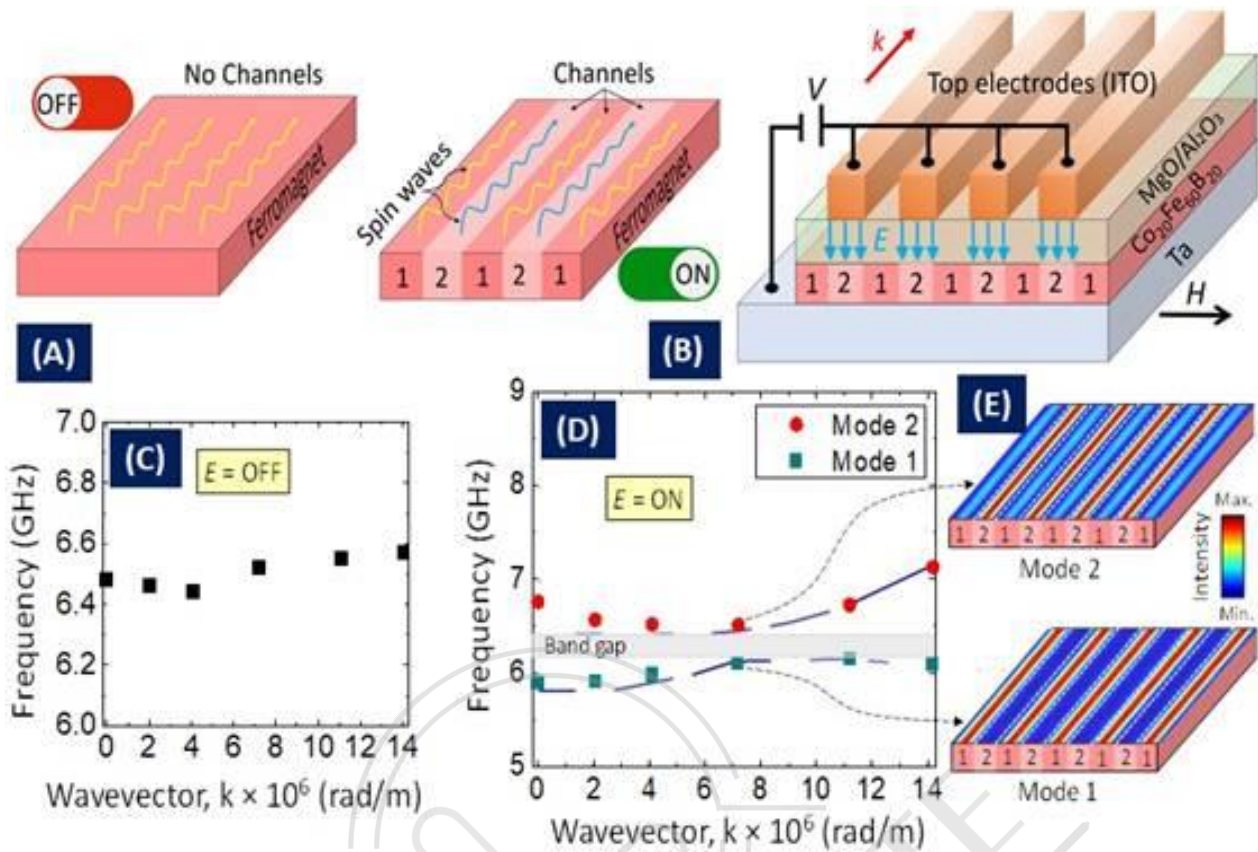
Scientists have developed electrically configured nanochannels that can eliminate unwanted energy waste and promise wave-based computing.

### Significance

This can revolutionize on-chip data communication and processing in the future.

### Technology

- Conventional electronics is composed of logic circuits having a large number of transistors interconnected by metallic wires.
- The data carried by electric charges suffer undesirable heating limiting its integration density.
- Spintronics, also known as spin electronics, or the study of the intrinsic spin of the electron and its associated magnetic moment, in addition to its fundamental electronic charge, in solid-state devices offer to harness electron spins.
- Their collective precession can carry information encoded in its amplitude, phase, wavelength, and frequency without any physical motion of particles, eliminating unwanted energy waste and promising wave-based computing.
- In the recent research, spin-waves were efficiently transferred through these nanochannels, and this could be switched 'ON' and 'OFF' and its magnitude altered by a meagre voltage of few volts.



## Advance deep tech-based research in India

### In news

The Indian research community will soon be able to pursue industry-relevant research opportunities in the areas of deep technologies that are novel, transformative, and can have a ground-breaking impact on a national scale.

### Details

- The opportunities will be offered by the first-of-its-kind research initiative called 'Fund for Industrial Research Engagement (FIRE)' launched by the Science and Engineering Research Board (SERB), a statutory body of Department of Science and Technology (DST), Government of India, in collaboration with Intel India on June 29, 2021.
- It will increase research opportunities in the space of Artificial Intelligence (AI)/Machine Learning (ML), platform systems, circuits & architecture, Internet of Things (IoT), materials & devices, security, and so on from edge to cloud.
- SERB-FIRE is a novel initiative to bring together industry and academia on a common platform to exchange ground-breaking ideas and co-promote innovative research.

### Vision

To promote research in the upcoming critical areas of science and engineering with Public-Private Partnerships as elaborated in the draft Science, Technology and Innovation Policy 2021.

### Significance

- The program intends to select highly impactful research projects in every cycle (typically once or twice a year), which have breakthrough potential at a national or global level.
- It will support the best researchers in academia with funding, mentoring, and industry connect.

- SERB-Intel collaboration will be an excellent opportunity for the scientists to join hands with Intel and together create a stimulating atmosphere for research in science and engineering.

## Health & Medicine

### 75th session of UNGA

#### In news

Dr. Harsh Vardhan addresses 75th session of UNGA on prevention of HIV/AIDS.

#### Highlights

- India's unique HIV prevention model is centered around the concept of 'Social Contracting through which the 'Targeted Interventions Program' is implemented with support from civil society.
- The program is aimed at behaviour change, communication, outreach, service delivery, counselling & testing and ensuring linkages to HIV care.
- India is providing free anti-retro-viral treatment to close to 1.4 million people. Indian drugs are also reaching millions of People living with HIV in Africa.
- India's National AIDS Control Program has been **Revised, Revived and Revamped** to focus on hard-to-reach and at-risk populations.
- Viral Load Testing facilities have been scaled up, and HIV counselling, testing and community-based screening for early diagnosis have been ramped up to achieve the target of Elimination of Mother to Child Transmission of HIV.
- In line with the motto of the Government of India, *'Together, for everyone's growth, with everyone's trust'*, the National AIDS Control Program has signed MoUs with public and private sector industries to mobilise their support for HIV prevention and treatment.
- India aspires to scale up HIV care to reach 100% of people living with this dreaded disease.

### PROJECT O2 for INDIA

#### Context

The second wave of COVID-19 saw an increase in demand for medical oxygen in different parts of the country. While meeting the current demand, manufacturing medical oxygen also became important to ensure we have adequate supply in the future.

#### In news

Project O<sub>2</sub> for India' of the Office of Principal Scientific Adviser, Government of India, is to enable stakeholders working to augment the country's ability to meet this rise in demand for medical oxygen.

#### Highlights

- Under Project O<sub>2</sub> for India, a **National Consortium of Oxygen** is enabling the national level supply of critical raw materials such as zeolites, setting up of small oxygen plants, manufacturing compressors, final products, i.e., oxygen plants, concentrators, and ventilators.
- The consortium is not only looking forward to providing immediate to short-term relief but also working to strengthen the manufacturing ecosystem for long-term preparedness.

- A committee of experts has been evaluating critical equipment such as oxygen plants, concentrators, and ventilators, from a pool of India-based manufacturers, start-ups, and MSMEs (in partnership with FICCI, MESA, etc.).

## 3D-printed Masks Coated with Anti-Viral Agents

### In news

The Pune-based firm comes up with 3D-printed Masks Coated with Anti-Viral Agents.

### Highlights

- The virucidal mask project is among the earliest projects to have been selected for commercialization, by the Technology Development Board (TDB), a statutory body of the Department of Science and Technology.
- The coating formulation has been utilized to coat the fabric layer and the 3D printing principle was employed to achieve uniformity of coating.
- The coated layer can be incorporated as an additional layer in N-95 masks, 3-Ply masks, simple cloth masks, 3D printed or other plastic cover masks, along reusable filters.
- These masks thus provide an additional protection beyond the protection achieved by filtration mechanisms.
- The coating has been tested and shown to inactivate the SARS-COV-2 virus.

### Development material

- The material used for coating on the mask is a Sodium Olefin Sulfonate-based mixture.
- It is a soap forming agent with hydrophilic and hydrophobic properties.
- In contact with enveloped viruses, it disrupts the outer membrane of the virus.
- The ingredients used are stable at room temperature and are widely used in cosmetics.

## NAFED launches Fortified Rice Bran

### In news

Government of India's NAFED launches Fortified Rice Bran Oil to Boost Healthy Living.

### Significance

- This initiative by Nafed will significantly reduce the country's consumption dependence on imported edible oil in the future.
- This will provide opportunities for Indian edible oil manufacturers further, and also will give an impetus to the Prime Minister's Aatmnirbhar Bharat initiative.
- This initiative by Nafed will significantly reduce the country's consumption dependence on imported edible oil in the future.
- This initiative will provide easy access to Nafed branded high-quality rice bran oil, which will also give a boost to the indigenous oil manufacturing industry.

### Benefits of Rice Bran oil

- It has multiple health benefits, including lowering cholesterol level due to its low trans-fat content and high mono unsaturated and poly unsaturated fat contents.
- It also acts as a booster and reduces the risk of cancer due to the high amount of Vitamin E it contains.
- This oil is recommended by The American Heart Association and the World Health Organization (WHO) as one of the best substitutes for other edible oils.
- Rice Bran oil from Nafed will be fortified and it will be ensured that it will contain additional nutrients and vitamins.



## World Sickle Cell Day

### In news

World Sickle Cell Day, observed every year on June 19, aims to raise awareness of sickle cell disorders. Sickle cell anemia is a genetic red blood cell disorder.

### Objectives

- Raising awareness about the SCD.
- Supporting sickle cell patients

### Highlights

- People with sickle cell disorders don't have enough healthy red blood cells to carry oxygen throughout the body.
- The United Nations General Assembly, on December 22, 2008, adopted a resolution recognizing sickle cell disease as a public health problem.
- Sickle cell disease makes normal life difficult and patients need regular blood transfusions.
- The disorder arises when both parents have the problem gene and pass it on to their child.
- Signs and symptoms of sickle cell anemia usually appear around five months of age and they vary from person to person and may change over time.

## JaanHai To JahaanHai" awareness campaign

### In news

"JaanHai To JahaanHai" awareness campaign will be launched on 21st June 2021 to create awareness on Corona vaccination in rural and remote areas of the country.

### Highlights

- Ministry of Minority Affairs, along with various socio-educational organisations, NGOs and Women Self Help Groups, will launch the campaign.
- The campaign will be launched from minority concentrated District Rampur (UP) and it will also be organised in different parts of the country.
- Various religious leaders, prominent people from social, educational, cultural, medical, science and other fields will give effective messages to the people to get vaccinated.
- The two "**Made in India**" Corona vaccines are the result of the hard work of our scientists and it has been proved scientifically that these vaccines are absolutely safe and effective weapon in the fight against Corona.

### Beginning of the fourth phase of vaccination

- From June 21, the fourth phase of vaccination is also being started by the central government.
- From that day, free vaccine will be given by the central government to all sections.
- At present, an average of 32-33 lakh vaccines are being administered daily.
- The government is trying to increase it to at least 55-60 lakhs so that by September, a large population of the country has a security cover.

## Mathematical metrics to quantify and measure the correctness of performance of yoga asanas

### In news

Researchers have developed a novel method that involves mathematical metrics to quantify and measure the correctness of the performance of yoga asanas in terms of stability and steadiness.

### Details

- These mathematical metrics based on Electromyography (EMG) a diagnostic procedure that evaluates the health condition of muscles, can help in assessing the correctness of performance and paves way for making appropriate corrections, thus enabling practitioners to derive maximum benefit from the asanas.
- The researchers used EMG to study both physical and physiological parameters.
- The study carried out with support from 'Science and Technology of Yoga and Meditation (SATYAM)' Programme of the Department of Science and Technology.
- The study provides understanding of the mechanics of Yoga both from a biomechanical as well as a motor control perspective which succeeded in laying a foundational framework for future research in this area.

## Ecology & Environment

### 12th Chief Energy Ministerial

#### In news

India and UK launch new workstream to promote industrial energy efficiency at the ongoing 12th Chief Energy Ministerial

#### Aim & Objective

- Government aims to infuse green technologies and stimulate demand for low-carbon industrial material.
- The IDDI initiative has been supported by Germany and Canada, with more countries expected to join soon.
- The objective is to infuse green technologies and stimulate demand for low-carbon industrial material.

### 12th Clean Energy Ministerial (CEM12)

The theme of CEM12 was "**Ambition into Action Turning a Year of Ambition into a Decade of Delivery**"

- The Twelfth Clean Energy Ministerial (CEM12), hosted by Chile, convened at a critical moment to determine the medium and long-term role of clean energy in supporting the economic recovery from the COVID-19 pandemic, building momentum towards the commitment to cut emissions ahead of COP26 taking place in November 2021, and continuing the shift towards cleaner economies, raising ambition and accelerating clean energy transitions.
- The CEM12 programme included over 40 high-level events and culminated with its Ministerial Plenary.
- CEM12 was 100% virtual and open to all, providing a platform for all to demonstrate clean energy leadership to a global audience.
- CEM12 hosted more ministers and clean energy leaders than ever before.

### Largest Green Railways

#### In news

Indian Railways on way to become "Largest Green Railways" in the world with Zero Carbon Emission.

## Highlights

- Railways looks at helping the environment with steps ranging from massive electrification, water & paper conservation, to saving animals from being injured on Railway tracks.
- 39 Workshops, 7 Production Units, 8 Loco Sheds and one Stores depot have been 'GreenCo' certified; These include 2 Platinum, 15 Gold and 18 Silver ratings.
- 19 Railway Stations have also achieved Green Certification including 3 Platinum, 6 Gold and 6 Silver ratings.
- Green certification mainly covers assessment of parameters having direct bearing on the environment, such as, energy conservation measures, use of renewable energy, Green House Gas emission reduction, water conservation, waste management, material conservation, recycling etc.
- 9 Railway Stations have also achieved Green Certification including 3 Platinum, 6 Gold and 6 Silver ratings.
- 27 more Railway Buildings, Offices, Campuses and other establishments are also Green certified including 15 Platinum, 9 Gold and 2 Silver ratings.

## Economic Benefits

- Railway Electrification which is environment friendly and reduces pollution, has increased nearly ten times since 2014.
- Capturing the economic benefits of electric traction in an accelerated manner, Railways has planned to electrify balance Broad Gauge (BG) routes by December, 2023 to achieve 100% electrification of BG routes.
- Head-On-Generation systems, Bio-Toilets and LED lights recreate the train itself into a travel mode that's kinder to the environment while maintaining comparable passenger comfort.

## Saltwater crocodiles

### In news

The carcass of a five-foot-long saltwater crocodile was found in the Patasala river near Silapokhari village within the Bhitarkanika National Park (BNP) in Odisha's Kendrapara district.

### Highlights

- The reptile choked and drowned by being caught inside a fishing net or died due to infighting.
- Saltwater crocodiles were included in Schedule I of India's Wild Life (Protection) Act, 1972.
- The saltie's death has exposed lacunae in the crocodile conservation work done in the park.
- The rivers, creeks and other water bodies within BNP are the home of around 1,800 saltwater crocodiles.

### Background

- In 1975, the then-Union Ministry of Forest and Environment, in a collaboration with the United Nations Development Programme had started a crocodile breeding and rearing project in Dangamala within BNP.
- Relentless efforts by the authorities have increased the number of crocodiles in Bhitarkanika to 1,768 in January 2021, from just 96 in 1974.
- The forest department had stopped the crocodile breeding and rearing programme in 2012 in the park as the crocodile population had reached a saturation point.

## Awareness campaign on Single Use plastics

### In news

GIZ, UN Environment Programme (UNEP) and Federation of Indian Chambers of Commerce and Industry (FICCI) along with Ministry of Environment, Forest and Climate Change, Government of India, are organizing the two-month long awareness campaign

### Laws regarding plastic usage

- Government of India has already banned import of plastic waste in the country.
- The Ministry of Environment, Forest and Climate Change for the first time brought out Plastic Waste Management Rules, 2016, for handling plastic waste in an environmentally sound manner.
- “Under the rules plastic carry bags below 50 microns have been banned.
- Many states/UTs have also banned identified single use plastic items.
- In March 2021 for amending the Plastic Waste Management Rules, 2016, with respect to prohibiting identified 12 single use plastic items such as disposable plastic cutlery etc.

### India Plastic Challenge – Hackathon 2021

- To spur innovation and entrepreneurship in area of tackling plastic waste pollution and elimination of single use plastic, Shri Javadekar announced the “India Plastic Challenge – Hackathon 2021”.
- The “India Plastic Challenge – Hackathon 2021” is a unique competition calling upon start-ups /entrepreneurs and students of Higher Education Institutions (HEIs) to develop innovative solutions to mitigate plastic pollution and develop alternatives to single use plastics.

## Perform Achieve and Trade (PAT) scheme

### In news

The Ministry of Power is implementing measures to save energy with an objective to reduce CO2 emission levels in the environment from industries, establishments and by using equipment/ appliances.

### PAT

- In this regard, Perform Achieve and Trade (PAT) Scheme is a key programme for large industries and establishments.
- This scheme aims to enhance the cost-effectiveness of energy savings by upgrading technologies or by taking in-house actions to minimize energy consumption.
- The scheme provides mandatory targets for the identified Large Units and the excess energy saved by them is issued as Energy Saving Certificate, which are tradable instruments.
- The different industries and establishments are assigned separate energy efficiency targets based on their levels of energy consumption and the potential for energy savings.

### Standards and Labeling (S&L) Program

- To enable market transformation of efficient products, Standards and Labeling (S&L) Program was introduced by the Bureau of Energy Efficiency (BEE).
- The objective of S&L is to provide the consumers, an informed choice about the energy savings potential and thereby the cost saving due to the products available in the market.
- The scheme includes display of energy performance labels on key energy consuming equipment & appliances, with stipulation for minimum energy performance standards.
- The scheme has now included 28 appliances till March 2021 and over 15000 models of energy efficient products have been awarded Star labels, a popular symbol among the consumers for endorsing energy savings.
- The impact of using a huge number of efficient products by the citizens have resulted into an estimated electricity savings of 56 Billion Units during 2020-21, worth over Rs. 30000 crore.
- This initiative has been effective in reducing the CO2 emissions of approx.

### Carbon dioxide and its impact

- Carbon Dioxide (CO2) is the well-known greenhouse gas on our planet Earth.

- Rapid increase in its concentration in atmosphere is major cause of global temperature rise which in turn leads to many environmental and healthcare problems.
- The '**greenhouse effect**' works in case of CO<sub>2</sub> when solar radiation hits the surface of the earth, part of the heat escapes the atmosphere while balance heat gets trapped which in turn, raises the earth's temperature. This is a phenomenon popularly known as global warming.
- This primarily results in severe impact on climate change, which has a ripple effect over all natural ecosystems, and by extension, all industries and people around the globe.

## High-Level Dialogue on Desertification

### In news

PM delivers the keynote address at the UN 'High-Level Dialogue on Desertification, Land degradation and Drought.

### Highlights

- In the last 10 years, around 3 million hectares of forest cover added in India, enhancing the combined forest cover to almost one-fourth of the country's total area.
- Restoration of 26 million hectares of degraded land aimed by 2030 to achieve an additional carbon sink of 2.5 to 3 billion tonnes of carbon dioxide equivalent.
- Centre of Excellence is being set up in India to promote a scientific approach towards land degradation issues.
- The Prime Minister gave example of the Banni region in Rann of Kutch in Gujarat to illustrate how restoration of land can start a virtuous cycle of good soil health, increased land productivity, food security and improved livelihoods.
- In Banni region, land restoration was done by developing grasslands, which helped in achieving land degradation neutrality.

### Land degradation

- Land degradation is caused by multiple forces, including extreme weather conditions, particularly drought.
- It is also caused by human activities that pollute or degrade the quality of soils and land utility.
- It negatively affects food production, livelihoods, and the production and provision of other ecosystem goods and services.
- Desertification is a form of land degradation by which fertile land becomes desert.

### Impacts of desertification

- Higher threats of malnutrition from reduced food and water supplies;
- More water- and food-borne diseases that result from poor hygiene and a lack of clean water;
- Respiratory diseases caused by atmospheric dust from wind erosion and other air pollutants;
- The spread of infectious diseases as populations migrate.

## Deep Ocean Mission

### In news

The Cabinet Committee on Economic Affairs has approved the proposal of Ministry of Earth Sciences (MoES) on "**Deep Ocean Mission**", with a view to explore deep ocean for resources and develop deep sea technologies for sustainable use of ocean resources.

## Highlights

- Deep Ocean Mission will be a mission mode project to support the Blue Economy Initiatives of the Government of India.
- Ministry of Earth Sciences (MoES) will be the nodal Ministry implementing this multi-institutional ambitious mission.
- The technologies required for deep sea mining have strategic implications and are not commercially available.
- Hence, attempts will be made to indigenise technologies by collaborating with leading institutes and private industries.
- This mission is also directed towards capacity development in Marine Biology, which will provide job opportunities in Indian industries. In addition, design, development and fabrication of specialised equipment, ships and setting up of required infrastructure are expected to spur the growth of the Indian industry, especially the MSME and Start-ups.

## About Ocean

- Oceans, which cover 70 per cent of the globe, remain a key part of our life. About 95 per cent of Deep Ocean remains unexplored.
- For India, with its three sides surrounded by the oceans and around 30 per cent of the country's population living in coastal areas, ocean is a major economic factor supporting fisheries and aquaculture, tourism, livelihoods and blue trade.
- Oceans are also storehouse of food, energy, minerals, medicines, modulator of weather and climate and underpin life on Earth.
- The Government of India's Vision of New India by 2030 enunciated in February 2019 highlighted the Blue Economy as one of the ten core dimensions of growth.

## Desertification and Land Degradation Atlas of India

### In news

Minister of State for Environment, Forest, and Climate Change called for generating awareness towards preventing and restoring land degradation for healthier and sustainable ecosystems and the latest version of "Desertification and Land Degradation Atlas of India has been released.

### Aim

It aims to generate large-scale awareness towards understanding the key role of land in all environmental and economic concerns, that the world, as well as India, is facing now-a-days.

### Highlights

- The Atlas provides state-wise area of degraded lands for the time frame 2018-19.
- It also provides the change analysis for the duration of 15 years, from 2003-05 to 2018-19.
- The salient findings of this Atlas are not only useful as a ready reference but, will also be helpful in strengthening the envisaged National Action Plan for achieving land restoration targets by providing important baseline and temporal data and technical inputs.

### India's stand on desertification

- India hosted the 14<sup>th</sup> session of the Conference of Parties (COP 14) of the United Nations Convention to Combat Desertification (UNCCD) in September 2019.

- India is striving towards achieving the national commitments of Land Degradation Neutrality (LDN) and restoration of 26 Million ha of degraded land by 2030 which focus on sustainable and optimum utilization of land resources.
- India has been at the forefront of bringing the issue of land degradation to the core of relevant international alliances for the protection and conservation of the environment.
- The government of India has adopted a collective approach for making progress towards achieving the national commitments related to land restoration.

## Summit on Green Hydrogen Initiatives

### In news

India is all set to host a two day summit on Green Hydrogen initiatives on 22nd June 2021 involving the BRICS nations.

### Details

- The prestigious event offers a platform to share their respective Green Hydrogen initiatives and views on how to take it to the next level in their own countries.
- The online event will be held via a video conference and will conclude on 23rd June.
- The event will be anchored by India's largest power producer and one of the global energy majors, NTPC Ltd , a Maharatna CPSU under Ministry of Power.
- The virtual summit will bring the best brains, policy makers and major stakeholders from the BRICS nations deliberating and discussing at length the future of Hydrogen in the energy mix.

### Summit

- **On Day 1**, the representatives from each country would be sharing respective initiatives undertaken by their countries on utilization of hydrogen and their future plans.
- The speakers will also share the relevance of different technologies developed on hydrogen and its priorities for their country.
- **Day 2** will witness panel discussions on ideas integrating hydrogen in overall energy policy framework by different countries.
- The discussions to entail financing options for the emerging green hydrogen technologies and the institutional support needed to create the requisite ecosystem for the technology to flourish.

## BRICS Green Hydrogen Summit

### In news

India hosted a two-day summit on Green Hydrogen initiatives involving the BRICS nations. The event was anchored by NTPC Ltd.

### Highlights

- As the world rapidly moves to decarbonise the entire energy system, hydrogen is poised to play a vital role and build on the rapid scale-up of renewable resources across the world.
- Hydrogen, when produced by electrolysis, using renewable energy, is known as 'green hydrogen'. It has no carbon footprint.
- This gives hydrogen the edge over other fuels to unlock various avenues of green usage.
- The summit aimed to address the challenges in terms of technology, efficiency, financial viability, and scaling up.

- Green hydrogen is of great topical interest to all the countries including BRICS as it has a great amount of potential to ensure sustainable energy supply, increase the level of energy availability and minimize the negative impact on the environment.
- Green hydrogen blending up to 10 per cent may be adopted in CGD networks to gain widespread acceptance. Further scaling up with greening of hard to abate sectors (like steel and cement) through hydrogen is to be explored.
- Many countries have brought out their strategies and defined targets and roadmaps based on their resources and strengths.

## Association of cloud bursts with forest fires

### In news

A recent study has found a connection between the formation of the tiny particles, the size of a cloud droplet on which water vapor condenses leading to the formation of clouds and forest fires.

### About the study

- The quantity of such particles called the cloud condensation nuclei (CCNs) were found to have peaks associated with forest fire events.
- Scientists from Hemvati Nandan Bahuguna (HNB) Garhwal University and IIT Kanpur jointly measured the activation of cloud condensation nuclei and studied its impact on high altitude cloud formation and complexity of local weather phenomenon under the influence of different weather condition in the ecologically sensitive regions of Central Himalayas for the first time.
- Cloud condensation nuclei (CCN), which can activate and grow into fog or cloud droplets in the presence of supersaturation (SS) was measured by a droplet measurement technology's (DMT) CCN Counter in the pristine Himalayan region at Himalayan Clouds Observatory (HCO), Swami Ram Tirtha (SRT) Campus of Hemvati Nandan Bahuguna (HNB) Garhwal University, Badshahithaul, Tehri Garhwal, Uttarakhand, India.
- This observation was carried out under a Climate Change Programme Division, Department of Science & Technology (DST) funded project in collaboration with Hemvati Nandan Bahuguna (HNB) Garhwal University and IIT Kanpur, where the variation of CCN was reported on diurnal, seasonal, and monthly scale.

### Significance

- This research will be helpful in source allocation of pollutants reaching the high-altitude regions of Garhwal Himalaya.
- Also, it will provide the better understanding for the cloud formation mechanism and weather extremities over this region.

## International Relation

### MoU b/w India and Maldives

#### In news

Cabinet approves Memorandum of Understanding between India and Maldives on cooperation in the field of sustainable urban development.



## Objective

The objectives of the MoU are to facilitate and strengthen India-Maldives technical cooperation in the field of sustainable urban development including Urban Planning, Smart Cities Development, Solid waste management, Affordable housing, Urban Green Mobility, Urban Mass Rapid Transport, smart cities development and any other related area mutually agreed by contracting parties.

## Benefits

- The MoU will promote strong, deep and long-term bilateral cooperation in the field of Sustainable Urban Development between the two countries.
- The MoU is expected to create employment in the areas of sustainable urban development including Urban Planning, Smart Cities Development, Solid waste management, Affordable housing, Urban Green Mobility, Urban Mass Rapid Transport, Smart Cities Development.

## Cooperation between India and Japan

### In news

The Union Cabinet, chaired by the Prime Minister Shri Narendra Modi has approved the signing of Memorandum of Cooperation (MoC) on Sustainable Urban Development between the Ministry of Housing & Urban Affairs, Government of India and the Ministry of Land, Infrastructure, Transport and Tourism, Government of Japan, in supersession of existing MoU of 2007 on Urban Development.

### Implementation strategy

- A Joint Working Group (JWG) will be constituted to strategize and implement programmes on cooperation under the framework of the MoC.
- The Joint Working Group will meet once in a year, alternately in Japan and in India.
- The cooperation under this MoC will commence on the date of its signature and continue for a period of 5 years.
- Thereafter, it may be renewed automatically for further successive periods of 5 years at a time.

### Major Impact

The MoC will promote strong, deep and long-term bilateral cooperation in the field of Sustainable Urban Development between the two countries.

### Benefits

The MoC is expected to create employment opportunities in the areas of sustainable urban development, including Urban Planning, Smart Cities Development, Affordable Housing, (including rental housing), Urban Flood Management, Sewerage and Waste Water Management, Urban Transport (including Intelligent Transport Management System, Transit-Oriented Development and Multimodal Integration) and Disaster Resilient development.

### Details

The objectives of the MoC are to facilitate and strengthen India-Japan technical cooperation in the field of Sustainable urban development including Urban Planning, Smart Cities Development, Affordable Housing (including rental housing), Urban Flood Management, Sewerage and Waste Water Management, Intelligent Transport Management System, Transit-Oriented Development, Multimodal Integration, Disaster Resilient development and other areas as mutually identified by both Sides. The proposed MoC will enable exchange of key learnings and best practices in the above-mentioned areas.

## MoU b/w India and Argentina

### In news

Cabinet approves Memorandum of Understanding between India and Argentine Republic on cooperation in the field of Mineral Resources. The MoU will provide an institutional mechanism for cooperation in the field of Mineral Resources.

### Objective

The objectives of the MoU are to strengthen the activities involved like cooperation for encouraging minerals exploration and development, including extraction, mining and beneficiation of lithium; possibilities of forming joint venture in the field of base metals, critical and strategic minerals for mutual benefit; exchange of technical and scientific information and interchange of ideas and knowledge; training and capacity building; and promotion of investment and development in the area of mining activities, would serve the objective of innovation.

### Why?

Currently, India is heavily dependent on import of these cells and the move to ink sourcing pacts for lithium a key source of both the raw material and cells.

## Operation Sagar Aaraksha II

### In news

Indian Coast Guard (ICG), in coordination with Sri Lankan authorities, has been tirelessly engaged in fighting a major fire onboard the Chemical laden container vessel MV X-Press Pearl anchored off Colombo since 25 May 2021.

### Issue

- The vessel when caught with fire was carrying 1486 containers containing chemical cargo classified as International Maritime Dangerous Goods (IMDG). Among other chemicals, the IMDG cargo consisted of highly inflammable Nitric Acid, Methanol, Methyl Acetate, Sodium Hydroxide and Polystyrene beads.
- The fire which initially started onboard on 20 May 2021 while at anchorage, was brought under control by the efforts of Sri Lankan authorities and salvage team.
- The sinking of the vessel with chemicals and sizable quantity of fuel has led to environmental concerns.

### India's support

- Indian Coast Guard ships, including the specialised pollution response vessel Samudra Prahari and offshore patrol vessel Vajra are maintaining in vicinity of the derelict in PR configuration along with Sri Lankan ships and standby to respond to the developing situation. Presently, no oil spill has been reported by the authorities.
- The coordinated joint operation between India and Sri Lanka undertaken to respond to potential environmental danger has been christened as Sagar Aaraksha-II.
- Indian Coast Guard is closely monitoring the situation and coordinating with Sri Lankan Navy, Coast Guard, MEPA and other authorities to address any impending environmental damage due to the sinking of the vessel close to the coast.

## 47th G7 Summit

### In news

Prime Minister Shri Narendra Modi will participate in the Outreach Sessions of the G7 Summit on 12 and 13 June in virtual format.

## Highlights

- UK currently holds the Presidency of the G7 and has invited India, along with Australia, Republic of Korea and South Africa, as Guest Countries for the G7 Summit.
- The theme for the Summit is **'Build Back Better'** and the UK has outlined four priority areas for its Presidency.
- This is the second time the Prime Minister will be participating in a G7 meeting.
- India had been invited by the G7 French Presidency in 2019 to the Biarritz Summit as a **"Goodwill Partner"** and Prime Minister participated in the Sessions on 'Climate, Biodiversity and Oceans' and 'Digital Transformation'.

## G7 Summit

- The G7 (Group of Seven) is an organisation of the world's seven largest so-called advanced economies.
- They are Canada, France, Germany, Italy, Japan, the UK and the United States.
- Russia joined in 1998, creating the G8, but was excluded in 2014 for its takeover of Crimea.
- Throughout the year ministers and officials from the member countries hold meetings, form agreements and publish joint statements on global events.
- The main topic of conversation will be Covid recovery, including "a stronger global health system that can protect us all from future pandemics".
- The agenda also includes climate change and trade.

## 8th ASEAN Defence Ministers Meeting Plus

### In news

Raksha Mantri calls for open & inclusive order in Indo-Pacific at the 8th ASEAN Defence Ministers Meeting Plus

### Aim

Key elements of the policy aim to promote economic cooperation, cultural ties and develop strategic relationships with countries in the Indo-Pacific region through continuous engagement at bilateral, regional and multilateral levels.

### About ADMM Plus

- The ADMM Plus is an annual meeting of Defence Ministers of 10 ASEAN (Association of Southeast Asian Nations) countries and eight dialogue partner countries - Australia, China, India, Japan, New Zealand, Republic of Korea, Russia and the United States.
- India has strengthened its cooperative engagements in the Indo-Pacific based on converging visions and values for promotion of peace, stability and prosperity in the region.
- Premised upon the centrality of ASEAN, India supports utilisation of ASEAN-led mechanisms as important platforms for implementation of our shared vision for the Indo-Pacific.

### Areas of concern

- The Sea lanes of Communication are critical for peace, stability, prosperity and development of the Indo-Pacific region.
- Terrorism and radicalisation as gravest threats to world peace and security.

## India and Bhutan sign MOU for Environment

### In news

India and Bhutan inked an MoU for developing cooperation between two countries in the area of the environment. The MoU was signed virtually by Minister of Environment, Forest and Climate Change Prakash Javadekar from the Indian side and Minister of Foreign Affairs and Chairperson of the National Environment Commission Lyonpo Dr. Tandi Dorji from the Bhutanese side.

### Significance of MoU

- The MoU will open new vistas of bilateral co-operation in the area of climate change, waste management etc.
- The MoU is a platform to further enhance Indian and Bhutanese partnership and support, exchange best practices in areas like prevention of Air Pollution, Waste Management, Chemical Management, Climate Change, etc.
- It also provides the possibility to have joint projects in areas of mutual interest.
- The MoU will also strengthen technological, scientific and management capabilities and expand the areas of cooperation in the field of environment to promote a mutually beneficial partnership between the two countries.

### Bhutan-India relations

- The bilateral relations between the Himalayan Kingdom of Bhutan and the Republic of India have been traditionally close and both countries share a 'special relationship', making Bhutan a protected state, but not a protectorate, of India.
- India remains influential over Bhutan's foreign policy, defense and commerce.
- Bhutan is the largest beneficiary of India's foreign aid.

## India and Fiji sign MoU

### In news

India and Fiji sign MoU for cooperation in the field of agriculture and allied sectors.

### Highlights

- The MoU will prove to be a milestone in further strengthening the multi-faceted cooperation between the two countries.
- Under the MoU, a Joint Working Group will be established to set down procedures and plan and recommend programs of cooperation towards achieving its aims.
- The Working Group will hold its meetings alternatively in India and Fiji once every two years.
- The MoU will remain valid for a period of five years from the date of its signing and any variation to its duration will be approved in writing by both Parties.

### Significance

The MoU provides for cooperation in the fields of Dairy Industry Development, Rice Industry Development, Root crop diversification, Water Resources Management, Coconut Industry Development, Food Processing Industry Development, Agriculture Mechanization, Horticulture Industry Development, Agricultural Research, Animal Husbandry, Pest and Disease, Cultivation, Value Addition and Marketing, Post-Harvest and Milling, Breeding and Agronomy.

## G20 education ministers meeting 2020

### In news

The Minister of State for Education Shri Sanjay Dhotre participated in the G20 Education Ministers' Meeting on 22<sup>nd</sup> June, 2021.

### Details

- The meeting was hosted in blended mode by Italy.
- G20 Education Ministers exchanged views on how to progress on the fight against educational poverty and inequalities, especially in context of the Covid 19 pandemic.
- The ministers also resolved to share innovative experiences implemented during the pandemic to ensure the continuity and quality of learning pathways through blended education.
- The Minister highlighted that National Education Policy 2020 provides for early vocational exposure in middle and secondary school and its smooth integration into mainstream education.

### Theme:

**Realizing Opportunities of the 21st Century For All**

### Key Agenda

- Impact of health emergency on education systems
- Future of the education system based on the experiences gained during the pandemic
- Transition from school to work

The G20 is made up of 19 countries and the European Union. The 19 countries are Argentina, Australia, Brazil, Canada, China, Germany, France, India, Indonesia, Italy, Japan, Mexico, the Russian Federation, Saudi Arabia, South Africa, South Korea, Turkey, the UK, and the US.

## Bhutan's Tax Inspectors Without Borders (TIWB) programme

### In news

Tax Inspectors Without Borders (TIWB), a joint initiative of the United Nations Development Programme (UNDP) and the Organisation for Economic Cooperation and Development (OECD), launched its program in Bhutan.

### Details

- India was chosen as the Partner Jurisdiction and has provided the Tax Expert for this program.
- This program is expected to be of about 24 months' duration through which India in collaboration with the UNDP and the TIWB Secretariat aims to aid Bhutan in strengthening its tax administration by transferring technical know-how and skills to its tax auditors and through sharing of best audit practices.
- The focus of the program will be in the area of International Taxation and Transfer Pricing.
- This programme is another milestone in the continued cooperation between India and Bhutan and India's continued and active support for South-South cooperation.

## INS TABAR VISITS ALEXANDRIA, EGYPT

### In news

INS Tabar, the Indian Navy's frontline frigate reached Alexandria on 27th June 2021.

### Ship Position

- The ship is will remain in Alexandria, Egypt for two days as a part of a goodwill visit.

- Both India and Egypt share pleasant bilateral relations with each other.
- INS Tabar participated in maritime partnership exercises at sea with the Egyptian Navy Ship Touthuka.

#### About the exercise

- The exercises included helo deck landing ops along with underway replenishment drills.
- Moreover, these exercises exemplify naval cooperation and interoperability between the Indian Navy and the Egyptian Navy.
- Indian Navy through their goodwill visit aims to strengthen strong relations between the two sides.
- Additionally, the Indian Navy also aims to explore newer avenues of bolstering the relationships.
- Indian Navy deployed INS Tabar to participate in the Russian Navy day celebration along with these joint exercises with the friendly navy of both Africa and Europe. Hence during these port visits, Tabar will transit across the Gulf of Aden, Red Sea, Suez Canal, Mediterranean Sea, and the North Sea.

## Schemes & Policies, Social Issues

### Van Dhan Yojana to be expanded

#### In news

Van Dhan Yojana to be expanded this year in the Union Territories of Dadra and Nagar Haveli and Daman and Diu.

#### Highlights

- State Level webinars were conducted to review the progress of the implementation of the Van Dhan Yojana.
- The main focus of the session was to plan the way forward regarding the progress of the implementation of the scheme.
- The webinar was focused on the clarification of any related queries from either the local government teams or the representatives of the Van Dhan Vikas Kendras or clusters.

#### The Van Dhan Yojana

- The Van Dhan Scheme is an initiative of the Ministry of Tribal Affairs and TRIFED.
- It was launched on 14th April, 2018 and seeks to improve tribal incomes through value addition of tribal products.
- The scheme will be implemented through Ministry of Tribal Affairs as Nodal Department at the Central Level and TRIFED as Nodal Agency at the National Level.
- At State level, the State Nodal Agency for MFPs and the District collectors are envisaged to play a pivot role in scheme implementation at grassroot level. Locally the Kendras are proposed to be managed by a Managing Committee (an SHG) consisting of representatives of Van Dhan SHGs in the cluster.

### Swachh Bharat Mission Grameen - Phase 2

#### In news

Swachh Bharat Mission Grameen - Phase 2, makes steady progress amidst COVID-19 Pandemic with 1249 villages declared ODF Plus

## Details

- The Minister of State for Jal Shakti, Shri Rattan Lal Kataria reviewed the progress of the Swachh Bharat Mission – Grameen (SBM-G) under the Department of Drinking water and Sanitation.
- The Mission has been making steady progress amidst the grave challenges posed by the ongoing COVID-19 Pandemic.

## Phase 2

- The phase -2 of SBM was announced by Prime Minister Shri Narendra Modi in February, 2020 i.e. just preceding the first COVID wave in India.
- The phase -1 concluded in October 2019 with grand declaration of the Nation as Open Defecation Free.
- The SBM-G Phase II will continue to generate employment and provide impetus to the rural economy through construction of household toilets and community toilets, as well as infrastructure for SLWM such as compost pits, soak pits, waste stabilisation ponds, material recovery facilities etc.
- It will help the rural India effectively handle the challenge of solid and liquid waste management and will help in substantial improvement in the health of the villagers in the country.

## Guidelines for the development of e-Content for Children with Disabilities

### In news

Government releases guidelines for the development of e-Content for Children with Disabilities.

### Details

- Guidelines aim at fulfilling goal of Inclusive Education
- A comprehensive initiative, PM e-VIDYA was launched on 17<sup>th</sup> May 2020, with an aim to unify all efforts related to digital/online/on-air education.
- The programme *interalia* envisages development of special e-content for the *Divyang* (Children with Disabilities-CwDs).
- For the first time, an attempt was made to prepare guidelines for CwD also referred to as Children with Special Needs (CWSN) children so that the goal of inclusive education is fulfilled.

### Features

- e-Content for CwDs should be developed based on the four principles namely: perceivable, operable, understandable and robust.
- e-Content including text, tables, diagrams, visuals, audios, videos etc. should comply with accessibility standards: national standards (GIGW 2.0) and international standards (WCAG 2.1, E-Pub, DAISY etc).
- Distribution platforms on which content is uploaded (e.g. DIKSHA) and Reading platforms/devices on which content is accessed and interacted (e.g. *e-pathshala*) must comply with technical standards
- Reasonable pedagogical accommodations have been recommended to meet specific needs of CwDs
- The technical standards and guidelines have been detailed out in Section 4 of the report.

## Surakshit Hum Surakshit Tum Abhiyaan

### In news

NITI Aayog & Piramal Foundation Launch Surakshit Hum Surakshit Tum Abhiyaan in 112 Aspirational Districts

### Significance

- Campaign Will Provide Covid Home-Care Support to 20 Lakh Citizens

- The Abhiyaan is being part of a special initiative, Aspirational Districts Collaborative, in which local leaders, civil societies and volunteers work with district administrations to address emerging problems across key focus areas of the Aspirational Districts Programme.
- Surakshit Hum Surakshit Tum Abhiyaan will be led by district magistrates in partnership with over 1000 local NGOs, which will enlist and train over 1 lakh volunteers to connect with patients through inbound/outbound calls.
- The campaign is expected to play a key role in district preparedness for managing nearly 70% of Covid cases at home, reducing pressure on the health system, and stemming the spread of fear amongst the people.
- The campaign will also undertake capacity building of citizens for correct usage of Oxygen concentrators that have been supplied to these districts.

### Functioning

- NGOs will mobilize local volunteers to provide home-care support to those affected, based on the guidelines of the Ministry of Health and Family Welfare.
- Volunteers will be trained to support 20 affected families each by educating caretakers to follow Covid protocols, provide psycho-social support and timely updates about patients to the administration.
- 'In line with Piramal Foundation's value of *sewa*, we aim to reach every affected person in the 112 Aspirational Districts.

## Conditional exemption to Survey of India from Unmanned Aircraft System (UAS) Rules, 2021

### In news

Ministry of Civil Aviation (MoCA) and Directorate General of Civil Aviation (DGCA) have granted conditional exemption to Survey of India (SoI) from Unmanned Aircraft System (UAS) Rules, 2021.

### Highlights

- The drone deployment permission has been granted for large scale mapping of inhabited areas of villages under the central government scheme - Survey of villages and Mapping with Improvised Technology in Village Areas (SVAMITVA).
- This exemption is valid for a period of one year from the date of approval or until further orders, whichever is earlier and shall be subject to the terms and conditions of the SOP (issued by DGCA).
- The digital spatial data/maps created under drone survey will be leveraged for the creation of the spatial analytical tools to support preparation of the Gram Panchayat Development Plan (GPDP).
- The images captured through Drones would be processed by Survey of India in its Geographic Information System lab.

### SVAMITVA scheme

- It aims to provide an integrated property validation solution for rural India.
- The demarcation of Abadi areas (the Abadi area includes inhabitant land, inhabited areas contiguous to Abadi and wadis/basties in rural areas) would be done using Drone Surveying technology, with the collaborative efforts of the Ministry of Panchayati Raj, State Panchayati Raj Department, State Revenue Department.
- This permission grant will allow Large Scale Mapping (LSM) by Survey of India using drones.
- The aerial surveillance would generate high resolution and accurate maps to confer ownership property rights.
- Based on these maps or data, property cards would be issued to the rural household owners.



## Farm Mechanization

### In news

To empower the farmers through the **Sub-Mission on Agricultural Mechanization (SMAM) scheme**, the Government of India has released funds for various activities of Farm Mechanization

### Farm Mechanization

- It includes the establishment of Custom Hiring Centres, Farm Machinery Bank, High-tech Hubs, and distribution of various agricultural machinery, etc to different states.
- Agricultural Mechanization plays a vital role in optimizing the use of land, water energy resources, manpower, and other inputs like seeds, fertilizers, pesticides, etc to maximize the productivity of the available cultivable area and make agriculture more profitable and attractive profession for rural youth.
- Agricultural Mechanization is one of the key drivers for the sustainable development of the agriculture sector.
- Sustainable Agriculture mechanization growth will require appropriate and precision agricultural machinery adequately supported by the latest technology.

### Sub-Mission on Agricultural Mechanization (SMAM)

- Ministry of Agriculture and Farmers Welfare has launched a Sub-Mission on Agricultural Mechanization (SMAM) in 2014-15 with the objectives of increasing the reach of farm mechanization to small and marginal farmers and to the regions & difficult areas where farm power availability is low.
- To boost up mechanization in the agriculture sector improved agricultural implements and machinery are essential inputs for modern agriculture that enhance the productivity of crops besides reducing human drudgery and cost of cultivation.
- Mechanization also helps in improving the utilization efficiency of other inputs therefore considered to be one of the most important segments of the agriculture sector to boost the income of farmers and growth of the agricultural economy.

### Objective

For strengthening of agricultural mechanization in the country and to bring more inclusiveness Sub-Mission on Agricultural Mechanization (SMAM) has been introduced with the main objectives of are to promote 'Custom Hiring Centres' and 'Hi-tech Hubs of High-Value Machines' to offset the adverse economies of scale arising due to small and fragmented landholding and high cost of individual ownership; Creating awareness among stakeholders through demonstration and capacity building activities and ensuring performance testing and certification of agricultural machines at designated testing centers located all over the country.

## ICMED Plus Scheme

### In news

Quality Council of India (QCI) launches Indian Certification of Medical Devices (ICMED) Plus Scheme.

### Highlights

- It will undertake verification of the quality, safety and efficacy of medical devices.
- ICMED 13485 Plus has been designed to integrate the Quality Management System components and product-related quality validation processes through witness testing of products with reference to the defined product standards and specifications.
- This is the first scheme around the world in which quality management systems along with product certification standards are integrated with regulatory requirements.

- This scheme will be an end-to-end quality assurance scheme for the medical devices sector in India.
- This scheme provides the much-needed institutional mechanism for assuring the product quality and safety.
- It will go a long way in assisting the procurement agencies to tackle the challenges relating to the menace of counterfeit products and fake certification.
- This will also help in eliminating the circulation and use of sub-standard medical products or devices of doubtful origin that could prove to be serious health hazards.

## Special Call under Biotech KISAN Programme

### In news

The Department of Biotechnology (DBT) has issued a Special Call for North East Region as a part of its Mission Programme “Biotech-Krishi Innovation Science Application Network (Biotech-KISAN).

### Aim

The aim is to understand the local problems of the NER farmers and provide scientific solutions to those problems.

### Focus

- The present call specifically focuses on the North East Region as it is predominantly agrarian with 70% of its workforce engaged in agriculture and allied sector for livelihood.
- The region produces merely 1.5 per cent of country's food grain and continues to be a net importer of food grains even for its domestic consumption.
- The NE region has untapped potential to enhance the income of the farming population by promotion of location specific crops, horticultural and plantation crops, fisheries and livestock production.

### Biotech-KISAN

- It is a scientist-farmer partnership scheme launched in 2017 for agriculture innovation with an objective to connect science laboratories with the farmers to find out innovative solutions and technologies to be applied at farm level.
- Under this scheme, so far 146 Biotech-KISAN Hubs have been established covering all 15 agroclimatic zones and 110 Aspirational Districts in the country.
- The scheme has benefitted over two lakhs farmers so far by increasing their agriculture output and income. Over 200 entrepreneurship have also been developed in rural areas.
- The Biotech-KISAN will be implemented in the North East Region with objective of linking available innovative agriculture technologies to the farm with the small and marginal farmers, specially women farmers of the region.

## Pradhan Mantri Garib Kalyan Anna Yojana

### In news

Government approves extension of Pradhan Mantri Garib Kalyan Anna Yojana (PM-GKAY), from July 2021 up to November 2021.

### Details

- Last year, Government had announced PM-GKAY for all beneficiaries covered NFSA for the period April-November, 2020.
- Around 80 Crore NFSA beneficiaries were allocated an additional 5 kg of foodgrains, free of cost for a period of 8 months.

- In 2021, PM-GKAY was announced for a period of two months (May and June) with an estimated expenditure of Rs. 26,602 Crore.
- The entire cost of this additional allocation will be borne by Govt. of India.
- Pradhan Mantri Garib Kalyan Anna Yojana (PM-GKAY) is a scheme as part of Atmanirbhar Bharat to supply free food grains to migrants and the poor.

### Benefits

During the period May - November 2021, more than 81.35 crore people will be provided 5 kg free wheat/rice per person / month along with 1 kg free whole chana to each family per month. Wheat has been allocated to 6 States/UTs, - Punjab, Haryana, Rajasthan, Chandigarh, Delhi and Gujarat and rice has been provided to the remaining States/UTs. This is over and above the regular monthly entitlements under National Food Security Act, 2013 (NFSA).

## 6th Anniversary of Smart Cities Mission, AMRUT and PMAY-U

### In news

The Ministry of Housing and Urban Affairs (MoHUA) is organising an online event on 25<sup>th</sup> June, 2021 to commemorate 6 years of the launch of three transformative Urban Missions vis. Smart Cities Mission (SCM), AMRUT and Pradhan Mantri Awas Yojana-Urban (PMAY-U).

### Details

- The three schemes were part of a visionary agenda for urban rejuvenation and were designed as part of a multi-layer strategy to meet the aspirations of 40% of India's population living in cities.
- The focus on the urban sector during the last 6 years can be gauged by the infusion of overall investments to the tune of Rs. 12 lakh crore, as compared to Rs. 1.5 lakh crore in the period between 2004-2014.
- The projects implemented under these three Missions have started to bring about a perceptible change in the lives of India's urban residents.
- The Missions have not only led to the development of urban infrastructure, whether be it better water supply, sanitation, housing for all but also have pioneered the use of data, technology and innovation in the planning and management of our cities.
- These Missions played an important role during the Covid-19 pandemic bringing succor to the lives of people faced with the vagaries of the pandemic.

### PRADHAN MANTRI AWAS YOJNA – URBAN

PMAY-U, under the aegis of 'Housing for All', addresses urban housing shortage among the EWS/LIG and MIG categories including the slum dwellers by ensuring a 'pucca' house to all eligible urban households by the year 2022, when the nation completes 75 years of its Independence. A total of 1.12 crore houses have been sanctioned under Pradhan Mantri Awas Yojana (U), of which 82.5 lakh houses have been grounded and around 48 lakh have been completed.

### AMRUT Mission

Atal Mission for Rejuvenation & Urban Transformation (AMRUT) was launched to address the issues of Water Supply, Sewerage and septage management, Storm Water Drainage to reduce flooding, Non-motorized Urban Transport, and creating green space/parks in 500 cities with more than 1 lakh population.

### SMART CITIES MISSION

- Smart Cities Mission is a transformational Mission aimed to bring about a paradigm shift in the practice of urban development in the country. Of the total proposed projects under SCM, 5,890 projects (114% by number) worth ₹ 1,78,500 crore (87% by value) have been tendered so far, work orders have been issued for

5,195 projects (101% by number) worth ₹ 1,45,600 crore (71% by value). 2,655 projects (51% by number) worth ₹ 45,000 crore (22% by value) have also been fully completed and are operational.

- Projects developed under the Smart Cities Mission are multi-sectoral and mirror the aspirations of the local population. As on date, 69 Smart cities have developed and operationalised their Integrated Command and Control Centres (ICCCs) in the country. These operational ICCCs functioned as war-rooms for COVID management, and along with other smart infrastructure developed under the mission, helped cities in fighting the pandemic through information dissemination, improving communication, predictive analysis and supporting effective management.

## Aatmanirbhar in Phosphatic Fertilisers

### In news

India to become Aatmanirbhar in Phosphatic Fertilisers

### Highlights

- An Action Plan was chalked out for making India Aatmanirbhar in fertiliser production through indigenous resources.
- Discussion and planning with Department of Mining and Geological Survey of India is going on to expedite the exploration in the potential potassic ore resources in Rajasthan's Satipura, Bharusari & Lakhasar and Uttar Pradesh, Madhya Pradesh, Rajasthan, Gujarat, Andhra Pradesh & Karnataka.
- The Action Plan included the steps to minimize the import dependency of costly raw material imported from abroad and make it accessible and affordable to farmers.
- Rock Phosphate is the key raw material for DAP and NPK fertilisers and India is 90% dependent on imports.
- Volatility in international prices affects domestic prices of fertilisers and hinders the progress and development of agriculture sector in the country.

### Phosphatic and Potassic (P&K) Policy

- Concession scheme/nutrient based subsidy policy for decontrolled Phosphatic & potassic fertilizers.
- Government of India decontrolled Phosphatic and Potassic (P&K) fertilizers with effect from 25th August 1992 on the recommendations of Joint Parliamentary Committee.
- Consequent upon the decontrol, the prices of the Phosphatic & Potassic fertilizers registered a sharp increase in the market, which exercised an adverse impact on the demand and consumption of the same.
- It led to an imbalance in the usage of the nutrients of N, P & K (Nitrogen, Phosphate and Potash) and the productivity of the soil.
- The basic purpose of the Concession Scheme and Nutrient Based Subsidy Policy has been to provide fertilizers to the farmers at the subsidized prices.
- Initially, the ad-hoc Concession Scheme was introduced for subsidy on DAP, MOP, NPK Complex fertilizers.

## Pradhan Mantri Formalisation of Micro food processing Enterprises (PMFME)

### In news

Pradhan Mantri Formalisation of Micro food processing Enterprises (PMFME) Scheme under Aatmanirbhar Bharat Abhiyan Completes One Year.

### Highlights

- Seed Capital worth Rs. 25.25 Cr. disbursed to State Rural Livelihood Mission under the scheme.
- Launched on 29th June 2020, the PMFME Scheme is currently being implemented in 35 States and Union Territories.

- The online portal for the application of the PMFME Scheme was made live on 25th January 2021.
- More than 9000 individual beneficiaries have registered on the portal, out of which more than 3500 applications have been successfully submitted under the scheme.

### Milestones achieved under the PMFME Scheme

- **One District One Product**

Under the One District One Product (ODOP) component of the PMFME Scheme, the Ministry of Food Processing Industries approved ODOP for 707 districts for 35 States and UTs, including 137 unique products as per the recommendations received by States/UTs.

- **Convergence**

Under the PMFME Scheme, the Ministry signed three joint letters with the Ministry of Rural Development, the Ministry of Tribal Affairs, and the Ministry of Housing and Urban Affairs.

- **Capacity Building and Incubation Centres**

Under the Capacity Building component of the PMFME Scheme, the National Institute of Food Technology Entrepreneurship and Management (NIFTEM) and the Indian Institute of Food Processing Technology (IIFPT) have been performing a key role in providing training and research support to selected enterprises/groups/clusters in partnership with the State Level Technical Institutions. The training of 371 Master Trainers has been conducted under the Entrepreneurship Development Programme (EDP) & various food domains.

- **Seed Capital**

The component under PMFME for providing seed capital to SHGs is being implemented with the support of the National Rural Livelihood Mission (NRLM) and its network of State Rural Livelihood Mission (SRLMs) operating at the state level. The PMFME Scheme envisages financial support of Rs. 40,000 for working capital and purchase of small tools for each member of SHGs engaged in food processing activities. To date, NRLM has recommended 43,086 SHG members to State Nodal Agencies (SNA) for an amount of Rs. 123.54 Cr. SNA has approved the seed capital of 8040 members and disbursed the amount of Rs. 25.25 Cr. to SRLM.

- **Marketing and Branding**

Under the scheme, MoUs have been signed with NAFED and TRIFED to take up the marketing and branding support for 10 products each. NAFED has selected products like Pineapple, Millet based products, Coriander, Makhana, Honey, Ragi, Bakery, Isabgol, Turmeric, and Cherry for branding and marketing support. TRIFED has selected products like Honey, Tamarind, Spices, Amla, Pulses/Grains/Millet, Custard Apple, Wild Mushroom, Cashew, Black Rice, and Wild Apple under the scheme.

- **Institutional Mechanism**

All the 35 participating States and UTs have constituted/ identified their respective State Nodal Agencies, State Level Approval Committees, District Level Committees, and State Level Technical Institutions. Moreover, a call centre has been established at NIFTEM to address queries and guide the stakeholders of the Scheme.

- **Promotion and Publicity of the PMFME Scheme**

The Ministry of Food Processing Industries in collaboration with States/UTs and Agricultural Universities is conducting nationwide promotion and publicity of the PMFME Scheme to sensitize the stakeholders via radio, print media, offline workshops, webinars, regional language brochures/booklets, outdoor publicity, and over digital media via website, apps and social media platforms. The PMFME Scheme monthly e-newsletter is being sent to more than 5 lakh stakeholders. The PMFME Podcast series has been launched to interact with Agri-business incubators, industry experts, and startups.

### About the PMFME Scheme

Launched under the Aatmanirbhar Bharat Abhiyan, the Pradhan Mantri Formalisation of Micro food processing Enterprises (PMFME) Scheme is a centrally sponsored scheme that aims to enhance the competitiveness of existing

individual micro-enterprises in the unorganized segment of the food processing industry and to promote formalization of the sector and provide support to Farmer Producer Organizations, Self Help Groups, and Producers Cooperatives along their entire value chain.

## Sankalp Se Siddhi – Mission Van Dhan

### In news

Minister for Tribal Affairs launches the tribal livelihoods initiative “Sankalp Se Siddhi – Mission Van Dhan.

### Highlights

- These initiatives were launched in hybrid mode ie physically as well as virtually.
- There are seven new Tribes India Outlets inaugurated virtually at Jagdalpur, Ranchi, Jamshedpur, and Sarnath.
- This initiative will boost the Prime Minister’s call Vocal for Local and build and Atmanirbhar Bharat, TRIFED has been coming up with several initiatives, all aimed at sustainable livelihoods for our tribal population.
- The goal of TRIFED is to connect the entire tribal community of the country with the employment-oriented program and surely we will achieve success in this program.
- Implementation of this crucial mission will definitely result in the transformation of the tribal ecosystem in our country.

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## AdiPrashikshan Portal

### In news

Tribal Affairs Minister Shri Arjun Munda launches 'AdiPrashikshan Portal' and 3 -Day Online Capacity Building Programme for ST PRI Members.

### Highlights

- Several programmes being launched for development and empowerment of tribals as part of celebration of Azadi ka Amrit Mahotsav.
- ADI PRASHIKSHAN portal developed by the Ministry would act as a Central Repository of all training programs conducted by Tribal Research Institutes (TRIs), different divisions of Ministry,
- National Society for Education of Tribal Students (NESTS), Centre of Excellences funded by Ministry of Tribal Affairs and National Tribal Research Institute.
- The unique challenges and concerns of Scheduled Tribes must be addressed to achieve the Prime Minister’s vision of **SabkaSaath, SabkaVikas, SabkaVishwas**.

### Training Program

- The three days’ online capacity building program for master trainers of ST TRIs will help in enhancing the knowledge base of ST PRI members and ensuring development of tribal community.
- The themes designed in the training program will help in improving the education, health, nutrition, social security, livelihood and skills of the tribal youth in all areas.
- The participants of training programme will be officers from ITDAs, District Level & Block Level Welfare Officers, NGOs, Tribal Youths, SHG Member and Sarpanches.

- This training programme will cover topics such as Constitutional Rights of Schedule Tribes, Financial and administrative management of GPs, flagship programmes of Central and State
- Governments schemes meant to improve education, health, nutrition, social security, livelihood and skilling of youth.

## NISHTHA Capacity Building Programme

### In news

Ministry of Tribal Affairs and NCERT come together on a joint mission for NISHTHA Capacity Building Programme for EMRS Teachers and Principals.

### Highlights

- The capacity building program is aimed to build competencies among teachers and school principals and Improving Quality of School Education through Integrated Teacher Training.
- MoTA has recently collaborated with National Council of Educational Research and Training (NCERT), which a national apex education body for several programmatic initiatives and interventions, for conducting such programs across 350 functional EMRS schools across the country.
- NISHTHA Program is part of various Capacity Building Training programs undertaken By Ministry.
- This was the first batch of 120 EMRS teachers and principals from 3 states, namely Himachal Pradesh, Madhya Pradesh and Chhattisgarh.
- The participants were capacitated on 18 holistic and comprehensive modules covering different aspects of education such as Learning Outcomes, Assessment Practices, learner-centered pedagogy, Art-Integrated Learning, Gender Equality, Covid Response of Schools, POCSO Act, Pedagogy of Science, Mathematics, Language, Social Science Subjects etc. The training was conducted in an online mode, adopting a blended approach.

## Toycathon-2021

### In news

Union Minister Smt. Smriti Zubin Irani and MoS for Education Shri Sanjay Dhotre jointly inaugurate Toycathon 2021 grand finale.

### Details

- Toycathon 2021 aims to position India at 100 billion USD global toy manufacturing market.
- Toycathon 2021 was jointly launched by the Ministry of Education, WCD Ministry, MSME Ministry, DPIIT, Textile Ministry, I&B Ministry and AICTE on 5th January 2021 to crowd-source innovative toys and games ideas.
- Around 1.2 lakh participants from across India registered and submitted more than 17000 ideas for the Toycathon 2021, out of which 1567 ideas have been shortlisted for the three days online
- Toycathon Grand Finale, being held from 22nd June to 24th June.
- India's domestic market, as well as the global toy market, offers a huge opportunity to our manufacturing sector.

### Major Focus

Toycathon 2021 majorly focuses on conceptualizing new and innovative toys using local materials which are economical, affordable, safe, and environment friendly, of exceptionally high quality for Indian as well as global market.

### The ongoing Toy Hackathon have 3 tracks

- **Track 1** for Junior Level Participants i.e., primarily SCHOOL STUDENTS. They mainly focus on designing toys for kids of age group 0-3 years and 4-10 years.
- **Track 2** for Senior Level Participants i.e., students and faculty from Higher education institutions. This group focus on developing concepts for 0-3 years, 4-10 and 11 years and above. This segment primarily focused on Electronics, Sensors, Mechatronics, and toys based on AI and ML approaches, AR-VR-XR and Robotics.
- **Track 3** for Startup-Professional Level that includes overall innovation and development of prototypes. These prototypes are expected to enable toy industry in boosting up the production along with improving the quality of toys in Indian market.

## Defence & Security

### INS Sandhayak Decommissioned

#### In news

INS Sandhayak, the Indian Navy's oldest Hydrographic Survey Vessel was decommissioned at Naval Dockyard in Visakhapatnam after serving the nation for 40 glorious years

#### Service

- During her 40 years of illustrious service in the Indian Navy, INS Sandhayak undertook over 200 major hydrographic surveys in Western and Eastern coasts of the Indian peninsula, the Andaman Sea, and surveys in neighbouring countries including Sri Lanka, Myanmar and Bangladesh.
- The ship also took part in important operations like Op *Pawan* in Sri Lanka, 1987, Op *Rainbow* for Humanitarian Assistance in the aftermath of the *Tsunami* in 2004 and the maiden Indo-US HADR Exercise *Tiger-Triumph* in 2019.

#### Hydrographic survey

- Hydrography is the science that measures and describes the physical features of the navigable portion of the Earth's surface and adjoining coastal areas. Hydrographic surveyors study these bodies of water to see what the "floor" looks like.
- By mapping out water depth, the shape of the seafloor and coastline, the location of possible obstructions and physical features of water bodies, hydrography helps to keep our maritime transportation system moving safely and efficiently.
- Multibeam echo sounder beams sweep the seafloor as the ship passes over the survey area.
- Multibeam echo sounder beams bounce off the seafloor and return to the ship where the depth is recorded.

### Advanced Light Helicopters Inducted

#### In news

The induction ceremony of '322 Dega Flight' was held, three indigenously built Advanced Light Helicopters (ALH) MK III helicopters flying into Naval Air Station, INS Dega



## Highlights

- The induction of these Maritime Reconnaissance and Coastal Security (MRCS) helicopters, the ENC got a major boost towards enhancing the capabilities of the force, in pursuit of the maritime interests of the nation.
- These helicopters, built by Hindustan Aeronautics Ltd, are state-of-the-art flying machines and constitute a major step in our quest for “Atma Nirbhar Bharat”.
- ALH MK III helicopters feature an array of systems previously seen only on heavier, multi-role helicopters of the Indian Navy.
- These helicopters are fitted with modern surveillance radar and electro-optical equipment, which enable them to undertake the role of maritime reconnaissance in addition to providing long-range Search and Rescue, both by day and night.
- In addition to special operations capabilities, ALH MK III is also fitted with a heavy machine gun to undertake constabulary missions.
- A removable Medical Intensive Care Unit (MICU) is also fitted on ALH MK III helicopters to airlift critically ill patients. The helicopter also has a host of advanced avionics, making it truly an all-weather aircraft.

## INDO-THAI COORDINATED PATROL

### In news

The 31<sup>st</sup> edition of India-Thailand Coordinated Patrol (Indo-Thai CORPAT) between the Indian Navy and the Royal Thai Navy is being conducted from 09 – 11 June 2021.

### Highlights

- Indian Naval Ship (INS) *Saryu*, an indigenously built Naval Offshore Patrol Vessel and His Majesty’s Thailand Ship (HTMS) *Krabi*, an Offshore Patrol Vessel, along with Dornier Maritime Patrol
- Aircraft from both navies are participating in the CORPAT.
- Towards reinforcing maritime links between the two countries and with an aim of keeping this vital part of the Indian Ocean safe and secure for international trade, the two navies have been undertaking CORPAT bi-annually along their International Maritime Boundary Line (IMBL) since 2005.

### Significance

- CORPAT builds up understanding and interoperability between navies and facilitates institution of measures to prevent and suppress unlawful activities like Illegal Unreported Unregulated (IUU) fishing, drug trafficking, maritime terrorism, armed robbery and piracy.
- It helps enhance the operational synergy by exchange of information for prevention of smuggling, illegal immigration and for conduct of SAR operations at sea.
- The 31<sup>st</sup> Indo-Thai CORPAT will contribute towards Indian Navy’s efforts to consolidate inter-operability and forge strong bonds of friendship with Royal Thai Navy.

## ALH Mk-III inducted

### In news

In line with Atmanirbhar Bharat vision of Prime Minister Shri Narendra Modi, Defence Secretary Dr Ajay Kumar inducted Advanced Light Helicopters (ALH) Mk-III in Indian Coast Guard (ICG)

### Highlights

- The state-of-the-art helicopters are indigenously designed and manufactured by Hindustan Aeronautics Limited (HAL), Bengaluru.

- The ALH Mk-III marine version has been designed and developed with the in-house customization of 19 additional pieces of equipment by HAL to meet ICG requirements.
- The HAL will supply 16 ALH Mk-III to the ICG by mid-next year.
- The helicopters are capable of undertaking embarked operations from ships which will enhance Coast Guard capabilities towards sea-air coordinated search, interdiction capabilities, coastal security, search and rescue operations, medical evacuation, humanitarian missions, pollution response missions, etc.
- On induction, the 16 ALH Mk-III will be positioned at four Coast Guard squadrons at Bhubaneswar, Porbandar, Kochi and Chennai.
- The shared maritime boundaries with littoral states are highly susceptible to illegal activities and the regions are prone to frequent cyclones.
- These squadrons with embarked operations will ensure seamless surveillance and provide assistance to fishermen in distress at sea.

## Policy on archiving, declassification & compilation of war/operations histories

### In news

Raksha Mantri Shri Rajnath Singh has approved the policy on archiving, declassification and compilation/publication of war/operations histories by the Ministry of Defence.

### Policy Highlights

- The policy envisages that each organisation under the Ministry of Defence such as Services, Integrated Defence Staff, Assam Rifles and Indian Coast Guard, will transfer the records, including war diaries, letters of proceedings & operational record books, etc., to the History Division of Ministry of Defence (MoD) for proper upkeep, archival and writing the histories.
- The responsibility for declassification of records rests with the respective organisations as specified in the Public Record Act 1993 and Public Record Rules 1997, as amended from time to time.
- According to the policy, records should ordinarily be declassified in 25 years.
- Records older than 25 years should be appraised by archival experts and transferred to the National Archives of India once the war/operations histories have been compiled.

### Significance

Timely publication of war histories would give people accurate accounts of the events, provide authentic material for academic research and counter the unfounded rumors.

## EUNAVFOR Exercise in Gulf Of Aden

### In news

Indian Naval Ship Trikanth, mission deployed for Anti-Piracy Operations, is participating in the maiden *IN* – EUNAVFOR Joint Naval Exercise in the Gulf of Aden

### Participants

- A total of five warships from four navies are participating in the exercise on 18<sup>th</sup> and 19<sup>th</sup> June 2021.
- Other warships include Italian Navy Ship ITS Carabiniere, Spanish Navy Ship ESPS Navarra, and two French Navy Ship FS Tonnerre and FS Surcouf.
- Concurrently, a virtual **“Information sharing Exercise”** is also being conducted between the Indian Navy Information Fusion Centre – Indian Ocean Region and Maritime Security Centre-Horn of Africa on 18 June 21.

## Significance

- The two-day exercise will see high tempo-naval operations at sea, including advanced air defence and anti-submarine exercises, cross deck helicopter operations, tactical manoeuvres, boarding operations, underway replenishment, Search & Rescue, Man Overboard drills, and other maritime security operations.
- Ships of the four navies will endeavour to enhance and hone their war-fighting skills and their ability as an integrated force to promote, peace, security and stability in the maritime domain.
- EUNAVFOR and the Indian Navy converge on multiple issues including counter piracy operations and protection of vessels deployed under the charter of World Food Programme (UN WFP).
- Indian Navy and EUNAVFOR also have regular interaction through SHADE (Shared Awareness and De-confliction) meetings held annually at Bahrain.
- This engagement showcases increased levels of synergy, coordination and inter-operability between *IN* and EUNAVFOR.
- It also underscores the shared values as partner navies, in ensuring freedom of seas and commitment to an open, inclusive and a rules-based international order.

## EU-INDIA JOINT NAVAL EXERCISE

### In news

On 18-19 June 2021, the EU and India conducted a joint naval exercise in the Gulf of Aden.

### Details

- The exercise involved Indian Navy frigate INS Trikand, EU NAVFOR Somalia - Operation Atalanta assets, including Italian frigate Carabiniere (Atalanta's flagship) and Spanish frigate Navarra, French frigate Surcouf and French amphibious assault helicopter carrier Tonnerre.
- The exercise was based on the scenario of an anti-piracy operation.
- It included cross-deck helicopter landings, complex tactical evolutions at sea, live firing, a night-time joint patrol and a naval parade in the high seas off the coast of Somalia.

### EU & India

- The EU and India are committed to a free, open, inclusive and rules-based order in the Indo-Pacific region, underpinned by respect for territorial integrity and sovereignty, democracy, rule of law, transparency, freedom of navigation and overflight, unimpeded lawful commerce, and peaceful resolution of disputes.
- They reaffirm the primacy of international law, including the United Nations Convention on Law of the Sea (UNCLOS).
- The EU and India intend to strengthen their operational cooperation at sea, including joint naval exercises and port calls, and to protect the sea-lanes of communication.
- They also intend to boost maritime domain awareness in the Indo-Pacific through mutual coordination and exchanges.
- The EU and India reaffirm their interest to enhance their cooperation in the field of maritime security in the Indo-Pacific region.

### Previous Exercises

- In January 2021, the EU and India launched a dialogue on maritime security and agreed to deepen their dialogue and cooperation in this domain.
- The Indian Navy has been providing escort to World Food Programme chartered vessels, coordinated by EU NAVFOR Somalia - Operation Atalanta.

- The Indian Navy has previously participated in the Shared Awareness and Deconfliction (SHADE) conference, co-hosted by Operation Atalanta, whose assets conducted several joint exercises with Indian vessels in the past.

## Project Seabird

### In news

Raksha Mantri Shri Rajnath Singh visited the Karwar Naval Base in Karnataka to review the progress of ongoing infrastructure development under 'Project Seabird'.

### Details

- It will be Asia's largest Naval Base and further strengthen the operational readiness of the Armed Forces.
- The Navy is successfully discharging its duties of protecting the country, which through its coastline of more than 7,500 kms, about 1,300 islands and an exclusive economic zone of 2.5 million sq kms, is playing a crucial role in the development of the world.
- The Navy is continuously strengthening India's relations with its maritime neighbours with focus on 'SAGAR' (Security & Growth for All in Region) envisioned by Prime Minister Shri Narendra Modi.
- 48 ships and submarines, 46 are being inducted through indigenous construction.

## Enhanced Pinaka Rocket

### In news

DRDO successfully test fired extended range version of indigenously developed Pinaka rocket from a Multi-Barrel Rocket Launcher (MBRL) on 24<sup>th</sup> and 25<sup>th</sup> June 2021 at Integrated Test Range (ITR), Chandipur off the coast of Odisha.

### Highlights

- Twenty-five Enhanced Pinaka Rockets were launched in quick succession against targets at different ranges.
- All the mission objectives were met during the launches.
- The enhanced range version of Pinaka Rocket System can destroy targets at distances up to 45 kms.
- All the flight articles were tracked by Range instruments including Telemetry, Radar and Electro Optical Tracking System deployed by ITR & Proof and Experimental Establishment (PXE).
- The rocket system has been developed jointly by Pune based Armament Research and Development Establishment (ARDE) and High Energy Materials Research Laboratory (HEMRL) with manufacturing support from M/s Economic Explosives Limited, Nagpur.
- The development of Enhanced Pinaka system was taken up to achieve longer range performance.

## INS TABAR

### In news

Indian Naval Ship Tabar commenced her prolonged deployment on 13 June and will visit a number of ports in Africa and Europe till the end of September.

### Highlights

- During port visits, Tabar will conduct professional, social and sporting interactions.
- The ship will also participate in a number of joint exercises with friendly navies.

- During the deployment, INS Tabar will transit across the Gulf of Aden, Red Sea, Suez Canal, Mediterranean Sea, North Sea and Baltic Sea while making port calls at Djibouti, Egypt, Italy, France, UK, Russia, Netherlands, Morocco, and Arctic Council countries like Sweden and Norway.
- In addition to PASSEX with host navies of countries being visited, the ship is also scheduled to participate in bilateral exercises like Ex Konkan with Royal Navy, Ex Varuna with French Navy and Ex Indra with Russian Federation Navy.
- The ship will operate in conjunction with the friendly navies, so as to build military relations, develop interoperability and project long range sustenance.

### Aim

- These engagements are aimed to further strengthen maritime security in the region and to consolidate combined operations against maritime threats.
- These interactions will also offer an opportunity to navies to observe and imbibe the 'Best Practices' followed in each other's Navy.

## Agni P Ballistic Missile

### In news

Defence Research and Development Organisation (DRDO) successfully flight tested a New Generation Nuclear Capable Ballistic Missile Agni P from Dr APJ Abdul Kalam island off the coast of Odisha, Balasore at 1055 hrs on June 28, 2021.

### Highlights

- Various telemetry and radar stations positioned along the eastern coast tracked and monitored the missile.
- The missile followed text book trajectory, meeting all mission objectives with high level of accuracy.
- Agni P is a new generation advanced variant of Agni class of missiles.
- It is a canisterised missile with range capability between 1,000 and 2,000 kms

## MOU BETWEEN INDIAN NAVY AND M/s BEL

### In news

A Memorandum of Understanding (MoU) was signed between the Indian Navy and M/s Bharat Electronics Limited, Bangalore for the creation of a joint Technology Incubation Forum (TIF).

### Highlights

- The Technology Incubation Forum reflects the joint vision of Indian Navy and Bharat Electronics Limited towards innovative and creative thinking and fostering the development of Emerging Technologies.
- The broad charter of the TIF includes technology development in the domain of Weapons & Sensors, Information Technology, and Emerging Technologies such as Artificial Intelligence & Machine Learning, Quantum Computing, Autonomous Platforms/ Robotics, Image Processing and Cognitive Radio.
- The TIF will spearhead mission mode development of deployable products under the Government's '**Atmanirbhar Bharat**' initiative with the involvement of Industry, Academia and Start-Ups.

# Miscellaneous

## SDG India Index

### In news

The third edition of the SDG India Index and Dashboard 2020–21 was released by NITI Aayog.

### Highlights

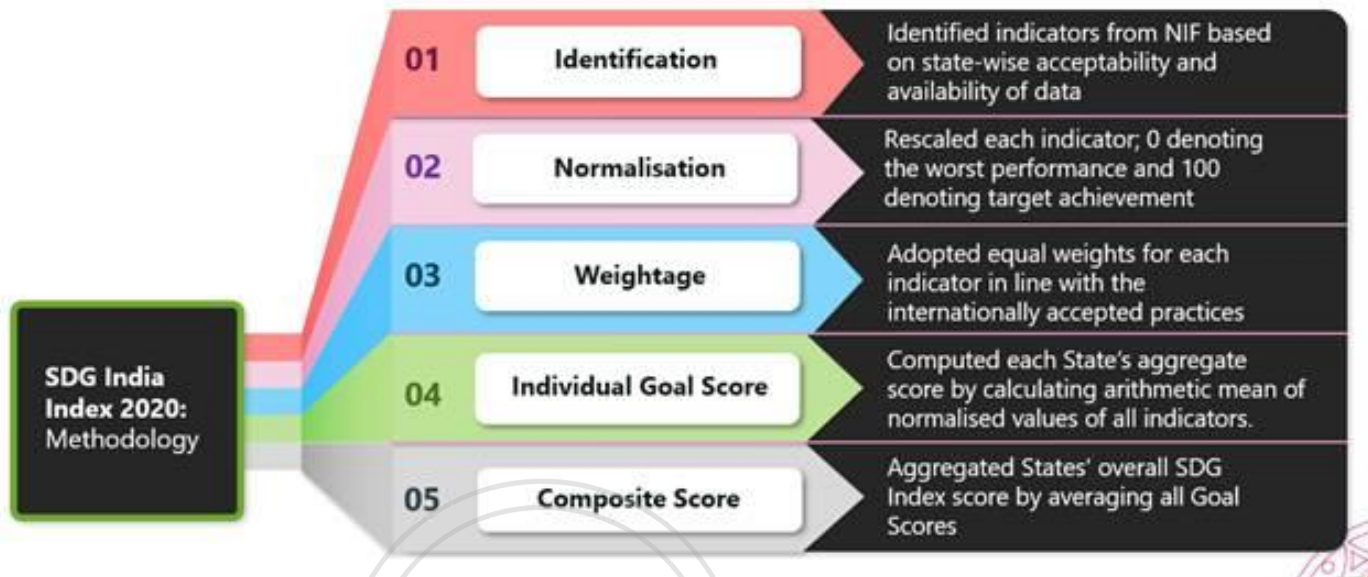
- Since its inaugural launch in 2018, the index has been comprehensively documenting and ranking the progress made by States and Union Territories towards achieving the Sustainable Development Goals.
- With one-third of the journey towards achieving the 2030 Agenda behind us, this edition of the index report focuses on the significance of partnerships as its theme.
- From covering 13 Goals with 62 indicators in its first edition in 2018, the third edition covers 16 Goals on 115 quantitative indicators, with a qualitative assessment on Goal 17, reflecting continuous efforts towards refining this important tool.

### SDG India Index and Dashboard 2020–21

- The SDG India Index 2020–21, developed in collaboration with the United Nations in India, tracks progress of all States and UTs on 115 indicators that are aligned to MoSPI's National Indicator Framework (NIF).
- The SDG India Index 2020–21 is more robust than the previous editions on account of wider coverage of targets and indicators with greater alignment with the NIF.
- The SDG India Index computes goal-wise scores on the 16 SDGs for each State and Union Territory.
- Overall State and UT scores are generated from goal-wise scores to measure aggregate performance of the sub-national unit based on its performance across the 16 SDGs.
- These scores range between 0–100, and if a State/UT achieves a score of 100, it signifies it has achieved the 2030 targets.
- The higher the score of a State/UT, the greater the distance to target achieved.

## Methodology

Based on globally accepted SDSN methodology



## Performance Grading Index

### In news

Union Education Minister approves the release of Performance Grading Index (PGI) 2019-20 for States and Union Territories.

### Highlights

- The Government has introduced the Performance Grading Index with a set of 70 parameters to catalyse transformational change in the field of school education.
- The PGI for States and Union Territories was first published in 2019 with reference year 2017-18. The PGI : States/UTs for 2019-20 is the third publication in this series.
- The PGI exercise envisages that the index would propel States and UTs towards undertaking multi-pronged interventions that will bring about the much-desired optimal education outcomes.
- The PGI helps the States/UTs to pinpoint the gaps and accordingly prioritise areas for intervention to ensure that the school education system is robust at every level.

### Report

- Punjab, Chandigarh, Tamil Nadu, Andaman & Nicobar Islands and Kerala occupy the highest grade (Grade A++) for 2019-20.
- Most of the States/UTs have improved their grade in PGI 2019-20 compared to the earlier years.
- Andaman & Nicobar Islands, Arunachal Pradesh, Manipur, Puducherry, Punjab and Tamil Nadu have improved overall PGI score by 10%, i.e., 100 or more points.
- Andaman & Nicobar Islands, Lakshadweep and Punjab have shown improvement by 10% (8 points) or more in the PGI domain: Access.
- As many as thirteen States and UTs have shown improvement by 10% (15 points) or more in the PGI domain: Infrastructure and Facilities. Andaman & Nicobar Islands and Odisha have shown improvement by 20% or more.

- Arunachal Pradesh, Manipur and Odisha have shown more than 10% improvement in the PGI domain: Equity.

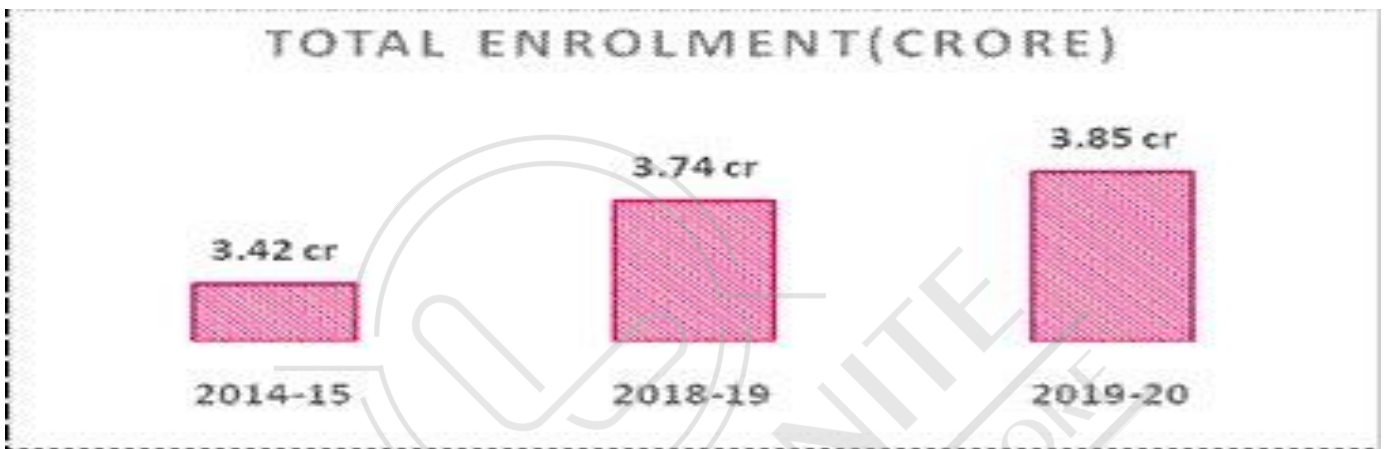
## Report of All India Survey on Higher Education (AISHE) 2019-20

### In news

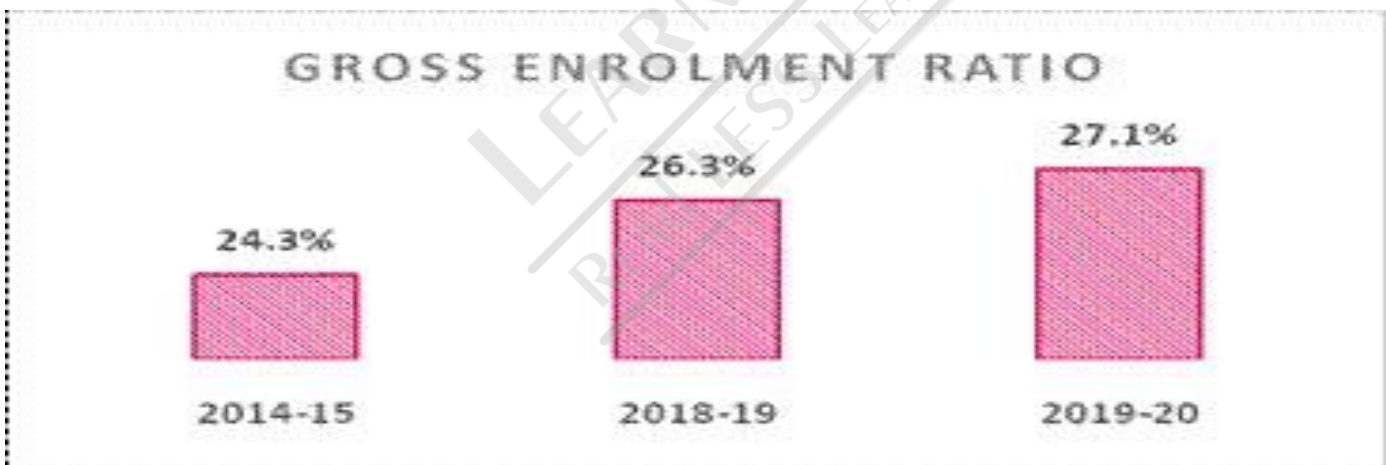
Union Education Minister announces the release of Report of All India Survey on Higher Education (AISHE) 2019-20, the report reflects the continuous emphasis given by the government on Higher Education.

### Report Highlights

**Total Enrolment** in Higher Education stands at 3.85 crore in 2019-20 as compared to 3.74 crores in 2018-19, registering a growth of **11.36 lakh** (3.04 %). Total enrolment was 3.42 crore in 2014-15.



**Gross Enrolment Ratio (GER)**, the percentage of students belonging to the eligible age group enrolled in Higher Education, in 2019-20 is 27.1% against 26.3% in 2018-19 and 24.3% in 2014-15.

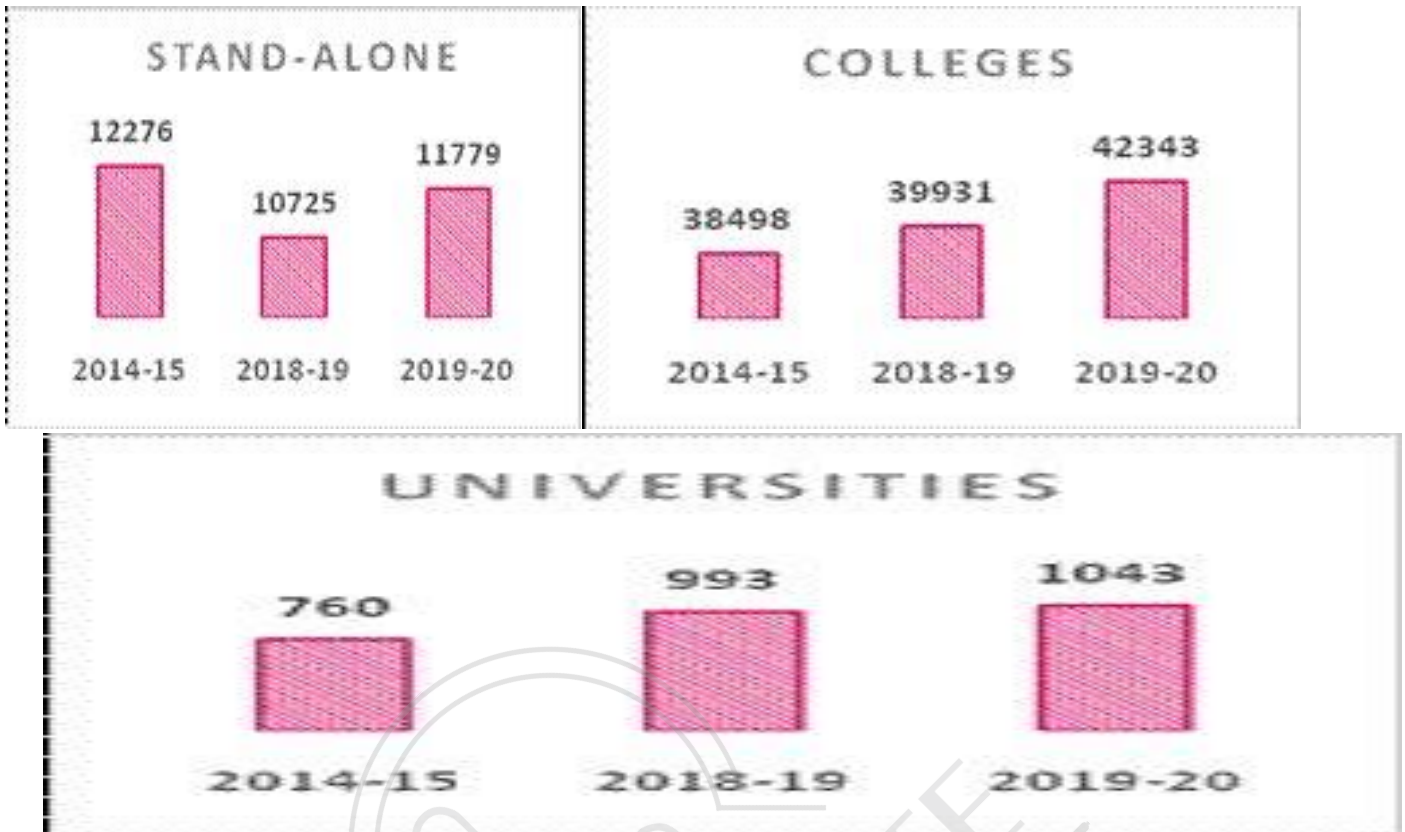


**Gender Parity Index (GPI)** in Higher Education in 2019-20 is 1.01 against 1.00 in 2018-19 indicating an improvement in the relative access to higher education for females of eligible age group compared to males.

**Pupil Teacher Ratio** in Higher Education in 2019-20 is 26.

In 2019-20: Universities: 1,043(2%); Colleges: 42,343(77%) and stand-alone institutions: 11,779(21%).





3.38 crore Students enrolled in programmes at **under-graduate and post-graduate level**. Out of these, nearly 85% of the students (2.85 crore) were enrolled in the six major disciplines such as **Humanities, Science, Commerce, Engineering & Technology, Medical Science and IT & Computer**.

The number of students pursuing PhD in 2019-20 is 2.03 lakh against 1.17 lakh in 2014-15.

The **Total Number of Teachers** stands at 15,03,156 comprising of 57.5% male and 42.5% female.

## Project reports of LIDAR survey

### In news

Detailed Project reports of LIDAR survey of forest areas in ten states namely Assam, Bihar, Chhatisgarh, Goa, Jharkhand, Madhya Pradesh, Maharashtra, Manipur, Nagaland, and Tripura for water and fodder augmentation released.

### Details

- All state governments should work in right earnest to make this project successful and showcase the effect of the use of technology.
- It is first of its kind and a unique experiment using LiDAR technology which will help augment water and fodder in jungles areas thereby reducing human-animal conflict, help in groundwater recharge, help local communities, and also asked state forest departments to use CAMPA funds towards implementation of these projects in right earnest and in accordance with the 'Ridge to Valley' approach of watershed management.
- WAPCOS has prepared these DPR's using LiDAR technology in which the 3-D(three dimensional) DEM (Digital Elevation Model), imagery and layers of the project areas are used for recommending different types of Soil & Water conservation structures such as Anicut, Gabion, Gully Plug, Mini percolation tank, Percolation Tank, Field bund, Sunken pond, Farm pond etc.

- These structures will help in catching the rain water and prevent stream run off, which will help in recharging of Ground water.

### Significance

Projects will help augment water and fodder in forest areas and enrich efficiency of regeneration of forests.

## Report on Not-for-Profit Hospital Model in India

### In news

NITI Aayog released a comprehensive study on the not-for-profit hospital model in the country, in a step towards closing the information gap on such institutions and facilitating robust policymaking in this area.

### Report Highlights

- The study provides insights into the operation model of not-for-profit hospitals.
- It presents research-based findings on such hospitals—categorized under ownership and premise of service—and makes subsequent comparisons with private hospitals and health schemes of the Union government.
- NITI Aayog has been extensively studying the private-sector healthcare-delivery landscape in the country.
- The not-for-profit hospital sector provides not only curative but also preventive healthcare.
- It links healthcare with social reform, community engagement, and education.
- It uses government resources and grants to provide cost-effective healthcare to people without being concerned about profits.
- However, over the years, this sector has remained understudied.
- The study discusses in detail the cost-containment strategies implemented by not-for-profit hospitals.
- It seeks to understand the challenges that burden the operations of these institutions and hinder their growth.

### Way Forward

- The report proposes short- and long-term policy interventions—such as developing criteria to identify these hospitals, ranking them through a performance index, and promoting top hospitals for practising philanthropy, among others.
- It also highlights the need to use the expertise of these hospitals in managing human resources with limited finance in remote areas.