



SUMMARY AND RELEVANT TERMS
EXPLAINED FROM PIB AND AIR

DATED: 02.06.2020 TO 30.06.2020





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Public Information Bureau (PIB-- News From 02nd June to 04th June 2020)

1. Telephone conversation between PM and President of USA

- President Trump spoke about the US Presidency of the **Group of Seven (G7)** and **conveyed his desire to expand the ambit** of the grouping beyond the existing membership, to include other important countries including India.
- In this context, he extended an **invitation to Prime Minister Modi to attend the next G-7 Summit to be held in USA.**

G7 (Group of Seven)

- ❖ The G7 (or Group of Seven) is an organisation **made up of the world's seven largest so-called advanced economies: Canada, France, Germany, Italy, Japan, the United Kingdom and the United States.**
- ❖ **The initial group of six first met in 1975** "to exchange ideas on possible solutions" to a global economic crisis. Canada joined the following year.
- ❖ **Each member nation takes over the G7 presidency for a year on a rolling basis** and hosts the annual centrepiece two-day summit meeting.
- ❖ **Russia joined the group**, which then became known as the G8, in 1998 **but was suspended** in 2014 after its annexed Crimea from Ukraine.
- ❖ **There are no G7 members from Africa, Latin America or the southern hemisphere.**
- ❖ **It faces a challenge from fast-growing emerging economies**, like India and Brazil who, though represented in the G20 group of economies, are not members of the G7.

Decrypting the move of Trump

- ❖ Earlier this month, President Trump had announced that he was keen to expand the G7 and **include Russia, Australia and South Korea apart from India.**
- ❖ **US' plan is also "aimed at the US Indo-Pacific strategy**, since the additional countries being suggested include South Korea and Australia, both allies of the US".
- ❖ **The idea of G7 expansion carries geopolitical calculations** with an obvious attempt to contain China.

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- ❖ ***The US is keen on roping India in not only because*** the latter has become the fifth-largest economy in the world, but also because India is considered an important pillar for the US' Indo-Pacific Strategy. The US has long sought to strengthen India's role as a counterbalance to China in the Indo-Pacific region.
- ❖ India decided to upgrade its engagement with the ***Quadrilateral Strategic Dialogue, or "the Quad,"*** between India, Australia, Japan and the US, at the ministerial level in September 2019.
- ❖ Amid the backdrop of the COVID-19 pandemic, senior officials from Quad countries and three additional states - New Zealand, South Korea and Vietnam - teleconferenced in March. ***India played an active role in pushing this meeting.*** Although they claimed to be mainly aimed at dealing with COVID-19 issues, the efforts to institutionalize the Quad and the intention to expand it to Wellington, Seoul and Hanoi cannot be underestimated.
- ❖ India's and China observers and analysts understand well that Trump's G7 expansion plan is a ***geopolitical calculation against China.***
- ❖ ***An article in the Firstpost says,*** "It's a geopolitical move and a tactical manoeuvre. An alliance of powerful democracies is also an ideological challenge to China." But they support India to take the opportunity to play hardball with China. This has demonstrated India's strategic mentality toward China. Their judgment on the development of global strategic situations is very different from that of China. They believe Western countries still have an advantage. And that if they choose to stand with the US, they will benefit.
- ❖ ***However, if India hastily joins a small circle*** that perceives China as an imaginary enemy, China-India relations will deteriorate. This is not in India's interests. The current bilateral relations have already been on a downward trend. The China-India relationship is now in a state that only top leaders can determine courses of progress.
- ❖ ***According to experts, Russia*** is definitely and clearly aware that the international balance of power has been undergoing significant change. Western countries' capability of dominating international politics has been waning. The G7 is not capable of governing global affairs. Against this background, Russia's return to the group becomes meaningless. The West once firmly dominated global politics. Yet the rise of emerging powers has broken Western countries' dominance, and the coronavirus pandemic is accelerating the transfer of international political power. In this context, Russia believes the bloc can no longer meet the requirements of the times, nor can it lead the direction of international politics as it did in the immediate aftermath of the Cold War. Russia clearly recognizes that without the participation of China, the world's second-largest economy, any multilateral organization lacks the capability of global governance.

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- ❖ **Russia is well aware of the US' intentions and pointed out that the G7 lacks representation** without China. For Russia, adopting a China-friendly approach suits its interests more. Andrey Kortunov, director general of the Russian International Affairs Council, once said Russia would side with China because the US cannot provide anything more valuable than the China-Russia strategic partnership.



SOURCE: BBC, The Print, Global Times

2. Shri Piyush Goyal asks NPC to leverage its strengths for expansion of its Advisory & Capacity Building services;

- Union Commerce and Industry Minister Sh. Piyush Goyal took an online review meeting of **National Productivity Council (NPC)**, an autonomous organization of DPIIT.
- **National Productivity Council, an organization set up in 1958**, has been rendering expert services in the areas of Consultancy and Capacity Building in the domains of Energy, Environment, Business process and Productivity improvement.

National Productivity Council (NPC)

- ❖ National Productivity Council of India (NPC), established in the year 1958, is an autonomous organization under Department for Promotion of Industry & Internal Trade, Ministry of Commerce and Industry, Government of India.

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- ❖ Besides undertaking research in the area of productivity, NPC has been ***providing consultancy and training services in areas of*** Industrial Engineering, Agri-Business, Economic Services, Quality Management, Human Resources Management, Information Technology, Technology Management, Energy Management, Environmental Management etc., ***to the Government and Public & Private sector organizations.***
- ❖ ***NPC is a constituent of the Tokyo-based Asian Productivity Organisation (APO)***, an Inter-Governmental Body of which the Government of India is a founding member.

SOURCE: NPC Website

3. Raksha Mantri speaks with French Minister of Armed Forces

- Raksha Mantri welcomed French Chairmanship of ***Indian Ocean Naval Symposium (IONS)*** from 2020 to 2022.
- The two Ministers agreed to work together to fulfil the India-France Joint Strategic Vision on the Indian Ocean Region of 2018.

Indian Ocean Naval Symposium (IONS)

- ❖ ***The Indian Ocean Naval Symposium is a voluntary initiative*** that seeks to increase maritime co-operation among navies of the littoral states of the Indian Ocean Region by providing an open and inclusive forum for discussion of regionally relevant maritime issues.
- ❖ ***The inaugural IONS Seminar was held by the Indian Navy in 2008.*** Subsequent seminars and meetings of the 'Conclave of Chiefs' have been held at the commencement of each two-year IONS Chairmanship: United Arab Emirates in 2010, South Africa in 2012, Australia in 2014, Bangladesh in 2016 and Iran in 2018. In 2020 the IONS Chairmanship rotates to France and in 2022 to Thailand.
- ❖ ***IONS include 24 nations*** that permanently hold territory that abuts or lies within the Indian Ocean, and ***8 observer nations***
- ❖ ***Member:***
 - ***South Asian Littorals:*** Bangladesh, India, Maldives, Pakistan, Seychelles, Sri Lanka and United Kingdom (British Indian Ocean Territory)
 - ***West Asian Littorals:*** Iran, Oman, Saudi Arabia and United Arab Emirates

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- **East African Littorals:** France (Reunion), Kenya, Mauritius, Mozambique, South Africa, and Tanzania.
- **South East Asian and Australian Littorals:** Australia, Indonesia, Malaysia, Myanmar, Singapore, Thailand and Timor-Leste.

❖ **Observer:**

- China, Germany, Italy, Japan, Madagascar, the Netherlands, Russia and Spain.

What IONS means to India?

- ❖ **IONS fits into India's three-fold ambitions in the region:** strengthening and deepening the relations with the Indian Ocean littoral states; establishing its leadership potential and aspirations of being a net-security provider; and fulfilling India's vision of a rules-based and stable maritime order in the IOR.
- ❖ **IONS provides India with a platform that can be used** to reach out to a range of IOR states and at the same time strengthen and deepen its existing partnerships in the region.
- ❖ As India seeks to **consolidate its sphere of influence from the Straits of Malacca to Hormuz**, a platform like IONS would ensure that India has the scope to cooperate with the littoral states on issues of maritime security and awareness in the region.
- ❖ Being a technical forum with a broad membership, **unlike the politically driven Quad**, India can use IONS to unite the regional states on shared principles and strategies without antagonising any state at the cost of block politics.
- ❖ **Indian Ocean is the natural theatre for the Indian Navy**, and it should, by the virtue of its history and geographic centrality, enjoy a primacy. Time and again, India has claimed to seat itself as the first responder for the regional states in times of crisis assuming strategic responsibilities.
- ❖ While India's security **apprehensions partly arise due to a growing Chinese footprint** in the region, it also encapsulates protection of its vital sea lines of communication from maritime terrorism and piracy.
- ❖ **With IONS' broad membership, India can ensure that no one power dominates in the region endangering the balance of power in IOR.**
- ❖ **IONS can be India's platform to showcase that India** can be an effective and benign power in the region with diplomatic potential and might along with bringing a structural change that has the possibility of ensuring stability for **the Asian balance of power.**

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SOURCE: Indian Navy Website, India Today and The Diplomat

4. India as a major country of the world contributing significantly to the global economy

- India now has become the 2nd largest mobile phone producer in the world.
- With a view to building a robust manufacturing ecosystem which will be an asset to the global economy government is looking forward to develop a strong ecosystem across the value chain and integrating it with **global value chains**.
- ***This is the essence of these three Schemes namely, the*** (i) Production Linked Incentive Scheme (PLI) for Large Scale Electronics Manufacturing, (ii) Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS) and (iii) Modified Electronics Manufacturing Clusters (EMC 2.0) Scheme.

Global value chains

- ❖ ***The value chain describes the full range of activities*** that firms and workers do to bring a product/good or service from its conception to its end use and beyond. This includes activities such as design, production, marketing, distribution and support to the final consumer.
- ❖ ***A supply chain*** emphasizes the manufacturing and distribution-related steps, ***whereas a value chain*** also includes the importance of other activities such as design and branding that add value to a product, but do not necessarily reflect a physical transformation.
- ❖ ***A value chain can be contained within a single geographic location*** or even a single firm (think about a fruit that is grown, packaged, sold and consumed within one country).
- ❖ ***A global value chain is divided among multiple firms and geographic spaces***. For example, a computer uses labor and materials from multiple suppliers in different countries, is assembled in another country, and was designed and will ultimately be sold in other places. The GVC Initiative is particularly interested in understanding value chains that are divided among multiple firms and spread across several locations, hence the term "global value chain."

Why GVCs Matter?

- ❖ ***Global value chains have become a dominant feature of world trade***, encompassing developing, emerging, and developed economies. The whole process of producing goods, from raw materials to finished products, is increasingly carried out wherever the necessary

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skills and materials are available at competitive cost and quality. Similarly, trade in services is essential for the efficient functioning of GVCs, not only because services link activities across countries but also because they help companies to increase the value of their products. This fragmentation highlights the importance of an ambitious complementary policy agenda to leverage engagement in GVCs into more inclusive growth and employment.

- ❖ GVCs represent a relatively attractive and ***straightforward option for countries seeking to industrialize***. Due to the international fragmentation of production and unbundling of operations, countries no longer need to create complete products or value chains. Instead, they can create targeted industries by “inserting” themselves into a particular stage of production along the value chain that suits their existing level of capability.
- ❖ ***There are other benefits to participating in GVCs***. Supplying inputs to firms that export raises the prospects of countries (especially those with a small domestic market) to rapidly achieve economies of scale. Production for exports contributes to economic growth, job creation, income generation and tax revenue. Participating in a GVC also opens considerable opportunities for knowledge transfers (and leakages) between firms. Such transfers may lead to industrial ‘upgrading’, resulting in the improvement of product quality, facilitating operations and processes, and fostering involvement in higher value activities in production.
- ❖ ***One common approach for developing countries to integrate into GVCs is by attracting foreign direct investment (FDI) through TNCs (Trans-national Corporations)***
- ❖ ***GVC participation does not only lead to positive outcomes***. Some of the risks include potential breakdown in social cohesion, erosion of labour welfare and environmental degradation, risks that are not confined to countries whose governance and regulatory capacities are weak. There is furthermore the risk of widening economic gaps between countries as a result of the division of labour. Countries participating in GVCs, for example, may find themselves locked into low value-added activities in the long run. Furthermore, GVC participation increases local economy’s exposure—albeit not necessarily its ability to cope with—external shocks.

SOURCE: UNIDO, OECD and GVC alliance

5. Union Minister of Rural Development, Agriculture and Farmers’ Welfare and Panchayati Raj chairs the 21st meeting of Central Employment Guarantee Council

- The 21st Meeting of the **Central Employment Guarantee Council**, constituted under Section 10 of the Mahatma Gandhi National Rural Employment Guarantee Act (Mahatma Gandhi NREGA), 2005 was held.

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- **The Programme has 261 permissible works out of which 164 types of works are relating to agriculture and allied activities.**
- The Government has **accorded priority on creation of individual assets and assets on water conservation/irrigation** which would help agriculture sector.

Central Employment Guarantee Council

- ❖ A Central Employment Guarantee Council (or 'Central Council') has been set up **under the chairmanship of the Minister of Rural development. The tenure of the members is 1 year.**
- ❖ The Central Council has been constituted **under Section 10 of the MGNREGA.**
- ❖ The Central Council is responsible for advising the Central Government on Mahatma Gandhi NREGA-related matters, and **for monitoring and evaluating the implementation of the Act. It will prepare Annual Reports on the implementation of Mahatma Gandhi NREGA for submission to Parliament.**

SOURCE: CEGC Website

6. Consultation process for new Science, Technology, and Innovation Policy (STIP) initiated

- The Office of the Principal Scientific Adviser to the Government of India (Office of PSA) and the Department of Science and Technology (DST) have jointly initiated a **decentralized, bottom-up, and inclusive process** for the formulation of a new national **Science Technology and Innovation Policy (STIP 2020).**

Science Technology and Innovation Policy (STIP 2020)

- ❖ On June 2, 2020, The Office of the Principal Scientific Adviser (PSA) to the Government of India (GoI) and the Department of Science and Technology (DST) have **jointly started the process of consultation for the new & 5th national Science, Technology and Innovation Policy (STIP 2020)** & it will last long for 6 months.
- ❖ **The STIP Forum has been founded with objectives**, inter alia, of promoting informed debate on various aspects of Science, Technology and Innovation Policy.
- ❖ **It is 5th STIP for India.**
- ❖ **It has been initiated after Scientific Policy Resolution 1958;** Technology Policy Statement 1983; Science and Technology Policy 2003; Science, Technology and Innovation Policy 2013

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& is being formulated by the Government at a time when the whole world is facing the crisis of coronavirus (COVID-19) epidemic.

SOURCE: Department of Science and Technology

7. IIT, BHU to re-purpose approved drugs from Drug Bank database for treating COVID-19 by targeting SARS-CoV-2 main protease

- The research group is working on developing new drug candidates against SARS-CoV-2 by exploring **DrugBank** (**DrugBank is a database of FDA approved drug compounds**).
- This database will be used for searching drug against SARS-CoV-2 database compounds as an inhibitor of SARS-CoV-2 main protease, a key enzyme required for SARS-CoV-2 assembly and multiplication.
- **As the enzyme SARS-CoV-2 Mpro**, is key for processing and polyprotein for virus assembly, the inhibition of this key protein can have an anti-viral effect.
- As most of DrugBank database compounds are characterized in terms of **pharmacokinetics** and toxicity, the identified molecule could be brought to the market rapidly.

DrugBank

- ❖ **DrugBank is a richly annotated resource** that combines detailed drug data with comprehensive drug target and drug action information.
- ❖ **Since its first release in 2006**, DrugBank has been widely used to facilitate in silico drug target discovery, drug design, drug docking or screening, drug metabolism prediction, drug interaction prediction and general pharmaceutical education.
- ❖ **There are essentially two kinds of online drug resources:** (i) clinically oriented drug 'encyclopedias' and (ii) chemically oriented drug databases.
- ❖ **Chemically oriented drug databases** are typically oriented towards medicinal chemists, biochemists and molecular biologists.
- ❖ **As a general rule**, chemically oriented drug databases aim for very broad coverage at the expense of depth, **while** clinically oriented drug resources aim for far more depth (albeit in English sentences) at the expense of coverage.

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- ❖ **DrugBank is an effort to bridge the 'depth versus breadth' gap** between clinically oriented drug resources and chemically oriented drug databases.

SOURCE: USNCBI Website and Drugbank

Pharmacokinetics

- ❖ Pharmacokinetics, sometimes **described as what the body does to a drug**, refers to the movement of drug into, through, and out of the body—the time course of its absorption, bioavailability, distribution, metabolism, and excretion.
- ❖ **Pharmacokinetics of a drug depends on patient-related factors** as well as on the drug's chemical properties. Some patient-related factors (eg, renal function, genetic makeup, sex, age) can be used to predict the pharmacokinetic parameters in populations.
- ❖ Knowledge of pharmacokinetic principles **helps prescribers adjust dosage more accurately and rapidly**. Application of pharmacokinetic principles to individualize pharmacotherapy is termed therapeutic drug monitoring.

SOURCE: AUSMED and Other papers

8. Cabinet approves renaming of Kolkata Port Trust as Syama Prasad Mookerjee Trust

- The Kolkata Port is the **first Major Port as well as the only riverine port of the country** and is governed by the Major Port Trusts Act, 1963.
- **Kolkata Port has traversed 150 years**, and, in this journey, it has been India's gateway to trade, commerce and economic development. It has also been a witness to India's struggle for independence, World Wars I & II and socio-cultural changes taking place in the country, especially in Eastern India.
- **Nhava Sheva Port Trust** was renamed as Jawaharlal Nehru Port Trust by the Government in the year 1989.
- **The Tuticorin Port Trust** was renamed as V.O. Chidambaranar Port Trust in the year 2011 and
- **The Ennore Port Limited** has been re-named as Kamarajar Port Limited in the honour of Shri K Kamarajar, eminent freedom fighter and former Chief Minister of Tamil Nadu.
- **Recently, in 2017 Kandla Port was re-named as Deendayal Port.**

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9. Cabinet approves establishment of Pharmacopoeia Commission for Indian Medicine & Homoeopathy (PCIM&H) as Subordinate Office under Ministry of AYUSH

- The Union Cabinet has given its **approval to re-establish Pharmacopoeia Commission for Indian Medicine & Homoeopathy (PCIM&H) as Subordinate Office** under Ministry of AYUSH by **merging into it Pharmacopoeia Laboratory** for Indian Medicine (PLIM) and Homoeopathic Pharmacopoeia Laboratory (HPL)- the **two central laboratories established at Ghaziabad since 1975**.

10. Cabinet approves MoU between India and Bhutan on Cooperation in the areas of Environment

- A Memorandum of Understanding (MoU) was signed between the **Central Pollution Control Board (CPCB)**, Ministry of Environment, Forest and Climate Change (MoEFCC) of the Government of the Republic of India and the National Environment Commission (NEC) of the Royal Government of Bhutan on 11th March 2013.
- **This MoU expired on 10th March 2016**. Noting the benefits of the earlier MoU, both sides have decided to continue cooperation and collaboration in the field of Environment.

Central Pollution Control Board (CPCB)

- ❖ The Central Pollution Control Board (CPCB), **statutory organisation, was constituted in September 1974** under the Water (Prevention and Control of Pollution) Act, 1974. Further, CPCB was entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981.
- ❖ **Principal Functions of the CPCB, as spelt out in the Water (Prevention and Control of Pollution) Act, 1974, and the Air (Prevention and Control of Pollution) Act, 1981,**
 - To promote cleanliness of streams and wells in different areas of the States by prevention, control and abatement of water pollution, and
 - To improve the quality of air and to prevent, control or abate air pollution in the country.

11. Government to conduct skill mapping of citizens returning from overseas

- With the aim of **making the best of our skilled workforce returning to the country due to the ongoing pandemic, the Government of India has launched a new initiative SWADES** (Skilled Workers Arrival Database for Employment Support) to **conduct a skill mapping** exercise of the returning citizens under the Vande Bharat Mission.

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- ***This is a joint initiative of the Ministry of Skill Development & Entrepreneurship, the Ministry of Civil Aviation and the Ministry of External Affairs*** which aims to create a database of qualified citizens based on their skillsets and experience to tap into and fulfil demand of Indian and foreign companies.

12. MNRE issues advisory against fraudulent websites for registration under PM-KUSUM Scheme

- Administrative approval for **PM-KUSUM Scheme** was issued by Ministry of New & Renewable Energy (MNRE) on 08.03.2019.
- ***The Scheme provides for installation of solar pumps, solarization of existing grid-connected agricultural pumps and installation of grid connected renewable power plants.***
- The Scheme is being implemented through State Government Agencies.

Kisan Urja Suraksha evam Utthaan Mahabhiyan (KUSUM)

- ❖ Launch of Kisan Urja Suraksha evam Utthaan Mahabhiyan was ***with the objective of providing financial and water security to farmers.***
- ❖ The scheme ***aims to add a solar capacity of 25,750 MW by 2022.***
- ❖ The Indian farmer will effectively bear ***only 10 percent of cost for solarising his*** agricultural pump under a scheme unveiled in the Budget 2018-19.
- ❖ The government will spend Rs 48,000 crore over 10 years as central financial assistance (CFA) on the ***Kusum scheme which aims to encourage the use of barren land for setting up solar power plants.*** A similar amount will have to be given by the states and the financing institutions towards Kusum, which is to be put up to the cabinet for approval.

SOURCE: PIB and Financial Times

13. Major Impact on climate due to extension of Amery Ice Shelf (AIS), NCPOR study reveals

- The National Centre for Polar and Ocean Research (NCPOR) ***predicts that there would be a 24% increase in the expansion of Ameri Ice Shelf (AIS) boundaries by 2021 and another 24% expansion by 2026 from its 2016 positions.***

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- The prediction made by NCPOR is based on a 16-year-long satellite-based observation that covered an area of 60,000 sq. km across the AIS. Scientists feel that this study would help understand the ongoing changes in the ocean and atmospheric forces better.
- The floating sheets of ice called the **ice shelves** play a multi-faceted role in maintaining the stability of a glacier.
- **Ice shelves connect a glacier to the landmass.** The ice sheet mass balance, sea stratification, and bottom water formation are important parameters for the balancing of a glacier. Latent and sensible heat processes do play important roles here.
- **The AIS is one of the largest glacier drainage basins in the world,** located on the east coast of Antarctica. The AIS dynamics and mass balance help in understanding the changes in the global climate scenario.
- **The insulation of ice shelves from atmospheric forcing is dependent on a temperature gradient** that the ocean cavity beneath the ice shelves provides. It is the pressure exerted by the ice shelves upon the ocean cavity that determines this temperature gradient.
- **There is always a stress on the sea ice and ice sheets itself plays an indirect role in reducing the amplitude of the ocean swell.** This is assisted by the freezing atmospheric temperature, which is capable of promoting a change in the morphology of ice shelves.

Ice shelves

- ❖ Ice shelves are permanent floating sheets of ice that connect to a landmass. They are common around Antarctica, and the largest ones are the Ronne-Filchner, Ross and McMurdo Ice Shelves.
- ❖ **Most of the world's ice shelves hug the coast of Antarctica.** However, ice shelves can also form wherever ice flows from land into cold ocean waters, including some glaciers in the Northern Hemisphere. The northern coast of Canada's Ellesmere Island is home to several well-known ice shelves, like Markham and the Ward Hunt ice shelves.
- ❖ **Ice from enormous ice sheets slowly oozes into the sea through glaciers and ice streams.** If the ocean is cold enough, that newly arrived ice doesn't melt right away. Instead it may float on the surface and grow larger as glacial ice behind it continues to flow into the sea.
- ❖ Along protected coastlines, the resulting ice shelves can survive for thousands of years, bolstered by the rock of peninsulas and islands. **Ice shelves grow when they gain ice from land, and occasionally shrink when icebergs calve off their edges.** This give and take helps them maintain a dynamic stability.

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- ❖ Because ice shelves already float in the ocean, ***they do not contribute directly to sea level rise when they break up.***
- ❖ ***However, ice shelf collapse could contribute to sea level rise indirectly.*** Ice streams and glaciers constantly push on ice shelves, but the shelves eventually come up against coastal features such as islands and peninsulas, building pressure that slows their movement into the ocean. If an ice shelf collapses, the backpressure disappears. The glaciers that fed into the ice shelf speed up, flowing more quickly out to sea. Glaciers and ice sheets rest on land, so once they flow into the ocean, they contribute to sea level rise.
- ❖ ***Ice shelves gain mass from*** ice flowing into them from glaciers on land, from snow accumulation at their surface, and from the freezing of marine ice (sea water) to their undersides.
- ❖ ***Ice shelves lose ice by the intermittent calving*** (breaking off) of large icebergs and by melting from below (from relatively warm ocean currents) and from above (from warm air temperatures).
- ❖ ***Ice shelves are essential in the stability of the ice sheet*** because they act as buttresses. By creating friction at their bases, they hold back the glaciers that feed them and slow the flow of ice to the ocean.

SOURCE: National Snow and Ice data centre

14. Ministry Of Tourism presents “HARYANA: Culture, Cuisine and Tourism” through 27th webinar under Dekho Apna Desh series

- Ministry of Tourism organised a webinar on “Haryana: Culture, Cuisine and Tourism” showcasing the rich and varied heritage of Haryana on 02nd June 2020.
- The presenters started the session by highlighting the History or Mythology of Haryana and recounted the ***contributions of leaders like Sir Chhotu Ram, Rao Tula Ram, Pt. Neki Ram, Tau Devi Lal.***
- The information regarding Haryana ***being divided into two parts namely, the Deswali Belt and the Bagari Belt was well explained.***
- The session threw light into some lesser known information ***like divisions of the state into regions on***

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- **Basis of Soil** i.e. (Khadar, Nardak, Bagad, Bangar),
 - **Demographic basis** i.e. (Ahirwal, Mewat, Braj) and on the
 - **Basis of Eco Cultural Zones** i.e. (Ahirwal, Mewat, Bagar, Nardak, Khadar).
- **The three battles were fought in Panipat in 1526, 1556 and 1761. The Culture of Haryana is Agriculture based.**
- The Folk Dances of Haryana are **Ghangor, Jhoomar, chhati** showcases the Culture of Haryana along with the Folk Music. Haryana is a land of Museums, **it has more than 20 Museums. It can also be known as the state of Festivals.**

15. Prime Minister Addresses the virtual Global Vaccine Summit 2020

- India pledged 15 Million US Dollars to **Gavi**, the international vaccine alliance.

GAVI Alliance

- ❖ **The GAVI Alliance** (formerly the Global Alliance for Vaccines and Immunisation) is a **global health partnership of public and private sector** organizations dedicated to “immunisation for all”.
- ❖ **GAVI’s strategy supports its mission to save children’s lives and protect people’s health by increasing access to immunisation in poor countries.** It contributes to achieving the United Nations’ Millennium Development Goals (Now SDG) by focusing on performance, outcomes and results. Its partners provide funding for vaccines and intellectual resources for care advancement.
- ❖ **Since 2007 GAVI has been funding new Health System Strengthening (HSS) programs** that encourage and enable countries to identify infrastructure and resource weaknesses that are barriers to the achievement of immunisation and other public health goals. They ensure that trained professionals are given the tools they need to give proper care to those who need it the most.
- ❖ **Gavi’s impact draws on the strengths of its core partners, the World Health Organization, UNICEF, the World Bank and the Bill & Melinda Gates Foundation,** and plays a critical role in strengthening primary health care (PHC), bringing closer to the Sustainable Development Goal (SDG) of Universal Health Coverage (UHC), ensuring that no one is left behind.

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SOURCE: GAVI website and WHO

16. World Environment Day 2020 Indian Navy's Green Footprint to its Blue Water Operations

- With the aim of reducing pollution from engine exhausts, **the Indian Navy collaborated with IOCL to revise the fuel specifications.**
- The new specification surpasses international norms and **includes reduced sulphur content which in the long run will reduce emissions levels** as well as maintenance requirements onboard.
- Whilst recognising the significance of biodiversity, which incidentally is the theme for World Environment Day-2020, ample emphasis is being accorded within the Navy in protecting ocean ecology.
- **Indian Navy has voluntarily implemented** all six schedules of International Convention for the Prevention of Pollution from Ships (**MARPOL**) regulations.
- All Naval ships have been fitted with MARPOL compliant pollution control equipment such as **Oily Water Separators (OWS) and Sewage Treatment Plants (STP)** for treating waste generated onboard. Further, to ensure upkeep of harbour waters, accelerated bioremediation technology has also been developed through Naval Materials Research Laboratory (NMRL), Mumbai.

MARPOL

- ❖ **MARPOL is the main international convention aimed at the prevention of pollution** from ships caused by operational or accidental causes. It was adopted at the International Maritime Organization (IMO) in 1973.
- ❖ **The technical requirements of MARPOL are included in six separate Annexes:**
 - **Annex I**—Regulations for the Prevention of Pollution by Oil
 - **Annex II**—Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk
 - **Annex III**—Prevention of Pollution by Harmful Substances Carried in Sea in Packaged Form
 - **Annex IV**—Prevention of Pollution by Sewage from Ships

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- **Annex V**—Prevention of Pollution by Garbage from Ships
- **Annex VI**—Prevention of Air Pollution from Ships

SOURCE: MARPOL Website

17. Virtual celebrations of the World Environment Day with focus on Urban Forest

- The country is endowed with rich biodiversity having several species of animals and plants and **hosts 4 of the 35 global bio-diversity hotspots** containing several endemic species.

Bio-diversity hotspots

- ❖ A biodiversity hotspot is a biogeographic region that is both **a significant reservoir of biodiversity and is threatened with destruction.**
- ❖ **To qualify as a biodiversity hotspot, a region must meet two strict criteria:**
 - **It must have at least 1,500 vascular plants as endemics** — which is to say, it must have a high percentage of plant life found nowhere else on the planet. A hotspot, in other words, is irreplaceable.
 - **It must have 30% or less of its original natural vegetation.** In other words, it must be threatened or to say, have lost at least 70 percent of its primary native vegetation.
- ❖ **Around the world, 35 areas qualify as hotspots.** They represent just 2.4% of Earth's land surface, but they support more than half of the world's plant species as endemics — i.e., species found no place else — and nearly 43% of bird, mammal, reptile and amphibian species as endemics.
- ❖ **India hosts 4 biodiversity hotspots: the Himalayas, the Western Ghats, the Indo-Burma region and the Sundaland (Includes Nicobar group of Islands).**

SOURCE: Biodiversity International and Conservation International

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18. TULIP - Urban Learning Internship Program for providing opportunities to fresh Graduates in all ULBs & Smart Cities launched

- **Human Resource Development, and Housing & Urban Affairs, and All India Council for Technical Education (AICTE) have jointly launched an online portal for 'The Urban Learning Internship Program (TULIP)'** – A program for providing internship opportunities to fresh graduates in all Urban Local Bodies (ULBs) and Smart Cities across the country, here today.

19. Periodic Labour Force Survey (PLFS) – Annual Report [July, 2018 – June, 2019]

- Considering the importance of availability of labour force data at more frequent time intervals, National Statistical Office (NSO) launched **Periodic Labour Force Survey (PLFS)** on April 2017. **The objective of PLFS is primarily twofold:**
- **A) To estimate the key employment and unemployment indicators** (viz. Worker Population Ratio, Labour Force Participation Rate, Unemployment Rate) in the short time interval of three months for the urban areas only in the Current Weekly Status (CWS)
- **B) To estimate employment and unemployment indicators** in both usual Principal Subsidiary Status (UPSS) or Usual Status (ps+ss) and CWS in both rural and urban areas annually.

Periodic Labour Force Survey (PLFS)

- ❖ **The Periodic Labour Force Survey (PLFS) gives estimates of Key employment and unemployment Indicators** like the Labour Force Participation Rates (LFPR), Worker Population Ratio (WPR), Unemployment Rate (UR), etc. **These indicators are defined as follows:**
 - **Labour Force Participation Rate (LFPR):** LFPR is defined as the percentage of persons in labour force (i.e. working or seeking or available for work) in the population.
 - **Worker Population Ratio (WPR):** WPR is defined as the percentage of employed persons in the population.
 - **Unemployment Rate (UR):** UR is defined as the percentage of persons unemployed among the persons in the labour force.
 - **Activity Status- Usual Status:** The activity status of a person is determined on the basis of the activities pursued by the person during the specified reference period. When the activity status is determined on the basis of the reference period of last 365 days preceding the date of survey, it is known as the usual activity status of the person.

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- **Activity Status- Current Weekly Status (CWS):** The activity status determined on the basis of a reference period of last 7 days preceding the date of survey is known as the current weekly status (CWS) of the person.
- ❖ **In India, the National Sample Survey Organisation (NSSO) has been quinquennially collecting data on employment and unemployment but from 2017 onwards,** the Periodic Labour Force Survey (PLFS) was launched by the NSSO. It aimed to provide quarterly employment and unemployment data, with a report expected in December 2018. However, this was made public in May 2019.
- ❖ **As per PLFS 2019,** Over these six years, the WPR declined significantly for the young population (15-29 years age group) relative to the other age groups. The decline was larger for young men relative to young women. It indicates the job crisis prevailing in the labour market, particularly for the educated young job aspirants.
- ❖ **For Quarterly survey (For urban areas only) –** Captures only the current weekly status (CWS) data.
- ❖ **For Annual survey (For both rural and urban areas) –** Measures both the usual status and CWS.
- ❖ **NSSO's definition of 'employment' includes** in itself 'self-employment' as well as 'wage employment'.
- ❖ **Within the category of 'self-employed',** the survey also counts those engaged in 'unpaid family labour'.
- ❖ **Both the locational and gender dimensions are considered.**

SOURCE: MoSPI and The wire

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All India Radio (AIR--News From 02nd June to 04th June 2020)

SPECIFIC AIR NEWS NOT COVERED ABOVE

1. Indian Railways takes various initiatives to provide clean environment, smooth travel experience to its passengers

- Railways said, more than 49 thousand **bio-toilets** were installed in 14 thousand 916 coaches during last financial year. With this, the figure of total numbers of bio-toilets reached to more than two lakh 45 thousand.

Bio-toilets

- ❖ ***Bio-toilet is a decomposition mechanized toilet system*** which decomposes human excretory waste in the digester tank using specific high graded bacteria (aerobic or anaerobic) ***further converting it into methane gas, Carbon dioxide gas and water.***
- ❖ ***Bio-digester technology treats human waste at the source.*** A collection of anaerobic bacteria that has been adapted to work at temperatures as low as -5°C and as high as 50°C act as inocula (seed material) to the bio-digesters and convert the organic human waste into water, methane, and carbon-dioxide. The ***anaerobic process inactivates the pathogens*** responsible for water-borne diseases and treats the fecal matter without the use of an external energy source.
- ❖ ***The only by-products of the waste treatment process are pathogen-free water,*** which is good for gardening, and biogas, which can be used for cooking. Bio-toilets do not require sewage connectivity and because the process is self-contained, bio-toilets are also maintenance-free.
- ❖ ***Under the bio-toilet concept of the DRDO,*** the bio-digester tank in every toilet is filled with inoculums containing four types of bacteria. The water trap system in the toilet prevents air from getting into the tank, the human waste is processed by anaerobic bacteria in seven chambers in the tank and the methane gas is allowed to escape into the air.
- ❖ ***After the completion of this process, only methane, carbon dioxide gases and water remain.*** These gases are left in the environment whereas water can be recycled and used in toilets again.

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SOURCE: ENVIS and Wash funder organisation

2. India, Australia elevate their partnership to Comprehensive Strategic partnership

- These include the Joint Declaration on elevating the relationship from a strategic partnership to a Comprehensive Strategic Partnership.
- There was a Framework Arrangement on Cyber and Cyber-enabled Technologies. There was an MoU on mining and processing of **critical and strategic minerals**.

Critical and strategic minerals

- ❖ Generally, Strategic Minerals (also known as Critical Minerals) is a **broad category that identifies various minerals and elements**; the bulk of which are minor metals.
- ❖ **Geography and availability of domestic supply normally defines the "critical" nature of minerals for any particular region or a country.**
- ❖ **A nuanced distinction between the words strategic and critical** implies that critical materials have relevance for the overall interests of the state, while strategic minerals are essentially those minerals which have relevance for the defence/strategic architecture of the state.
- ❖ **Keeping military need as a key focus, strategic minerals (also sometimes termed as strategic materials) generally could be defined as those:**
 - That are needed to meet the military, industrial and essential civilian requirements of a state during a national emergency;
 - That are not found or produced in sufficient quantities to meet such needs of the state;
 - The absence of which would cause economic or social consequences.
- ❖ **Vital Strategic Minerals include** Antimony, Molybdenum, Borates, Nickel, Chromium, Cobalt, Silver, Copper, Titanium, Diamond, Tungsten, Germanium, Vanadium, Lithium, Zinc and Rare earths.
- ❖ **Twelve critical minerals could play an important role in the success of 'Make in India'** programme and the sustainable growth of the Indian economy, a study released by the Council on Energy, Environment and Water (CEEW), a leading policy research body said.

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- ❖ These critical minerals would also play a role in nurturing the domestic manufacturing capacity to support the government's low-carbon plans, such as the 100GW (giga watt) solar target, faster adoption and manufacturing of hybrid and electric vehicles, and the national domestic efficient lighting programme.
- ❖ **China is currently a leading global supplier for 6 out of the 12 mineral resources** identified as critical for India by 2030. Over the coming years, India will need to strategically develop joint partnerships with existing global players (private firms and governments) to secure assured supply of critical minerals.

SOURCE: Economic Times and VIF foundation

3. India expresses grave concern over reports of vandalism, defacement, destruction of Buddhist archaeological sites in PoK

- India has expressed grave concern that Buddhist symbols are being destroyed and the religious and cultural rights and freedoms are being trampled with impunity in the Indian territories under illegal occupation of Pakistan.

Buddhist site in PoK

- ❖ In recent excavation in **2019 Pakistani Archaeologist identified 100 heritage sites in PoK.**
- ❖ **One of them was Kargah Buddha** a carved image of a large standing Buddha on the cliff in Kargah Nala.
- ❖ **From the 3rd century to the 11th century, Gilgit was a Buddhist centre.**
- ❖ **A few metres away,** a Buddhist monastery and three stupas containing Sanskrit manuscripts were also found during an excavation in 1931.

SOURCE: Indian Express

4. Cabinet approves '**The Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Ordinance, 2020**'

- **The ordinance will empower farmers for engaging with processors, aggregators, wholesalers, large retailers and** exporters on a level playing field without any fear of exploitation.

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- *It will transfer the risk of market unpredictability from the farmer to the sponsor* and also enable the farmer to access modern technology and better inputs.

'The Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Ordinance, 2020'

- ❖ The Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Ordinance, 2020 *has penal provisions to safeguard farmers' interests.*
- ❖ If a sponsor fails to make payment of the amount due to farmers, *such penalty may extend to one and a half times the amount due.*
- ❖ *It will facilitate contract farming.* The Centre will announce modalities of contract farming and will frame terms of the contract for the states to adopt.

SOURCE: Indian express and Business standard

#Greenfield and Brownfield Investment

- ❖ *Greenfield and brownfield investments* are two types of foreign direct investment.
- ❖ With greenfield investing, a company will build its own, *brand new facilities* from the ground up.
- ❖ Brownfield investment happens when a company purchases or leases an *existing facility*.
- ❖ *Simply*, it refers to investment in a manufacturing, office, or other physical company-related structure or group of structures in an area where no previous facilities exist whereas, Brownfield use for purchasing or leasing existing production facilities to launch a new production activity.
- ❖ *In projects, the terms "greenfield project" and "brownfield project"* are used in many industries besides IT, and usually the meaning is the same: greenfield describes a completely new project that has to be executed from scratch, while a brownfield project is one that has been worked on by others and is now being handed off to someone else for completion.

SOURCE: Investopedia and newspapers

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SUMMARY AND RELEVANT TERMS
EXPLAINED FROM PIB AND AIR

DATED: 05.06.2020 TO 07.06.2020



Public Information Bureau (PIB-- News From 05th June to 07th June 2020)

1. President promulgates two Ordinances with the aim of giving a boost to rural India and agriculture

- ***The President of India has promulgated the following **Ordinances** with the aim of giving a boost to rural India for farmers engaged in agriculture and allied activities;***

i. The Farmers' Produce Trade and Commerce (Promotion & Facilitation) Ordinance 2020

- Will provide for the ***creation of an ecosystem where the farmers and traders enjoy*** the freedom of choice relating to sale and purchase of farmers' produce which facilitates remunerative prices through competitive alternative trading channels.
- It will ***promote efficient, transparent and barrier-free inter-State and intra-State trade*** and commerce of farmers' produce outside the physical premises of markets or deemed markets notified under various State agricultural produce market legislations.
- Besides, the Ordinance will ***provide a facilitative framework for electronic trading*** and matters connected therewith or incidental thereto.

ii. The Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Ordinance 2020

- Will provide for a ***national framework on farming agreements that protects and empowers farmers*** to engage with agri-business firms, processors, wholesalers, exporters or large retailers for farm services and sale of future farming produce at a mutually agreed remunerative price framework in a fair and transparent manner and for matters connected therewith or incidental thereto.
- By recognizing the bottlenecks preventing the holistic development of marketing of the agriculture produce, the Government drafted and circulated the Model Agriculture Produce and Livestock Marketing (APLM) Act 2017, and also the Model Agriculture Produce and Livestock Contract Farming Act of 2018, for adoption by the states.
- ***The above two measures will enable barrier-free trade in agriculture produce***, and also empower the farmers to engage with sponsors of his choice.

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Ordinances

- ❖ The constitutional history relating to the Ordinance-making power of the President in India is traceable to the ***Indian Councils Act, 1861***.
- ❖ ***An ordinance is a law and could introduce legislative changes.*** The Supreme Court has clarified that the legislative power to issue ordinances is 'in the nature of an emergency power' given to the executive only 'to meet an emergent situation'.
- ❖ Simply, ***Article 123 of the Constitution of India***, which allows ordinances was originally intended to allow the Government to pass critical laws when the Parliament was not in session or to deal with extraordinary, unforeseen or emergency circumstances.
- ❖ Promulgation of an ordinance ***has to be ratified by the President***.
- ❖ Ordinances have similar limitations as ordinary laws, insofar as ***they cannot violate other laws and principles enshrined in the Constitution***.
- ❖ President's power to roll out ordinance is ***justiciable (judicial Review) on the ground of malafide***.
- ❖ After the ordinance is notified it is to be ***laid before Parliament within 6 weeks*** of its first sitting.
- ❖ ***Parliament could either choose to pass the ordinance, disapprove it*** or it may lapse within the 6 weeks' time frame. In addition, the President may choose to withdraw the ordinance.
- ❖ Once the ordinance is laid in Parliament, the government introduces a Bill addressing the same issue. This Bill is supposed to highlight the reasons that necessitated the issue of the Ordinance. ***Thereafter, the Bill follows the regular law-making process.***
- ❖ Just as the President of India is constitutionally mandated to issue Ordinances under Article 123, the ***Governor of a state can issue Ordinances under Article 213***, when the state legislative assembly (or either of the two Houses in states with bicameral legislatures) is not in session.
- ❖ The powers of the President and the Governor are broadly comparable with respect to Ordinance making. However, ***the Governor cannot issue an Ordinance without instructions from the President in three cases*** where the assent of the President would have been required to pass a similar Bill.

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- ❖ An Ordinance may relate to any subject that the Parliament has the power to legislate on. Conversely, it has the same limitations as the Parliament to legislate, given the distribution of powers between the Union, State and Concurrent Lists.

SOURCE: PRS, The Business Line and Lok Sabha paper

2. Urban Forest scheme to develop 200 'Nagar Van' across the country in next five years

- On the occasion of World Environment Day, **the government announced implementation of the Nagar van scheme** to develop 200 Urban Forests across the country **in next five years** with a renewed focus on people's participation and collaboration between Forest Department, Municipal bodies, NGOs, Corporates and local citizens.
- **World Environment Day (WED) is celebrated on 5th June every year.**
- Ministry of Environment, Forest & Climate Change celebrates WED focusing on the theme declared by United Nation's Environment Programme (UNEP) and organizes several events.
- **This year's theme is 'Biodiversity'.**
- The **Warje Urban Forest** is now a role model for the rest of the country.
- With this activity of creating urban forest we will also create additional **carbon sink**.

Urban Forest

- ❖ Urban green spaces carry a number of non-market or intangible benefits, which make a city healthy and perfect place to live in. **Recreation and aesthetic benefits are among such ecosystem services being generated by these resources.**
- ❖ **A fully-grown tree can annually absorb up to 150kg of carbon dioxide (CO₂)** – one of the main greenhouse gases contributing to global warming.
- ❖ Trees can moderate temperatures in heavily built cities, where heat radiated from concrete on buildings and roads, makes these areas hotter than the surrounding countryside, in a **phenomenon known as 'heat island' effect.**
- ❖ **Food and Agriculture Organization adds that** trees in urban areas reduce ozone, sulphur dioxide and particulate matter; remove large quantities of carbon dioxide from the atmosphere, and release oxygen.

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- ❖ **Trees can cool cities by between 2C and 8C.** When planted near buildings, trees can cut air conditioning use by 30%, and, according to the UN Urban Forestry office, reduce heating energy use by a further 20-50%.

SOURCE: PIB and The Guardian

Carbon Sinks

- ❖ **A carbon sink is a natural or artificial reservoir** that absorbs and stores the atmosphere's carbon with physical and biological mechanisms.
- ❖ **Coal, oil, natural gases, methane hydrate and limestone are all examples of carbon sinks.** After long processes and under certain conditions, these sinks have stored carbon for millennia.
- ❖ **On the contrary,** the use of these resources, considered as fossil, re-injects the carbon they hold into the atmosphere.
- ❖ **Nowadays, other carbon sinks come into play:** humus storing soils (such as peatlands), some vegetating environments (such as forming forests) and of course some biological and physical processes which take place in a marine environment.
- ❖ **These processes form the well-known ocean carbon pump. It is composed of two compartments:**
 - **A biological pump** which transfers surface carbon towards the seabed via the food web (it is stored there in the long term). It is sensitive to disturbances. Consequently, it can be destabilized and re-emit carbon into the atmosphere, and
 - **The physical pump** which results from ocean circulation. It is less sensitive to disturbances, but it is affected on a long-term basis.
- ❖ **The main natural carbon sinks are plants, the ocean and soil.** Plants grab carbon dioxide from the atmosphere to use in photosynthesis; some of this carbon is transferred to soil as plants die and decompose.
- ❖ **The oceans are a major carbon storage system for carbon dioxide.** Marine animals also take up the gas for photosynthesis, while some carbon dioxide simply dissolves in the seawater.
- ❖ **In high latitudes water stores CO₂, more easily because** low temperatures facilitate atmospheric CO₂ dissolution (hence the importance of Polar Regions in the carbon cycle).

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- ❖ ***Mangroves, seagrass beds and salt marshes are significant carbon sinks.***
- ❖ ***In order to combat climate change, geoengineering techniques*** to store CO₂ artificially in the ocean carbon sink are under consideration. The scientific community is rather concerned because negative consequences of potential disequilibrium have not been explored yet.
- ❖ ***The process by which carbon sinks remove carbon dioxide (CO₂) from the atmosphere is known as carbon sequestration.***
- ❖ ***Sedimentary rocks may hold an enormous amount of carbon, but they are not considered a carbon sink*** because they no longer take in more carbon than is released primarily through volcanic eruptions. In fact, due to man's use of fossil fuel, they are a source of much of the excess CO₂ in our atmosphere.

SOURCE: Newspapers and Ocean organisation

3. Saving Biodiversity through Effective Waste Management

- Conserving all forms of life on earth can only happen when we take the mandate of Swachhata forward and ***truly unlock the potential of 3Rs, circular and blue economy.***
- The three key advisories released by Ministry of Housing & Urban Affairs (MoHUA) included the '**Advisory on Material Recovery Facilities (MRFs) for Municipal Solid Waste (MSW)**', '**Advisory on Landfill Reclamation**' and a '**Consultative Document (draft) on On-site and Off-site Sewage Management Practices**' prepared by the Central Public Health and Environmental Engineering Organisation (CPHEEO) under SBM-U (Swachh Bharat Mission-Urban).

Circular Economy

- ❖ A circular economy is an ***industrial system that is restorative or regenerative*** by intention and design.
- ❖ ***It replaces the end-of-life concept with restoration***, shifts towards the use of renewable energy, eliminates the use of toxic chemicals, which impair reuse and return to the biosphere, and aims for the elimination of waste through the superior design of materials, products, systems and business models.
- ❖ ***Such an economy is based on a few simple principles,***

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- **First, at its core, a circular economy aims to design out waste.** Waste does not exist. Products are designed and optimized for a cycle of disassembly and reuse. These tight component and product cycles define the circular economy and set it apart from disposal and even recycling, where large amounts of embedded energy and labour are lost.
- **Second, circularity introduces a strict differentiation between** consumable and durable components of a product.
- **Third, the energy required to fuel this cycle should be renewable by nature,** again to decrease resource dependence and increase systems resilience (to oil shocks, for example).
- ❖ **Simply, the circular economy is a model of production and consumption,** which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible. In this way, the life cycle of products is extended.
- ❖ **In practice, it implies reducing waste to a minimum.** When a product reaches the end of its life, its materials are kept within the economy wherever possible. These can be productively used again and again, thereby creating further value.
- ❖ **This is a departure from the traditional, linear economic model,** which is based on a take-make-consume-throw away pattern. This model relies on large quantities of cheap, easily accessible materials and energy.
- ❖ **Moving towards a more circular economy could deliver benefits** such as reducing pressure on the environment, improving the security of the supply of raw materials, increasing competitiveness, stimulating innovation, boosting economic growth, creating jobs.

SOURCE: WEF and EU

Blue economy

- ❖ **The Blue Economy is determined to initiate appropriate programs for:** the sustainable harnessing of ocean resources; research and development; developing relevant sectors of oceanography; stock assessment of marine resources; introducing marine aquaculture, deep sea/long line fishing and biotechnology; and human resource development; among others.
- ❖ **The objective of the Blue Economy is to promote** smart, sustainable and inclusive growth and employment opportunities within the Indian Ocean region's maritime economic activities.

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- ❖ ***Simply, all economic activities related to oceans, seas and coasts.*** Blue economy covers a wide range of interlinked established and emerging sectors.
- ❖ ***The IORA (Indian Ocean Rim Association) Secretariat has identified the following six priority pillars in the blue economy:***
 - Fisheries and Aquaculture
 - Renewable Ocean Energy
 - Seaports and Shipping
 - Offshore Hydrocarbons and Seabed Minerals
 - Marine Biotechnology, Research and Development
 - Tourism

SOURCE: EU, IORA and WB Group

Landfill Reclamation

- ❖ ***Landfill reclamation is a relatively new approach*** used to expand municipal solid waste (MSW) landfill capacity and avoid the high cost of acquiring additional land.
- ❖ ***Reclamation costs are often offset*** by the sale or use of recovered materials, such as recyclables, soil, and waste, which can be burned as fuel.
- ❖ ***Other important benefits may include*** avoided liability through site remediation, reductions in closure costs, and reclamation of land for other uses.
- ❖ ***Despite its many benefits, some potential drawbacks exist*** to landfill reclamation. This technology may release methane and other gases, for example, that result from decomposing wastes.
- ❖ ***It may also unearth hazardous materials,*** which can be costly to manage. In addition, the excavation work involved in reclamation may cause adjacent landfill areas to sink or collapse.
- ❖ ***Finally, the dense, abrasive nature of reclaimed waste may shorten*** the life of excavation equipment.

SOURCE: USEPA

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4. Union HRD Minister chairs Meeting to review the progress of works sanctioned under Institute of Eminence Scheme

- Union Ministry for HRD review meeting on the progress of works sanctioned under the ***Institute of Eminence Scheme (IoE)***.
- During the meeting Union Minister congratulated ***IISC Bangalore and other IIT's which figured in the top 100*** in the recently released ***THE Asia rankings***.
- The work-related to research and innovations being done in various institutions can be obtained from various institutes and ***should be uploaded on YUKTI portal*** for wider publicity and dissemination.

Institute of Eminence Scheme (IoE)

- ❖ Institutions of Eminence scheme has been launched in ***order to empower the Higher Educational Institutions*** and to help them become world class teaching and research institutions, announced in budget 2016.
- ❖ ***IoE will not be subject to UGC inspections and are free*** to set their own courses and curriculum, fee structure and merit-based admission systems.
- ❖ ***Each university will be required to sign a MoU with the Ministry***, laying out its plan to achieve the objective of becoming a world-class institution.
- ❖ ***They will have complete academic, administrative and financial autonomy***.
- ❖ ***The public institutions on the list*** will then be eligible for a government grant of ₹1,000 crore.
- ❖ ***Only higher education institutions currently placed in the top 500 of global rankings or top 50 of the National Institutional Ranking Framework (NIRF) are eligible to apply*** for the eminence tag.

SOURCE: The Hindu and Times of India

5. Power Minister launches the 'iCommit' initiative on World Environment Day

- The initiative is a ***clarion call to all stakeholders and individuals to continue moving towards energy efficiency***, renewable energy, and sustainability to create a robust and resilient energy system in the future.

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- The initiative will also celebrate and promote key undertakings of Government of India such as **National Electric Mobility Mission 2020, FAME 1 and 2, Deen Dayal Upadhyaya Gram Jyoti Yojana, the Saubhagya Scheme, Ujwal DISCOM Assurance Yojna (UDAY), Atal Distribution system Improvement Yojna (AJAY), Smart Meter National Programme, Pradhanmantri Kisan Urja Suraksha evam Utthan Mahaabhiya (KUSUM), Solar Parks, Grid Connected Rooftop, Unnat Jyoti by Affordable LED for All (UJALA), Atal Jyoti Yojna (AJAY) amongst others.**

6. EESL and USAID Announce the “Healthy and Energy Efficient Buildings” Initiative

- On occasion of World **Environment Day Energy Efficiency Services Limited (EESL), a joint venture of PSUs under Ministry of Power, in partnership with the U.S. Agency for International Development’s (USAID) MAITREE program**, launched the “Healthy and Energy Efficient Buildings” initiative that will pioneer ways to make workplaces healthier and greener.
- The Market Integration and Transformation Program for Energy Efficiency (MAITREE), under which this initiative has been launched, is a **part of the US-India bilateral Partnership between the Ministry of Power and USAID** and is aimed at accelerating the adoption of cost-effective energy efficiency as a standard practice within buildings, and specifically focuses on cooling.
- This pioneering effort, built in large part of the partnership, **will address air quality and energy use concerns in buildings** — directly improving comfort, health, productivity, and ultimately the quality of life of citizens in India and South Asia.
- **Energy Efficiency Services Limited (EESL)**, under the administration of Ministry of Power, Government of India, is working towards mainstreaming energy efficiency and is implementing the world’s largest energy efficiency portfolio in the country.
- Driven by the mission of Enabling More – more transparency, more transformation, and more innovation, **EESL aims to create market access for efficient and future-ready transformative solutions** that create a win-win situation for every stakeholder.

Energy Efficiency Services Limited (EESL)

- ❖ EESL is promoted by the Ministry of Power Government of India as a **Joint Venture of four public-sector undertakings - NTPC Limited, Power Finance Corporation Limited., REC Limited, and POWERGRID Corporation of India Limited.**

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- ❖ It is a **Super-Energy Service Company (ESCO)**, which enables consumers, industries and governments to effectively manage their energy needs through energy efficient technologies.
- ❖ EESL is **implementing the world's largest non-subsidised energy efficiency portfolio** across sectors like lighting, buildings, e-mobility, smart metering and agriculture at a scale which no organization has been able to achieve.
- ❖ **It is 100% government owned.**

SOURCES: EESL Website

7. ARCI develops new environment friendly way to shape ceramics through 3D printing with Methyl Cellulose

- Scientists at the International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), an autonomous R&D Centre of Department of Science and Technology (DST) in their recent study **utilized an environmentally benign thermal gelation property of methylcellulose (MC) for shaping of ceramics through 3D printing.**
- **3D printing process based on the virtual design** dictating the nozzle path for printing layer-on-layer within close tolerance offers new possibilities for near-net shaping.
- However, **the 3D process is only a shaping procedure, and the property of the final part strongly depends on composition and microstructure**, which are dictated by the thermal processing after printing. Hence, the optimization of processing parameters with respect to flow properties and tailoring of defect-free microstructures have been challenging.
- The ARCI team used the **thermal gelation property** of methylcellulose (MC), a chemical compound derived from cellulose used as a thickener and emulsifier in various industrial products like paints and demonstrated the 3D printing of advanced ceramics with MgAl_2O_4 spinel.
- In this process, they have employed a **simple and eco-friendly heating technique, unlike UV** based methods, which may have various environmental impacts.
- **The exposure to 35-45°C** caused dehydration of hydrated methoxyl groups, followed by hydrophobic association, giving rise to the formation of the gel network.

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3D printing

- ❖ **3D printing or additive manufacturing** is a process of making three dimensional solid objects from a digital file.
- ❖ The creation of a 3D printed object is achieved using additive processes. In an additive process an **object is created by laying down successive layers** of material until the object is created. Each of these layers can be seen as a thinly sliced horizontal cross-section of the eventual object.
- ❖ **3D printing is the opposite of subtractive manufacturing** which is cutting out / hollowing out a piece of metal or plastic with for instance a milling machine.
- ❖ **3D printing enables you to produce complex shapes** using less material than traditional manufacturing methods.
- ❖ Companies have used 3D printers in their design process to create prototypes since the late seventies. **Using 3D printers for these purposes is called rapid prototyping.**
- ❖ HP Labs are working on 5 future technology- **3D printing, immersive computing, hyper mobility, IoT and smart machines.**
- ❖ Scientists are exploring the use of 3D printing for wide-ranging applications, including **manufacturing, medical devices, fashion and even food.**
- ❖ **Russia's nuclear energy corporation, Rosatom, is in advanced stages** of implementing a plan to develop advanced metal additive manufacturing technology by producing 3D printed parts for the country's nuclear industry.

SOURCE: Indian Express and 3D technology Website

Thermal gelation

- ❖ **Gelation is the process of formation of gel from sol**, in the so-called “sol–gel” process.
- ❖ **Sol is a colloidal liquid** wherein nanoparticles are dispersed throughout. Sols are produced either by growing nanoparticles within the liquid or by dispersing the nanoparticles (which are synthesized by other means) in the liquid.
- ❖ **Gel is a solid-like material** in which a solid network of interconnected nanostructures spans the entire volume of a liquid medium. A sol can become a gel if the dispersed nanoparticles join together to form a network that extends the liquid.

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- ❖ The strength of these gels is time dependent, **increases with increasing molecular weight, decreases with increasing hydroxypropyl substitution**, and depends on the nature of additives.
- ❖ Hydrophobe interaction or micellar interaction is postulated to be the cause of gelation. This thermal gelation property of the polymers is **utilized in many ends uses including food, pharmaceuticals, ceramics, tobacco, and other industrial applications**.

SOURCE: Science Direct and Wiley paper

8. Aerosol characterization and radiative effects at High Altitude site in Western-Trans Himalayas

- Researchers at the Aryabhata Research Institute of Observational Sciences (ARIES), Nainital an autonomous research institute under the Department of Science and Technology (DST) Govt. of India have **found that aerosol radiative forcing larger than the global averages, implying some amount of radiative effects, in spite of the clean atmosphere over the trans-Himalayas**.
- The **atmospheric aerosols play a key role in the regional/global climate system** through scattering and absorption of incoming solar radiation and by modifying the cloud microphysics.
- Despite the large progress in quantifying the impact of different aerosols on radiative forcing, it still remains **one of the major uncertainties in the climate change assessment**.
- **Precise measurements of aerosol properties are required to reduce the uncertainties**, especially over the oceans and high-altitude remote location in the Himalayas where they are scarce.
- Other team members analysed the variability of **aerosol optical, physical and radiative properties** from January 2008 to December 2018 and the role of fine and coarse particles in aerosol radiative forcing (ARF) assessment.
- **ARF is the effect of anthropogenic aerosols** on the radiative fluxes at the top of the atmosphere and at the surface and on the absorption of radiation within the atmosphere.
- Measurements of aerosol optical and microphysical properties started during the last decade at **the Indian Astronomical Observatory (IAO) at the high altitude background sites of Hanle and Merak in the trans-Himalayas** under the frameworks of Aerosol Radiative

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Forcing over India (ARFI) and Astronomical Site Survey program of Indian Institute of Astrophysics (IIA), Bangalore.

- In addition to this, few in-situ measurements of carbonaceous aerosols and ionic species have also been performed at **Himansh Observatory (Spiti Valley)** in the western Himalayas.
- The transport of light-absorbing carbonaceous aerosols and dust from the polluted Indo-Gangetic Plain and desert areas **over the Himalayas constitutes a major climatic issue** due to severe impacts on atmospheric warming and glacier retreat.
- This heating over the Himalayas facilitates the “**elevated-heat pump**” that strengthens the temperature gradient between land and ocean and modifies the atmospheric circulation and the monsoon rainfall.

Trans-Himalaya

- ❖ Trans-Himalayas, **eastward continuation of the most northerly ranges of the Himalayas in the southern part of the Tibet Autonomous Region of China.**
- ❖ The Trans-Himalayas, **mainly composed of granites and volcanic rocks** of Neogene and Paleogene age (i.e., about 2.6 to 65 million years old), are bounded by the Kailas (southwest), Nganglong Kangri (north), and Nyainqêntanglha (southeast) mountain ranges and by the Brahmaputra (Yarlung Zangbo) River (south).
- ❖ **Unlike the main Himalayas**, the mountains are not divided by deep river gorges and lack a definite alignment.
- ❖ The Indian Trans-Himalaya **is created due to the collision with a Eurasian plate**. It lies in the states of Jammu and Kashmir and Himachal Pradesh in India.
- ❖ **The Main Himalayan Ranges in the Trans-Himalaya region are:**
 - Pir Panjal Range,
 - Dhauladhar Range,
 - Zaskar Range,
 - Kailash Range,
 - Ladakh Range and
 - East Karakoram Range.

SOURCE: Britannica

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Atmospheric aerosols

- ❖ **Aerosols are minute particles suspended in the atmosphere.** When these particles are sufficiently large, we notice their presence as they scatter and absorb sunlight. **Their scattering of sunlight can reduce visibility (haze) and redden sunrises and sunsets.**
- ❖ **Aerosols interact both directly and indirectly with the Earth's radiation budget and climate.** As a **direct effect**, the aerosols scatter sunlight directly back into space. As an **indirect effect**, aerosols in the lower atmosphere can modify the size of cloud particles, changing how the clouds reflect and absorb sunlight, thereby affecting the Earth's energy budget.
- ❖ Aerosol particles are either emitted directly to the atmosphere (**primary aerosols**) or produced in the atmosphere from precursor gases (**secondary aerosols**).
- ❖ **Primary aerosols consist of both inorganic and organic components.** Inorganic primary aerosols are relatively large (often larger than 1 μm) and originate from sea spray, mineral dust, and volcanoes. These coarse aerosols have short atmospheric lifetimes, typically only a few days. Combustion processes, biomass burning, and plant/microbial materials are sources of carbonaceous aerosols, including both organic carbon (OC) and solid black carbon (BC).
- ❖ **BC is the main anthropogenic light-absorbing constituent present in aerosols.** Its main sources are the combustion of fossil fuels (such as gasoline, oil, and coal), wood, and other biomass. Primary BC and OC containing aerosols are generally smaller than 1 μm .
- ❖ **Secondary aerosol particles are produced in the atmosphere** from precursor gases by condensation of vapours on pre-existing particles or by nucleation of new particles. A considerable fraction of the mass of secondary aerosols is formed through cloud processing.
- ❖ **Secondary aerosols are small;** they range in size from a few nanometres up to 1 μm and have lifetimes of days to weeks. Secondary aerosols consist of mixtures of compounds; **the main components are sulphate, nitrate, and OC.**
- ❖ **The main precursor gases are emitted from fossil fuel combustion,** but fires and biogenic emissions of volatile organic compounds (VOCs) are also important. Occasionally volcanic eruptions result in huge amounts of primary and secondary aerosols both at the ground and in the stratosphere.
- ❖ **During winter in the polar regions, aerosols grow to form polar stratospheric clouds.** The large surface areas of these cloud particles provide sites for chemical reactions to take place.

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These reactions lead to the formation of large amounts of reactive chlorine and, ultimately, to the destruction of ozone in the stratosphere.

❖ **Three types of aerosols significantly affect the Earth's climate:**

- **The first is the volcanic aerosol** layer which forms in the stratosphere after major volcanic eruptions like Mt. Pinatubo. The dominant aerosol layer is actually formed by sulfur dioxide gas which is converted to droplets of sulfuric acid in the stratosphere over the course of a week to several months after the eruption.
- **The second type of aerosol that may have a significant effect on climate is desert dust.** Because the dust is composed of minerals, the particles absorb sunlight as well as scatter it. Through absorption of sunlight, the dust particles warm the layer of the atmosphere where they reside. This warmer air is believed to inhibit the formation of storm clouds.
- **The third type of aerosol comes from human activities.** While a large fraction of human-made aerosols come in the form of smoke from burning tropical forests, the major component comes in the form of sulfate aerosols created by the burning of coal and oil. The sulfate aerosols absorb no sunlight but they reflect it, thereby reducing the amount of sunlight reaching the Earth's surface. Sulfate aerosols are believed to survive in the atmosphere for about 3-5 days.

SOURCE: NASA and The Nature

Elevated-heat pump

- ❖ **The Elevated Heat Pump (EHP) effect demonstrates a significant interaction between** the aerosol climatic effect and the monsoon, both are important for climate research.
- ❖ **A coupled aerosol-atmosphere-ocean-sea ice climate model is used to explore** the interaction between aerosols and the Indian summer monsoon precipitation on seasonal-to-interannual time scales. Results show that when increased aerosol loading is found on the Himalayas slopes in the pre-monsoon period (April–May), intensification of early monsoon rainfall over India and increased low-level westerly flow follow, in agreement with the elevated-heat-pump mechanism.
- ❖ **When increased aerosol loading is found on the Himalayas slopes** in the pre-monsoon period (April-May), an intensification in early monsoon rainfall over India is obtained.

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- ❖ An increase in rainfall during the early monsoon has a cooling effect on the land surface produced also through the solar dimming effect by the presence of more dust from the deserts ***brought by an increased westerly flow in early monsoon season.***
- ❖ ***The surface cooling causes subsequent reduction in monsoon rainfall*** in July-August over India.
- ❖ ***It can be deduced that the amount of aerosol loading before the monsoon onset*** is a source of predictability of the seasonal mean climate in the Indian subcontinent. It should therefore be estimated if a correct representation of the amount of absorbing aerosols in April-May could improve model prediction skills for the extended summer season.

SOURCE: NASA Paper and Harvard Paper

9. CeNS develops low-cost catalyst for hydrogen generation from water

- Scientists from The Centre for Nano and Soft Matter Sciences (CeNS), an autonomous institute of the Department of Science and Technology (DST), have found out ***a low cost and efficient way to generate hydrogen from water using Molybdenum dioxide as a catalyst.***
- Molybdenum dioxide has the potential ***to replace the currently employed catalyst Pt***, which is expensive and has limited resources.
- ***MoO₂ is a conducting metal oxide*** that is one of the low-cost catalysts with good efficiency and stability for hydrogen evolution.
- ***Hydrogen is considered as the future of clean and sustainable energy*** as it can be generated from water and produces water on energy generation without any carbon footprint.
- ***Hydrogen can be directly used as a fuel similar to natural gas*** or as input for fuel cells to generate electricity. It is the future energy for a clean environment and an alternative to fossil fuels, underlining the necessity of low-cost catalysts for its production.

10. RCF (Rashtriya Chemicals & Fertilizers) Crosses Rs. 100 Crore Mark in Cumulative Sales of its Industrial Products in Current Financial Year

- ***RCF launched two new products during FY 2019-20 viz. Organic Growth Stimulant & Water-Soluble Silicon Fertilizer.***

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- RCF also got **recognized as a State Trading Enterprise for import of Urea** on government account.
- **Major Products are:**
 - **Ammonia**- as refrigerant, for nitriding of steel, rocket fuel, pharmaceuticals.
 - **Ammonium Nitrate**- in explosives for coal mining etc.
 - **Ammonium Bi-Carbonate**- for bakery products, tanneries.
 - **Methyl Amines**- in pesticides, dyestuff, pharmaceuticals.
 - **Concentrated Nitric Acid**: in explosives, pharmaceuticals.
 - **Dilute Nitric Acid**: in jewellery, propellant.
 - **Argon** - arc welding.
 - **Formic Acid** - in rubber, leather.
 - **Dimethyl Formamide** - as solvent for fibres, spandex, polyamides.
 - **Dimethyl Acetamide** - as solvent for polyester film, acrylic fibres.
 - **Sodium Nitrate**: in propellants, explosives

11. Novel recipe for fabrication of Transparent Conducting Glass can bring down cost of smart windows, touch screens, solar cells

- In recent years, the demand of **transparent conducting glasses (TCG) with high light transparency has tremendously increased** due to its wide range of applications in optoelectronic devices such as smart windows, solar cells, touch screen/ touch sensors, and so on.
- **Scientists have developed a novel recipe for fabrication of TCG which brings down its production cost by 80%** compared to **tin-doped indium oxide (ITO)** based technology which is currently in use.
- **The newly fabricated TCG consists of metal mesh** on a glass substrate with thin overlayers of metal oxides.
- The design is attractive as the hybrid electrode possesses the excellent conductive property of the metal mesh (having a sheet resistance of about 5 ohms/square) while offering an oxide surface finish for the conductive glass, which makes it relate well with the existing industry requirements based on ITO.

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Tin-doped indium oxide (ITO)

- ❖ ***Tin doped indium oxide (ITO) films are highly transparent in the visible region***, exhibiting high reflectance in the infrared region, and having nearly metallic conductivity. Owing to this unusual combination of electrical and optical properties, this material is widely applied in optoelectronic devices.
- ❖ ***Typical applications of ITO-coated substrates include*** touch panel contacts, electrodes for LCD and electrochromic displays, energy conserving architectural windows, defogging aircraft and automobile windows, heat-reflecting coatings to increase light bulb efficiency, gas sensors, antistatic window coatings, wear resistant layers on glass, etc.
- ❖ ***The film must contain a high density of charge carriers to conduct***, however, the higher the density of charge carriers, the lower the transparency.
- ❖ ***Commonly used in applications are:***
 - Touch panels
 - Electrochromic, electroluminescent and LCD displays
 - Plasma displays
 - Field emission displays
 - Heat reflective coatings
 - Energy efficient windows
 - Gas sensors
 - Photovoltaics

SOURCE: Research gate paper

12. CeNS synthesises novel photo-sensitive cholesteric liquid crystals for display devices at room temperature

- Scientists from Centre for Nano and Soft Matter Sciences (CeNS) have synthesised a series of novel photo-sensitive cholesteric liquid crystals at room temperature for widest thermal range ***which can be used to make optical storage devices such as optically rewritable boards, advertising boards and so on.***
- ***Liquid crystals*** have become an integral part of human life, for example, the most modern display devices such as computers, mobiles, TV screens, and so on are made up of liquid crystals.

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- **Cholesteric liquid crystals** are special kind of materials which have the **property of reflecting the light of wavelength equal to its pitch length**, and this pitch length is temperature sensitive. So, they are generally used as thermal sensors.
- If such cholesteric liquid crystals are made photo-sensitive, then these **materials can be used for optical storage devices and other related applications**.

Cholesteric liquid crystals

- ❖ **Liquid crystals are a state of matter intermediate between that of a crystalline solid and an isotropic liquid.** They possess many of the mechanical properties of a liquid, e.g. - high fluidity, inability to support shear, formation, and coalescence of droplets. At the same time, they are similar to crystals in that they exhibit anisotropy in their optical, electrical, and magnetic properties.
- ❖ **Liquid crystals have become ubiquitous** in everyday applications ranging from miniature mobile telephones to high-definition flat-panel displays.
- ❖ **Cholesteric liquid-crystal laser can be used as an optic fiber-based temperature sensor.**

SOURCE: TandFonline and Science Direct

13. IASST develops a new process for synthesizing crystalline Rubrene useful for optoelectronic devices

- Scientists at the Institute of Advanced Study in Science and Technology (IASST), an autonomous institute of the Department of Science & Technology, have **found a new process for synthesizing crystalline rubrene, a polycyclic aromatic hydrocarbon-based thin film** which can be useful for the development of optoelectronic devices and also for preparation of **Electronic Skin (E-Skin)**.
- **The new synthesis is a water-free, solvent-free, environmentally friendly one-step plasma process.** The resultant crystalline rubrene based film demonstrated optoelectronic properties, and an Indian patent has been filed for the process.
- A highly uniform pin-hole-free thin film can be deposited by this process, which is useful for fabrication of high-end devices.
- Devices made of **pyro-electric materials** (that generate electric charge when they are heated or cooled) and **piezo-electric materials** (that generate electric charge under the effect of mechanical pressure), can help detect change in temperature and pressure.

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- **Pyro-electric materials also show pyro-phototronic effect** where pyro-electricity is associated with the change in temperature of a material when it absorbs photons.
- **Pyro-electric infrared detectors are well known for application in infrared sensing for space research, defense, remote sensing, and household appliances.**
- **These kinds of materials are available in biological systems such as** – human skin, plant cellulose leading to their significance in the understanding of basic science of biological systems and also in their huge application prospect.

Electronic Skin (E-Skin)

- ❖ **An electronic-skin or e-skin is an artificial smart skin** consisting of multiple sensors distributed either along the same surface or stacked.
- ❖ With various sensors spread over a large area, **mimicking some of the features of human skin**, the e-skin could bestow robots and prostheses with sense of touch.
- ❖ **Moreover, the e-skin can also act as a 'second skin' in humans**, i.e. sticking onto the body surface, with sensors augmenting the natural sensory capacity by measuring various body parameters (e.g. blood pressure, body temperature, heartbeat, etc.) or ambient parameters (e.g. gases, chemical, materials, radiation, etc.).

SOURCE: Science Direct

14. ARCI develops Rare earth based magnetocaloric material for cancer treatment

- **The magnetocaloric materials** (certain materials in which application and removal of a magnetic field causes the materials to become warmer or cooler) developed by ARCI.
- **Advancements in magnetic materials led to the development of magnetic hyperthermia** to try to address the issues of side effects of cancer treatment like chemotherapy.
- In **magnetic hyperthermia**, magnetic nanoparticles are subjected to alternating magnetic fields of few Gauss, which produce heat due to magnetic relaxation losses.
- Usually, the temperature required to kill the tumor cells is between 40 and 45°C.
- **However, the drawback in magnetic hyperthermia is the lack of control of temperature**, which may damage the healthy cells in the body and also have side effects like increased blood pressure etc.

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- These problems can be avoided by using **magnetocaloric materials**, as it can provide controlled heating.
- **The advantage of magnetocaloric materials** which heat up or cool down with the application and removal of the magnetic field, respectively is that as soon as the magnetic field is removed, cooling effect is generated, unlike in magnetic nanoparticles where overheating persists, even after removal of the magnetic field.
- The team chose **rare-earth**-based alloy for studies as some of the rare earth materials are human body compatible. They optimized the alloy composition so that **the Curie temperature** came close to the therapeutic range (i.e. 42-46°C) required for destroying cancer cells.

Rare-earth

- ❖ Rare Earth Elements or Rare Earth Metals are a **set of 17 chemical elements in the periodic table — the 15 lanthanides, plus scandium and yttrium**, which tend to occur in the same ore deposits as the lanthanides and have similar chemical properties.
- ❖ **The 17 Rare Earths are** cerium (Ce), dysprosium (Dy), erbium (Er), europium (Eu), gadolinium (Gd), holmium (Ho), lanthanum (La), lutetium (Lu), neodymium (Nd), praseodymium (Pr), promethium (Pm), samarium (Sm), scandium (Sc), terbium (Tb), thulium (Tm), ytterbium (Yb), and yttrium (Y).
- ❖ **Despite their classification, most of these elements are not really “rare”**. One of the Rare Earths, promethium, is radioactive.
- ❖ **These elements are important in technologies** of consumer electronics, computers and networks, communications, clean energy, advanced transportation, healthcare, environmental mitigation, and national defence, among others.
- ❖ **Scandium is used in televisions and fluorescent lamps, and yttrium is used in drugs to treat rheumatoid arthritis and cancer.**
- ❖ **Rare Earth elements are used in space shuttle** components, jet engine turbines, and drones. Cerium, the most abundant Rare Earth element, is essential to NASA’s Space Shuttle Programme.
- ❖ **At present, China refines approximately 80%-90% of the world’s Rare Earths**, thereby having substantial control over their supply.

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- ❖ **Significant rare earths minerals found in India include ilmenite, sillimanite, garnet, zircon, monazite and rutile, collectively called Beach Sand Minerals (BSM).** India has almost 35 per cent of the world's total beach sand mineral deposits.
- ❖ Indian Rare Earths Ltd (IRE) is operating the mineral sands separation plant at **Chavara in Kerala to produce some rare earth minerals.**

SOURCE: Indian Express and Economic Times

The Curie temperature

- ❖ Curie point, also called Curie Temperature, **temperature at which certain magnetic materials undergo a sharp change in their magnetic properties.**
- ❖ **In the case of rocks and minerals, remanent magnetism appears** below the Curie point—about 570 °C (1,060 °F) for the common magnetic mineral magnetite.
- ❖ **This temperature is named for the French physicist Pierre Curie**, who in 1895 discovered the laws that relate some magnetic properties to change in temperature.

SOURCE: Science Direct

15. Catalyzing Online Dispute Resolution (ODR) in India

- **ODR is the resolution of disputes, particularly small- and medium-value cases**, using digital technology and techniques of **alternate dispute resolution (ADR)**, such as negotiation, mediation, and arbitration.
- **While courts are becoming digitized through the efforts of the judiciary**, more effective, scalable, and collaborative mechanisms of containment and resolution are urgently needed. ODR can help resolve disputes efficiently and affordably.

Alternate dispute resolution (ADR)

- ❖ **Alternative Dispute Resolution (ADR) is the procedure for settling disputes without litigation**, such as arbitration, mediation, or negotiation.
- ❖ ADR procedures are **usually less costly and more expeditious**. They are increasingly being utilized in disputes that would otherwise result in litigation, including high-profile labor disputes, divorce actions, and personal injury claims.

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- ❖ ADR also allows the **parties to come up with more creative solutions** that a court may not be legally allowed to impose.
- ❖ To say, **it is a process in which a neutral third party—a mediator or arbitrator**—helps parties who are embroiled in a dispute come to an agreement. Mediation and arbitration are types of alternative dispute resolution because they offer an alternative to litigation.
- ❖ **ADR can be broadly classified into two categories: court-annexed options (Mediation, Conciliation) and community-based dispute resolution mechanism (Lok-Adalat).**
- ❖ **The following are the modes of ADR practiced in India:**
 - **Arbitration:** The process of arbitration can start **only if there exists a valid Arbitration Agreement between the parties** prior to the emergence of the dispute. As per Section 7, such an agreement must be in writing. Except for some interim measures, there is very little scope for judicial intervention in the arbitration process.
 - **Conciliation:** Conciliation is **a less formal form of arbitration**. This process does not require an existence of any prior agreement.
 - **Mediation:** Mediation aims to assist two (or more) disputants in reaching an agreement. **The parties themselves determine the conditions of any settlements reached— rather than accepting something imposed by a third party.**
 - **Negotiation:** Negotiation is a **dialogue intended to resolve disputes, to produce an agreement upon courses of action, to bargain** for individual or collective advantage, or to craft outcomes to satisfy various interests. It is the primary method of alternative dispute resolution. **It occurs in business, non-profit organizations,** government branches, legal proceedings, among nations and in personal situations such as marriage, divorce, parenting, and everyday life.
 - **Lok Adalat:** While Arbitration and Conciliation Act, 1996 is a fairly standard western approach towards ADR, the **Lok Adalat system constituted under National Legal Services Authority Act, 1987 is a uniquely Indian approach**. These are usually presided by retired judge, social activists, or members of legal profession.

It **does not have jurisdiction on matters related to non-compoundable offences**. There is no court fee and no rigid procedural requirement (i.e. no need to follow process given by Civil Procedure Code or Evidence Act), which makes the process very fast.

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Cases that are pending in regular courts can be transferred to a Lok Adalat if both the parties agree. A case can also be transferred to a Lok Adalat if one party applies to the court and the court sees some chance of settlement after giving an opportunity of being heard to the other party.

The focus in Lok Adalats is on compromise. When no compromise is reached, the matter goes back to the court. However, if a compromise is reached, **an award is made and is binding on the parties. It is enforced as a decree of a civil court. An important aspect is that the award is final and cannot be appealed, not even under Article 226 because it is a judgement by consent.**

All proceedings of a Lok Adalat are deemed to be judicial proceedings and every Lok Adalat is deemed to be a Civil Court.

SOURCE: Lawtopus and newspapers

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All India Radio (AIR--News From 05th June to 07th June 2020)

SPECIFIC AIR NEWS NOT COVERED ABOVE

1. Govt promulgates ordinance to amend Insolvency & Bankruptcy Code

Union Government has ***promulgated an ordinance to amend *Insolvency and Bankruptcy Code****. Under it, fresh insolvency proceedings will not be initiated for defaults due to the COVID-19 pandemic.

Insolvency and Bankruptcy Code

- ❖ ***Till the year 1985***, the legal framework for dealing with corporate insolvency and bankruptcy in India consisted of only one law — the Companies Act, 1956. In 1985, the Sick Industrial Companies Act, 1985 (SICA), followed by the Recovery of Debts Due to Banks and Financial Institutions Act, 1993 (RDDBFI) under which debt recovery tribunals (DRTs) were established and finally, the Securitisation and Reconstruction of Financial Assets and Enforcement of Securities Interest Act (SARFAESI) was enacted in 2002.
- ❖ ***Insolvency and Bankruptcy Code 2016 was implemented through an act of Parliament***. It got Presidential assent in May 2016. The law was necessitated due to huge pile-up of non-performing loans of banks and delay in debt resolution.
- ❖ ***IBC applies to companies, partnerships and individuals***. It provides for a time-bound process to resolve insolvency.
- ❖ When a default in repayment occurs, creditors gain control over debtor's assets and must take decisions to resolve insolvency. ***Under IBC debtor and creditor both can start 'recovery' proceedings against each other***.
- ❖ ***Companies have to complete the entire insolvency exercise within 180 days under IBC***. The deadline may be extended if the creditors do not raise objections on the extension.
- ❖ ***For smaller companies including startups with an annual turnover of Rs 1 crore, the whole exercise of insolvency must be completed in 90 days*** and the deadline can be extended by 45 days. If debt resolution doesn't happen the company goes for liquidation.

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- ❖ ***Insolvency and Bankruptcy Board of India has been appointed as a regulator and it can oversee these proceedings.*** IBBI has 10 members; from Finance Ministry and Law Ministry the Reserve Bank of India.
- ❖ The proceedings of the resolution process will be adjudicated by the ***National Companies Law Tribunal (NCLT), for companies and the Debt Recovery Tribunal (DRT) for individuals.***

SOURCE: Indian Express and Economic Times

2. New Orientation for a Reformed Multilateral System to be India's approach at UNSC

- External Affairs Minister Dr S. Jaishankar asserted that ***India's overall objective during the fresh tenure in the UN Security Council will be the achievement of N.O.R.M.S.,*** New Orientation for a Reformed Multilateral System.
- He highlighted India's priorities for its forthcoming campaign to secure an elected seat in the ***UN Security Council***. The election for the UN Security Council is slated to be held on 17th of this month.
- ***As a single endorsed candidate of the Asia-Pacific Group,*** India's candidature is very likely to succeed.
- ***This would be the nation's eighth term in the UN Security Council*** which will begin from January next year.

Asia-Pacific Group

- ❖ ***The Asia Pacific Group on Money Laundering is an inter-governmental organization*** working to implement international standards for the prevention of money laundering and terrorist financing in the Asia Pacific region.
- ❖ The Asia Pacific Group (APG) is an ***evolution of the FATF-Asia (Financial Action Task Force) Secretariat, which was originally formed in 1995.*** After the last meeting of the secretariat in 1997, the APG was established with 13 founding members and a goal to ensure AML compliance across the region. ***After September 11, that goal expanded to include countering terrorist financing.***

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- ❖ Today, the **APG has grown to include 41 member-states, including India**, along with 8 observer states, and a number of observer organizations, including the International Monetary Fund, the United Nations, and the World Bank.
- ❖ The APG's activities are supported and coordinated by its Secretariat, **headquartered in Sydney, Australia**.
- ❖ **As of February 2020, 2 countries are in FATF blacklist** i.e. North Korea and Iran and **18 countries are in the FATF Grey List**. Pakistan, Myanmar, Mongolia, Zimbabwe, Yemen, Syria are some of the countries listed in the FATF grey list.
- ❖ **Simply**, The Asia/Pacific Group on Money Laundering (APG) is a FATF style regional inter-governmental (international) body, the members of which are committed to implement international standards against money laundering (AML), the financing of terrorism (CTF) and financing the proliferation of weapons of mass destruction.

Why Important?

- ❖ **FATF membership is very important for India in its quest to become a major player in the International finance**. It will help India to build the capacity to fight terrorism and trace terrorist money and to successfully investigate and prosecute money laundering and terrorist financing offences. India will benefit in securing a more transparent and stable financial system by ensuring that financial institutions are not vulnerable to infiltration or abuse by organized crime groups. The FATF process will also help us in co-ordination of AML/CTF (Anti-money laundering and Combating the financing of terrorism) efforts at the international level.

UN Security Council

- ❖ **The Security Council is the United Nations' most powerful body**, with "primary responsibility for the maintenance of international peace and security." Five powerful countries sit as "permanent members" along with ten elected members with two-year terms.
- ❖ **The United Nations Charter established six main organs of the United Nations, including the Security Council**. It gives primary responsibility for maintaining international peace and security to the Security Council, which may meet whenever peace is threatened.
- ❖ **According to the Charter, the United Nations has four purposes:**
 - to maintain international peace and security;
 - to develop friendly relations among nations;

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- to cooperate in solving international problems and in promoting respect for human rights;
 - and to be a centre for harmonizing the actions of nations.
- ❖ ***Beyond permanency itself, the veto power is probably the UN Charter's most significant distinction*** between permanent and non-permanent members.
- ❖ All five permanent members are Veto powers unlike non-permanent members.

India and UNSC

- ❖ ***India, Germany, Brazil and Japan have formed the G4 bloc*** to press for their permanent membership demand as part of the reforms in the United Nations.
- ❖ ***China, which has veto power in the UNSC being one of its five permanent members, has been stonewalling India's efforts*** to become permanent member of the powerful UN body for years, pointing out lack of consensus even though the other four -- US, UK, France and Russia -- have backed New Delhi's membership.
- ❖ ***China however has backed India for non-permanent membership of the UNSC for the year 2021-22.***
- ❖ ***India deserves to be in the list of permanent members not only because*** of the one-sixth world's population that resides in India but because of the following reasons:
- ***Being a founding member of the UN***, India has always respected, participated and supported the United Nations.
 - ***India is not only funding the UN substantially, but it is also leading the peace-keeping operations*** of the UN; upholding the principles & credentials of the UN.
 - ***India is a major emerging economic power*** & follows an independent foreign policy, which signifies India's stand on any issue on multinational forum.
- ❖ ***Permanent membership of the Security Council is an important and legitimate aspiration for India*** in order to play its rightful role in the maintenance of international peace and security. Absence of this membership weighed heavily on the Indian leadership in 1971 during the liberation of Bangladesh, with

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Kissinger's famous "tilt" towards Pakistan, the USSR using its veto in the Security Council in favour of India and the American's nuclear armed aircraft carrier "Enterprise" from its Seventh Fleet, moving steadily towards the Indian Ocean. Though this is now history, it underlines once again the importance of India's permanent membership of the Security Council.

- ❖ ***On disarmament and security, the most important Specialised Agency is the IAEA*** (International Atomic Energy Agency), the United Nations Nuclear Watchdog. India is a permanent member of the IAEA Board of Governors and plays a crucial role in its deliberations.
- ❖ ***There are several underlying facts and event*** which make India a strong contender of UNSC permanent seat but use of VETO by China is itself a roadblock, undermining the progressive relation between both the economic powerful countries.

SOURCE: MEA, The Hindu, IDSA and Rajya Sabha TV

#CSIRs 'JIGYASA' a Student-Scientist connect program

- ❖ "JIGYASA" is one of the ***major initiatives taken up by CSIR*** at national level for further widening and deepening its Scientific Social Responsibility (SSR). On the one hand, this programme would explain the culture of curiousness and scientific nature on the other.
- ❖ ***Council of Scientific and Industrial Research (CSIR), has launched a student-scientist connect programme 'JIGYASA' in collaboration with Kendriya Vidyalaya Sangathans (KVS);*** the sole objective of which is extending the classroom leaning and focusing on a well-planned research laboratory-based learning.

SOURCE: CSIR Website

#Australia-India Strategic Research Fund (AISRF)

- ❖ ***A platform for bilateral collaboration in science,*** jointly managed and funded by the governments of India and Australia.
- ❖ It supports scientists in India and Australia to collaborate on leading-edge research. It was ***established in 2006.***

SOURCE: AISRF Website

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#COVID BEEP

- ❖ COVID BEEP is **India's first indigenous**, cost effective, wireless physiological parameters monitoring system for COVID-19 patients.
- ❖ The latest version of COVID BEEP has **incorporated NIBP (non-invasive blood pressure) monitoring, ECG (electrocardiogram) monitoring and the respiratory rate.**

SOURCE: PIB and AIR

#sovereign Gold Bond Scheme

- ❖ **SGBs are government securities denominated in grams of gold.** They are substitutes for holding physical gold. Investors have to pay the issue price in cash and the bonds will be redeemed in cash on maturity. The Bond is issued by Reserve Bank on behalf of Government of India.
- ❖ **There may be a risk of capital loss** if the market price of gold declines. However, the investor does not lose in terms of the units of gold which he has paid for.
- ❖ **The tenor of the bond is for a minimum of 8 years** with option to exit in 5th, 6th and 7th years. These Bonds will carry sovereign guarantee both on the capital invested and the interest.
- ❖ **Bonds are sold through offices or branches of Nationalised Banks,** Scheduled Private Banks, Scheduled Foreign Banks, designated Post Offices, Stock Holding Corporation of India Ltd. (SHCIL) and the authorised stock exchanges either directly or through their agents.

SOURCE: RBI

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SUMMARY AND RELEVANT TERMS
EXPLAINED FROM PIB AND AIR

DATED: 08.06.2020 TO 10.06.2020



Public Information Bureau (PIB-- News From 08th June to 10th June 2020)

1. Phone call between Prime Minister of India and Cambodia

- Prime Minister conveyed India's commitment for further strengthening its relationship with Cambodia, an important member of **ASEAN** with ***shared civilizational and cultural ties with India.***
- The leaders reviewed the robust development partnership between both countries, including capacity building programmes under the **ITEC scheme** and **Quick Impact Projects** under the **Mekong-Ganga Cooperation framework.**
- Prime Minister reciprocated the sentiment and stressed Cambodia's valued role in India's **Act East policy.**

ASEAN

- The Association of Southeast Asian Nations (more commonly known as ASEAN) is an intergovernmental organization aimed primarily at ***promoting economic growth and regional stability among its members.***
- ***There are currently 10 member states:*** Indonesia, Malaysia, Philippines, Singapore, Thailand, Brunei, Laos, Myanmar, Cambodia and Vietnam.
- ASEAN was founded half a century ago in 1967 by the five Southeast Asian nations of Indonesia, Malaysia, Philippines, Singapore and Thailand. This was during the polarized atmosphere of the Cold War, and ***the alliance aimed to promote stability in the region. Over time, the group expanded to include its current 10 members.***
- ***Regional cooperation was further extended with the creation of the ASEAN Plus Three*** forum in 1997, which included China, South Korea and Japan. And then the ***East Asia Summit***, which began taking place in 2005 and has expanded to include India, Australia, New Zealand, Russia and the United States.
- ***In 2015, it established the ASEAN Economic Community (AEC),*** a major milestone in the organization's regional economic integration agenda. The AEC envisions the bloc as a single market with free flow of goods, services, investments and skilled labour, and freer movement of capital across the region.

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Why ASEAN matters to India?

- ***The main forum for ASEAN security dialogue is the ASEAN Regional Forum (ARF).*** India has been attending annual meetings of this forum since 1996 and has actively participated in its various activities.
- ***The ASEAN Defence Ministers' Meeting (ADMM) is the highest defence consultative and cooperative mechanism in ASEAN.*** The ADMM+ brings together Defence Ministers from the 10 ASEAN nations plus Australia, China, India, Japan, New Zealand, Republic of Korea, Russia, and the United States on a biannual basis.
- When it comes to competing in the world economy, the Chinese dragon always win hands down against the Indian elephant. India's share in world trade is stuck at around 1.8% since 2011, whereas that for China this figure is close to 12%. ***For the Indian elephant to catch the Chinese dragon at the halfway mark by 2020, the export figure needs to grow in excess of 30% annually. Indeed, a hard task at hand.***
- Now it appears India has found a true friend in ASEAN. The day of reckoning from “look east” to “act east” has finally arrived as India host 10 leaders from ASEAN region as chief guests for the 2018 Republic Day parade. ***For India, hoping to grab 5% share of global trade by 2020 it is important that India nurture this friendship with the ASEAN region.***
- Although focus of the meeting is on maritime cooperation and security, trade and investment flows are important. Between 2008 and 2016, India's trade with ASEAN region has increased faster than two of its two largest trading partners, namely, European Union and the U.S. ***The two-way trade between India and ASEAN has moved from \$65.1 billion in 2015-2016 to \$71.6 billion 2016-2017.*** However, this figure is a meagre in comparison to China's \$452.3 billion in 2016.
- ***There are also other elements of complementarities.*** India's nuclear power plant is yet to become fully operational. The energy source, particularly hydroelectric power generation on the Mekong river can be of use to the booming and fuel hungry economy of India.
- Similarly, electric power generations in India are mainly coal based. ***Indonesia possesses the largest and most easily accessible coal reserve in the ASEAN region.***
- ***Malaysia sits on huge natural gas reserve. Vietnam is a major exporter of oil.*** All this can help India. India can gain by becoming a partner for the proposed Trans-ASEAN pipeline project. This project aims to develop a regional gas grid by 2020, by linking the existing and planned gas pipeline networks of the ASEAN member states.

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- ***A robust India-ASEAN relation will also open up opportunity for people to people contact.***
India has abundance supply of skilled professionals in areas related to computer and information services, other business services such as financial, medical tourism, insurance, etc., and movement of natural persons such as IT professionals and sea farers.
- ***The rise of e-commerce, especially in economies like Malaysia and Thailand*** presents an opportunity for Indian IT firms. Similarly, India offer a great place for medical tourism and education, something that Asean counterpart can make use of.

SOURCE: ASEAN Website, WEF, MEA and Fortune India

ITEC scheme

- The Indian Technical and Economic Cooperation Programme (ITEC) was ***launched by Government of India on 15th September 1964 as a programme of bilateral cooperation and technical assistance.***
- ***Presently 158 countries in Asia, East Europe (including former USSR), Central Asia, Africa, Latin America, the Caribbean as well as Pacific and Small Island countries*** are invited to share in the Indian developmental experience in various fields. North Korea became India's ITEC partner in 1993.
- The ITEC Programme is ***fully funded by the Government of India***: The expenses on training under ITEC Programme, i.e. tuition fees, living allowances, study tours, emergency medical assistance as well as return international air fares are borne by the Government of India.

SOURCE: MEA and Embassy of India, Pyongyang

Mekong-Ganga Cooperation framework

- ***The Mekong-Ganga Cooperation (MGC) is an initiative by six countries – India and five ASEAN countries,*** namely, Cambodia, Lao PDR, Myanmar, Thailand and Vietnam for cooperation in tourism, culture, education, as well as transport and communications. It was launched in 2000 at Vientiane, Lao PDR.
- ***Both the Ganga and the Mekong are civilizational rivers,*** and the MGC initiative aims to facilitate closer contacts among the people inhabiting these two major river basins. The MGC is also indicative of the cultural and commercial linkages among the member countries of the MGC down the centuries.

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- Probably no other country has such strong links with the Mekong subregion as much as India by way of religion, language, culture and civilisation. Peoples in Southeast Asia seem to enjoy and treasure the feelings of this closeness.
- Since the establishment of MGC, India's trade with Mekong countries has increased substantially. India's total trade with Mekong countries in the year 2000 was just a mere US\$ 1.32 billion, which increased to US\$ 19.31 billion in 2015. **Thailand, Vietnam and Myanmar are the top three trading partners of India in MGC.**
- **However, India's pattern of trade with Mekong countries is relatively asymmetric**, thereby implying high unlocked trade potential. The trade relations between India and Mekong countries has received a fillip through ASEAN-India FTA, implemented in 2010, that India has set free over 4000 products by 2016.
- The recently held meeting in 2019 reviewed the progress made since the 9th MGC ministerial meeting held in Singapore on August 2, 2018 **in all seven areas of cooperation -- tourism and culture, education, science and technology, traditional medicine and health, agriculture and allied sectors, water resources management, transportation and communication, and small and medium enterprises.**
- Other notable initiatives under the Mekong Ganga Cooperation initiative include the **MGC Asian Traditional Textile Museum (MGC ATTU) in Siem Reap, Cambodia and the Common Archival Resource Centre (CERC) at Nalanda University, Rajgir.**

SOURCE: MEA and Business Standard

Quick Impact Projects

- **The QIPs mostly cover upgradation of physical infrastructure** such as roads, local community centres, social infrastructure such as in the education, health, sanitation or community development sectors. The short gestation projects are aimed to directly benefit locals, with immediate and visible results.
- Quick Impact Projects **similar to the Small Development Project (SDP)** have shorter gestation period and the results are for everyone to see.
- **Under the Mekong-Ganga Cooperation (MGC)** an initiative by six has been decided to offer Indian grant assistance for implementation of small projects with capital cost of US\$ 50000 (about Rs 34 lakhs) under the QIP.

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- The term Quick Impact Project (QiP) was **first used by UNHCR in 1991 to describe small-scale, low cost projects designed to assist reintegration of returnees** and displaced persons in Nicaragua.

SOURCE: Hindustan Times and UNHCR

Act East policy

- India's 'Act East' policy is a **diplomatic initiative to promote economic, strategic and cultural relations with the vast Asia-Pacific region at different levels**. The country's eastward drive since 1992 has underscored the importance of this region in its contemporary international relations. 'Act East' and its early avatar, 'Look East' are not different; rather, they are two sides of the same coin, representing two different, but continuing phases in the evolution of India's policy towards the Asia-Pacific region.
- When India launched the Look East policy in 1991, its own economic strength, its global status and the external environment were not what they are at present. At the time of its launch, India was struggling to transition from a state-controlled economic regime to a more liberalised one.
- **With an aim to increase India's soft power in the region and to increase trade between nations**, the government has taken a stand with the aim to have friendly relations with all nations and increase its role in the region in terms of strategic partnership and fair trade in the backdrop of Chinese aggression.
- **The north eastern region has been a priority in the government's Act East policy which envisages itself as an interface between India's north east and the ASEAN region**. It is aimed at ensuring the overall development of north eastern states in terms of people to people contact, border trade through border haats, cultural ties, infrastructure projects, for example, Kaladan Multi-modal Transit Transport project, India-Myanmar-Thailand Trilateral Highway project, Rhi-Tiddim road project etc.
- Also, India is **now actively engaged in regional initiatives such as** Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), Asia Cooperation Dialogue, Mekong Ganga cooperation.
- **The policy has also placed an emphasis on India-ASEAN cooperation** in India's domestic agenda on infrastructure, manufacturing, trade, skills, urban renewal, smart cities, Make in India etc.

SOURCE: ORF and Financial Express

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2. Annual allotment of Rs. 4000 crores made to State Governments under 'Per Drop More Crop' component of Pradhan Mantri Krishi Sinchayee Yojana (PMKSY- PDMC) for the year 2020-21

- Department of Agriculture Cooperation & Farmers' Welfare is implementing 'Per Drop More Crop' component of **Pradhan Mantri Krishi Sinchayee Yojana** (PMKSY- PDMC).
- The PMKSY- PDMC focuses on enhancing water use efficiency at farm level through **Micro Irrigation** technologies viz. Drip and Sprinkler irrigation systems.
- Drip micro irrigation technique not only helps in water saving but also in reducing fertilizer usage, labour expenses and other input costs.
- Micro Irrigation Fund corpus of Rs. 5000 crores have been created with NABARD.
- The objective of the fund is to facilitate the states in mobilizing the resources for expanding coverage of Micro Irrigation by taking up special and innovative projects and also for incentivising micro irrigation beyond the provisions available under PMKSY-PDMC to encourage farmers to install micro irrigation systems.

Pradhan Mantri Krishi Sinchayee Yojana

- ***The major objective of PMKSY is to achieve convergence of investments*** in irrigation at the field level, expand cultivable area under assured irrigation, improve on-farm water use efficiency to reduce wastage of water, enhance the adoption of precision-irrigation and other water saving technologies (More crop per drop), enhance recharge of aquifers and introduce sustainable water conservation practices by exploring the feasibility of reusing treated municipal waste water for peri-urban agriculture and attract greater private investment in precision irrigation system.
- ***PMKSY has been conceived amalgamating ongoing schemes viz.***
 - Accelerated Irrigation Benefit Programme (AIBP) of the Ministry of Water Resources, River Development & Ganga Rejuvenation (MoWR, RD&GR),
 - Integrated Watershed Management Programme (IWMP) of Department of Land Resources (DoLR) and
 - The On-Farm Water Management (OFWM) of Department of Agriculture and Cooperation (DAC).

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- The scheme will be implemented by Ministries of Agriculture, Water Resources and Rural Development.
- **Ministry of Rural Development is to mainly undertake** rainwater conservation, construction of farm pond, water harvesting structures, small check dams and contour bunding etc.
- **MoWR, RD & GR, is to undertake** various measures for creation of assured irrigation source, construction of diversion canals, field channels, water diversion/lift irrigation, including development of water distribution systems.
- **It will be operative as convergence platform for all water sector activities** including drinking water & sanitation, MGNREGA, application of science & technology etc. through comprehensive plan. State Level Sanctioning Committee (SLSC) chaired by the Chief Secretary of the State will be vested with the authority to oversee its implementation and sanction projects.
- **The programme will be supervised and monitored by an Inter-Ministerial National Steering Committee (NSC)** will be constituted under the Chairmanship of Prime Minister with Union Ministers from concerned Ministries.
- **A National Executive Committee (NEC)** will be constituted under the Chairmanship of Vice Chairman, NITI Aayog to oversee programme implementation, allocation of resources, inter-ministerial coordination, monitoring & performance assessment, addressing administrative issues etc.

SOURCE: PMKSY Website

Micro Irrigation

- **Micro irrigation is a modern method of irrigation;** by this method water is irrigated through drippers, sprinklers, foggers and by other emitters on surface or subsurface of the land.
- **Drip irrigation is most suitable for wider spacing crops.** Micro sprinkler irrigation system is mostly followed in sandy or loamy soils. This system is most suitable to horticultural crops and small grasses. In this method water is sprinkled in a lower height at various directions.
- Portable micro sprinklers are also available. **They distribute slightly more water than drippers and micro sprinklers.** They spray water in not more than one meter. It is used for preparing nursery and lawns in soils with low water holding capacity.

➤ Advantages of drip irrigation system:

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- Higher Profits
 - Water Saving & Water Use Efficiency (WUE)
 - Less Energy Costs
 - Higher fertilizer-use efficiency (FUE)
 - Reduced Labour Costs
 - Reduce Soli Loss
 - Marginal Solis & Water
 - Efficient & Flexible
 - Improved Crop Quality
 - Higher Yields
 - Suitable for all types of soil
 - Easy method of fertigation and chemigation
- **Disadvantage of drip irrigation system:**
- High initial investment
 - Clogging of emitters
 - Possible damage of system components due to animals, etc.,

SOURCE: PMKSY and Newspapers

3. QCI Celebrates the World Accreditation Day 2020;

- ***The World Accreditation Day (WAD) is celebrated on 9th June*** every year to highlight as well as promote the role of accreditation in trade & economy.
- ***The theme for WAD 2020 is “Accreditation: Improving Food Safety”***, as decided by the International Accreditation Forum (IAF) and the International Laboratory Accreditation Cooperation (ILAC).
- ***National Accreditation Board for Certification Bodies (NABCB) and National Accreditation Board for Testing and Calibration Laboratories (NABL)***, are two accreditation boards of the ***Quality Council of India (QCI)***.

National Accreditation Board for Certification Bodies (NABCB)

- ***NABCB, a constituent Board of the Quality Council of India, an autonomous body attached to the Ministry of Commerce and Industry***, is responsible for accreditation of certification/inspection bodies as per applicable international standards under an international system of equivalence.

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- **NABCB signed the Mutual Recognition Arrangement (MRA) of the Asia Pacific Accreditation Cooperation (APAC)** for its accreditation programme based on international standard, ISO/IEC 17024.
- **ISO/IEC 17024: Conformity assessment** – General requirements for bodies operating certification of persons specifies criteria for the operation of a Personnel Certification Bodies (also known as a certification body for persons). The standard includes requirements for the development and maintenance of the certification schemes for persons upon which the certification is based.
- With the above recognition, **NABCB hopes to facilitate export of Indian services and skills into the world** market by attesting that persons are certified following international standards by the certifying bodies.
- **Personnel Certification would support many professionals in India**, especially those who do not have formal education or certificate programme.
- Any person carrying ISO/IEC 17024 certificate with NABCB logo will be recognized internationally.
- **Accreditation is the formal recognition by an accreditation authority** to the technical and organisational competence of a conformity assessment body to carry out a specific service in accordance to the standards and technical regulations as described in their scope of accreditation. QCI is the accreditation authority in India.
- **Accreditation reduces risk for business and its customers** by assuring that accredited Conformity Assessment Bodies (CABs) are competent to carry out the work they undertake within their scope of accreditation.

SOURCE: NABCB Website

National Accreditation Board for Testing and Calibration Laboratories (NABL)

- **National Accreditation Board for Testing and Calibration Laboratories (NABL) is a Constituent Board of Quality Council of India.**
- NABL has been established with the **objective to provide Government, Industry Associations and Industry** in general with a scheme for third-party assessment of the quality and technical competence of testing and calibration laboratories.

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- **NABL is a full member (MRA signatory) to International Laboratory Accreditation Co-operation (ILAC)** as well as Asia Pacific Laboratory Accreditation Co-operation (APLAC) since 2000 on the basis of peer evaluation by APLAC as per ISO/IEC 17011:2004.

Accreditation areas

Testing: Biological, Chemical, Electrical, Electronics, Fluid-Flow, Mechanical, Non-Destructive Testing, Photometry, Radiological, Thermal, Forensic, Medical

Calibration: Electro-Technical, Mechanical, Fluid flow, Thermal & Optical, Radiological

SOURCE: NABL Website

Quality Council of India (QCI)

- Quality Council of India (QCI) was **set up in 1997 jointly by the Government of India and the Indian Industry represented by the three premier industry associations i.e. Associated Chambers of Commerce and Industry of India (ASSOCHAM), Confederation of Indian Industry (CII) and Federation of Indian Chambers of Commerce and Industry (FICCI)**, to establish and operate national accreditation structure and promote quality through National Quality Campaign.
- The Department of Industrial Policy & Promotion, Ministry of Commerce & Industry, is the **nodal ministry for QCI**.
- **It is an autonomous body under the administrative control** of the Department to establish and operate the National Accreditation Structure for conformity assessment bodies; providing accreditation in the field of education, health and quality promotion.
- **Besides the role of putting in place the accreditation structure, it also promotes** the adoption of quality standards relating to **Quality Management Systems (ISO 14001 Series), Food Safety Management Systems (ISO 22000 Series) and Product Certification and Inspection Bodies** through the accreditation services provided by National Accreditation Board for Certification Bodies (NABCB).
- QCI chairman is nominated by the Prime Minister of India.

QCI vs BIS

- **The Bureau of Indian Standards (BIS), the National Standards Body of India**, set up under the Bureau of Indian Standards Act, 1986.

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- **The Bureau is a body corporate and responsible for formulating National Standards.** It comprises of members representing the Industry, Consumer Organizations, Scientific & Research Institutes and Professional Bodies, Technical Institutions, Central ministries, State Governments and Members of Parliament.
- **Its main activities are:**
 - Standards Formulation,
 - Certification,
 - Laboratory Testing,
 - Calibration and Management,
 - Standards Promotion and Training,
 - International Cooperation in the field of Standards.
- Quality Council of India (QCI) is National Accreditation body. It is an autonomous body **under Department of Industrial Policy and Promotion (DIPP)**. Its main activities are development and implement accreditation schemes through its constituent boards, promotion of quality, both national and international levels.

SOURCE: QCI Website

4. Anti-microbial multilayer face mask to annihilate pathogenic microorganisms

- **This face mask can annihilate pathogenic microorganisms** that are stuck to its outer surface and thereby limit the spread of secondary infections.
- **The first layer of the mask** can degrade any type of RNA, the next layer is anti-microbial, the third one is for air filtration, and the fourth and fifth layers are 'comfortable layers', which will remain close to the nose and mouth.
- "Copper and silver are de-**transition elements** and as per our knowledge they can degrade this virus and all the other members of SARS virus. We took a cocktail combination of copper, copper oxides, silver, and activated charged silver, which can help degrade RNA," said Dr Marshal.
- The mask has **hydrophobic surface on the outer layer** to deflect water droplets containing the viruses.

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Transition elements

- **The general properties of the transition elements are:**
 - They are usually high melting point metals.
 - They have several oxidation states.
 - They usually form colored compounds.
 - They are often paramagnetic.
- **The transition elements include** the important metals iron, copper and silver. Iron and titanium are the most abundant transition elements. Many catalysts for industrial reactions involve transition elements.
- **Many of the elements are technologically important:** titanium, iron, nickel, and copper, for example, are used structurally and in electrical technology.
- **Second, the transition metals form many useful alloys,** with one another and with other metallic elements.
- **Third, most of these elements dissolve in mineral acids,** although a few, such as platinum, silver, and gold, are called “noble”—that is, are unaffected by simple (nonoxidizing) acids.

SOURCE: Britannica and Physics

5. Ministry of Tourism brings out the “Hidden Treasures of Chhattisgarh” through 30th webinar under Dekho Apna Desh series

- Chhattisgarh carved out of Madhya Pradesh came into being on **1 November 2000 and is 9th largest state in India.**
- Being Central Eastern state of India, it **borders 7 states, 44% of land covered by forest, 34% of tribal population.**
- With 3 National parks, 11 Wildlife sanctuaries, 1 Bio-sphere reserve it is **one of India's greenest state** and well connected with rest of the country by air, rail and road network.
- **Some of the best waterfalls of country** are in Chhattisgarh, few of them are Chitrakote, Amritdhara, Pawai, Machli etc.
- Chhattisgarh is also blessed with **three shaktipeeths Champaranya, Rajim and Sheorinarayan.**
- **Wrought iron, bell metal and terracotta** are famous handicrafts of Chhattisgarh.

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- **Bastar region has more than 15 waterfalls.**
- **Kotumsar caves, which are largest series of caves after Meghalaya are in Chhattisgarh.**
- **Bastar Dussehra world's longest festival** which is celebrated for 75 days has a different story related to goddess Dhanteswari.
- **Gond's, Madiya, Muriaya's** are some of the tribes making Bastar as the land of indigenous tribes.
- Handicrafts history dates back to Harappan civilization the technique used is **lost wax technique**. Third largest lord Ganesha statue in the world which made of a single sandstone. Cave paintings with 12000 years of history are in Bastar region.
- Lesser known places of tourist interest and experiences that Chhattisgarh offers are:
 - **Karkabhat** – Megalithic burial site generally ignored by tourists. Studies conducted in the area have identified 3 types of menhirs- Conical, pointed obliquely and bifurcated like a fish tail.
 - **Dipadih** – Temple complex dating back to the 7th Century is probably the best kept archaeological secret of Chhattisgarh. Excavated stone pillars have been erected along the path next to the entrance on which are exhibited the mythological creatures.
 - **Ghotul** – It is both an ancient tribal system of education as well as the campus with its own system of hierarchs.
 - **Sonabai**- Famous bas relief ornamentation works of Chhattisgarh got its roots when Sonabai made little toys for her son Daroga Ram to lull him to sleep.

6. Ministry reviews sugar sector related issues with officials of DoFPD

- As **ethanol** is a way forward for sugar sector, all sugar mills are being encouraged to divert excess sugarcane and sugar to fuel grade ethanol to achieve **10% blending target by year 2022**.
- The Government has allowed production of **ethanol from sugar and sugar syrup** for current ethanol supply year 2019-20 (December 2019 - November 2020) and fixed the remunerative ex-mill price of ethanol derived heavy molasses.

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Ethanol

- Ethanol, also called alcohol, ethyl alcohol and grain alcohol, is a **clear, colorless liquid and the principle ingredient in alcoholic beverages** like beer, wine or brandy. Because it can readily dissolve in water and other organic compounds, ethanol also is **an ingredient in a range of products, from personal care and beauty products to paints and varnishes to fuel**.
- Ethanol is a natural by-product of plant fermentation and also can be **produced through the hydration of ethylene**.
- **Ethanol is used in the manufacture of drugs, plastics, lacquers, polishes, plasticizers, and cosmetics**. Ethanol is used **in medicine** as a topical anti-infective, and as an antidote for ethylene glycol or methanol overdose.
- **Commercial products** containing ethanol include beverages, perfumes, aftershaves and colognes, medicinal liquids, mouthwashes, liniments, and some rubbing alcohols.
- **Ethanol is produced through the fermentation of agricultural products** such as sugarcane, corn, and manioc, among others. Most ethanol produced worldwide is from sugarcane, mainly in Brazil. In the United States, ethanol is made from corn.
- Ethanol is more volatile than water, flammable, burns with a light blue flame, and has excellent fuel properties for spark ignition internal combustion engines.
- **Ethanol makes an excellent motor fuel**: it has a motor octane number that exceeds that of gasoline and a vapor pressure that is lower than that of gasoline, which results in lower evaporative emission. Ethanol's flammability in air is also much lower than that of gasoline, which reduces the number and severity of vehicle fires.

Ethanol Blended petrol Programme

- To address environmental concerns due to fossil fuel burning, provide remuneration to farmers, the **Indian government launched Ethanol Blended Petrol (EBP) programme in 2003** for undertaking blending of ethanol in Petrol. This initiative was also undertaken to subsidize crude imports and achieve forex savings.
- **In India, ethanol is primarily manufactured via the fermentation of molasses**, a by-product of the sugarcane-crushing process.
- **The Cabinet Committee on Economic Affairs (CCEA) approved Pradhan Mantri JI-VAN (Jaiv Indian- Vatavaran Anukool fasal awashesh Nivaran) Yojana** which aims to provide financial

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support by Viability Gap Funding (VGF) to Second Generation (2G) Integrated Bioethanol Projects. This is done by using lignocellulosic biomass and other renewable feedstock.

- **The Pradhan Mantri JI-VAN Yojana will be supported by** the total financial outlay of Rs 1959.50 crore for the period 2018-19 to 2023-24.
- The government has also been exploring an alternate route of encouraging the production of second-generation ethanol from biomass and other wastes to bridge the supply gap for ethanol blending programme. The introduction of this fuel has not only environmental benefits but also addresses the country's energy security.
- **In 1975, National Alcohol Programme, "Proálcool" was introduced by the Brazilian government**, after the introduction of this programme, within 6 years; nearly 90 per cent of all the new vehicles sold in the country could run on ethanol. Proálcool programme accelerated ethanol production and today Brazil has become the second-largest ethanol producer in the world.
- The Central Government has scaled up **blending targets from 5% to 10%** under the Ethanol Blending Programme (EBP).
- At present, this programme has been extended to **whole of India except Union Territories of Andaman Nicobar and Lakshadweep** islands with effect from 01st April 2019 wherein OMCs (Oil Marketing Companies) sell petrol blended with ethanol up to 10%.

SOURCE: Financial Times, Dept. of food and public distribution

7. Indian Air Force Inducts Indigenous Airborne Rescue Pod for Isolated Transportation (ARPIT)

- The Indian Air Force has designed, developed and inducted an **Airborne Rescue Pod for Isolated Transportation (ARPIT)**. This pod will be utilised for evacuation of critical patients with infectious diseases including COVID-19 from high altitude area, isolated and remote places.
- The ARPIT utilises **High Efficiency Particulate Air (HEPA)** H-13 class filters and supports invasive ventilation using Transport Ventilator.

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8. Indian Navy Commences evacuation of citizens from Islamic Republic of Iran - "SAMUDRA SETU"

- Indian Navy had launched Operation Samudra Setu to repatriate Indian citizens.
- Indian Naval *ships Jalashwa and Magar have already evacuated* 2874 personnel from Maldives and Sri Lanka to ports of Kochi and Tuticorin.
- In the next phase of Samudra Setu, *Indian Naval Ship Shardul will evacuate* Indian citizens on 08 June 2020 from the port of Bandar Abbas, Islamic Republic of Iran, to Porbandar, Gujarat.

High Efficiency Particulate Air (HEPA)

- The high-efficiency particulate air (HEPA) filter is the best-known air filter. It was **developed during World War II to prevent radioactive particles from escaping from laboratories**. To qualify as a true HEPA filter, it must be able to capture at least 90% of all particles measuring 0.3 microns or larger that enter it.
- **HEPA filters are made of polyolefin and glass**. The majority of fibrous filters are non-uniform in mass and thickness generally, which affects their collection efficiency and pressure drop.
- **Permeability, filtration performance, and attaining uniformity in structure should be considered during development**. The existing high HEPA filters filter particles of more than 0.3 µm with 99.97 % efficiency fibers and could filter particles greater than 0.3 µm by impaction and interception, but they are not sufficient for filtration of smaller pathogenic agents like viruses.

SOURCE: WebMD and Science direct

9. Union Minister Dr. Jitendra Singh inaugurates CAT Bench at Jammu.

- Union Minister of State inaugurated the 18th Bench of **Central Administrative Tribunal (CAT)** for the Union Territories of Jammu and Kashmir and Ladakh.

Central Administrative Tribunal (CAT)

- **The Central Administrative Tribunal had been established under Article 323 - A** of the Constitution for adjudication of disputes and complaints with respect to recruitment and

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conditions of service of persons appointed to public services and posts in connection with the affairs of the Union or other authorities under the control of the Government.

- **Part XIV-A of the constitution provides for the tribunals.** The provision was added through 42nd Amendment Act, 1976.
- **Article 323A and 323B provide** for Administrative Tribunals and Tribunals related to other matters respectively.
- **The CAT exercises original jurisdiction** in relation to recruitment and all service matters of public servants covered by it. Its jurisdiction extends to the all-India services, the Central civil services, civil posts under the Centre and civilian employees of defence services.
- **However**, the members of the defence forces, officers and servants of the Supreme Court and the secretarial staff of the Parliament are not covered by it.
- **Members are drawn from both judicial and administrative streams and are appointed by the president.** They hold office for a term of five years or until they attain the age of 65 years, in case of chairman and 62 years in case of members, whichever is earlier.
- In pursuance of Article 323-A, the Parliament has passed the Administrative Tribunals Act in 1985. The act authorises the Central government to establish one Central Administrative Tribunal and the state administrative tribunals.
- **It is a Statutory Body** established under The Administrative Tribunals Act, 1985 and is directly under the Supervision of the Department of Personnel and Training.
- **A person shall not be qualified for appointment as the Chairman unless he is, or has been, a Judge of a High Court**, provided that a person appointed as Vice-Chairman before the commencement of this Act shall be qualified for appointment as Chairman if such person has held the office of the Vice-Chairman at least for a period of two years.
- **The Central Administrative Tribunal is empowered to frame its own rules of procedure and practice.**
- The Tribunal is **guided by the principles of natural justice** in deciding cases and is not bound by the procedure, prescribed by the Civil Procedure Code.
- The Delhi High Court has held that the Central Administrative Tribunal (CAT) **can exercise the same jurisdiction and powers, as a High Court**, in respect of its contempt proceedings.

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- ***The appeal against the orders of a tribunal could be made in High Court and not in Supreme Court.***
- ***The Supreme Court, in Chandra Kumar Case (1997),*** held that the appeal against the orders of a tribunal could not be made directly in the Supreme Court and an aggrieved person should first approach the concerned High Court.

SOURCE: CAT Website, Financial Times and The Wire

10. CSIR's Anti-Cancer Drug IIM-290 enters Clinical Trial

- CSIR constituent lab CSIR-Indian Institute of Integrative Medicine (IIM) Jammu, has received ***Investigational New Drug (IND) approval*** from New Drugs Division of Central Drugs Standard Control Organization (CDSCO) for a potent anti-cancer, ***New Chemical Entity (NCE) effective against pancreatic cancer*** after successful completion of preclinical development and IND submission.
- This will pave way for CSIR- IIM for conducting the clinical trial of this important drug candidate IIM-290 in ***pancreatic cancer patients***.
- Anti-cancer screening against NCI-60 cancer cell lines panel and clinically validated protein kinase enzymes involved in cancer provided in 2011, provided an initial potent hit (rohitukine, a pure molecule ***natural product from the leaves of a tree from the Western Ghats Dysoxylum binectariferum, commonly known as Indian white cedar***).
- Pertinently, the ***Pancreatic cancer currently ranks 12th among most common cancers in the world*** but has the notorious distinction of being the 4th leading cause of cancer-related deaths.

11. Methodology Issued for Rationalization of Linkages/ Swapping of Coal

- The coal linkages from coal companies have been rationalized ***in order to reduce the distance in transportation of coal from the coal mines to the consumer***. The exercise shall help in reducing the load on the transportation infrastructure and easing the evacuation constraints.
- ***The scheme envisages transfer of coal quantity in terms of gross Calorific Value (GCV) equivalence and is applicable for non-coking coal only.***

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12. JNCASR (Jawaharlal Nehru Centre for Advanced Scientific Research) signs MoU with incubated company for scaling up technology for reducing CO₂ to methanol & other useful chemicals

- The scientific activities which have been agreed upon as part of the MoU are the ***development of efficient catalysts for the conversion of CO₂ to methanol*** and other chemicals, improvisation of the process engineering to enhance the production of chemicals and fuels from anthropogenic CO₂ generated from various sources including coal and natural gas power generation sectors, steel industry, cement industry, and chemical industries and integrating multiple components involved in the ***CCUS (Carbon capture, utilization, and sequestration) to develop a complete solution for the environmental issues due to global warming.***

13. Efforts to enhance cultivation of Heeng and Saffron

- ***Saffron and Heeng (asafoetida)*** are the most valuable spices of the world and widely used in Indian cuisine since time immemorial.
- In India, the annual demand for Saffron spice is 100 tons per year but its average production is about 6-7 tons per year. ***Hence a large amount of Saffron is being imported.***
- Similarly, ***there is no production of heeng in India and currently about 1200 tons of raw heeng worth Rs 600 crore is being imported from Afghanistan, Iran, and Uzbekistan.***
- IHBT (Institute of Himalayan Bioresource Technology, Palampur) has developed the production technology for Saffron and introduced its cultivation in non-traditional areas of Himachal Pradesh and Uttarakhand. ***The Institute has also developed tissue-culture protocol for the production of disease-free corms.***
- ***Heeng is a perennial plant and it produces oleo-gum resin from the roots after five years of plantation.*** It can be grown in unutilized sloppy land of cold desert region.

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All India Radio (AIR--News From 08th June to 10th June 2020)

SPECIFIC AIR NEWS NOT COVERED ABOVE

1. Deep Submergence Rescue Vehicle Complex inaugurated at Visakhapatnam

- The Indian Navy has inducted two such systems which will ***provide rescue cover to submarines on the West and East coast of India respectively.***
- Currently, ***there are about 40 nations that operate submarines in the world out of which only a few have any form of submarine rescue capability.*** The third generation IN submarine rescue capability can, therefore, be called upon to assist during submarine contingencies of other navies in the IOR.

2. DIAT Pune develops Nano-technology based disinfectant spray to combat COVID-19

- Defence Institute of Advanced Technology, a Deemed University, Pune has developed a ***Nanotechnology based disinfectant spray to combat COVID-19 by disinfecting all types of surfaces.***
- ***It has been named "ANANYA".*** This can be used by anyone, from a common man to a healthcare worker, for individual as well as large scale use.
- This Nanotechnology assisted formulation will not only stop the novel coronavirus from entering human body, but it will also kill the virus when the virus comes in contact with this formulation layer on masks and PPEs.

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SUMMARY AND RELEVANT TERMS
EXPLAINED FROM PIB AND AIR

DATED: 11.06.2020 TO 13.06.2020



Public Information Bureau (PIB-- News From 11th June to 13th June 2020)

1. Unleashing Coal: New Hopes for Atmanirbhar Bharat

- The Government of India will launch auction of coal mines for commercial mining with the theme ***“UNLEASHING COAL: NEW HOPES FOR ATMANIRBHAR BHARAT”*** on June 18, 2020.
- The commercial coal mining auctions are completely different from earlier regime of restricted sectors, use and price. Now there are no such restrictions.
- The proposed auctions have terms and conditions which are very liberal allowing new companies to participate in the ***bidding process, reduced upfront amount, adjustment of upfront amount against royalty, liberal efficiency parameters to encourage flexibility*** to operationalize the coal mines, transparent bidding process, 100% FDI through automatic route allowed and reasonable financial terms and revenue sharing model based on ***National Coal Index***.
- The successful bidders also will have flexibility in coal production unlike past and have provision for incentives for early production and ***coal gasification***.
- These efforts will supplement the 01 billion tonne coal production likely from Coal India in FY 23-24 and meet full requirement of domestic thermal coal.

National Coal Index

- ❖ ***Based on the Recommendations of the High-Powered Committee Chaired by Shri Pratyush Sinha***, Ex. CVC, Ministry of Coal has prepared the National Coal Index (NCI) ***to be used for the purpose of the Auction of Coal Mines for Commercial Mining*** on Revenue Share Basis. The detailed concept and methodology for the NCI have been developed by the Indian Statistical Institute, Kolkata.
- ❖ ***Panel has proposed one index that would link directly to foreign indexes***, such as in Indonesia and Australia and a second proposal that measures the value and volume of all coal transactions, including imports, and compares them to a base period.
- ❖ ***NCI is the weighted average of the change in price level of coal based on the price level of FY 2017-18.***
- ❖ ***India's miners are rejecting establishment of national coal index*** that would be linked to international prices because it could make domestic supply uncompetitive. The weightage of

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lower grades accounts for almost 70% of total (Indian) production. Contrary to this, global indexes are based on higher gross calorific value coals.

- ❖ **Worry to the miners is**, local coal prices would likely rise as a result of either proposed index, reducing the competitiveness of local supply, which typically has a lower heat content, to imports. It will hike local coal prices closer to international prices, potentially denting local coal's competitiveness as it is typically lower quality.
- ❖ As per The Federation of Indian Mineral Industries (FIMI) **Indian coal market has not matured enough to be linked with such indexes**. Indian coal is still suffering badly with quality issues at mines, prices are offered ex-mine unlike global indexes.

SOURCE: Business Line, Financial Express and Min. of coal

Coal Gasification

- ❖ **Coal gasification is the process of converting coal into synthesis gas (also called syngas), which is a mixture of hydrogen (H₂), carbon monoxide (CO) and carbon dioxide (CO₂).** The syngas can be used in a variety of applications such as in the production of electricity and making chemical products, such as fertilisers.
- ❖ The coal gasification process holds good potential in the future, with coal being the most abundantly available fossil fuel across the world, and that **even low-grade coal can be used in the process**.
- ❖ **Coal gasification can also help address local pollution problems** that have in recent months brought parts of the country to a virtual standstill.
- ❖ **But there are two big problems.**
 - **First, coal gasification actually produces more CO₂** than a traditional coal plant;
 - **The second problem is water use.** Coal gasification is one of the more water-intensive forms of energy production.

How Coal gasification can help India?

- ❖ According to the Ministry of Chemicals and Fertilisers, urea is currently produced using pooled natural gas, which comprises of both domestic natural gas and imported LNG. **The usage of locally available coal for making fertilisers would help reduce the import of LNG.**

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- ❖ **India has about 300 billion tonnes of proven and unproven reserves, the majority of which is low-rank high ash coal.** By enriching and exploiting Indian coal endowments through gasification and carbon capture a clean coal-based economy for power, chemicals, fuels, steel, oil, and fertilisers can enable a \$50 billion direct increase in the gross domestic product (GDP) while creating employment for over half-a-million people, reducing imports by over \$30 billion **and cutting the current account deficit by 50 per cent.**
- ❖ **Along with gasification of coal, carbon capture, use and storage (CCUS)** is one of the cornerstones of enabling a clean coal-based economy. The CCUS technology along with coal gasification, when implemented with policy support, offers multiple benefits by engendering a carbon-neutral industrial ecosystem while reducing our extreme dependence on crude oil imports.
- ❖ **Simply put, CCUS is the process of capturing waste CO₂** from emissions produced from the use of fossil fuels in power generation or industrial processes and then compressing and converting it into liquid form, which is then piped and stored underground -- or used for commercial activities.
- ❖ **CCUS yields two major benefits:** First, it can take out more than 90 per cent of the CO₂ from emission streams; and second, it can offer a range of economic goods and revenue streams in the energy and core sectors.
- ❖ Analysis show that with the right policy initiatives and market design, hyper-scale coal gasification, based on low-grade Indian coal, along with **CCUS can enable large-scale carbon-neutral industries such as methanol, ammonia/fertiliser, olefins, steel, and power while enhancing India's oil production from its depleting oilfields.**
- ❖ **It will be geared towards reducing India's reliance on imports and helping the country meet its CoP-21 Paris Agreement commitments.**

SOURCE: Indian Express, USED A and Economic Times

2. Mumbai will soon be able to predict floods before they happen, helping protect property and save lives

- In a bid to aid in the mitigation activities of the flood prone city, Municipal Corporation of Greater Mumbai, Govt of Maharashtra approached the Ministry of Earth Sciences (MoES) to develop an **Integrated Flood Warning System for Mumbai** referred to as, **IFLOWS-Mumbai**.

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- ***I-FLOWS is built on a modular structure and comprises of seven modules***, namely Data Assimilation, Flood, Inundation, Vulnerability, Risk, Dissemination Module and Decision Support System.
- Using this, it will be possible to have an estimate of the ***flood inundation 3 days in advance***, along with 3 hours - 6 hours Nowcast (immediate weather updates).
- Based on inputs from weather models, Hydrologic models are used to transform rainfall into runoff and provides inflow inputs into the river systems.
- ***Hydraulic models are used to solve equations of fluid motion to replicate the movement of water to assess flooding in the study area.***
- Since, Mumbai is an island city with its connectivity to sea, hydrodynamic models and storm surge model are used to calculate the tide and storm surge impacts on the city.
- A web **GIS** based decision supports system is built to calculate the vulnerability and risk of elements exposed to flood.

GIS

- ❖ A geographic information system (GIS) is a ***framework for gathering, managing, and analyzing data.***
- ❖ ***Rooted in the science of geography, GIS integrates many types of data.*** It analyzes spatial location and organizes layers of information into visualizations using maps and 3D scenes. With this unique capability, GIS reveals deeper insights into data, such as patterns, relationships, and situations—helping users make smarter decisions.
- ❖ GIS technology ***applies geographic science with tools for understanding and collaboration.*** It helps people reach a common goal: to gain actionable intelligence from all types of data.
- ❖ GIS applications have evolved from their foundation in map production to advanced analysis tools for planning and operations. ***GIS products are commonly used by utilities for marketing, facilities location, and engineering applications.***
- ❖ ***Many different types of information can be compared and contrasted using GIS.*** The system can include data about people, such as population, income, or education level. It can include information about the landscape, such as the location of streams, different kinds of vegetation, and different kinds of soil. It can include information about the sites of factories, farms, and schools, or storm drains, roads, and electric power lines.

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- ❖ ***With GIS technology, people can compare the locations of different things in order to discover how they relate to each other.*** For example, using GIS, a single map could include sites that produce pollution, such as factories, and sites that are sensitive to pollution, such as wetlands and rivers. Such a map would help people determine where water supplies are most at risk.
- ❖ ***GIS applications include both hardware and software systems.*** These applications may include cartographic data, photographic data, digital data, or data in spreadsheets.
- ❖ ***Putting information into GIS is called data capture.*** Data that are already in digital form, such as most tables and images taken by satellites, can simply be uploaded into GIS. Maps, however, must first be scanned, or converted to digital format.
- ❖ ***The two major types of GIS file formats are raster and vector.*** Raster formats are grids of cells or pixels. Raster formats are useful for storing GIS data that vary, such as elevation or satellite imagery. Vector formats are polygons that use points (called nodes) and lines. Vector formats are useful for storing GIS data with firm borders, such as school districts or streets.
- ❖ One important use of time-based GIS technology involves creating time-lapse photography that shows processes occurring over large areas and long periods of time. For example, ***data showing the movement of fluid in ocean or air currents help scientists better understand how moisture and heat energy move around the globe.***
- ❖ Management of Urban Transport to Port Transport, Land Record Management or Smart City (100 smart cities as planned by central government) planning or Electricity Distribution or Crop yield patterns or India's National River Linking Project, GIS is going to simplify the visualization of such vast demography. ***GIS with its advent E-governance is going to be much more enhanced.***

SOURCE: National Geographic, ESRI India.

3. Government issues advisory to streamline the process for import and possession of exotic live species in India.

- Exotic live species are animal or plant species moved from their original range (location) to a new one.
- These species are introduced to a new location most often by people. Many citizens of the country have kept **CITES (Convention of International Trade in Endangered Species)** enlisted exotic animal species in their possession but there is no unified information system available of such stock of species at the State/Central level.

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- Ministry of Environment, Forest and Climate Change has decided to collect stock information from the holders of such species through voluntary disclosure in next six months.
- The database of exotic animals will also **help in control and management of zoonotic diseases** on which guidance would be available from time to time to ensure safety of animals and humans.

CITES (Convention of International Trade in Endangered Species)

- ❖ CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is **an international agreement between governments**. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival.
- ❖ CITES is an international agreement to which States and regional economic integration organizations adhere voluntarily. **States that have agreed to be bound by the Convention ('joined' CITES) are known as Parties.**
- ❖ **Although CITES is legally binding on the Parties** – in other words they have to implement the Convention – it does not take the place of national laws. Rather it provides a framework to be respected by each Party, which has to adopt its own domestic legislation to ensure that CITES is implemented at the national level.
- ❖ **CITES was first conceived of at a 1963** meeting of the International Union for the Conservation of Nature (IUCN), the global authority on the conservation status of wild animals and plants.

Critics of CITES

- ❖ A 2019 analysis in the journal Science found that in nearly two-thirds of cases, **CITES protections lag after a species is determined to be threatened by international trade**. For example, while pangolins were finally added to Appendix I in 2017, an estimated million were trafficked between 2000 and 2013. Of the eight species of pangolins, half are endangered or critically endangered. The vast majority of animals that are in the wildlife trade are not protected by CITES.
- ❖ **If a party violates the convention, CITES can respond with sanctions**, which prevent a country from trading in CITES-listed species. But countries are rarely sanctioned, and the process can become highly politicized. What's more, because CITES membership is voluntary, a country could simply leave CITES rather than accept sanctions.

SOURCE: CITES website and Newspapers

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4. Union HRD Minister virtually releases “India Rankings 2020” for Higher Educational Institutions in New Delhi today

- National Board of Accreditation and his team at NBA and at INFLIBNET Centre for uninterrupted release of India Rankings for the last five years.
- ***The ranking framework evaluates institutions on five broad generic groups of parameters, i.e. Teaching, Learning and Resources (TLR), Research and Professional Practice (RP), Graduation Outcomes (GO), Outreach and Inclusivity (OI) and Perception (PR). Ranks are assigned based on total sum of marks assigned for each of these five broad groups of parameters***
- Besides, sourcing data on various parameters from applicant institutions, ***third party sources of data have also been used***, wherever possible.
- ***Scopus (Elsevier Science) and Web of Science (Clarivate Analytics) were used for retrieving publications and citations data. Derwent Innovation was used for retrieving data on patents.***

5. Enhanced Import Duty on Bamboo Sticks to give a big boost to Agarbatti and Bamboo Industries in India: KVIC

- Agarbatti making industry is a ***part of the Village Industry***, which requires a very small capital and less technical skill. ***This industry employs mostly women workers.***
- India produces 14.6 million tons of bamboo every year with nearly ***70,000 farmers engaged in bamboo plantation.***
- While 136 varieties of bamboo are found in India; the ***Bambusa Tulda variety, which is used for making agarbatti sticks***, is found in abundance in the North eastern region.

6. Kerala Start-ties up with SCTIMST to launch IoT (Internet of Things) based used mask disposal smart bin & UV light-based disinfection device to beat COVID 19

- The disposal device, named BIN-19, developed Chitra UV based face mask disposal bin technology.
- The IoT-based BIN-19 (***Internet of Things***) is used for collecting and disinfecting Used Facemask.

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Internet of Things

- ❖ In the broadest sense, the term ***IoT encompasses everything connected to the internet, but it is increasingly being used to define objects that "talk" to each other.***
- ❖ The Internet of Things is made up of devices – ***from simple sensors to smartphones and wearables – connected together.***
- ❖ ***Simply put, this is the concept of basically connecting any device*** with an on and off switch to the Internet (and/or to each other). This includes everything from cell phones, coffee makers, washing machines, headphones, lamps, wearable devices and almost anything else you can think of. This also applies to components of machines, for example a jet engine of an airplane or the drill of an oil rig.
- ❖ ***On a broader scale, the IoT can be applied to things like*** transportation networks: "smart cities" which can help us reduce waste and improve efficiency for things such as energy use; this helping us understand and improve how we work and live.

IoT matters to India

- ❖ The Indian Government's plan of developing 100 smart cities in the country, for which crores have been allocated in budgets could lead to a massive and ***quick expansion of IoT in the country. IoT will be critical in making these cities smarter***
- ❖ Launch of the Digital India Program of the Government, which aims at 'transforming India into digital empowered society and knowledge economy' will ***provide the required impetus for development of the IoT industry in the country.***
- ❖ Among other things, ***IoT can help automate solutions to problems faced by various industries like*** agriculture, health services, energy, security, disaster management etc. through remotely connected devices.
- ❖ ***IoT offers avenues for telecom operators & system integrators*** to significantly boost their revenues and this has resulted in their taking lead in adoption of IoT applications and services being offered by the technology. Apart from direct IoT applications, the IT industry also has an opportunity to provide services, analytics and applications related to IoT.
- ❖ ***Indian government objective is to create an IoT industry in India of USD 15 billion by 2020.*** This will also lead to increase in the connected devices from around 200 million to over 2.7 billion by 2020. As per Gartner Report the total revenue generated from IoT industry would be USD 300 billion and the connected devices would be 27 billion by 2020 globally. It has been assumed that India would have a share of 5-6% of global IoT industry.

SOURCE: IoT policy document of GoI and Forbes

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7. 3 DST institutes among top 30 Indian Institutions in Nature Index 2020

- Three of the autonomous institutions of the Department of Science & Technology, Government of India have found their place among top 30 Indian Institutions including universities, IITs, IISERs, and Research Institutions and Labs as per **Nature Index** 2020 ratings based on the research published in the top journals, a measure of research quality.
- These are the Indian Association for the Cultivation of Science (IACS), Kolkata at 7th position, Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore at 14th position and S. N. Bose National Centre for Basic Sciences, Kolkata at 30th position.

Nature Index

- ❖ The Nature Index is a **database of author affiliation information collated from research articles published in an independently selected group** of 82 high-quality science journals. The database is compiled by Nature Research. The Nature Index provides a close to real-time proxy of high-quality research output and collaboration at the institutional, national and regional level.
- ❖ **The Nature Index is primarily a free database** of author affiliation information that reveals global publication and collaboration patterns. Once a year, Nature Index releases a set of country- and institutional-level tables based on counts of high-quality research outputs in the previous calendar year.
- ❖ **Only primary research articles from the selected journals are included in the Nature Index.**

SOURCE: Nature Index Website

8. Small Farmers' Agribusiness Consortium (SFAC) has the important responsibility of formation of 10000 FPOs and strengthening of the e-NAM

- There have been revolutionary reforms in the field of agriculture including the important step towards the formation of 10 thousand **Farmer Producer Organizations (FPOs)**.
- The responsibility of completing this task lies with the **Small Farmers' Agribusiness Consortium (SFAC)**, which is also responsible for strengthening the e-NAM platform in the present circumstances. There has been considerable progress in institutional and private investments after the establishment of SFAC.

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Farmer Producer Organizations (FPOs)

- ❖ **A Producer Organisation (PO) is a legal entity formed by primary producers**, viz. farmers, milk producers, fishermen, weavers, rural artisans, craftsmen.
- ❖ **A PO can be a producer company, a cooperative society or any other legal form** which provides for sharing of profits/benefits among the members. In some forms like producer companies, institutions of primary producers can also become member of PO.
- ❖ **FPO is one type of PO** where the members are farmers. **Small Farmers' Agribusiness Consortium (SFAC)** is providing support for promotion of FPOs.
- ❖ **An FPO, formed by a group of farm producers**, is a registered body with producers as shareholders in the organisation. It deals with business activities related to the farm produce and it works for the benefit of the member producers.
- ❖ **On the recommendations of an expert panel led by Y.K. Alagh**, Centre had amended the Indian Companies Act, 1956, in 2002-03 to provide for "producer companies". *A Farmer Producer Company is a hybrid between cooperative societies and private limited companies.*
- ❖ **The objective of the concept of FPC is to organize farmers into a collective** to improve their bargaining strength in the market. They are viewed as an alternative to cooperative society.
- ❖ **Currently**, all FPOs are not eligible for tax exemption on par with cooperatives.

SFAC

- ❖ Small Farmers Agribusiness Consortium (SFAC) is an **Autonomous Society promoted by Ministry of Agriculture, Cooperation and Farmers' Welfare**, Government of India. It was registered under Societies Registration Act XXI of 1860 on 18th January 1994.
- ❖ **The Society is governed by Board of Management**, which is chaired, ex-officio, by Hon'ble Union Minister for Agriculture and Farmers Welfare as the President.
- ❖ **The role of State SFACs** is to aggressively promote agribusiness project development in their respective States. The main functions of SFAC are:
 - (i) **Promotion of development of small agribusiness** through VCA (Venture Capital Assistance) scheme;
 - (ii) **Helping formation and growth** of Farmer Producer Organizations (FPOs) / Farmer Producer Companies (FPCs);

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(iii) **Improving availability of working capital** and development of business activities of FPOs/FPCs through Equity Grant and Credit Guarantee Fund Scheme;

(iv) **Implementation of National Agriculture Market** (e-NAM) Electronic Trading platform.

- ❖ **SFAC is one of the Central Procurement Agencies** for pulses and oilseeds under Price Stabilisation Fund of Department of Consumer Affairs.

SOURCE: SFAC website and Newspapers

9. Union Ministry for Agriculture & Farmers' Welfare launches Sahakar Mitra: Scheme on Internship Programme, an initiative by National Cooperative Development Corporation

- In the series of initiatives by NCDC, the new scheme called Sahakar Mitra: Scheme on Internship Programme (SIP) **will provide the young professionals an opportunity of practical exposure and learning from the working of NCDC and cooperatives as a paid intern.**
- NCDC has also introduced a complementary scheme to promote start-up cooperative ventures.
- **Sahakar Mitra would also provide an opportunity to professionals** from academic institutions to develop leadership and entrepreneurial roles through cooperatives as Farmers Producers Organizations (FPO).
- **Sahakar Mitra scheme is expected to assist cooperative institutions access new and innovative ideas** of young professionals while the interns gain experience of working in the field giving confidence to be self-reliant.

National Cooperative Development Corporation

- ❖ The National Cooperative Development Corporation (NCDC) **was established by an Act of Parliament in 1963 as a statutory Corporation under the Ministry of Agriculture & Farmers Welfare.**
- ❖ **Planning, promoting and financing programmes** for production, processing, marketing, storage, export and import of agricultural produce, food stuffs, certain other notified commodities e.g. fertilisers, insecticides, agricultural machinery, lac, soap, kerosene oil, textile, rubber etc., supply of consumer goods and collection, processing, marketing, storage and export of minor forest produce through cooperatives, besides income generating stream of activities such as poultry, dairy, fishery, sericulture, handloom etc.

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- ❖ NCDC Act has been further amended which will broad base the area of operation of the Corporation **to assist different types of cooperatives and to expand its financial base.**
- ❖ **NCDC now finance projects in the rural industrial cooperative sectors** and for certain notified services in rural areas like water conservation, irrigation and micro irrigation, agri-insurance, agro-credit, rural sanitation, animal health, etc.

SOURCE: NCDC Website

10. All North Eastern States to have e-office: Dr. Jitendra Singh

- **e-office project** is a cardinal pillar of Digital India and so far 55 Ministries in Government of India has implemented the same.
- The implementation of e-Office in State Secretariats of North Eastern States will result in creation of paperless State Secretariats in a time bound manner where officers would be empowered with virtual private networks, digital signature certificates and promote less contact governance.
- DoNER is the first Ministry in the government of India to implement 100 percent e-office in processing of files.

e-office project

- ❖ e-Office is one of the important Mission Mode Projects for implementing the Digital India Plan. **The DAR & PG (Department of Administrative Reforms & Public Grievances) is the administrative ministry** for ensuring e-office implementation. e-Office aims to increase the usage of workflow and rule-based file routing, quick research and retrieval of files and office order, digital signatures, forms and reporting components.
- ❖ **The main objectives of e-office are: -**
 - (a) to improve efficiency, consistency and effectiveness of government responses;
 - (b) to reduce turnaround time and to meet and demands of the citizens charter;
 - (c) to provide for effective resource management to improve the quality of administration;
 - (d) to reduce processing delays;
 - (e) to establish transparency and accountability; and

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- (f) the system will automate movement of files within government offices, etc.

SOURCE: India Yearbook 2020

11. NHAI becomes first construction sector organisation to go 'Fully Digital'

- As one of the biggest reforms, the National Highway Authority of India (NHAI) under Ministry of Road Transport and Highways has gone 'Fully Digital', with the launch of unique cloud based and **Artificial Intelligence** powered Big Data Analytics platform – Data Lake and Project Management Software.
- The complete project documents and correspondences will be stored in Digital format in the cloud-based '**Data Lake**' linked with GIS tagging and Unique Project ID, so that the project data can be easily retrieved as and when required from any location.

Artificial Intelligence

- ❖ *AI is a bigger concept to create intelligent machines that can simulate human thinking capability and behavior, whereas, machine learning is an application or subset of AI that allows machines to learn from data without being programmed explicitly.*
- ❖ *Whereas, Machine learning is a subfield of artificial intelligence, which enables machines to learn from past data or experiences without being explicitly programmed.*
- ❖ AI could prove to be most beneficial in areas like agriculture, manufacturing, education and health care services in India.
- ❖ AI can also impact agriculture in India by helping the sector with accurate climate patterns, more sustainable irrigation and water management, which will be crucial in light of the growing water crisis in the country.
- ❖ Cybercriminals use Artificial Intelligence (AI) software — now easily available on apps and websites — to superimpose a digital composite (assembling multiple media files to make a final one) on to an existing video, photo or audio.
- ❖ Deep fake videos can be also made through AI.

SOURCE: Forbes, JAVA Net and Indian Express

Big Data

- ❖ *Big Data refers to complex and large data sets that have to be processed and analyzed to uncover valuable information that can benefit businesses and organizations.*

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❖ **Simply put,**

- It refers to a **massive amount of data** that keeps on growing exponentially with time.
- It is so voluminous that it **cannot be processed or analyzed using conventional data processing techniques**.
- **It includes** data mining, data storage, data analysis, data sharing, and data visualization.
- **The term is an all-comprehensive** one including data, data frameworks, along with the tools and techniques used to process and analyze the data.

❖ It describes the large volume of data – **both structured and unstructured** – that inundates a business on a day-to-day basis. But it's not the amount of data that's important. It is what organizations do with the data that matters. Big data can be analyzed for insights that lead to better decisions and strategic business moves.❖ **7 important application of Big Data:**

- **Healthcare:** Big Data has already started to create a huge difference in the healthcare sector. With the help of predictive analytics, medical professionals and HCPs are now able to provide personalized healthcare services to individual patients. Apart from that, fitness wearables, telemedicine, remote monitoring – all powered by Big Data and AI – are helping change lives for the better.
- **Academia:** Big Data is also helping enhance education today. Education is no more limited to the physical bounds of the classroom – there are numerous online educational courses to learn from. Academic institutions are investing in digital courses powered by Big Data technologies to aid the all-round development of budding learners.
- **Banking:** The banking sector relies on Big Data for fraud detection. Big Data tools can efficiently detect fraudulent acts in real-time such as misuse of credit/debit cards, archival of inspection tracks, faulty alteration in customer stats, etc.
- **Manufacturing:** According to TCS Global Trend Study, the most significant benefit of Big Data in manufacturing is improving the supply strategies and product quality. In the manufacturing sector, Big data helps create a transparent infrastructure, thereby, predicting uncertainties and incompetencies that can affect the business adversely.

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- **Information Technology:** One of the largest users of Big Data, IT companies around the world are using Big Data to optimize their functioning, enhance employee productivity, and minimize risks in business operations. By combining Big Data technologies with ML and AI, the IT sector is continually powering innovation to find solutions even for the most complex of problems.
- **Retail:** Big Data has changed the way of working in traditional brick and mortar retail stores. Over the years, retailers have collected vast amounts of data from local demographic surveys, POS scanners, RFID, customer loyalty cards, store inventory, and so on. Now, they've started to leverage this data to create personalized customer experiences, boost sales, increase revenue, and deliver outstanding customer service.
- **Transportation:** Big Data Analytics holds immense value for the transportation industry. In countries across the world, both private and government-run transportation companies use Big Data technologies to optimize route planning, control traffic, manage road congestion, and improve services. Additionally, transportation services even use Big Data to revenue management, drive technological innovation, enhance logistics, and of course, to gain the upper hand in the market.

SOURCE: UPGRAD and Newspapers

Data Lake

- ❖ **A data lake is a centralized repository** that allows you to store all your structured and unstructured data at any scale. You can store your data as-is, without having to first structure the data, and run different types of analytics—from dashboards and visualizations to big data processing, real-time analytics, and machine learning to guide better decisions.
- ❖ **Simply,** A Data Lake is a storage repository that can store large amount of structured, semi-structured, and unstructured data. It is a place to store every type of data in its native format with no fixed limits on account size or file. It offers high data quantity to increase analytic performance and native integration.
- ❖ **The Data Lake democratizes data** and is a cost-effective way to store all data of an organization for later processing. Research Analyst can focus on finding meaning patterns in data and not data itself.
- ❖ **There is no data silo structure.** So, Data Lake gives 360 degrees view of customers and makes analysis more robust.

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DIFFERENCE BETWEEN DATA LAKE AND DATA WAREHOUSE:

Characteristics	Data Warehouse	Data Lake
Data	Relational from transactional systems, operational databases, and line of business applications	Non-relational and relational from IoT devices, web sites, mobile apps, social media, and corporate applications
Schema	Designed prior to the DW implementation (schema-on-write)	Written at the time of analysis (schema-on-read)
Price/Performance	Fastest query results using higher cost storage	Query results getting faster using low-cost storage
Data Quality	Highly curated data that serves as the central version of the truth	Any data that may or may not be curated (ie. raw data)
Users	Business analysts	Data scientists, Data developers, and Business analysts (using curated data)
Analytics	Batch reporting, BI and visualizations	Machine Learning, Predictive analytics, data discovery and profiling

SOURCE: SOURCE: Amazon Web service and McKINSEY

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12. Ministry of Tourism virtually showcases “Himachal- Around the Next bend” through 31st webinar under Dekho Apna Desh series

- Virtually through the **World Heritage Site Great Himalayan National Park** located in the Kullu region. Great Himalayan National Park is spread across four valleys-
 - Sainj valley,
 - Jiwa Nal valley,
 - Tirthan Valley and
 - Parvati valley
- The park protects over 1,000 plant species, including many medicinal herbs, 31 mammal species and 209 bird species, as well as amphibians, reptiles and insects. Four of **GHNP’s mammal species and three of its bird species are globally threatened, including the musk deer and the western horned tragopan.**
- Kiari temple- Kotkhai architecture wood and stone earthquake resistant
- Narayan temple- Rebuild based on original style.

13. AarogyaPath, a web-based solution for the healthcare supply chain that provides real-time availability of critical supplies launched

- A CSIR National Healthcare Supply Chain Portal that aims to provide real-time availability of critical healthcare has been launched on June 12, 2020. **AarogyaPath would serve manufacturers, suppliers and customers.**
- **CSIR expects AarogyaPath to become the national healthcare information platform** of choice in the years to come, filling a critical gap in last-mile delivery of patient care within India through improved availability and affordability of healthcare supplies.

14. Union Agriculture and Farmers’ Welfare Ministry stresses upon the need to increase private investment in the agriculture sector

- To deal with the growing population of the country which is **expected to reach 160 crores by the year 2050**, plant breeders and scientists in India are faced with the challenge of increasing production of quality food grains and providing enough nutritional food to all Indians by undertaking progressive farming to develop disease-resistant and pest-resistant varieties that require less area and are able to grow in unfavourable conditions like dry climate, high temperature, saline and acidic soils.

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- **Bio-fortification** strategy must also be used to develop high quality crop varieties having high protein, iron, zinc etc. nutritional content. For this, plant breeders have to use latest biotechnology methods in addition to traditional methods of farming.

Bio-fortification

- ❖ Biofortification, the ***process of breeding nutrients into food crops***, provides a comparatively cost-effective, sustainable, and long-term means of delivering more micronutrients. The biofortification strategy seeks to put the micronutrient-dense trait in those varieties that already have preferred agronomic and consumption traits, such as high yield and disease resistance.
- ❖ This approach ***not only will lower the number of severely malnourished people who require treatment by complementary interventions, but also will help them maintain improved nutritional status***. Moreover, biofortification provides a feasible means of reaching malnourished rural populations who may have limited access to commercially marketed fortified foods and supplements.
- ❖ ***Biofortification targets poor populations*** who heavily rely on staple foods, and for whom fortified food products are not often available. Therefore, locally produced, more nutritious staple food crops from biofortification could significantly improve nutrition for the rural poor who eat these foods on a daily basis.
- ❖ ***Biofortification is highly cost effective***. After an initial investment in developing biofortified crops, they can be adapted to various regions at a low additional cost and remain available in the food system, year after year.
- ❖ Biofortified ***seeds are not hybrids***, so can be planted from previous crops each year.
- ❖ ***In developing countries research will need to focus on emerging challenges*** for the nutrition community, such as the double burden of undernutrition and overnutrition and on future changes in climate, biodiversity, demography, urbanisation, water availability, economy, politics, agriculture, international markets, socio-economic dynamics and conflict.
- ❖ ***To tackle malnutrition, research should focus on the following areas***: research on the biofortification of staple crops for hard-to-reach smallholder farmers; research on biofortification of local crops that are an important part of the diet of both rural and urban populations; and research on barriers to adoption of biofortified staples.
- ❖ ***Dhanshakti is the first iron biofortified crop cultivar to be officially released in India***. It has been included in the Nutri-Farm Pilot Program launched by the Indian government.

SOURCE: ICRISAT and FAO

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All India Radio (AIR--News From 11th June to 13th June 2020)

SPECIFIC AIR NEWS NOT COVERED ABOVE

1. Home Ministry permits certain more categories of foreign nationals including OCI Cardholders to enter India

- ***They include foreign nationals*** who are minor children where at least one of their parents is an Indian citizen or an OCI cardholder, foreign nationals married to Indian citizens, foreign nationals who are single parents of minor children holding Indian passports or OCI cards and Students who are foreign nationals where at least one of their parents is an Indian citizen or an OCI Cardholder.

OCI and PIO

- ❖ A Person of Indian Origin (PIO) means a ***foreign citizen (except a national of Pakistan, Afghanistan Bangladesh, China, Iran, Bhutan, Sri Lanka and Nepal).***
 - who at any time held an Indian passport; **OR,**
 - who or either of their parents/ grandparents/ great grandparents was born and permanently resident in India as defined in Government of India Act, 1935 and other territories that became part of India thereafter provided neither was at any time a citizen of any of the aforesaid countries (as referred above);**OR**
 - Who is a spouse of a citizen of India or a PIO.
- ❖ ***Benefits of a PIO card: -***
 - ***A PIO card holder doesn't need a visa to visit India.*** The holder also doesn't require a student or employment visa to acquire employment or academic opportunities in India.
 - ***The holder was exempted from registering*** at the foreigner regional registration office (FRRO) during the duration of stay in India.
 - The holder also ***enjoys parity with NRIs*** in concern to economic, financial and educational matters. These may include matters related to property

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transfer or acquisition, holding, disposal, investment, admission of children in educational institutions under general category quota for NRIs.

- **Separate immigration counters** are provided at all International airports in India for PIO card holders.
- ❖ **However, PIOs do not enjoy employment rights in Government** of India services nor can they hold any constitutional office in the Government of India. They need prior permission for undertaking mountaineering, missionary activities, research work and to visit restricted areas in India.
- ❖ **In 2015, the PIO scheme was withdrawn by the Government of India and was merged with the OCI.**
- ❖ **OCI is essentially a lifetime visa status** offered by India to an Indian person who has given up his citizenship.
- ❖ **The benefits of OCI cards are substantial.**
 - **OCI cards gives lifetime multiple entry visa to India.** Also, you never have to register with the FRRO (Foreigners Regional Registration Officer) no matter how long your stay is.
 - **If you remain an OCI for 5 years, you can attain Indian citizenship** and then live in India for a period of one year including short breaks.
 - **They have also been granted all rights in the economic, financial and education fields in parity with NRIs except**, the right to acquisition of agricultural or plantation properties.
 - **An OCI cards holder can open special bank accounts in India** just like NRIs and make investments.
- ❖ **An OCI card holder cannot vote**, hold a government job or purchase agricultural or farmland. The person can also not run for public office or travel to restricted areas without permission.
- ❖ **The merger of these two cards could make PIO card holders also eligible for the benefits that are enjoyed by OCI card holders.**
- ❖ **The Bureau of Immigration under the Union Home Ministry issues OCI status.**

SOURCE: MEA website, Indian Express and The Hindu

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2. Children need to be empowered with protection of their rights: Santosh Gangwar

- Nobel Laureate, Kailash Satyarthi said that the efforts of the government of India has contributed immensely in reduction of child labours.
- *Ratification of ILO Conventions 182 and 138 reflect, India's commitment towards the elimination of child labour.*

3. Central Railway launches Robotic 'CAPTAIN ARJUN' to intensify screening, surveillance

- Railway Protection Force, Pune has launched **a Robotic 'CAPTAIN ARJUN'** (Always be Responsible and Just Use to be Nice) to intensify the screening and surveillance.
- This Robot is launched **to screen passengers while they board trains and keep a watch on anti-social elements.**
- Captain ARJUN can be deployed for multiple uses and it is an **effective element in station access control and will augment the station security plan.**
- The Cameras **use Artificial Intelligence algorithms** to track suspicious and antisocial activity.
- Captain ARJUN also has a sensor-based sanitizer and mask dispenser and **can speak in local language.**

Northern Limit of Monsoon (NLM)

- ❖ Southwest monsoon normally sets in over Kerala around 1st June. It advances northwards, usually in surges, and covers the entire country around 15th July. The NLM is the northern most limit of monsoon up to which it has advanced on any given day.
- ❖ Simply, **The Northern Limit of Monsoon (NLM) is the northernmost boundary of India up to which Monsoon rains have advanced on any given day.**
- ❖ **NLM is directly related to the onset and advance of Monsoon.** The term NLM starts flowing right from the onset to the withdrawal of Monsoon.

SOURCE: IMD Website

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Long Period Average (LPA)

- ❖ India Meteorological Department (IMD), **the government's principal agency for weather forecasting and rainfall monitoring.**
- ❖ **IMD brands the monsoon as 'normal' or 'deficient'** based on how it fares against its benchmark Long Period Average (LPA).
- ❖ **LPA is the average rainfall received by the country as a whole during the south-west monsoon, for a 50-year period.**
- ❖ **The current LPA is 89 cm, based on the average rainfall over years 1951 and 2000.** This acts as a benchmark against which the rainfall in any monsoon season is measured.
- ❖ **The country is said to have received deficient rainfall if** the actual rainfall falls below 90 per cent of LPA. Similarly, the country is said to have received excess rainfall if the rainfall is greater than 110 per cent of LPA.
- ❖ **It is deemed 'normal'** when the actual rainfall received falls between 96 and 104 per cent of LPA.
- ❖ **Once in every three or four years,** Indian monsoons have witnessed aberrations such as severe drought, flooding and storms owing to El Nino — the abnormal warming of waters in the Pacific Ocean.
- ❖ It is important to understand that a **'normal' monsoon doesn't automatically guarantee farm prosperity or rural spending.** The actual distribution of those 89 cm of rainfall over India's key growing regions and over the critical sowing months (called spatial and temporal distribution), plays a key role too.
- ❖ Like the countrywide figure, IMD maintains an independent LPA for every homogeneous region of the country, which ranges from 71.6 cm to 143.83 cm. The region-wise LPA figures are: 143.83 cm for East and Northeast India, 97.55 cm for Central India, 71.61 cm for South Peninsular India, and 61.50 for Northwest India, which put together bring the all-India figure to 88.75 cm.
- ❖ **Summarily, IMD maintains five rainfall distribution categories on an all-India scale. These are:**
 - **Normal or Near Normal:** When per cent departure of actual rainfall is +/- 10% of LPA, that is, between 96-104% of LPA
 - **Below normal:** When departure of actual rainfall is less than 10% of LPA, that is 90-96% of LPA
 - **Above normal:** When actual rainfall is 104-110% of LPA

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- **Deficient:** When departure of actual rainfall is less than 90% of LPA
- **Excess:** When departure of actual rainfall is more than 110% of LPA

SOURCE: The Indian Express, The Business Line and IMD Website

Open Market sales scheme (OMSS)

- ❖ Open Market Sale Scheme (OMSS) refers to ***selling of food grains by Government agencies*** at predetermined prices in the open market from time to time to enhance the supply of grains especially during the lean season and thereby to moderate the general open market prices especially in the deficit regions.
- ❖ ***In addition to maintaining buffer stocks and making a provision for*** meeting the requirement of the Targeted Public Distribution Scheme and Other Welfare Schemes (OWS), Food Corporation of India (FCI) on the instructions from the Government, sells wheat and rice in the open market from time to time to enhance the supply of wheat and rice especially during the lean season and to moderate the open market prices especially in the deficit regions.
- ❖ ***For transparency in operations, the Corporation has switched over to e- auction for sale under Open Market Sale Scheme through NCDEX (National Commodity and Derivatives Exchange Limited).***

SOURCE: FCI and Arthapedia

Some relevant information used by PIB separately

- ❖ ***gusty wind (speed reaching 30-40 kmph); Strong Wind (wind speed reaching 50-60 kmph)***
- ❖ ***Heavy rain: 64.5-115.5 mm/day;***
- ❖ ***Isolated rain ($\leq 25\%$ of stations gets rain),***
- ❖ ***scattered or at a few places rain (26 to 50% of stations gets rain),***
- ❖ ***at many places or fairly widespread rain (51–75% of stations get rain) and***
- ❖ ***at most places or widespread rain ($>75\%$ of stations get rain)***

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SUMMARY AND RELEVANT TERMS
EXPLAINED FROM PIB AND AIR

DATED: 14.06.2020 TO 16.06.2020



Public Information Bureau (PIB-- News From 14th June to 16th June 2020)

1. New drug for amoebiasis in the offing

- According to the World Health Organization (WHO), ***Entamoeba histolytica is the third-leading cause of morbidity and mortality*** due to parasitic disease in humans. It causes amoebiasis or amoebic dysentery, which is highly prevalent in developing countries.
- A team of researchers from the Jawaharlal Nehru University (JNU) has developed new drug molecules against the protozoa that causes amoebiasis.
- ***This protozoan is anaerobic or micro-aerophilic*** in nature such that it cannot survive high concentrations of oxygen. However, during infection, it faces a high surge of oxygen inside the human body. The organism synthesizes large amounts of cysteine to counter oxidative stress.

Some common diseases caused by microorganism in human

Infectious Diseases	Microbes that causes diseases	Type of microbe
Cold, influenza (flu) and most coughs	Rhinovirus	Virus
Chickenpox	Varicella zoster	Virus
German measles	Rubella	Virus
AIDS	Human Immunodeficiency Virus (HIV)	Virus
Smallpox	Variola major and Variola minor	Virus
Chikungunya	Chikungunya virus	Virus
Dengue fever	Flavivirus	Virus
Ebola	Ebola virus	Virus
Hepatitis B	hepatitis B virus (HBV)	Virus
Measles	measles virus	Virus
Polio or Poliomyelitis	Poliovirus	Virus
Zika	Zika virus	Virus
MERS	Corona Virus	Virus
COVID19	Corona Virus	Virus
SARS	Corona Virus	Virus
Whooping cough	Bordatella pertussis	Bacterium
Bubonic plague	Yersinia pestis	Bacterium
TB (Tuberculosis)	Mycobacterium tuberculosis	Bacterium
Acne vulgaris (or simply acne or pimples)	Propionibacterium acnes	Bacterium
Anthrax	Bacillus anthracis	Bacterium

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Cholera	Vibrio cholerae	Bacterium
Diphtheria	Corynebacterium diphtheriae	Bacterium
Pneumonia	Streptococcus pneumoniae and Haemophilus influenzae	Bacterium or Virus
Peptic ulcers	Helicobacter pylori	Bacterium
Typhoid	Salmonella typhi	Bacterium
Malaria	Plasmodium falciparum	Protozoan
Amoebiasis (amoebic dysentery)	Entamoeba histolytica	Protozoan
Kala-Azar or Visceral leishmaniasis	Leishmania genus	Protozoan
Malaria	Different species of Plasmodium (P. vivax, P. malaria and P. falciparum)	Protozoan
Sleeping Sickness	Trypanosoma	Protozoan
Ringworm	Trichophyton rubrum	Fungus
Athletes' foot	Trichophyton mentagrophytes	Fungus

Zoonoses and communicable diseases

- ❖ In recent years, **zoonoses and communicable diseases common to man and animals have gained increasing attention worldwide.**
- ❖ **Human diseases that have their origins in infected animals, such as AIDS or Creutzfeldt-Jakob**, have highlighted the need for a better understanding of animal diseases in terms of their epidemiology, mechanism of transmission to man, diagnosis, prevention, and control.
- ❖ **Zoonotic diseases are caused by harmful germs like viruses, bacterial, parasites, and fungi.** These germs can cause many different types of illnesses in people and animals, ranging from mild to serious illness and even death.
- ❖ **Social and demographic changes have also contributed to the importance of gaining and disseminating knowledge about zoonoses.** For instance, as people encroach further and further on ecological areas with which they had little contact and whose fauna may not be well known, their exposure to animals—and the infections they transmit—has increased.
- ❖ **The ease and speed of modern travel also facilitates** the spread of diseases once confined to specific geographic areas, as recently occurred with severe acute respiratory syndrome (SARS).
- ❖ **Animal migration and trade pose a similar threat**, as was shown by the outbreaks in the United States of West Nile fever, and most recently, monkeypox—two diseases not

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previously known in the Western Hemisphere. Each of these examples highlights the need for improved knowledge and surveillance of and response to zoonoses.

❖ ***Some common zoonoses identified across the world are:***

- Novel coronavirus; Influenza pandemics; Bubonic plague; Rabies; HIV/AIDS; Mind control; Ebola; Q Fever etc.

SOURCE: WHO, Research papers and Newspapers

2. Webinar on Connecting Agroforestry Farmers to Industry Held

- ***Farming Produce Trade and Commerce (Promotion and Facilitation) Ordinance 2020*** to establish a ***national market and give farmers the option to choose*** the market where they want to sell their produce by removing inter-state trade barriers and providing e-trading of agriculture produce.
- There are multiple uses of ***agroforestry*** ranging from additional income to farmers, nurseries as a means of livelihoods especially for women SHGs, green fodder, reduction in requirement of fertilisers by planting leguminous species, ***carbon sequestration*** for combating climate change, etc.
- The ***earlier notion of agroforestry meaning only timber species*** needs to have a relook from farmers and industry point of view.
- Timber trees have long maturity period and hence delays return to the farmers. Whereas there are number of rising sectors which would ensure quick returns to farmers as well as fulfil industry requirements, including medicinal and aromatic plants, silk, lac, paper and pulp, tree borne oil seeds for production of biofuels, etc.
- ***The presentation flagged the importance of clonal planting material*** of the correct varieties which would also comply with industry requirement.
- India became the ***first country in the world to formulate a National Agroforestry Policy*** in 2014. As a follow up, the Sub Mission for Agroforestry was launched in 2015 to assist the States in encouraging farmers to adopt tree planting along with crops.
- ***Agro climatic zone wise agroforestry models have been developed*** by research institutions, including ICAR and ICFRE.
- ***The scheme is currently being implemented in 21 States of the country.***

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Farming Produce Trade and Commerce (Promotion and Facilitation) Ordinance 2020

- ❖ Will provide for the ***creation of an ecosystem where the farmers and traders enjoy*** the freedom of choice relating to sale and purchase of farmers' produce which facilitates remunerative prices through competitive alternative trading channels.
- ❖ It will ***promote efficient, transparent and barrier-free inter-State and intra-State trade*** and commerce of farmers' produce outside the physical premises of markets or deemed markets notified under various State agricultural produce market legislations.
- ❖ Besides, the Ordinance will ***provide a facilitative framework for electronic trading*** and matters connected therewith or incidental thereto.

SOURCE: PIB and Indian Express

Agroforestry

- ❖ ***Agroforestry is a collective name for land-use systems and technologies*** where woody perennials (trees, shrubs, palms, bamboos, etc.) are deliberately used on the same land-management units as agricultural crops and/or animals, in some form of spatial arrangement or temporal sequence.
- ❖ Agroforestry systems ***include both traditional and modern land-use systems*** where trees are managed together with crops and or/ animal production systems in agricultural settings.
- ❖ In agroforestry systems ***there are both ecological and economical interactions between the different components.***
- ❖ Agroforestry can also be ***defined as a dynamic, ecologically based, natural resource management system that, through the integration*** of trees on farms and in the agricultural landscape, diversifies and sustains production for increased social, economic and environmental benefits for land users at all levels.
- ❖ In particular, ***agroforestry is crucial to smallholder farmers*** and other rural people because it can enhance their food supply, income and health. Agroforestry systems are multifunctional systems that can provide a wide range of economic, sociocultural, and environmental benefits.
- ❖ Because agroforestry integrates multiple natural components and is at the crossroads of tradition and modernity, it necessarily ***brings together people from diverse fields of knowledge:*** agronomists, animal care specialists, landscape planners, foresters, economists, soil analysts and many more. This diversity of disciplines is certainly a strength, but its complexity also represents a challenge, notably in terms of coordination and communication.

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- ❖ **Agroforestry has a lot in common with intercropping** (the practice of planting two or more crops on the same plot) with both practices placing an emphasis on interaction between different plant species. Generally speaking, both agro-forestry and intercropping can result in higher overall yields and reduced operational costs.
- ❖ **There are three main types of agroforestry systems:**
 - **Agri-silvicultural systems** are a **combination of crops and trees**, such as alley cropping or home gardens.
 - **Silvo-pastoral systems combine forestry and grazing** of domesticated animals on pastures, rangelands or on-farm.
 - The three elements, namely **trees, animals and crops, can be integrated in what are called agrosylvopastoral systems** and are illustrated by home gardens involving animals as well as scattered trees on croplands used for grazing after harvests.
- ❖ **Benefits of Agroforestry:**
 - They can **control runoff and soil erosion**, thereby reducing losses of water, soil material, organic matter and nutrients.
 - They can **maintain soil organic matter and biological activity** at levels satisfactory for soil fertility. This depends on an adequate proportion of trees in the system- normally at least 20% crown cover of trees to maintain organic matter over systems as a whole.
 - **It can be practiced both in irrigated and rain fed conditions.**
 - **They can maintain more favourable soil physical properties than agriculture**, through organic matter maintenance and the effects of tree roots.
 - **They can lead to more closed nutrient cycling than agriculture** and hence to more efficient use of nutrients. This is true to an impressive degree for forest garden/farming systems.
 - **They can check the development of soil toxicities or reduce exiting toxicities**-both soil acidification and salinization can be checked and trees can be employed in the reclamation of polluted soils.

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- ***They utilize solar energy more efficiently than monocultural systems*** different height plants, leaf shapes and alignments all contribute.
- They can ***lead to reduced insect pests and associated diseases.***
- They can be ***employed to reclaim eroded and degraded land.***
- Agro forestry ***can augment soil water availability*** to land use systems. In dry regions, though, competition between trees and crops is a major problem.
- Nitrogen-fixing trees and shrubs can ***substantially increase nitrogen inputs to agro forestry systems.***
- The decomposition of tree and pruning can substantially ***contribute to maintenance of soil fertility.*** The addition of high-quality tree pruning's leads to large increase in crop yields.
- When done in a large scale with appropriate mix of species, ***it helps agricultural land to withstand extreme weather events like floods, droughts and climate change.***
- Agro forestry can ***provide a more diverse farm economy and stimulate the whole rural economy,*** leading to more stable farms and communities. Economics risks are reduced when systems produce multiple products.

Don't Confuse Agro-forestry with Social Forestry

- ❖ The National Commission on Agriculture, ***Government of India, first used the term 'social forestry' in 1976.*** It was then that India embarked upon a social forestry project with the aim of taking the pressure off the forests and making use of all unused and fallow land.
- ❖ Government forest areas that are close to human settlement and have been degraded over the years due to human activities needed to be afforested. Trees were to be planted in and around agricultural fields. Plantation of trees along railway lines and roadsides, and river and canal banks were carried out. They were planted in village common land, Government wasteland and Panchayat land.
- ❖ ***Social forestry scheme can be categorized into groups:*** farm forestry, community forestry, extension forestry and agro-forestry.
- ❖ ***Simply put,*** Social forestry is the practice of forestry on lands outside the conventional forest area for the benefit of the rural and urban communities.

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- ❖ **The scope of social forestry defined by the NCA included farm forestry**, community woodlots (The community woodlots, consists of plantations of fuelwood species on community village lands, with intended objective of increasing a villager's access to fuel wood, fruits and fodder) and reforestation in degraded lands.
- ❖ Although a wide range of activities are included in social forestry, **five main components can be distinguished in India. With variations, they are:**
 - farm forestry (tree growing on private land),
 - farmer leasehold or tree patta,
 - village woodlots or community forestry,
 - strip plantations alongside roads, canals, railways, etc., and
 - reforestation or rehabilitation of degraded forest areas.

Difference between them:

Social Forestry	Agroforestry
1. Social forestry is a plantation made on lands outside conventional forest areas for the benefit of rural and urban communities, with objectives to supply fuel wood to divert cow dung from village hearths to village fields, small timber for housing and agricultural implements and fodder for cattle of the rural population, protection of agriculture by creation of diverse ecosystem and arresting wind and water erosion, provide raw material for village cottage industries and improve scenic value in rural and urban areas.	1. Agroforestry is a sustainable land management system that increases the overall production, combines agricultural crops, tree crops and forest plants and/or animals simultaneously or sequentially, and applies management practices that are compatible with the cultural patterns of the local population.
2. It is thus the forestry of the people, by the people and for the people.	2. It is a system which is rather localized in its concept for managing the unit of land for maximizes production of agricultural crop and forest trees complimentary with each other.
3. Planting of trees on massive scale is done on vacant land community land, roadside railway track and even degraded reserve forest. Helps to eradicate poverty especially among land less and marginal rural people by providing them job potential.	3. Agroforestry is practiced mostly in farmers' field/own land.
4. Mainly trees and shrubs are to be used to harvest multiple products.	4. It involves integration of two or more than two components ion the same unit of land.
5. Social forestry is primarily a government based programme that aims to increase the forest area by rehabilitating wastelands while producing biomass both for industrial and local uses.	5. Agroforestry involves the rural awakening towards self sufficiency by producing maximum biomass per unit area, fulfilling then needs of food, fodder and fuelwood etc..

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SOURCE: FAO, TERI, TNAU and Newspapers

Carbon Sequestration

- ❖ Carbon sequestration is ***the process of capturing and storing atmospheric carbon dioxide***. It is one method of reducing the amount of carbon dioxide in the atmosphere with the goal of reducing global climate change.
- ❖ Importantly, ***carbon sequestration is both a natural and artificial process*** by which carbon dioxide is removed from the Earth's atmosphere and then stored in liquid or solid form.
- ❖ Sustainable forestry practices can increase the ability of forests to sequester atmospheric carbon while enhancing other ecosystem services, such as improved soil and water quality. ***Planting new trees and improving forest health through thinning and prescribed burning are some of the ways to increase forest carbon in the long run.*** Harvesting and regenerating forests can also result in net carbon sequestration in wood products and new forest growth.
- ❖ ***Anthropogenic activities such as the burning of fossil fuels have released carbon from its long-term geologic storage as coal, petroleum, and natural gas*** and have delivered it to the atmosphere as carbon dioxide gas. Carbon dioxide is also released naturally, through the decomposition of plants and animals.
- ❖ ***Reservoirs that retain carbon and keep it from entering Earth's atmosphere are known as carbon sinks.*** For example, deforestation is a source of carbon emission into the atmosphere, but forest regrowth is a form of carbon sequestration, with the forests themselves serving as carbon sinks. Carbon is transferred naturally from the atmosphere to terrestrial carbon sinks through photosynthesis; it may be stored in aboveground biomass as well as in soils.
- ❖ ***The Kyoto Protocol under the United Nations Framework Convention on Climate Change allows countries to receive credits for their carbon-sequestration*** activities in the area of land use, land-use change, and forestry as part of their obligations under the protocol. Such activities could include afforestation (conversion of nonforested land to forest), reforestation (conversion of previously forested land to forest), improved forestry or agricultural practices, and revegetation.

Difference Between geologic and biologic carbon sequestration:

- ***Geologic carbon sequestration is the process of storing carbon dioxide (CO₂) in underground geologic formations.*** The CO₂ is usually pressurized until it becomes a liquid, and then it is injected into porous rock formations in geologic basins. This method of carbon storage is also sometimes a part of enhanced oil recovery, otherwise known as tertiary recovery, because it is typically used later in the life of a producing oil well. In enhanced oil recovery, the liquid CO₂ is injected into the oil-

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bearing formation in order to reduce the viscosity of the oil and allow it to flow more easily to the oil well.

- **Biologic carbon sequestration refers to storage of atmospheric carbon in vegetation, soils, woody products, and aquatic environments.** For example, by encouraging the growth of plants, particularly larger plants like trees, advocates of biologic sequestration hope to help remove CO₂ from the atmosphere.
- ❖ **There are many economic and technical challenges to implementing carbon capture and storage on a large scale.** The IPCC has estimated that carbon capture and storage would increase the cost of electricity generation by about one to five cents per kilowatt-hour, depending on the fuel, technology, and location. Leakage of carbon from reservoirs is also a concern, but it is estimated that properly managed geological storage is very likely (that is, 66–90 percent probability) to retain 99 percent of its sequestered carbon dioxide for over 1,000 years.

SOURCE: USGS, Conserve Energy Forum and USDA

National Agroforestry Policy

- ❖ Agroforestry is defined as a land use system which integrate trees and shrubs on farmlands and rural landscapes to enhance productivity, profitability, diversity and ecosystem sustainability.
- ❖ **Major policy initiatives, including the National Forest Policy 1988, the National Agriculture Policy 2000, Planning Commission Task Force on Greening India 2001, National Bamboo Mission 2002, National Policy on Farmers, 2007 and Green India Mission 2010,** emphasize the role of agroforestry for efficient nutrient cycling, organic matter addition for sustainable agriculture and for improving vegetation cover.
- ❖ A policy which deals with problems faced by agroforestry sector, including adverse policies, weak markets and a dearth of institutional finance was **approved by the Cabinet in February 2014. India became the world's first country to adopt a comprehensive agroforestry policy.**

Need of Agroforestry in India

- ❖ **Absence of a dedicated and focused national policy** and a suitable institutional mechanism;
- ❖ **Lack of an integrated farming systems approach;**
- ❖ **Restrictive regulatory regime-** There are restrictions imposed by the state governments on harvesting and transportation of agroforestry produce, especially those species which are found growing in the nearby forests. These restrictions were basically designed to prevent pilferage from government forests.

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- ❖ **Inadequate attempts at liberalization of restrictive regulations-** There are sporadic examples of States taking steps for liberalization of above restrictions, such as, exempting agroforestry species from the harvesting and transit, but this has not been uniformly done by all the States.
- ❖ **Insufficient research, extension and capacity building-** Research results on agroforestry, available in the public and private domain do not regularly reach the farmers due to lack of a dedicated extension system.
- ❖ **Dearth of quality planting material-** Planting materials such as seeds, seedlings, clones, hybrids, improved varieties, etc. are generally of mixed quality and not available commonly, particularly in the resource poor regions.
- ❖ **Institutional finance and insurance coverage-** Institutional finance in agroforestry has not been at par with its potential due to the lack of awareness of technical and economic data on different agroforestry models, and the techno-economic parameters required by financial institutions (FI) to evaluate finance needs and viability of the projects.
- ❖ **Weak market access for agroforestry produce-** The marketing infrastructure (market yard, etc.), including "price discovery" mechanisms for agroforestry produce in general are unavailable in the country except in few states which have either developed exclusive marketing infrastructure for agroforestry produce or have dovetailed with the regulated agriculture commodity marketing systems.
- ❖ **Industry operations at a sub-optimal level-** The Wood Based Industries (WBI) have played an important role in the promotion of agroforestry. The procedure for setting up new units or fulfilling of compliance by existing units is cumbersome and time consuming, not very encouraging to instil confidence in industries.

SOURCE: Agro-forest policy paper

3. HIL India Ltd. supplies 25 MT Malathion 95% ULV Insecticides to Iran for Locust Control Programme

- As per the reports of the Food and Agriculture Organisation (FAO), the ***hopper stage population of locust is building up in Sistan-Baluchistan Region of Iran***, which shall migrate to India in coming months leading to further crop devastation.
- Desert Locust after severe crop devastation in ***Horn of Africa, East Africa and Arabian Peninsula has entered into India*** in March/April 2020 and it has affected the field crop, horticulture crops and other plantation in the State of Rajasthan, Madhya Pradesh, Gujarat, Punjab and Uttar Pradesh.

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- ***The country is experiencing worst locust invasion, which was last observed more than 25 years back.***

Locust control programme

- ❖ The Indian Agriculture is highly prone to Desert Locust. ***The Desert Locust is a trans-boundary pest which can cause irreparable damages.***
- ❖ In all, there are ***three breeding seasons for locusts*** (i) Winter breeding [November to December], (ii) Spring breeding [January to June] and (iii) Summer breeding [July to October].
- ❖ ***India has only one locust breeding season*** and that is Summer breeding. The neighboring country Pakistan has both spring and summer breeding.
- ❖ In India, the ***scheme Locust Control and Research (LC&R) is responsible*** for control of Desert Locust and is being implemented through Organisation known as “Locust Warning Organisation (LWO)” established in 1939 and later amalgamated with the Directorate of Plant Protection Quarantine and Storage in 1946.
- ❖ ***Locust Warning organization (LWO) is responsible to monitor and control the locust*** situation in Scheduled Desert Area (SDA) mainly in the States of Rajasthan and Gujarat while partly in the States of Punjab and Haryana by way of intensive survey, surveillance, monitoring and control operations where required.
- ❖ ***Locust Control and Research is a sub-component under the Sub Mission on Plant Protection and Plant Quarantine (SMPPQ)***, a scheme under Green Revolution (Krishonnati Yojana) through which regulatory, monitoring, surveillance and capacity building functions are performed.
- ❖ ***Food and Agriculture Organization (FAO)*** of the United Nations provides Locust situation, Current upsurge, Desert Locust Bulletin and Risk map as part of its Locust Watch initiative.
- ❖ The initiative aims to monitor the world-wide locust situation and keep affected countries and donors informed of expected developments.
- ❖ The significance of Plant Quarantine has increased in view of Globalization and liberalization in International trade of plants and plant material in the wake of ***Sanitary and Phytosanitary (SPS) Agreement under WTO.***

SOURCE: FAO, India Today and Min. of Agriculture

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Horn of Africa

- ❖ The Horn of Africa is a **peninsula in Africa. It lies along the southern side of the Red Sea and extends hundreds of kilometers into the Gulf of Aden, Somali Sea and Guardafui Channel.**
- ❖ The area is the **easternmost projection of the African continent.** Referred to in ancient and medieval times as the land of the Barbaria and Habesha, the Horn of Africa denotes the region **containing the countries of Djibouti, Somaliland, Eritrea, Ethiopia, and Somalia.**
- ❖ **Some definitions also include the states of Kenya, Sudan, and Tanzania.** The Horn of Africa is considered a subregion of the larger region known as East Africa and is sometimes referred to as the Somali Peninsula.
- ❖ The Horn of Africa, **almost equidistant from the Equator and the Tropic of Cancer,** is an arid region.

SOURCE: Britannica

4. INDIA'S FOREIGN TRADE: May2020

- India's overall exports (Merchandise and Services combined) in April-May2020-21 are estimated to be USD 61.57billion, **exhibiting a negative growth of (-) 33.66 per cent** over the same period last year.
- Overall imports in April-May 2020-21 are estimated to be USD 57.19 billion, **exhibiting a negative growth of (-) 48.31per cent** over the same period last year.
- **Except for Iron ore, Drugs & pharmaceuticals, Spices and Rice which registered a growth of 103.04%, 17.32%,10.55% and 7.64% respectively, all other commodity/commodity groups have registered negative growth in May 2020 vis-a-vis May 2019.**

5. Index Numbers of Wholesale Price in India for the month of May, 2020

- The **Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade is releasing index numbers of wholesale price in India** for the month of May 2020 (Provisional) and for the month of March 2020 (Final) in press release.
- Provisional figures of **Wholesale Price Index (WPI)** are released on **14th of every month** (or next working day) with a time lag of two weeks of the reference month and compiled with data received from institutional sources and selected manufacturing units across the country.

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Wholesale Price Index

- ❖ Wholesale Price Index (WPI) **represents the price of goods at a wholesale stage** i.e. goods that are sold in bulk and traded between organizations instead of consumers. WPI is used as a measure of inflation in some economies.
- ❖ **WPI is used as an important measure of inflation in India.** Fiscal and monetary policy changes are greatly influenced by changes in WPI. In the United States, Producer Price Index (PPI) is used to measure inflation.
- ❖ WPI is an easy and convenient method to calculate inflation. Inflation rate is the difference between WPI calculated at the beginning and the end of a year. **The percentage increase in WPI over a year gives the rate of inflation for that year.**
- ❖ Simply put, Wholesale Price Index, or WPI, measures the changes in the prices of goods sold and traded in bulk by wholesale businesses to other businesses. **WPI is unlike the Consumer Price Index (CPI)**, which tracks the prices of goods and services purchased by consumers. It means the WPI tracks prices at the factory gate before the retail level.
- ❖ Analysts use the numbers to track the supply and demand dynamics in industry, manufacturing and construction. The numbers are released by the Economic Advisor in the Ministry of Commerce and Industry.
- ❖ **An upward surge in the WPI print indicates inflationary pressure in the economy** and vice versa. The quantum of rise in the WPI month-after-month is used to measure the level of wholesale inflation in the economy.
- ❖ **WPI has a sub-index called WPI Food Index**, which is a combination of the Food Articles from the Primary Articles basket, and the food products from the Manufactured Products basket.
- ❖ **Primary articles are a major component of WPI**, further subdivided into Food Articles and Non-Food Articles.
- ❖ **The next major basket in WPI is Fuel & Power**, which tracks price movements in Petrol, Diesel and LPG.

Difference between WPI and CPI

- ❖ While WPI keeps track of the wholesale price of goods, the CPI measures the average price that households pay for a basket of different goods and services. Even as the WPI is used as a key measure of inflation in some economies, the **RBI no longer uses it for policy purposes**,

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including setting repo rates. The central bank currently uses CPI or retail inflation as a key measure of inflation to set the monetary and credit policy.

- ❖ With an aim to align the index with the base year of other important economic indicators such as GDP and IIP, **the base year was updated to 2011-12 from 2004-05** for the new series of Wholesale Price Index (WPI), effective from April 2017.

WPI	CPI (Also called retail inflation)
WPI, amounts to the average change in prices of commodities at the wholesale level	CPI, indicates the average change in the prices of commodities, at the retail level.
Published by Office of Economic Advisor (Ministry of Commerce & Industry)	Published by Central Statistics Office (Ministry of Statistics and Programme Implementation)
Measures price of Goods only	Measures price of goods and services both
Inflation is measured at first stage of the transaction	Inflation is measured at the final stage of the transaction
Only few countries use it, including India	Around 157 countries use it

SOURCE: Financial express, Economic Times IBEF

6. India joins Global Partnership on Artificial Intelligence (GPAI) as a founding member to support the responsible and human-centric development and use of AI

- **India joined the league of leading economies including** USA, UK, EU, Australia, Canada, France, Germany, Italy, Japan, Mexico, New Zealand, Republic of Korea, Singapore to launch the **Global Partnership on Artificial Intelligence (GPAI or Gee-Pay)**.
- **GPAI is an international and multi-stakeholder initiative** to guide the responsible development and use of AI, grounded in human rights, inclusion, diversity, innovation, and economic growth.
- This is **also a first initiative of its type for evolving better understanding of the challenges and opportunities around AI** using the experience and diversity of participating countries. In order to achieve this goal, the initiative will look to bridge the gap between theory and practice on AI by supporting cutting-edge research and applied activities on AI-related priorities.
- **It is pertinent to note that India has recently launched National AI Strategy** and National AI Portal and have also started leveraging AI across various sectors such as education, agriculture, healthcare, e-commerce, finance, telecommunications, etc. with inclusion and empowerment of human being approach by supplementing growth and development.

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- **By joining GPAI as a founding member**, India will actively participate in the global development of Artificial Intelligence, leveraging upon its experience around use of digital technologies for inclusive growth.
- **GPAI will be supported by** a Secretariat, to be hosted by **Organization for Economic Cooperation and Development (OECD) in Paris, as well as by two Centers of Expertise- one each in Montreal and Paris.**

National AI Strategy

- ❖ Recognising AI's potential to transform economies and the need for India to strategise its approach, Finance Minister, in **budget speech for 2018 – 2019, mandated NITI Aayog to establish the National Program on AI**, with a view to guiding the research and development in new and emerging technologies.
- ❖ The **Strategy is termed #AIForAll** as it is focused on leveraging AI for inclusive growth
- ❖ While AI has the potential to provide large incremental value to a wide range of sectors, adoption till date has been driven primarily from a commercial perspective.
- ❖ **NITI Aayog has decided to focus on five sectors** that are envisioned to benefit the most from AI in solving societal needs:
 - **Healthcare:** increased access and affordability of quality healthcare;
 - **Agriculture:** enhanced farmers' income, increased farm productivity and reduction of wastage,
 - **Education:** improved access and quality of education,
 - **Smart Cities and Infrastructure:** efficient and connectivity for the burgeoning urban population, and
 - **Smart Mobility and Transportation:** smarter and safer modes of transportation and better traffic and congestion problems.
- ❖ To truly reap the benefits of deploying AI at scale, the report identifies the **following barriers that need to be addressed** in order to achieve the goals of #AIforAll:
 - **Lack of broad-based expertise** in research and application of AI,
 - **Absence of enabling data ecosystems** – access to intelligent data
 - **High resource cost** and **low awareness** for adoption of AI,

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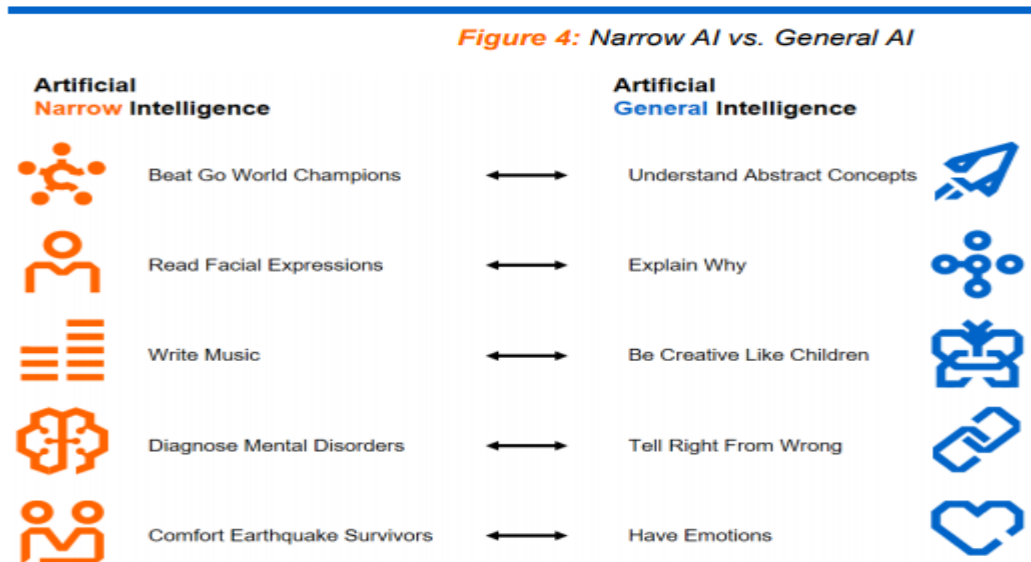
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- **Privacy and security, including a lack of formal regulations** around anonymisation of data, and
- **Absence of collaborative approach** to adoption and application of AI.

❖ **There is two-tiered structure to address India's AI research aspirations:**

- **Centre of Research Excellence (CORE)** focused on developing better understanding of existing core research and pushing technology frontiers through creation of new knowledge;
 - **International Centers of Transformational AI (ICTAI)** with a mandate of developing and deploying application-based research. Private sector collaboration is envisioned to be a key aspect of ICTAIs
- ❖ AI refers to the ability of machines to perform cognitive tasks like thinking, perceiving, learning, problem solving and decision making. Initially conceived as a technology that could mimic human intelligence, AI has evolved in ways that far exceed its original conception. With incredible advances made in data collection, processing and computation power, intelligent systems can now be deployed to take over a variety of tasks, enable connectivity and enhance productivity. As AI's capabilities have dramatically expanded, so have its utility in a growing number of fields.

Difference between AI (Narrow) and AI (General): SOURCE: NITI AAYOG & ACCENTURE



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Machine Learning and Deep Learning

- ❖ **Machine Learning, a term coined by Artur Samuel in 1959, meant “the ability to learn without being explicitly programmed.”** Machine Learning *involves the use of algorithms to parse data and learn from it* and making a determination or prediction as a result. Instead of hand coding software libraries with well- defined specific instructions for a particular task, the machine gets “trained” using large amounts of data and algorithms, and in turn gains the capability to perform specific tasks.
- ❖ **Deep Learning is a technique for implementing Machine Learning.** Deep Learning was inspired by the structure and function of the brain, specifically the interconnecting of many neurons. Artificial Neural Networks (ANNs) are algorithms that are based on the biological structure of the brain. In ANNs, there are ‘neurons’ which have discrete layers and connections to other “neurons”. Each layer picks out a specific feature to learn. It’s this layering that gives deep learning its name, depth is created by using multiple layers as opposed to a single layer.

SOURCE: NITI AAYOG Working Paper

7. CBIC Begins Using e-Office in all CGST and Customs offices

- The launch of e-Office marks a fundamental change in internal office procedures which is so far based on manual handling of files and paper movement.
- The CBIC (Central Board of Indirect Taxes and Customs) expects e-Office would complement its many other IT led reforms which are directly aimed at enhancing the ease of doing business for the trade and industry.
- The e-Office application is developed by the NIC and is supported by the Department of Administrative Reforms and Public Grievances (DARPG).
- E-Office aims to improve governance by automating the internal processes of handling files and taking decisions within Government. **The e-Office application’s main module, eFile,** enables on-line file related work, starting from receiving and marking dak, operating a file, preparing a draft letter, its approval/signature and dispatch of the signed letter.
- The e-Office is a Mission Mode Project (MMP) under the National e-Governance of India.

e-Office

- ❖ e-Office is one of the important Mission Mode Projects for implementing the Digital India Plan. **The DAR & PG (Department of Administrative Reforms & Public Grievances) is the administrative ministry** for ensuring e-office implementation. e-Office aims to increase the usage of workflow and rule-based file routing, quick research and retrieval of files and office order, digital signatures, forms and reporting components.

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❖ **The main objectives of e-office are: -**

- (a) to improve efficiency, consistency and effectiveness of government responses;
- (b) to reduce turnaround time and to meet and demands of the citizens charter;
- (c) to provide for effective resource management to improve the quality of administration;
- (d) to reduce processing delays;
- (e) to establish transparency and accountability; and
- (f) the system will automate movement of files within government offices, etc.

SOURCE: India Yearbook 2020

8. Launching of Indian Gas Exchange (IGX), first nationwide online delivery-based gas trading platform;

- IGX will be a delivery-based trading platform for delivery of natural Gas.
- Incorporated as a wholly owned subsidiary of the IEX - India's energy market platform, IGX will enable market participants to trade in standardised gas contracts. The platform is fully automated with web-based interface to provide seamless trading experience to the customers.
- As there will be a market driven pricing mechanism, India Gas Exchange (IGX) will play a bigger role towards realizing a free market for gas.
- Through IGX, India's vision on mega investments on Liquefied Natural Gas (LNG) terminals, gas pipelines, CGD infrastructure and permission for market driven price mechanism will be materialized.
- Various ongoing projects to strengthen the gas infrastructure in the country like Urja Ganga, Eastern India grid, Indradhanush project in the North-east, Dhamra-Dahej pipeline, coal gasification and **CBM (Coal Bed Methane)** policy.
- IGX completes the entire energy value chain from gas production from multiple sources and imports of LNG from different parts of globe to having a transparent price mechanism.

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CBM (Coal Bed Methane)

- ❖ **CBM, like shale gas, is extracted from what are known as unconventional gas reservoirs** — where gas is extracted directly from the rock that is the source of the gas (shale in case of shale gas and coal in case of CBM).
- ❖ **The methane is held underground** within the coal and is extracted by drilling into the coal seam and removing the groundwater. The resulting drop in pressure causes the methane to be released from the coal.
- ❖ Coal bed methane forms at the same time coal forms. **As organic material dies and is** deposited in swamps or swampy lakes, the material undergoes bacterial and chemical changes to create peat deposits. Over millions of years, this peat gets buried under many layers of sediment the pressure and temperature of the peat increases.
- ❖ **Gradually, the peat turns into lignite or brown coal**, then sub-bituminous coal, bituminous coal, and finally hard anthracite coal. While coal is being formed, the decomposing organic material produces methane gas - the main component of natural gas - along with nitrogen and carbon dioxide. With the pressure of being buried under sediment, most of the methane stays trapped on the surface of the coal.
- ❖ The country's coal and **CBM reserves are found in 12 states of India**, with the Gondwana sediments of eastern India holding the bulk.
- ❖ **The vast majority of the best prospective areas for CBM development are in eastern India**, situated in Damodar Koel valley and Son valley.
- ❖ As per Central Mine Planning and Design Institute (CMPDI) laboratory research, high grade coal with low ash and more carbon content, which is mostly a variety of coking coal, is best suited for CBM production and it is **found mainly in areas like Jharia, Bokaro and Raniganj**.
- ❖ **CBM can be used for power generation**, as compressed natural gas (CNG) auto fuel, as feedstock for fertilisers, industrial uses such as in cement production, rolling mills, steel plants, and for methanol production.
- ❖ In order to harness CBM potential in the country, the **Government of India formulated CBM policy in 1997** wherein CBM being Natural Gas is explored and exploited under the provisions of OIL Fields Act 1948 and Petroleum & Natural Gas Rules 1959 administered by Ministry of Petroleum & Natural Gas (MOP&NG).

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- ❖ **In 2018, the Union Cabinet relaxed the rules for Coal India Limited (CIL) to extract natural gas** lying below coal seams to boost production. CIL accounts for over 80 per cent of India's domestic coal output.

SOURCE: Indian Express, Economic Times and Directorate General of Hydrocarbon website

9. First ever distribution of assistive aids & devices to divyangjan through virtual platform under **ADIP Scheme** of M/O Social Justice & Empowerment

- The Camp was organized by **Artificial Limbs Manufacturing Corporation of India (ALIMCO)**, Kanpur working under the aegis of Department of Empowerment of Person with Disability (DEPWD), Ministry of Social Justice and Empowerment (MoSJ&E).

ADIP Scheme

- ❖ ADIP Scheme is one of **the major initiatives of the Ministry of Social Justice & Empowerment, Govt. of India.**
- ❖ This scheme is implemented to **assist the needy disabled person in procuring durable, sophisticated and scientifically manufactured, modern, standard aids and appliances** to promote physical, social, psychological rehabilitation of Persons with Disabilities by reducing the effects of disabilities and at the same time enhance their economic potential.
- ❖ **Assistive devices are given to PwDs** with an aim to improve their independent functioning, and to arrest the extent of disability and occurrence of secondary disability. The aids and appliances supplied under the Scheme must have due certification.
- ❖ **The scheme is implemented through** implementing agencies such as the NGOs, National Institutes under the Ministry and ALIMCO (a PSU).

SOURCE: ADIP scheme paper

10. Annular Eclipse of the Sun- 21 June, 2020 (Annular Phase is visible in India)

- An annular **solar eclipse** will occur on 21 June 2020.
- From India annular phase will be **visible in the morning from some places within a narrow corridor of northern part of the country** (parts of Rajasthan, Haryana and Uttarakhand) and it will be seen as partial solar eclipse from the rest part of the country.
- **The annular path passes through** Congo, Sudan, Ethiopia, Yemen, Saudi Arabia, Oman, Pakistan, northern parts of India and China.

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- ***The Moon's penumbral shadow produces a partial eclipse***, visible in the region covering Africa (except W. and S. parts) S. E. Europe, Asia (except N. and E. Russia) and northern parts of Australia.
- ***A solar eclipse occurs on a new moon day*** when the Moon comes in between the Earth and the Sun and when all the three objects are aligned.
- ***An annular solar eclipse will occur when the angular diameter of the Moon falls short of that of the Sun*** so that it cannot cover up the latter completely. As a result, a ring of the Sun's disk remains visible around the Moon.

Solar and Lunar Eclipse

- ❖ ***An eclipse happens when a planet or a moon gets in the way of the Sun's light.*** Here on Earth, we can experience two kinds of eclipses: solar eclipses and lunar eclipses.
- ❖ ***A Solar eclipse happens when the moon gets in the way of the sun's light*** and casts its shadow on Earth. That means during the day, the moon moves over the sun and it gets dark.
- ❖ ***This total eclipse happens about every year and a half somewhere on Earth. A partial eclipse, when the moon doesn't completely cover the sun, happens at least twice a year somewhere on Earth.***
- ❖ ***During a lunar eclipse, Earth gets in the way of the sun's light hitting the moon.*** That means that during the night, a full moon fades away as Earth's shadow covers it up.
- ❖ ***The moon can also look reddish because*** Earth's atmosphere absorbs the other colors while it bends some sunlight toward the moon. Sunlight bending through the atmosphere and absorbing other colors is also why sunsets are orange and red.
- ❖ ***There are three types of solar eclipses:***
 - ***The first is a total solar eclipse.*** A total solar eclipse is only visible from a small area on Earth. For a total eclipse to take place, the sun, moon and Earth must be in a direct line.
 - ***The second type of solar eclipse is a partial solar eclipse.*** This happens when the sun, moon and Earth are not exactly lined up. The sun appears to have a dark shadow on only a small part of its surface.
 - ***The third type is an annular solar eclipse.*** An annular eclipse happens when the moon is farthest from Earth. Because the moon is farther away from Earth, it seems smaller. It does not block the entire view of the sun. The moon in front of the sun

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looks like a dark disk on top of a larger sun-colored disk. This creates what looks like a ring around the moon.

❖ ***During a solar eclipse, the moon casts two shadows on Earth.***

- ***The first shadow is called the umbra.*** This shadow gets smaller as it reaches Earth. It is the dark center of the moon's shadow.
- ***The second shadow is called the penumbra.*** The penumbra gets larger as it reaches Earth. People standing in the penumbra will see a partial eclipse. People standing in the umbra will see a total eclipse.

Solar eclipse (Surya Grahan)	Lunar eclipse (Chandra Grahan)
A solar eclipse happens when the moon passes in between the earth and the sun	A lunar eclipse happens when the earth passes in between the moon and the sun
During a solar eclipse, the moon partially or fully hides the sun's ray for a few minutes	During a lunar eclipse, the earth's shade partially or fully hides the moon for a brief period of time
Happens once in 18 months	Occur two times a year
The three types of solar eclipses are total solar eclipse, partial solar eclipse and annular solar eclipse	The three types of lunar eclipses are total lunar eclipse, partial lunar eclipse and a penumbral lunar eclipse
Solar eclipse is seen from few places	It is spotted from many places
Happens during day	Happens during night
A solar eclipse happens on a new moon day	A lunar eclipse happens on a full moon day

SOURCE: NASA and Business Insider

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All India Radio (AIR--News From 14th June to 16th June 2020)

SPECIFIC AIR NEWS NOT COVERED ABOVE

1. Violent face-off an attempt by Chinese side to unilaterally change status quo, says India

- On the late-evening and night of **15th June a violent face-off happened** as a result of an attempt by the Chinese side to unilaterally change the status quo there.
- Both sides suffered casualties that could have been avoided, had the agreement at the higher level been scrupulously followed by the Chinese side.
- While it was New Delhi's expectation that this would unfold smoothly, **the Chinese side departed from the consensus to respect the Line of Actual Control (LAC) in the Galwan Valley.**

Line of Actual Control (LAC)

- ❖ **The LAC is the demarcation that separates** Indian-controlled territory from Chinese-controlled territory. India considers the LAC to be 3,488 km long, while the Chinese consider it to be only around 2,000 km.
- ❖ **It is divided into three sectors:** the eastern sector which spans Arunachal Pradesh and Sikkim, the middle sector in Uttarakhand and Himachal Pradesh, and the western sector in Ladakh.

What's the disagreement?

- ❖ **The alignment of the LAC in the eastern sector is along the 1914 McMahon Line,** and there are minor disputes about the positions on the ground as per the principle of the high Himalayan watershed. This pertains to India's international boundary as well, but for certain areas such as Longju and Asaphila. The line in the middle sector is the least controversial but for the precise alignment to be followed in the Barahoti plains.
- ❖ **The major disagreements are in the western sector** where the LAC emerged from two letters written by Chinese Prime Minister Zhou Enlai to PM Jawaharlal Nehru in 1959, after he had first mentioned such a 'line' in 1956. In his letter, Zhou said the

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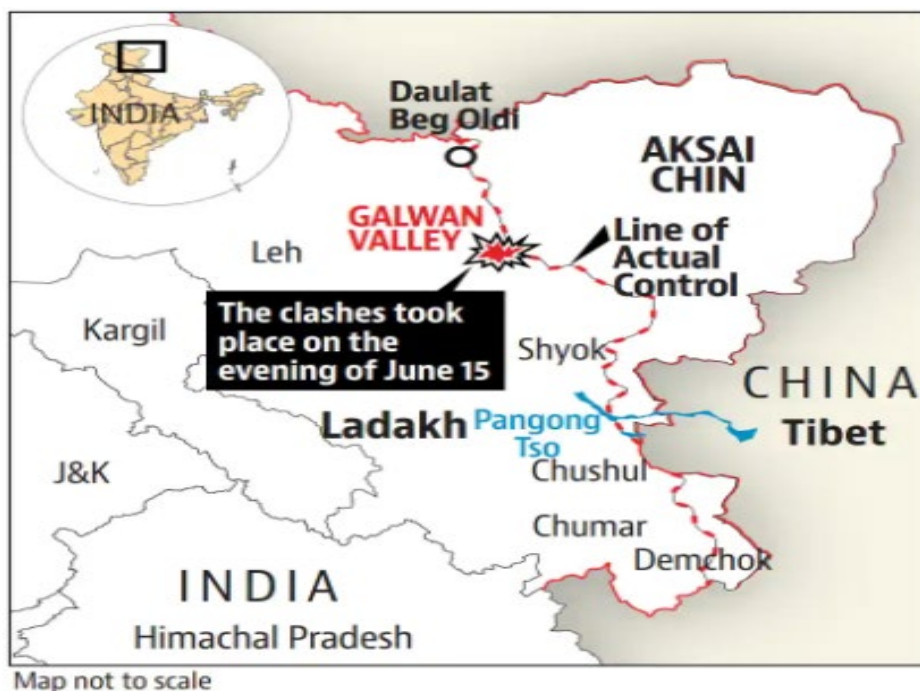
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LAC consisted of “the so-called McMahon Line in the east and the line up to which each side exercises actual control in the west”.

- ❖ **After the 1962 War, the Chinese claimed they had withdrawn** to 20 km behind the LAC of November 1959. Zhou clarified the LAC again after the war in another letter to Nehru: “To put it concretely, in the eastern sector it coincides in the main with the so-called McMahon Line, and in the western and middle sectors it coincides in the main with the traditional customary line which has consistently been pointed out by China”. During the Doklam crisis in 2017, the Chinese Foreign Ministry spokesperson urged India to abide by the “1959 LAC”.
- ❖ **India rejected the concept of LAC in both 1959 and 1962.** Even during the war, Nehru was unequivocal: “There is no sense or meaning in the Chinese offer to withdraw twenty kilometres from what they call ‘line of actual control’. What is this ‘line of control’? Is this the line they have created by aggression since the beginning of September?”
- ❖ **During his visit to China in May 2015,** PM Narendra Modi’s proposal to clarify the LAC was rejected by the Chinese.
- ❖ **The recent clash happened on Galwan Valley.**



SOURCE: Indian Express and Hindustan Times

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2. ICMR recommends use of rapid antigen test kits for diagnosis of COVID-19 in combination with RT-PCR test

- Indian Council of Medical Research, ICMR has ***recommended the use of rapid antigen test kits for diagnosis of COVID-19*** in containment zones and healthcare settings in combination with the RT-PCR test.
- The ***kits will allow faster diagnosis*** without laboratory examination.
- ***Rapid antigen test kit is a rapid chromatographic immuno assay*** for qualitative detection of specific antigens to SARS-CoV-2. It has been ***developed by a South Korea based company***.
- ***Suspected individuals who test negative for COVID-19*** by rapid antigen test should be tested sequentially by RT-PCR to rule out infection, whereas a positive test should be considered as a true positive and does not need reconfirmation by RT-PCR test.
- The ICMR further said that the ***Standard Q COVID-19 Ag rapid antigen*** detection test has a very high specificity, ***that is the ability to detect true negatives***.

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SUMMARY AND RELEVANT TERMS
EXPLAINED FROM PIB AND AIR

DATED: 17.06.2020 TO 19.06.2020



Public Information Bureau (PIB-- News From 17th June to 19th June 2020)

1. Sanitary Napkins available for Rs. 1/- per pad at Pradhan Mantri Bhartiya Janaushadhi Kendras

- The step will **ensure 'Swachhta, Swasthya and Suvidha'** for the underprivileged Women of India.
- This **step has been taken by the Union Department of Pharmaceuticals** to ensure the achievement of vision of Affordable and Quality Healthcare for All.
- Sanitary Napkins are environmentally friendly, as these pads are made with **Oxo-biodegradable** material complying with ASTM D-6954 (biodegradability test) standards.
- On the eve of World Environment Day 4th June 2018, **Government of India announced the launch of "Jan Aushadhi Suvidha Oxo-Biodegradable Sanitary Napkin"** for women of India.

Oxo-biodegradable

- ❖ 'Biodegradation' is a process by which **material disintegrates and is decomposed by microorganisms into elements** that are found in nature, such as CO₂, water and biomass. Biodegradation can occur in an oxygen rich environment (aerobic biodegradation) or in an oxygen poor environment (anaerobic biodegradation).
- ❖ 'Composting' is enhanced biodegradation under managed conditions, **predominantly characterised by forced aeration and natural heat production** resulting from the biological activity taking place inside the material. The resulting output material, compost, contains valuable nutrients and may act as a soil improver.
- ❖ **"Oxo-biodegradation" is defined by CEN** (European Committee for Standardization) as "degradation resulting from oxidative and cell-mediated phenomena, either simultaneously or successively".
- ❖ **Biodegradation of materials resulting from artificial synthesis**, such as conventional plastics, is theoretically possible when the material is broken down into small particles and the molecule mass of the material is sufficiently reduced to enable biodegradation. Factors such as light, humidity, oxygen and temperature determine the degradation rate.
- ❖ So called oxo-plastics or oxo-degradable plastics are conventional plastics which include additives to accelerate the fragmentation of the material into very small pieces, **triggered by UV radiation or heat exposure**.

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- ❖ This accelerated fragmentation would also accelerate biodegradation. ***Some stakeholders present “oxo-biodegradation” as the solution to environmental impacts of plastic in the open environment.***
- ❖ ***A technology called oxo-biodegradable plastic (OBP) has now been invented,*** which destroys plastic at the end of its useful life and removes it from the eco-system if it has not been collected and escapes instead into the open environment.
- ❖ In the process of degradation, ***OBP allows the transfer of valuable carbon material back to the eco-system via micro-organisms.***
- ❖ ***Studies have demonstrated that the carbon-based organic materials*** developed as the result of the degradation mechanism are biodegradable and therefore absorbed by living organisms in the soil. This is not the case with conventional plastic that tends to lock in the carbon for many decades, or hydro-degradable (“compostable”) plastic that releases the carbon very rapidly to atmosphere as CO₂ gas, which contributes to climate-change.

SOURCE: European Union Paper on OBP and OBP Association

2. Finance Commission Holds Meeting with The Ministry of Jal Shakti on Grant for Provision of Drinking Water & Sanitation Services

- The Terms of Reference of the Commission mandates it to recommend “the measures needed to augment the **Consolidated FUND OF a State** to supplement the resources of the Panchayats and Municipalities in the State on the basis of recommendations made by the Finance Commission of the State”.
- In this context the **Finance Commission** needed to understand whether the current experience of the submission of its report 2020-21 and its recommendations on grants for local bodies, was adequate enough to continue this type of grants for 2021-22 to 2025-26 – or there was requirement for improvement/ modification.
- ***The specific concerns of the Commission were that approximately 2.5 lakh Panchayati Raj Institutions which have common issues on Drinking Water Supply and Sanitation and where coordination was required between the Ministry of Panchayati Raj and the Ministry of Jal Shakti along with the States for effective implementation.***

Finance Commission

- ❖ ***The Finance Commission is constituted by the President under article 280*** of the Constitution, mainly to give its recommendations on distribution of tax revenues between the Union and the States and amongst the States themselves. Two distinctive features of the Commission’s work involve redressing the vertical imbalances between the taxation powers

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and expenditure responsibilities of the centre and the States respectively and equalization of all public services across the States.

- ❖ **Besides suggesting the mechanism to share tax revenues**, the Commission also lays down the principles for giving out grant-in-aid to states and other local bodies.
- ❖ **The commission has to take on itself the job of addressing the imbalances that often arise between** the taxation powers and expenditure responsibilities of the centre and the states, respectively. Primarily, it has to ensure a sense of equality in public services across the states.
- ❖ **What are the functions of the Finance Commission?**
 - **It is the duty of the Commission to make recommendations to the President as to:**
 - **The distribution between the Union and the States** of the net proceeds of taxes which are to be, or may be, divided between them and the allocation between the States of the respective shares of such proceeds;
 - **The principles which should govern the grants-in-aid** of the revenues of the States out of the Consolidated Fund of India;
 - **The measures needed to augment the Consolidated Fund** of a State to supplement the resources of the Panchayats in the State on the basis of the recommendations made by the Finance Commission of the State;
 - **Any other matter referred to the Commission by the President** in the interests of sound finance.
- ❖ **The recommendations of the Finance Commission are implemented as under: -**
 - **Those to be implemented by an order of the President:**
The recommendations relating to distribution of Union Taxes and Duties and Grants-in-aid fall in this category.
 - **Those to be implemented by executive orders:**
Other recommendations to be made by the Finance Commission, as per its Terms of Reference
- ❖ **The Finance Commission Rules, 1951, lay down the criteria for being members of the constitutional body:** those having special knowledge of finance and accounts of government with wide knowledge and experience in financial matters and in administration, or with special knowledge of economics, and those who have been qualified to be appointed as a judge of a High Court.
- ❖ **The Fifteenth Finance Commission (FC) has considered the 2011 population** along with forest cover, tax effort, area of the state, and “demographic performance” to arrive at the states’ share in the divisible pool of taxes. As had been widely anticipated, shares of the southern states, except Tamil Nadu, have fallen — with Karnataka losing the most.

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❖ **XVFC chairman is Shri N.K.Singh**

SOURCE: FCI Website, The Hindu and Indian Express

Consolidated FUND OF India/State

❖ ***This term derives its origin from the Constitution of India.***

❖ ***Under Article 266 (1) of the Constitution of India***, all revenues (example tax revenue from personal income tax, corporate income tax, customs and excise duties as well as non-tax revenue such as licence fees, dividends and profits from public sector undertakings etc.) received by the Union government as well as all loans raised by issue of treasury bills, internal and external loans and all moneys received by the Union Government in repayment of loans shall form a consolidated fund entitled the 'Consolidated Fund of India' for the Union Government.

❖ ***Similarly, under Article 266 (1) of the Constitution of India, a Consolidated Fund Of State*** (a separate fund for each state) has been established where all revenues (both tax revenues such as Sales tax/VAT, stamp duty etc. and non-tax revenues such as user charges levied by State governments) received by the State government as well as all loans raised by issue of treasury bills, internal and external loans and all moneys received by the State Government in repayment of loans shall form part of the fund.

❖ ***All government expenditure is made from this fund, except exceptional items*** which are met from the Contingency Fund or the Public Account. Importantly, no money can be withdrawn from this fund without the Parliament's/state legislature's approval.

❖ ***Simply put, all the government revenue generated from taxes***, asset sale, earnings from state-run companies, etc go into the Consolidated Fund of India. The fund gets money from:

- Revenue earned in direct taxes such as income tax, corporate tax, etc
- Revenue earned in indirect taxes such as GST
- Dividends and profits from PSUs (Public Sector Undertakings)
- Money earned through government's general services
- Disinvestment receipts
- Debt repayments
- Loan recoveries

❖ ***The Consolidated Fund of India is divided into five parts namely:***

- Revenue account (receipts)
- Revenue account (disbursements)
- Capital account (receipts)
- Capital account (disbursements)

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- Disbursements charged on the Consolidated Fund.
- ❖ ***The disbursements charged on the Consolidated Fund or Charged Expenditures are non-votable charges.*** No voting takes place for the withdrawal of these expenditures from the Consolidated Fund of India. These charges have to be paid whether the Budget is passed or not. ***The expenses under this category include salaries and allowances of:***
 - the President
 - the Speaker
 - the Deputy Speaker of the Lok Sabha
 - Chairman and Deputy Chairman of the Rajya Sabha
 - salaries and allowances of Supreme Court judges
 - pensions of Supreme Court and High Court judges

Consolidated Fund vs Contingency Fund

- ❖ The Contingency Fund stores money for some of the urgent or unplanned expenditures of the government. The President gives advance nod for a particular sum of money to be stored in the Contingency Fund for emergency uses. Note that the CAG, or the Comptroller and Auditor General, is responsible for audit of receipts and expenditure from the Fund and also of the states.

SOURCE: Arthapedia, Economic Times and Financial Express

3. New jobs, organic products in offing as KVIC taps Indian Palm Industry

- The ***Khadi and Village Industries Commission (KVIC)*** has rolled out a unique project to produce Neera and Palmgur which has huge potential to create employment in the country.
- The project that aims at ***promoting Neera as a substitute to soft drinks while also creating self-employment to Adivasis and traditional trappers.***
- Neera, extracted from the palm trees before sunrise, is a nutrient-rich health drink consumed in many Indian states.
- ***However, due to lack of institutionalized market*** technique, the commercial production and large-scale marketing of Neera has not commenced yet. ***The project has been rolled out on the initiative of Union Minister of MSME.***
- A wide range of products like candies, milk chocolates, palm cola, ice-cream and traditional sweets can be produced from Neera if properly marketed.
- At present palmgur Neera worth Rs 500 crore is traded in the country. ***The turnover is likely to increase manifold with commercial production of Neera.***

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- At the same time, Neera has high export potential as it is also consumed in countries like Sri Lanka, Africa, Malaysia, Indonesia, Thailand, and Myanmar.
- India has an abundance of palm fields in states like Maharashtra, Gujarat, Goa, Daman & Diu, Dadra and Nagar Haveli, Tamil Nadu, Uttar Pradesh and Bihar that can make India a leading producer of Neera globally.

Khadi and Village Industries Commission (KVIC)

- ❖ The Khadi and Village Industries Commission (KVIC) is a **statutory body** established by an Act of Parliament.
- ❖ ***In April 1957, it took over the work of former All India Khadi and Village Industries Board.***
- ❖ The KVIC is **charged with the planning, promotion, organisation and implementation** of programs for the development of Khadi and other village industries in the rural areas in coordination with other agencies engaged in rural development wherever necessary.
- ❖ **The following are the schemes covered under the Khadi and Village Industries Commission (KVIC).**
 - Prime Minister's Employment Generation Programme (PMEGP)
 - Market Promotion Development Assistance (MPDA)
 - Interest Subsidy Eligibility Certificate (ISEC)
 - Workshed Scheme for Khadi Artisans
 - Strengthening the infrastructure of existing weak Khadi institutions and assistance for marketing infrastructure
 - Khadi Reform and Development Programme (KRDP)
 - Scheme of Fund for Regeneration of Traditional Industries (SFURTI)
 - Honey Mission

SOURCE: KVIC Website

4. NHAI expedites settlement of claims through Conciliation

- In its **endeavour for faster settlement of claims through conciliation** and reduce liabilities thereby, National Highways Authority of India (NHAI) has rigorously started the process of conciliation by constituting three **Conciliation Committees of Independent Experts** (CCIE) of three members each.
- **These Conciliation Committees are being headed by** retired officials from the judiciary, senior experts from public administration, finance and from private sector.
- **As per Arbitration Act 2015 and its amendment in 2019**, all the arbitration disputes are to be settled within a period of 12~18 months.

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- However, the possibility of resolution of claims within 12 months is very less, as it involves various procedures. At the same time, the conciliation route ensures amicable settlement of claims in faster, fairer and transparent manner.
- Moreover, Conciliation as per Arbitration & Conciliation (Amendment) Act, 2015 is more robust, much faster process and settlement arrived through this process **have same legal value as of an Arbitral Award or decree of Court.**

Conciliation Committees of Independent Experts

- ❖ **The NHAI proposes, in 2016,** to set up a conciliation committee of independent experts in the wake of huge dispute claims.
- ❖ As part of the measures taken to minimise cases, the government has resolved that work will not be awarded where 80 percent of encumbrance free land is not made available for the project and has also constituted alternate dispute resolutions through Committee of Conciliation by Independent Experts to avoid Arbitration.
- ❖ **The mandate of this conciliation committee will be "before, during and after arbitration".** At any stage if the parties wish, they can go to this committee and get their issues settled.
- ❖ **It may be noted that this is an alternate dispute resolution mechanism** being put in place by the Ministry and if the Contractor Agency is not willing to take recourse to this process or has any reluctance, whatsoever, in this behalf, there is no compulsion and they are to follow the provisions as per the law.
- ❖ NHAI has significantly streamlined the arbitration process by **introducing the Society for Affordable Redressal of Disputes** and is completing the arbitration processes in a time-bound manner.

SOURCE: Newspapers and NHAI official paper

5. Shri Thaawarchand Gehlot and Shri Arjun Munda inaugurate 'Composite Regional Centre for Persons with Disabilities' in Ranchi

- The Union Minister of Social Justice and Empowerment Union Minister for Tribal Affairs inaugurated the **"Composite Regional Centre (CRC) for Skill Development, Rehabilitation and Employment of Persons with Disabilities (PwDs)**, located inside Namkum Block Office, Khijri, Ranchi.
- Prior to CRC, Ranchi, **CRCs have been established in many other States** and they all are working for skill development, rehabilitation and providing employment to the Persons with Disabilities.

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- CRC, Ranchi will be able to serve the Divyangjan of all 21 categories.
- **Accessible India Campaign is also in progress nationwide** which enables Divyangjan to move smoothly at the railway stations, bus stands, airports and at important public places.
- CRC, Ranchi **shall operate as an extended arm of Swami Vivekanand National Institute of Rehabilitation Training & Research, Cuttack, Odisha.**
- It will provide rehabilitation services including **Early Intervention Programme to Persons with Disabilities (PwDs)** in the State of Jharkhand and adjoining areas.
- It will also implement various schemes of Department of Empowerment of Persons with Disabilities (DEPWD), Ministry of Social Justice and Empowerment including **Rehabilitation and Skill Development programmes for PwDs.**

Rehabilitation and Skill Development programmes for PwDs

- ❖ **The Ministry of Social Justice & Empowerment has set up Composite Regional Centre** for Persons with Disabilities in various states to provide both preventive and promotional aspects of rehabilitation like education, health, employment and vocational training, research and manpower development, rehabilitation for persons with disabilities etc.
- ❖ **Skill Council for Person with Disability has responsibility for skills and workforce development of Persons with Disability.** SCPwD gives employers direct influence on training policy and is looking at education and training at all levels. The Key objective of the Council is to create a robust and vibrant ecosystem for quality education and skill development for Persons with Disability in the country.
- ❖ **Key goals of SCPwD are:**
 - Reduce skill gaps and shortages
 - Improve learning supply
 - Improve productivity
 - Create Vibrant Labour Market Information System
 - Increase opportunities for all individuals in the workforce
- ❖ **The Organization was promoted by Confederation of Indian Industry under the aegis of Ministry of Skill Development and Entrepreneurship and Ministry of Social Justice and Empowerment.** It targets skill development of People with Disabilities as per industry needs which can help them to be gainfully employed and contribute to India's growing economy.

SOURCE: Ministry of Skill Development and Entrepreneurship and Ministry of Social Justice and Empowerment

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6. Sports Ministry to establish Khelo India State Centres of Excellence (KISCE) to enhance India's Olympic performance

- The Sports Ministry is all set to **establish Khelo India State Centres of Excellence (KISCE)** under the ministry's flagship, Khelo India Scheme.
- One KISCE will be identified in each state and union territory, with an effort to create a **robust sporting ecosystem in the entire country.**
- In the first leg, the **Ministry has identified state-owned sports facilities in eight states** of India, including, Karnataka, Odisha, Kerala, Telangana and the north east states of Arunachal Pradesh, Manipur, Mizoram and Nagaland which will be upgraded into Khelo India State Centre of Excellence (KISCE).
- In order to upgrade the existing centre to the KISCE, the government will extend a '**Viability Gap Funding**' in sports science and technology support for sports disciplines practiced at the centre and also **bridge the gaps in requirement of sports equipment, expert coaches and high-performance managers.**
- **The support extended will be to Olympic sports,** though support can be extended in sports science and allied fields in other sporting disciplines being run in the centre.
- In the first batch, the following sporting facilities will be upgraded to Khelo India State Centre of Excellence:
 - Sangey Lhaden Sports Academy, Itanagar, Arunachal Pradesh
 - Jaiprakash Narayan National Youth Center, Bangalore, Karnataka
 - GV Raja Sr. Secondary Sports School, Thiruvananthapuram, Kerala
 - Khuman Lampak Sports Complex, Imphal, Manipur
 - Rajiv Gandhi Stadium, Aizawl, Mizoram
 - State Sports Academy, IG Stadium, Kohima, Nagaland
 - Kalinga Stadium, Bhubaneswar, Odisha
 - Regional Sports School, Hakimpet, Telangana.

Viability Gap Funding

- ❖ **Cabinet Committee on Economic Affairs (CCEA) in its meeting of July 25, 2005 approved the Scheme for support to Public Private Partnerships in Infrastructure.**
- ❖ The Scheme for Financial Support to PPPs in Infrastructure (Viability Gap Funding scheme) of the Government of India is **administered by the Ministry of Finance** and provides financial support in the form of grants, one time or deferred, to

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infrastructure projects undertaken through PPPs with a view to make them commercially viable.

- ❖ ***Simply, it means*** a grant one-time or deferred, provided to support infrastructure projects that are economically justified but fall short of financial viability.
- ❖ ***The lack of financial viability usually arises from*** long gestation periods and the inability to increase user charges to commercial levels.
- ❖ ***Government of India has notified a scheme*** for Viability Gap Funding to infrastructure projects that are to be undertaken ***through Public Private Partnerships***. It will be a Plan Scheme to be administered by the Ministry of Finance with suitable budgetary provisions to be made in the Annual Plans on a year-to-year basis.
- ❖ ***The quantum of VGF provided under this scheme is in the form of a capital grant*** at the stage of project construction. The amount of VGF will be equivalent to the lowest bid for capital subsidy, but subject to a maximum of 20% of the total project cost. In case the sponsoring Ministry/State Government/ statutory entity propose to provide any assistance over and above the said VGF, it will be restricted to a further 20% of the total project cost.
- ❖ ***Viability Gap Funding up to Rs. 100 crores*** (Rupees one hundred crore) for each project may be sanctioned by the empowered Institution, subject to the budgetary ceilings indicated by the Finance Ministry. Empowered Institution will also consider other proposals and place them before the Empowered Committee.

SOURCE: DEA Website and Arthapedia

6. PM launches Auction process of Coal blocks for Commercial mining

- Prime Minister launched the auction process of 41 coal blocks for commercial mining. It was ***part of the series of announcements made by the Government of India, under the AatmaNirbhar Bharat Abhiyan.***
- It is irony that India, with the ***world's fourth largest coal reserve and being the second largest producer, is also the second largest coal importer.***
- In 2014, ***coal linkage*** was introduced to provide impetus to the coal sector. India has taken a major decision to fully open the coal and mining sector for increased competition, capital, participation and technology.

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- Latest technology can be introduced to make gas from coal and the environment will be protected with steps like **coal gasification**.
- Government has set a target to gasify around 100-million-ton coal by the year 2030 and four projects have been identified for this purpose and around 20 thousand crore rupees will be invested.
- Extra revenue generated through coal production will be used for public welfare schemes in the region. States will also continue to get help from the **District Mineral Fund**, from which a major chunk would be utilized in development of essential facilities in the surrounding areas.

Coal linkage

- ❖ **Coal linkage policy named Shakti** or the Scheme to Harness and Allocate Koyla (Coal) Transparently in India, it aims to auction long-term coal linkages to power companies. It is expected to revive 30,000 Mw of power plants in the country, which are awaiting fuel supply.
- ❖ Under the policy, **coal linkages would be awarded to designated state-owned power distribution companies (discoms)**. These, in turn, would assign linkages to state or central power generation companies via allocation, and through auction to private units.
- ❖ **The independent power producers (IPPs)** participating in the auction will bid for discounts on the existing tariff and this would be adjusted from the gross coal bills.
- ❖ **Simply put, the Ministry of Power issued the methodology for allocation of coal for sale of power through short-term and day-ahead market (DAM) in power exchange.** So far, coal was allocated to long-term and medium-term PPA (power purchase agreement) holders.
- ❖ With this, **stressed power stations may be revived**. Further, this will also enable deepening of power market being traded through power exchange.
- ❖ It also provided that auctions for coal linkage under this methodology shall be carried out every quarter to cater to the dynamic requirements and demand variations in short-term and day-ahead markets.

SOURCE: Financial Express, Economic Times and Indian Express

Coal gasification

- ❖ Coal gasification is the **process of converting coal into synthesis gas** (also called syngas), which is a mixture of hydrogen (H₂), carbon monoxide (CO) and carbon dioxide (CO₂). The

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syngas can be used in a variety of applications such as in the production of electricity and making chemical products, such as fertilisers.

- ❖ The coal gasification ***process holds good potential in the future***, with coal being the most abundantly available fossil fuel across the world, and that even low-grade coal can be used in the process.
- ❖ ***Coal gasification can also help address local pollution problems*** that have in recent months brought parts of the country to a virtual standstill.
- ❖ ***But there are two big problems.***
 - First, coal gasification actually produces more CO₂ than a traditional coal plant;
 - The second problem is water use. Coal gasification is one of the more water-intensive forms of energy production.

How Coal gasification can help India?

- ❖ According to the Ministry of Chemicals and Fertilisers, urea is currently produced using pooled natural gas, which comprises of both domestic natural gas and imported LNG. The usage of locally available coal for making fertilisers would help ***reduce the import of LNG***.
- ❖ India has about 300 billion tonnes of proven and unproven reserves, the majority of which is low-rank high ash coal. By enriching and exploiting Indian coal endowments through gasification and carbon capture a clean coal-based economy for power, chemicals, fuels, steel, oil, and fertilisers can ***enable a \$50 billion direct increase in the gross domestic product (GDP)*** while creating employment for over half-a-million people, reducing imports by over \$30 billion and cutting the current account deficit by 50 per cent.
- ❖ The coal gasification process which produces syn gas from coal by reaction with steam (steam reforming) may be a solution for improving coal conversion efficiency. The clean syn gases after removal of various hazardous emissions were ***being used in processing plants to produce energy and chemical products***.
- ❖ ***The high ash content in the Indian coal still remains a major hindrance*** towards developing an appropriate technology which can be run on commercial basis.
- ❖ ***Along with gasification of coal, carbon capture, use and storage (CCUS)*** is one of the cornerstones of enabling a clean coal-based economy. The CCUS technology along with coal gasification, when implemented with policy support, offers multiple benefits by engendering a carbon-neutral industrial ecosystem while reducing our extreme dependence on crude oil imports.

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- ❖ Simply put, **CCUS is the process of capturing waste CO₂ from emissions** produced from the use of fossil fuels in power generation or industrial processes and then compressing and converting it into liquid form, which is then piped and stored underground -- or used for commercial activities.
- ❖ **CCUS yields two major benefits:** First, it can take out more than 90 per cent of the CO₂ from emission streams; and second, it can offer a range of economic goods and revenue streams in the energy and core sectors.
- ❖ Analysis show that with the right policy initiatives and market design, hyper-scale coal gasification, based on low-grade Indian coal, along with CCUS can enable large-scale carbon-neutral industries such as methanol, ammonia/fertiliser, olefins, steel, and power while **enhancing India's oil production from its depleting oilfields.**
- ❖ It will be geared towards reducing **India's reliance on imports** and helping the country meet its CoP-21 Paris Agreement commitments.

SOURCE: Indian Express, USED A and Economic Times

District Mineral (Foundation) Fund

- ❖ District Mineral Foundation (DMF) is **a trust set up as a non-profit body, in those districts affected by the mining works**, to work for the interest and benefit of persons and areas affected by mining related operations. It is funded through the contributions from miners.
- ❖ Its manner of operation **comes under the jurisdiction of the relevant State Government.**
- ❖ In case of all mining leases executed before 12th January 2015 (the date on which MMDR Amendment Act came into force) **miners will have to contribute an amount equal to 30% of the royalty payable by them to the DMFs, as mandated by central government.**
- ❖ Mines and minerals development and regulation Act 1957, **mandates the State Governments to establish District Mineral Foundation (DMF) in each district** affected by mining related operations. The object shall be to work for the interest and benefit of persons, and areas affected by mining related operations.
- ❖ **DMF funds are treated as extra-budgetary resources for the State Plan.**
- ❖ Further, using the funds generated by this contribution, **the DMFs are expected to implement the Pradhan Mantri Khanij Kshetra Kalyan Yojana (PMKKKY)**, launched on 17 September 2015 for the welfare of mining areas and affected population.

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- ❖ **Mining related operations largely affect less developed and very remote areas of the country, and vulnerable sections of the population, especially Scheduled Tribes.** Therefore, it is especially necessary that special care and attention is devoted, in an organized and structured manner so as to ensure that these areas and affected persons are benefitted by the mineral wealth in their regions and are empowered to improve their standard of living. It is with this objective that DMF and PMKKKY were launched by the Government.

Why recently in news

- ❖ Reports say that **over two-thirds of statutory funds deposited with District Mineral Foundations (DMF) across states, totalling over Rs 35,000 crore, are lying idle, unutilised.**
- ❖ In wake of the unprecedented times and the COVID-19 pandemic, the Union finance minister, on March 26, while announcing several measures to combat the public health and the economic crisis in the nation, **directed the states to use the District Mineral Foundation (DMF) funds to fight the pandemic.**
- ❖ The **direction by the Centre to the states permitting the diversion of such special funds specifically meant for a targeted group of people** who are affected by mining operations, again brings to fore the issues surrounding the legitimacy and propriety of such a move by the executive.
- ❖ According to the amended minerals act, **40% of the DMF fund can be used for 'other priority areas' whereas 60% should be reserved for the 'priority areas'.** This means that while 60% of the fund can be kept for communities directly working in mining activities, the remaining can be used for the wellbeing of the state.
- ❖ The pile-up would adversely affect the development delivery mechanism. The value of domestic minerals output is put at over Rs 3,00,000 crore annually. The funds can be used for health, education and other social infrastructure. Besides, there is the need to address and rectify environmental and land degradation in mining sites and well beyond, including measures to reverse contamination of groundwater and other negative externalities even as we carry out modern scientific mining practices.
- ❖ Delhi-based non-governmental organization, Prahar (public response against helplessness and action for redressal) urged the government to use the unutilised amount of Rs 23,510 crores from the state-owned district mineral foundation fund as part of relief aid to the ongoing Covid-19 outbreak, while Goa Foundation, an NGO based in Goa has opposed the idea. This brings a bottleneck regarding the purpose and use of the fund.

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- ❖ *Earlier, like DMF funds, CAMPA funds too have been diverted for other flagship initiatives and policies and hence the Supreme Court has time and again pulled up the state governments for diverting the funds for purposes other than what they were meant for.*

SOURCE: Atrhapedia, Economic Times and The Wire

7. PM launched Garib Kalyan Rojgar Abhiyaan on 20th June to boost livelihood opportunities in Rural India

- Government of India has launched a massive rural public works **scheme 'Garib Kalyan Rojgar Abhiyaan'** to **empower and provide livelihood opportunities** to the returnee migrant workers and rural citizens.
- This campaign of 125 days, which will work in mission mode, will involve intensified and **focused implementation of 25 different types of works to provide employment** to the migrant workers on one hand and create infrastructure in the rural regions of the country on the other hand, with a resource envelope of Rs. 50,000 crores.
- The Abhiyaan will be **a coordinated effort between 12 different Ministries/Departments**, namely, Rural Development, Panchayati Raj, Road Transport & Highways, Mines, Drinking Water & Sanitation, Environment, Railways, Petroleum & Natural Gas, New & Renewable Energy, Border Roads, Telecom and Agriculture.

8. Nehru Science Centre webinar throws light on the Science and Philosophy of Yoga

- Threw light on the historicity of yoga, starting with Patanjali who had compiled, coded and systematised this **science which is known as 'Yoga Sutra'**.
- Yoga Shastra **was intertwined in the religious beliefs of** Hinduism, Jainism, Buddhism, Sufism and various other doctrines.
- Rig Veda, which is regarded as the most ancient literature of the world, **elucidated two important aspects of Yoga Sutra – 'Tapa' and 'Dhyana'**. 'Tapa' means to control the flickering mind and sensory organs as it serves the purpose of creativity and acquiring knowledge, whereas 'Dhyana' serves as a tool to acquire knowledge.
- **'Samyama', another important term in Yoga Sutra** signifies a combination of **Pratyahara (withdrawal of the senses), Dharana (concentration) and Dhyana (meditation)** – which are tools used for gaining knowledge of things around and within. Hence, it is a tool for the human body to function effectively and acquire knowledge.

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- **Patanjali also wrote about two aspects of 'Yama' and 'Niyama'** that help to fortify human cells and therefore trains us in self-discipline in day-to-day life.
- **Patanjali Yogashraya mentioned certain postures** (asanas) which have been helpful to cope with difficult times of disease outbreak.
- **Tadasana** (Keeping the centre of the crown of the head, throat and the perineum in one line to steady mind, eyes and consciousness), **Hamsasana and Mayurasana and Vashishthasana** are among the asanas which have a major effect on calming the mind and body. So does **Marichyasana**, which is a unique twisting of the body, rarely found in any form of exercise and which not only exercises the spine, but also has effect on the respiratory, cardiovascular, digestive and excretory systems.
- **Mulabandhasana, Paripurna Matsyendrasana, Baddha Konasana, Garbha Pindasana, Padmasana** similarly heal the mind and body.

9. Government of India & AIIB sign an Agreement for \$750 Million for COVID-19 support for India

- The Government of India and the **Asian Infrastructure Investment Bank (AIIB)** signed a \$750 million "COVID-19 Active Response and Expenditure Support Programme" **to assist India to strengthen its response to the adverse impacts of the COVID-19 pandemic on poor and vulnerable households.** This is the first ever budgetary support programme from the AIIB to India.
- The Programme will **provide the Government of India with budget support** to mitigate the severe adverse social and economic impact of COVID-19.
- The **current loan will be the second to India from AIIB under its COVID-19 crisis recovery** facility apart from the earlier approved \$500 million loan for the COVID-19 Emergency Response and Health Systems Preparedness Project.
- The **Primary Programme beneficiaries would be families below the poverty line**, farmers, healthcare workers, women, women's self-help groups, widows, people with disabilities, senior citizens, low wage earners, construction workers and other vulnerable groups.
- The project is being financed by the Asian Infrastructure Investment Bank (AIIB) and **Asian Development Bank (ADB)** in the amount of \$2.250 billion, of which \$750 million will be provided by AIIB and \$1.5 billion will be provided by ADB.

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- ***The project will be executed by the Department of Economic Affairs, Ministry of Finance, through various line ministries.***
- The Asian Infrastructure Investment Bank (AIIB) is a multilateral development bank with a ***mission to improve social and economic outcomes in Asia***, began operations in January 2016. AIIB has now grown to 102 approved members worldwide.

Asian Infrastructure Investment Bank (AIIB)

- ❖ The Asian Infrastructure Investment Bank (AIIB) is a ***China-led financial institution aiming to support infrastructure projects in Asia.***
- ❖ ***To be headquartered in Beijing*** with authorized capital of \$100 billion, the bank is an open organization and all economies are welcome to join.
- ❖ ***It has 34 Asian Countries; 18 European countries; 2 African countries; 2 Oceania countries; 1 South American country.***
- ❖ ***India is second largest shareholder after China.***
- ❖ ***The AIIB is the second largest multilateral development bank (MDB) by membership after the World Bank***

Asian Development Bank

- ❖ ***Founded in 1966***, the Asian Development Bank's (ADB) ***headquarters are in Manila, Philippines.***
- ❖ The Asian Development Bank's primary mission is to foster growth and cooperation among countries in the Asia-Pacific Region.
- ❖ It has been ***responsible for a number of major projects in the region and raises capital through the international bond markets.*** The ADB also relies on member contributions, retained earnings from lending, and the repayment of loans for funding of the organization.
- ❖ ***The two largest shareholders of the Asian Development Bank are the United States and Japan.***
- ❖ ***The ADB provides assistance to its developing member countries***, the private sector, and public-private partnerships through grants, loans, technical assistance, and equity investments to promote development.

SOURCE: AIIB and ADB official website

10. Ministry of Food Processing Industries (MoFPI) holds video conferences with promoters of Agro-processing Clusters

- The ongoing Agro-processing Clusters (APCs) is supported by the Ministry of Food Processing Industries (MoFPI) under ***the Scheme for Creation of Infrastructure for Agro-processing Clusters.***

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- The Ministry has a **dedicated investment portal, Sampada portal** for receiving, processing, and sanctioning applications for Subsidy under the relevant schemes.

Agro-processing Clusters scheme

- ❖ The scheme **aims at development of modern infrastructure and common facilities** to encourage group of entrepreneurs to set up food processing units based on cluster approach by linking groups of producers/ farmers to the processors and markets through well-equipped supply chain with modern infrastructure.
- ❖ The units are set up simultaneous along with creation of common infrastructure. **Agro processing clusters set up by** Project Execution Agency (PEA)/ Organisation such as Govt./ PSUs/ Joint Ventures/ NGOs/ Cooperatives/ SHGs/ FPOs/ Private Sector/ individuals etc. and are eligible for financial assistance subject to terms and conditions under the scheme guidelines.
- ❖ **Each agro processing clusters under the scheme have two basic components i.e.**
 - **Basic Enabling Infrastructure** (roads, water supply, power supply, drainage, ETP etc.), **Core Infrastructure/ Common facilities** (warehouses, cold storages, IQF, tetra pack, sorting, grading etc) and
 - **At least 5 food processing units** with a minimum investment of Rs. 25 crores.
- ❖ **The units are set up simultaneous along with creation of common infrastructure.** At least 10 acres of land is required to be arranged either by purchase or on lease for at least 50 years for setting up of Agro Processing Cluster.
- ❖ **Agro processing cluster may be sanctioned in the same district** where CPC of Mega Food Park (MFP) is located. The promoter(s), who have been sanctioned Mega Food Parks, will be eligible under the scheme only after completion of the MFP.

SOURCE: MOFPI Website and Economic Times

11. Centre Lauds Karnataka's IT-based model of Comprehensive Contact Tracing and House-to-House Survey

- Contact tracing is a critical component to contain the epidemic and ensure that the health infrastructure does not get overwhelmed.
- **Karnataka has widened the definition of 'Contact'** to include both the high risk as well as low risk contacts as defined by Government of India. The number of primary and secondary contacts in Karnataka were meticulously traced and put under strict quarantine.

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- Field level health worker (**ASHAs**) also visits those households to ensure that the required healthcare service is provided.

ASHAs

- ❖ Accredited Social Health Activist (ASHA) is a **trained female community health activist**. Selected from the community itself and accountable to it, the ASHA will be trained to work as an interface between the community and the public health system.
- ❖ The ASHA scheme **is presently in place in 33 states** (except Goa, Chandigarh & Puducherry).
- ❖ ASHA will be the **first port of call for any health-related demands of deprived sections** of the population, especially women and children, who find it difficult to access health services.
- ❖ **She will counsel women on birth preparedness**, importance of safe delivery, breast-feeding and complementary feeding, immunization, contraception and prevention of common infections including Reproductive Tract Infection/Sexually Transmitted Infections (RTIs/STIs) and care of the young child.
- ❖ **In rural areas:**
 - There is one Community Health Volunteer i.e. ASHA (Accredited Social Health Activist) for every village with a population of 1000. The States have been given the flexibility to relax the population norms as well as the educational qualifications on a case to case basis, depending on the local conditions as far as her recruitment is concerned.
- ❖ **In Urban areas:**
 - The general norm for selecting ASHA in urban area will be “One ASHA for every 1000-2500 population”. Since houses in urban context are generally located within a very small geographic area an ASHA can cover about 200-500 households depending upon the spatial consideration.
- ❖ **The role of an ASHA is that of a community level care provider.** This includes a mix of tasks:
 - Facilitating access to health care services,
 - Building awareness about health care entitlements especially amongst the poor and marginalized,
 - Promoting healthy behaviours and mobilizing for collective action for better health outcomes and
 - Meeting curative care needs as appropriate to the organization of service delivery in that area and compatible with her training and skills.

SOURCE: National Health Mission Website

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12. Scheme of Special Micro-Credit Facility launched for Street Vendors - Striving towards Atmanirbhar Bharat

- A Memorandum of Understanding has been signed **between Ministry of Housing & Urban Affairs and Small Industries Development Bank of India (SIDBI)** in order to engage SIDBI as the Implementation Agency for PM Street Vendor's AtmaNirbhar Nidhi (**PM SVANidhi**) - a Special Micro-Credit Facility for Street Vendors.
- As per the MoU terms, **SIDBI will implement the PM SVANidhi Scheme** under the guidance of MoHUA. It will also manage the credit guarantee to the lending institutions through Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE).
- It will develop and maintain a customized and integrated IT Platform providing end-to-end solutions, including documentation of all the processes and workflows for an end-to-end solution, through a Portal and a Mobile App, to ensure engagement and information flow between Urban Local Bodies (ULBs), Lending Institutions, Digital Payment Aggregators and other stakeholders.
- **It will leverage the network of lending Institutions** like Scheduled Commercial Banks (SCBs), Non-Bank Finance Companies (NBFCs), Micro Finance Institutions (MFIs), Co-operative Banks, Small Finance Banks (SFBs), Regional Rural Banks (RRBs), etc. for the Scheme implementation.
- It is pertinent to mention that **PM SVANidhi was launched by the Ministry of Housing and Urban Affairs, on June 01, 2020** for providing affordable **Working Capital loan to street vendors** to resume their livelihoods that have been adversely affected due to Covid-19 lockdown.
- This scheme targets to benefit over 50 lakh Street Vendors. Under the Scheme, the vendors can avail a working capital loan of up to Rs. 10,000, which is **repayable in monthly instalments in the tenure of one year**.
- On timely/ early repayment of the loan, an interest subsidy @ 7% per annum will be credited to the bank accounts of beneficiaries through Direct Benefit Transfer on quarterly basis.
- **There will be no penalty on early repayment of loan.** The scheme promotes digital transactions through cash back incentives up to an amount of Rs. 100 per month.
- In the first phase, 108 cities have been selected, in consultation with States/Uts, for saturation by September 2020. Disbursement of loan is planned to commence in July 2020.

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13. R&D Portal for AatmaNirbhar Bharat in Mining Advancement launched

- **Union Ministry for Coal, Mines and Parliamentary Affairs launched SATYABHAMA** (Science and Technology Yojana for Aatmanirbhar Bharat in Mining Advancement) Portal for Science and Technology Programme Scheme of Ministry of Mines on 15th June 2020.
- The portal has been designed, developed and implemented by National Informatics Centre (NIC), Mines Informatics Division.
- In contrast to present system where research proposals are submitted physically by the Scientists / Researchers, **SATYABHAMA Portal allows online submission** of project proposals along with monitoring of the projects and utilization of funds / grants.
- **The Portal is integrated with NGO Darpan Portal of NITI Aayog.**

14. First instalment of Fifteenth Finance Commission Grants to Rural Local Bodies (RLBs) released

- The Fifteenth Finance Commission (XV FC) has submitted its interim report for the period FY 2020-21 and the **Government of India has accepted its recommendations in respect of the Local Bodies.**
- Commission has worked out the total size of the grant to be Rs.60,750 crore for the period FY 2020-21 which is the **highest ever allocation made by the Finance Commission in any single year.**
- The Commission has recommended Grants-in-aid to all tiers of the Panchayati **Raj including the Traditional Bodies of Fifth and Sixth Schedule areas, in 28 States, in two parts, namely, (i) a Basic Grant and (ii) a Tied Grant.**
- **50 % of the grant will be Basic Grant and 50 % will be the Tied Grant.**
- **The basic grants are untied** and can be used by RLBs for location-specific felt needs, except for salary or other establishment expenditure.
- **The Tied Grants are to be used** for the basic services of (a) sanitation and maintenance of open-defecation free (ODF) status and (b) supply of drinking water, rainwater harvesting and water recycling.

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- The RLBs shall, as far as possible, earmark one half of these Tied Grants each to these two critical services. However, if any RLB has fully saturated the needs of one category it can utilize the funds for the other category.
- ***The State Governments will be distributing the XV FC Grants to all the tiers of panchayats – village, block and district and the traditional bodies of Fifth and Sixth Schedule areas based on the accepted recommendations of the latest State Finance Commission (SFC) and in conformity of the following bands recommended by XV FC.***

15. Recent Delhi-NCR tremors do not signal of a big event, though a strong earthquake cannot be ruled out: WIHG

- All the earthquakes in Delhi-NCR are due to the release of strain energy, which have been ***accumulated as a result of northward movement of Indian plate and its collision with the Eurasian plate, through the fault or weak zones.***
- There are so many weak zones and faults in the Delhi-NCR: Delhi-Haridwar ridge, Mahendragarh-Dehradun subsurface fault, Moradabad fault, Sohna fault, Great boundary fault, Delhi-Sargodha ridge, Yamuna river lineament, Ganga river lineament etc.
- We must understand that the ***Himalayan seismic belt, where the Indian plate collided with the Eurasian plate*** and under thrusts beneath the Himalayan wedge, accumulates strain energy at the plate boundary due to relative movement of plates against each other causing crustal shortening and deformation of rocks.
- These energy can be released through the weak zones and faults in the form of earthquakes ranging from ***micro (<3.0), minor (3.0-3.9), light (4.0-4.9), moderate (5.0-5.9), strong (6.0-6.9), major (7.0-7.9) or great (>8.0) earthquake***, defined as per the amount of energy released.
- The small magnitude earthquakes are frequent, but large magnitude earthquakes are rare to very rare. ***It is the large earthquakes that cause severe damages both to structures and properties.***
- ***The rupture areas due to large earthquakes show gaps along the Himalayan arc***, which have not experienced great earthquakes for a long time and are identified as the future potential zones for great earthquakes.
- ***Three main seismic gaps have been identified in the Himalaya:*** the Assam Gap between the 1950 Assam earthquake and the 1934 Bihar-Nepal earthquake; the Kashmir Gap between the 1905 Kangra earthquake and the 1975 Kinnaur earthquake; and the ~700 km long Central Gap between the 1905 Kangra earthquake and the 1934 Bihar-Nepal earthquake.

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- ***The entire NW-NE Himalayan belt lies in the highest seismic potential zone V and IV, where major to great earthquakes can take place.***

16. ARIES to organize live telecast of upcoming solar eclipse on social media

- The solar eclipse will ***be observed from the parts of Africa, Asia, and some parts of Europe,*** and interestingly, the peak eclipse will be observed in the ***northern part of India.***
- ***Another annular eclipse was observed on December 26, 2019, from southern India*** and as a partial eclipse from different parts of the country.
- ***The next annular solar eclipse expected to be visible from India will be in the next decade, occurring on May 21, 2031,*** while a total solar eclipse will be seen on March 20, 2034.
- ***A solar eclipse occurs when the moon*** (at the new moon phase) blocks the solar disk partially or completely, leading to a partial, annular, and total solar eclipse, respectively.
- ***During the eclipse, the shadow of the moon falls on Earth*** and constitutes a darker region known as umbra and relatively less dark region, penumbra.
- ***Total solar eclipses are the rarest of the solar eclipses.*** Even though we have a new moon every month, we do not witness eclipses so often. This is due to the fact that the orbit of the moon is inclined at an angle of around 5° with respect to the Earth-Sun plane. This leads to the alignment of the Sun, Moon, and Earth as a rare astronomical phenomenon.

17. Need to create more awareness in rural/ tribal areas about Sickle Cell disease and its management

- ***Sickle cell disease (SCD) which is the most prevalent inherited blood disorder,*** is widespread amongst many tribal population groups in India, posing a considerable health burden in several states.
- While there are several cost-effective interventions which have dramatically reduced morbidity and mortality from SCD in developed countries, the access to care for SCD in the tribal regions of India is limited.

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All India Radio (AIR--News From 17th June to 19th June 2020)

SPECIFIC AIR NEWS NOT COVERED ABOVE

1. CSIR gets nod for Phase III trial of antiviral drug Umifenovir: Health Minister

- Council for Scientific and Industrial Research's constituent lab Central Drug Research Institute, Lucknow has received permission for carrying out Phase III randomized, double-blind, placebo-controlled trial of efficacy, safety and tolerability of **antiviral drug Umifenovir**.
- **Umifenovir is mainly used for the treatment of influenza** and has recently come into prominence due to its potential use for COVID-19 patients.

2. New Delhi asserts India's work in UNSC will be guided by PM Modi's call for reformed multilateralism & dynamic 5S vision

- **India's presence on the Security Council and performance there** over the next two years will underscore the value that a country like India brings to the table and reaffirm credentials to be a permanent member of UNSC.
- India's work in the UNSC will be guided by reformed multilateralism and the dynamic **5S vision - Sammaan, Samvaad, Sahyog, Shanti and Samriddhi**.
- **India was elected unopposed being the sole candidate for the Asia Pacific seat.**
- This was made possible because Afghanistan had withdrawn in India's favour for which India is **thankful towards the Afghanistan government**.
- **India's two-year term will begin on the 1st of January 2021.** This will be the eighth time that India will be serving on the security council bringing with its rich experience and legacy.
- India is founding member of United Nations.

UN Security Council

- ❖ **The Security Council is the United Nations' most powerful body**, with "primary responsibility for the maintenance of international peace and security." Five powerful countries sit as "permanent members" along with ten elected members with two-year terms.

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- ❖ ***The United Nations Charter established six main organs of the United Nations, including the Security Council.*** It gives primary responsibility for maintaining international peace and security to the Security Council, which may meet whenever peace is threatened.
- ❖ ***According to the Charter, the United Nations has four purposes:***
 - to maintain international peace and security;
 - to develop friendly relations among nations;
 - to cooperate in solving international problems and in promoting respect for human rights;
 - and to be a centre for harmonizing the actions of nations.
- ❖ ***Beyond permanency itself, the veto power is probably the UN Charter's most significant distinction*** between permanent and non-permanent members.
- ❖ All five permanent members are Veto powers unlike non-permanent members.

India and UNSC

- ❖ ***India, Germany, Brazil and Japan have formed the G4 bloc*** to press for their permanent membership demand as part of the reforms in the United Nations.
- ❖ ***China, which has veto power in the UNSC being one of its five permanent members, has been stonewalling India's efforts*** to become permanent member of the powerful UN body for years, pointing out lack of consensus even though the other four -- US, UK, France and Russia -- have backed New Delhi's membership.
- ❖ ***China however has backed India for non-permanent membership of the UNSC for the year 2021-22.***
- ❖ ***India deserves to be in the list of permanent members not only because*** of the one-sixth world's population that resides in India but because of the following reasons:
 - ***Being a founding member of the UN,*** India has always respected, participated and supported the United Nations.
 - ***India is not only funding the UN substantially, but it is also leading the peace-keeping operations*** of the UN; upholding the principles & credentials of the UN.

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- **India is a major emerging economic power** & follows an independent foreign policy, which signifies India's stand on any issue on multinational forum.
- ❖ **Permanent membership of the Security Council is an important and legitimate aspiration for India** in order to play its rightful role in the maintenance of international peace and security. Absence of this membership weighed heavily on the Indian leadership in 1971 during the liberation of Bangladesh, with Kissinger's famous "tilt" towards Pakistan, the USSR using its veto in the Security Council in favour of India and the American's nuclear armed aircraft carrier "Enterprise" from its Seventh Fleet, moving steadily towards the Indian Ocean. Though this is now history, it underlines once again the importance of India's permanent membership of the Security Council.
- ❖ **On disarmament and security, the most important Specialised Agency is the IAEA** (International Atomic Energy Agency), the United Nations Nuclear Watchdog. India is a permanent member of the IAEA Board of Governors and plays a crucial role in its deliberations.
- ❖ **There are several underlying facts and event** which make India a strong contender of UNSC permanent seat but use of VETO by China is itself a roadblock, undermining the progressive relation between both the economic powerful countries.

SOURCE: MEA, The Hindu, IDSA and Rajya Sabha TV

3. Regulators to take necessary action to preserve financial stability: FSDC sub-committee

- Amongst other things, it discussed the proposal of setting up of **an Inter Regulatory Technical Group on Fintech and the National Strategy on Financial Education 2020-2025**.
- The RBI said, the body also deliberated upon the status and developments under the **Insolvency and Bankruptcy Code (IBC)**, 2016 and the working of **credit rating agencies**.

Insolvency and Bankruptcy Code (IBC)

- ❖ **Till the year 1985**, the legal framework for dealing with corporate insolvency and bankruptcy in India consisted of only one law — the Companies Act, 1956. In 1985, the Sick Industrial Companies Act, 1985 (SICA), followed by the Recovery of Debts Due to Banks and Financial Institutions Act, 1993 (RDDBFI) under which debt recovery tribunals (DRTs) were established

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and finally, the Securitisation and Reconstruction of Financial Assets and Enforcement of Securities Interest Act (SARFAESI) was enacted in 2002.

- ❖ ***Insolvency and Bankruptcy Code 2016 was implemented through an act of Parliament.*** It got Presidential assent in May 2016. The law was necessitated due to huge pile-up of non-performing loans of banks and delay in debt resolution.
- ❖ ***IBC applies to companies, partnerships and individuals.*** It provides for a time-bound process to resolve insolvency.
- ❖ When a default in repayment occurs, creditors gain control over debtor's assets and must take decisions to resolve insolvency. ***Under IBC debtor and creditor both can start 'recovery' proceedings against each other.***
- ❖ ***Companies have to complete the entire insolvency exercise within 180 days under IBC.*** The deadline may be extended if the creditors do not raise objections on the extension.
- ❖ ***For smaller companies including startups with an annual turnover of Rs 1 crore, the whole exercise of insolvency must be completed in 90 days*** and the deadline can be extended by 45 days. If debt resolution doesn't happen the company goes for liquidation.
- ❖ ***Insolvency and Bankruptcy Board of India has been appointed as a regulator and it can oversee these proceedings.*** IBBI has 10 members; from Finance Ministry and Law Ministry the Reserve Bank of India.
- ❖ The proceedings of the resolution process will be adjudicated by the ***National Companies Law Tribunal (NCLT), for companies and the Debt Recovery Tribunal (DRT) for individuals.***

SOURCE: Indian Express and Economic Times

Credit Rating and its Implication

- ❖ Credit ratings ***indicate the ability of a borrower to repay his obligations.*** It is critical that investors realise that credit rating is not a guarantee but simply an opinion of the rating agency.
- ❖ ***Simply,*** A credit rating represents a rating agency's opinion on the likelihood of the rated debt obligation being repaid in full and on time. This opinion helps stakeholders comparatively assess investment options and facilitates the issuer's access to funds.
- ❖ ***Credit Rating agencies (CRA) assign credit ratings using three rating scales—global, regional and national scale ratings. The essential difference between them is scope:***

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while global scale ratings are assigned based on an assessment of the issuer in relation to other issuers globally, and regional scale ratings are based primarily on credit risk comparisons within a specific region, national scale ratings are based primarily on credit risk comparisons within a domestic context.

- ❖ **A rating outlook may be positive, stable, or negative.**
 - **A 'Positive' outlook indicates** that there is a material likelihood (at least one-in-three) of the rating being upgraded over the medium term
 - **A 'Stable' outlook indicates** that the rating is likely to remain unchanged over the medium term
 - **A 'Negative' outlook indicates** that there is material likelihood (at least one-in-three) of the rating being downgraded over the medium term.
- ❖ National scale ratings, including CRISIL ratings, provide superior **credit differentiation among issuers/issues within a country by using the sovereign rating as a benchmark.** Hence, CRISIL's ratings are assigned on a domestic currency scale relative to the sovereign rating of the Government of India, which is assumed to have the highest rating of 'AAA'
- ❖ **However, there is a growing perception in India that credit rating agencies have been too charitable in rewarding ratings.** For instance, the number of companies that enjoy AAA status in India is very high compared to other nations.
- ❖ **The bulk of the AAA rated entities in India are PSUs that enjoy quasi-sovereign status owing to their government parentage.** Companies rated AAA in other countries mostly belong to the private sector. Further, the **scale used by Indian rating agencies pertains to borrowing in rupee terms**, whereas the international ratings are for borrowings in dollars or other foreign currency. The same domestic companies when rated on the global scale will have a lower rating.
- ❖ **In its Financial Stability Report (FSR) RBI has warned of 'rating shopping'** by companies for long-term bank loans based on indicative ratings given by CRAs which are not available to the banks or investors.
- ❖ **Rating shopping refers to** how, a company or a debt paper manages to get same or better rating from another agency within three months of it getting a poor rating.
- ❖ **All the credit rating agencies in India are regulated by** Securities and Exchanges Board of India (SEBI). The credit rating agencies are monitored and reviewed by SEBI.

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Bulk of bond issuers in India are rated high quality

Investors should look beyond the ratings

Credit rating	Number of companies	Rating description
AAA	63	Highest safety
AA	198	High safety
A	56	Adequate safety
Below A*	21	Moderate/inadequate safety or high risk of default

**includes B, BB, BBB, C and D rated companies. The figures pertain to long-term borrowings of rated companies in the BSE 500 universe.*

Compiled by ETIG Database

- ❖ **In December 2019, the market regulator imposed a Rs.25 lakh penalty** on CARE Ratings Ltd., ICRA Ltd., and India Ratings and Research Pvt. Ltd. with regards to the lapses in the assignment of credit ratings to IL&FS's non-convertible debentures
- ❖ **As per SEBI official website there are 7 registered CRAs in India:**
 - CRISIL Limited;
 - India Ratings and Research Pvt. Ltd. (formerly Fitch Ratings India Pvt. Ltd.)
 - ICRA Limited
 - Credit Analysis & Research Ltd. (CARE)
 - Brickwork Ratings India Pvt. Ltd.
 - SMERA Ratings Limited
 - Infomerics Valuation and Rating Pvt. Ltd.

SOURCE: Economic Times, SEBI and CRISIL

4. First COVID patient cured through plasma therapy discharged from KIMS

The first patient to be successfully cured of COVID-19 infection through **Plasma therapy** discharged from Karnataka Institute of Medical Sciences (KIMS) in Hubballi.

Plasma therapy

- ❖ Convalescent plasma therapy, which was recently allowed by the US Food and Drug Administration (FDA) for investigation purposes – clinical trials etc in a regulated way – **involves transfusion of the blood plasma of a recovered patient into another patient.**

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- ❖ **Plasma is the matrix on which the blood cells float.** It also houses crucial components of immunity known as antibodies.
- ❖ **Antibodies are the immediate warriors who fight an invading pathogen** – an antigen – to defeat it. Once that is done, some blood cells function as memory cells so that they can identify and defeat the same enemy if and when it invades again by quickly producing the same antibodies.
- ❖ **Convalescent plasma therapy banks on the age-old concept of passive immunity** when antibodies for some diseases, such as diphtheria, were developed in horses and injected into humans. Active immunity is what is achieved by introducing an attenuated pathogen (such as the BCG vaccine) into the body to generate an immune response. The other kind of immunity is passive immunity.
- ❖ **The convalescent plasma therapy is akin to passive immunisation** as, according to researchers, it is a preventive measure and not a treatment for the Covid-19 disease.
- ❖ **Some examples of the therapy used earlier:**
 - During the 1918 H1N1 influenza virus (Spanish flu) pandemic, the therapy was used experimentally.
 - In 2014, the World Health Organisation (WHO) had recommended the use of convalescent plasma therapy to treat patients with the antibody-rich plasma of those who had recovered from the Ebola virus disease.
 - For the treatment of people infected with Middle East respiratory syndrome (MERS), which is also caused by a coronavirus, a protocol for use of convalescent plasma was established in 2015.
 - The plasma therapy was used as a treatment during the H1N1 infection of 2009.
 - Others serious outbreaks that have seen the use of this therapy are the SARS outbreak, Measles, HIV, polio and mumps.

SOURCE: Indian Express and India Today

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SUMMARY AND RELEVANT TERMS
EXPLAINED FROM PIB AND AIR

DATED: 20.06.2020 TO 22.06.2020



Public Information Bureau (PIB-- News From 20th June to 22nd June 2020)

1. Solstice ring of fire solar eclipse, June 21, 2020

- A rare celestial event, annular solar eclipse, ***popularly called as ring of fire*** eclipse became visible this Sunday.
- The first solar eclipse of this year takes place on the ***summer solstice, which is the longest day in the Northern Hemisphere.***
- ***When Moon comes between the Sun and Earth***, the shadow falls on the surface of the Earth. The Sun is entirely covered by the Moon for a brief period. Those places that are engulfed by the dark, dense umbral shadow of the Moon experience the total solar eclipse.
- In the regions that plunge into the soft diffused penumbral shadow of the Moon experience the partial eclipse.
- ***In all solar eclipse the Sun, Moon and Earth may not be perfectly aligned***, and then we only have a partial eclipse. When the three celestial bodies happen to be in a straight line, we have Total solar eclipse.
- ***Annular solar eclipse is a particular case of the total solar eclipse.***
- ***Like the total solar eclipse, the Moon is aligned with the Sun.*** However, on that day, the apparent size of the Moon happens to be a wee smaller than the Sun. Hence the Moon covers the central part of the Sun, and the rim of the Sun appear like a 'ring of fire' in the sky for a very brief moment.
- The distance between the Earth and the Moon at the moment of the eclipse ***can dictate the type of eclipse that will take place.***
- ***The distance between the Earth and the Moon is always*** changing due to the egg-shaped elliptical orbit of the Moon. This means that there are times where it is closer to the Earth and appears slightly bigger in the sky and times where it is farther away and appears somewhat smaller in the sky.
- Coincidentally, during the eclipse that takes place on June 21, 2020, ***the apparent size of the Moon is smaller than that of the Sun by 1%.***
- ***The next solar eclipse, which will be a partial solar eclipse***, visible from India will take place on October 25, 2022. It would be visible in the western part of India

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Summer solstice

- ❖ **Solstices occur because Earth's axis of rotation is tilted about 23.5 degrees** relative to Earth's orbit around the sun.
- ❖ **This tilt drives our planet's seasons**, as the Northern and Southern Hemispheres get unequal amounts of sunlight over the course of a year. **From March to September**, the Northern Hemisphere is tilted more toward the sun, driving its spring and summer. **From September to March**, the Northern Hemisphere is tilted away, so it feels like autumn and winter. The Southern Hemisphere's seasons are reversed.
- ❖ On two moments each year—what are called solstices—**Earth's axis is tilted most closely toward the sun**. The hemisphere tilted most toward our home star sees its longest day, while the hemisphere tilted away from the sun sees its longest night.
- ❖ **During the Northern Hemisphere's summer solstice**—which always falls around June 21—the Southern Hemisphere gets its winter solstice. Likewise, during the Northern Hemisphere's winter solstice—which falls around December 22—the Southern Hemisphere gets its summer solstice.
- ❖ **The summer solstice occurs at the moment the earth's tilt toward from the sun is at a maximum**. Therefore, on the day of the summer solstice, the sun appears at its highest elevation with a noontime position that changes very little for several days before and after the summer solstice.
- ❖ **The summer solstice occurs when the sun is directly over the Tropic of Cancer**, which is located at 23.5° latitude North, and runs through Mexico, the Bahamas, Egypt, Saudi Arabia, India, and southern China.
- ❖ For every place north of the Tropic of Cancer, the sun is at its highest point in the sky and this is the longest day of the year.
- ❖ **The winter solstice marks the shortest day and longest night of the year. In the Northern Hemisphere, it occurs when the sun is directly over the Tropic of Capricorn**, which is located at 23.5° south of the equator and runs through Australia, Chile, southern Brazil, and northern South Africa.
- ❖ **Simply put**, the day that the Earth's North Pole is tilted closest to the sun is called the summer solstice. This is the longest day (most daylight hours) of the year for people living in the northern hemisphere. It is also the day that the Sun reaches its highest point in the sky. Whereas, the winter solstice, or the shortest day of the year, happens when the Earth's North Pole is tilted farthest from the Sun.

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- ❖ **According to NASA**, the amount of incoming energy the Earth received from the Sun on this day is 30 per cent higher at the North Pole than at the Equator.



Equinox

- ❖ **There are only two times of the year when the Earth's axis is tilted neither toward nor away from the sun**, resulting in a "nearly" equal amount of daylight and darkness at all latitudes. These events are referred to as Equinoxes.
- ❖ **The word equinox is derived from two Latin words** - aequus (equal) and nox (night). At the equator, the sun is directly overhead at noon on these two equinoxes. The "nearly" equal hours of day and night is due to refraction of sunlight or a bending of the light's rays that causes the sun to appear above the horizon when the actual position of the sun is below the horizon.
- ❖ **Additionally**, the days become a little longer at the higher latitudes (those at a distance from the equator) because it takes the sun longer to rise and set.
- ❖ **Therefore, on the equinox and for several days before and after the equinox**, the length of day will range from about 12 hours and six and one-half minutes at the equator, to 12 hours and 8 minutes at 30 degrees latitude, to 12 hours and 16 minutes at 60 degrees latitude.
- ❖ **Simply put**, In between two solstices, there are two times when the tilt of the Earth is zero, meaning that the tilt is neither away from the Sun nor toward the Sun. These are the vernal equinox — the first day of spring — and the autumnal equinox — the first day of fall. Equinox means "equal." During these times, the hours of daylight and night are equal. Both are 12 hours long.

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SOURCE: NASA, NOAA, National Geographic and Indian Express

2. Atal Innovation Mission partners with Coal India Ltd to boost its Innovation & Entrepreneurship initiatives

- Coal India Limited (CIL) has agreed to partner with **Atal Innovation Mission (AIM)**, NITI Aayog to support proactively the flagship mission's innovation and entrepreneurship initiatives across the country.
- A Statement of Intent (Sol) of a strategic partnership between AIM and Coal India Limited was signed and exchanged in a virtual e-summit for the same.
- **AIM has various innovation programs and entrepreneurial ecosystem building initiatives** such as Atal Tinkering Labs (ATL) at a school level, Atal Incubation Centres (AIC) at institutional levels, Atal Community Innovation Centres (ACIC) for **Tier-2, Tier3 cities** and rural India, Atal New India Challenges (ANIC) at industry level and Applied Research and Innovation (ARISE) for stimulating innovations in the MSME industry.
- According to the Sol signed, the partnership has been categorised program wise where in **under Atal Tinkering Labs (ATLs) CIL has agreed for adoption of select ATLs Schools**, help in conducting teacher training sessions and providing mentoring support to ATL students via Mentors of Change.
- **Similarly, under Atal Community Innovation Centres (ACICs)**, CIL has agreed for adoption and support of ACICs close to their areas of operation, supporting the youth in their journey of societal innovation, hosting community innovation challenges and other innovation based events to spread the impact of the innovation ecosystems being built in the under-served regions of the country.

Atal Innovation Mission (AIM)

- ❖ The Atal Innovation Mission (AIM), **a PMO initiative of the current government, conceived by a Think Tank at the NITI Aayog**, and approved by the Cabinet on Feb 24th, 2016 was launched during the same year to create a world class innovation and entrepreneurial ecosystem in India.
- ❖ **It can help to fill gap between the educational system and what the industry needs.**
- ❖ **Atal Innovation Mission (AIM) including Self-Employment and Talent Utilization (SETU) is Government of India's endeavour to promote a culture of innovation and entrepreneurship.** Its objective is to serve as a platform for promotion of world-class Innovation Hubs, Grand Challenges, Start-up businesses and other self-employment activities, particularly in technology driven areas.

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❖ **The Atal Innovation Mission shall have two core functions:**

- **Entrepreneurship promotion:** through Self-Employment and Talent Utilization, wherein innovators would be supported and mentored to become successful entrepreneurs.
- **Innovation promotion:** to provide a platform where innovative ideas are generated.

❖ **Long term goals of AIM include establishment and promotion of Small Business Innovation Research and Development at a national scale** (AIM SBIR) for the SME/MSME/startups, and in rejuvenating Science and Technology innovations in major research institutions of the country like CSIR (Council of Scientific Industrial Research), Agri Research (ICAR) and Medical Research (ICMR) aligned to national socio-economic needs.

❖ AIM has adopted a holistic framework in the **achievement of its objectives with multiple programs like:**

- **Atal Tinkering Labs:** To promote creative, innovative mind set in schools. At the school level, AIM is setting up state of the art Atal Tinkering Labs (ATL) in schools across all districts across the country. Students from Grade VI to Grade XII can tinker with the technologies and learn to create innovative solutions using these technologies.
- **Atal Incubators:** To promote entrepreneurship in universities and industry. At the university, NGO, SME and Corporate industry levels, AIM is setting up world-class Atal Incubators (AICs) that would trigger and enable successful growth of sustainable startups in every sector /state of the country. Women led incubators and entrepreneurial startups are strongly encouraged by AIM.
- **Atal New India Challenges and Atal Grand Challenges:** To promote technology driven innovations and product creation for social and commercial impact. Atal New India Challenges / Atal Grand Challenges are being launched in specific areas and sectors of national importance - such as Renewable Energies, Energy Storage, Climate-smart precision agriculture, Universal drinking water, Swaach Bharat, Transportation, Education, Healthcare using Robotic, IOT technologies, Artificial Intelligence, Block-chain, Augmented and Virtual reality, Battery Technologies etc.
- **Industry, Academia, Government, Global Collaborations:** AIM has set up one of the largest Mentoring networks in India called Mentor India from the professional and industry community who can help mentor students at Atal Tinkering Labs and AIC Incubators / startups.

SOURCE: NITI Aayog and The Business Line

Classification of Cities in India

- ❖ Indian cities are classified as X (Tier 1), Y (Tier 2), and Z (Tier 3) categories by the Government of India, **based on the population density of the city.**

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- ❖ In highly populated cities, people will have to pay more money to get goods and services. That is, the living expense will be greater.
- ❖ ***This ranking system used by the Government of India to allocate House Rent Allowance (HRA) to public servants employed in different cities in India. HRA is also used by the Indian Revenue Service (IRS) to provide income tax exemptions.***
- ❖ ***The Reserve Bank of India (RBI) classifies centres into six tiers based on population. The tables below show the classification.***

Classification of centres (tier-wise)

Population classification	Population (2001 Census)
Tier-1	100,000 and above
Tier-2	50,000 to 99,999
Tier-3	20,000 to 49,999
Tier-4	10,000 to 19,999
Tier-5	5,000 to 9,999
Tier-6	less than 5000

Population-group wise classification of centres

Population classification	Population (2001 Census)
Rural centre	up to 9,999
Semi-urban centre	10,000 to 99,999
Urban centre	100,000 to 999,999
Metropolitan centre	1,000,000 and above

Emerging potential of Tier2 and 3 cities

- ❖ With the top cities in India witnessing the saturated economic growth, ***a number of tier-2 and tier-3 are emerging as the next IT destinations.***
- ❖ The growth of these two tiers gestures towards a positive sign for the nation with their efforts to deviate the pressure on the metros which are dwindling under the burden of space, time and infrastructure.
- ❖ ***This offset of pressure will also facilitate an improved distribution of wealth, in due course increasing the status of rural India.***

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- ❖ ***Less urbanized cities have plenty of great perks to offer***, and all those are affordable than an exhausted urban city.
- ❖ ***Along with the opportunities, there comes many challenges too*** for these cities, like, to run an IT organization that works 24*7 require uninterrupted electricity, high-speed connectivity etc which would be a daunting task.
- ❖ ***Whereas urbanization has been a precursor for social, economic and political growth*** with only one-fourth of the population in urban cities, it has led to major socio-economic problems and definitely the interest of IT companies and investors backed by the right moves from government to promote these cities will help in both reducing the pressure off the metro cities as well as pave the way to development of these new cities and their nearby areas.

SOURCE: Indian Express and Economic Times

3. KVIC starts reviving ancient glory of Pokhran potteries

- Seeking to restore the lost glory of the ***once-most famous pottery of Pokhran***, a small town in Jaisalmer district of Rajasthan where India conducted its 1st nuclear test, the Khadi and Village Industries Commission (KVIC) distributed 80 electric potter wheels to 80 potter families in Pokhran which has a rich heritage in ***terracotta products***.
- Pokhran has over 300 potters' families that are engaged with pottery for several decades, but potters started looking for other avenues due to heavy drudgery in the work and no market support.
- ***Pokhran was till now only known as the site of nuclear tests*** but very soon the exquisite pottery will be the new identity of this place.
- ***The main objective of Kumhar Sashaktikaran Yojana*** is to bring back the potters' community to the mainstream. It is an effort to reconnect them with the society and revive their art by providing potters with modern equipment and training.
- Pokhran is one of the ***aspirational districts*** identified by the Niti Ayog.
- ***KVIC has launched Kumhar Sashaktikaran Yojana*** in several remote areas in different states.

Terracotta Art in India

- ❖ ***Terracotta has been used in India for centuries***. Traditionally, it is seen as a mystical material due to its combination of four of the five vital elements – air, earth, fire and water.
- ❖ ***It has been a mainstay of Indian construction and culture since the Indus Valley Civilisation***, which existed between 3300 and 1700 BC. Many ancient terracotta artefacts have been found in India, often depicting deities.

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- ❖ **Most famously, the largest terracotta sculpture ever made was the Ayanaar horse - created in Tamil Nadu.**
- ❖ Today, terracotta is still used in pottery and art for the home and beyond. Areas such as Rajasthan and Gujarat are famous for their **white painted terracotta jars**, while Madhya Pradesh is known for **embellished terracotta rooftops**.
- ❖ A village in Rajasthan has a community of artisans that have garnered a name for themselves by **developing an art style known as the Molela murtikala**, where votive terracotta idols are made for use on flat surfaces like tiles and plaques.
- ❖ There is no a village in India without Terracotta artisans. So that India is famous for Terracotta Art.

Some Famous and unique pottery in India

- ❖ Be it **colourful Khurja pottery (Uttar Pradesh)**, **azure shades of blue pottery (Rajasthan)**, **sturdy black stone 'Longpi' (Manipur)**, clay works are an important source of livelihood. Here, we look at some popular pottery forms practised in India (this is not an exhaustive list):
 - **Jaipur Blue Pottery, Rajasthan:** Jaipur blue pottery **has the Geographical Indication (GI) tag**. Globally, the origins of this art form are traced to Central Asia. Quartz forms the main ingredient for the clay used in blue pottery, which is reportedly found in abundance in this region.
 - **Khavda Pottery, Gujarat:** A traditional art form using 'Rann ki Mitti', it originates in the village of Khavda, Rann of Kutch.
 - **Khurja Pottery, Uttar Pradesh:** Also known as the '**ceramic city**', the **Khurja pottery, has credit of having GI tag**.
 - **Longpi Pottery, Manipur:** Originating in the Longpi villages of Ukhrul district of Manipur, Longpi pottery has gained international prominence owing to its sturdy nature. Made from black serpentine stone and a form of clay which is found only in this area.
- ❖ In May 2020 **Chak-Hao, the black rice of Manipur and the Gorakhpur terracotta and the Kovilpatti kadalai mittai of Tamil Nadu have bagged the Geographical Indication (GI) tag**.
- ❖ To boost livelihoods and preserve pottery as an art and craft form, more eco-friendly consumption should be promoted in line with the **targets of sustainable production and consumption targets under Sustainable Development Goal (SDG) #12**.
- ❖ **Initiatives like the 'terracotta grinder' to reuse wasted pottery launched by KVIC in Varanasi** and initiatives like the 'solar potter's wheel' must be popularised and made accessible. Additionally, workshops for potters on entrepreneurial skills and marketing must be regularly undertaken.

SOURCE: Indian Express, Outlook and The Hindu

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Kumhar Sashaktikaran Yojana

- ❖ ***Kumbhar Sashaktikaran Program is an initiative of the Khadi and Village Industries Commission (KVIC) for empowerment of potter's community in the remotest of locations in the country.***
- ❖ Under this programme KVIC identify the areas where clusters of traditional pottery workers are available and provide them training and electric pottery wheels and other tools like blunger, Pug Mill, etc.
- ❖ ***The program reaches out to the potters in:*** U.P., M.P., Maharashtra, J&K, Haryana, Rajasthan, West Bengal, Assam, Gujarat, Tamil Nadu, Odisha, Telangana and Bihar.
- ❖ ***In Feb, 2020 a unique initiative undertaken by Khadi and Village Industries Commission (KVIC) for the enhancement of Pottery in India, a Member of British Empire (the most excellent order of the British Empire) Kate Malone and Graham Inglefield, renowned British Potters conducted a two day master training workshop on hand moulding of clay for 10 skilled potters in Kanyakumari.***

SOURCE: Millennium Post, Lok Sabha Q&A on KVIC

Aspirational districts

- ❖ ***The Government of India identified 115 most backward districts of India and launched the "Transformation of Aspirational Districts" Programme in January 2018.*** The objective of this programme is to raise the living standards and life chances of its citizens and ensuring inclusive growth for all. The 115 districts were selected from across 28 states.
- ❖ The Aspirational Districts Programme (ADP) is one of the largest experiments on outcomes-focused governance in the world. ***It is Niti Aayog's flagship initiative*** to improve health, nutrition, education, and economic outcomes.
- ❖ The districts were selected through a transparent process, with the capacity of States kept in mind. ***50 districts are allocated across 12 Ministries. 35 districts that are in the Left-Wing Extremist Areas are allocated to the Ministry of Home Affairs, and 30 districts have been allocated to NITI Aayog.***
- ❖ ***The broad contours of the programme*** are Convergence (of Central & State Schemes), Collaboration (of Central, State level 'Prabhari' Officers & District Collectors), and Competition among districts driven by a mass Movement. It also tracks progress through real-time data collection.
- ❖ ***Districts are prodded and encouraged to first catch-up with the best district within their state, and subsequently aspire to become one of the best in the country, by competing with, and learning from others in the spirit of competitive & cooperative federalism.***

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- ❖ To provide an initial benchmark for the programme, the **government has collected statistics on 49 indicators across five core dimensions**: health and nutrition, education, financial inclusion, agriculture and water resources, skill development and basic infrastructure. Not all dimensions are considered equal in the construction of the composite index for each district, acknowledging the specific nature of India's development challenges.
- ❖ **The baseline ranking for these 115 Aspirational Districts are based on 49 indicators across 5 sectors** that include health and nutrition (30% weightage) through 13 indicators, education (30%) through 8 indicators, agriculture and water resources (20%) through 10 indicators, financial inclusion and skill development (10%) through 10 indicators, and basic infrastructure (10%) through 7 indicators.
- ❖ **The programme relies on convergence of existing schemes for its funding.** In addition, funds and other resources made available by the private sector under Corporate Social Responsibility, and some local funds like the District Mineral Funds are to be utilised for critical gap funding.
- ❖ **In table:**

Health and Nutrition	13 Indicators	30%
Education	08 Indicators	30%
Agriculture and Water Resources	10 Indicators	20%
Financial Inclusion and Skill Development	10 Indicators	10%
Basic Infrastructure	07 Indicators	10%

SOURCE: NITI Aayog paper on ADP, Hindustan Times, Indian Express and Piramal Foundation

4. Study showing stars of varied ages can co-exist in open clusters, provides clue to stellar evolution in the Milky Way Galaxy

- **Stars in our Galaxy are formed from the molecular clouds present in the Galaxy.**
- It is believed that the **majority of stars in our Galaxy are formed in the star clusters** making them important clues to understand the star formation mechanism.
- **Open star clusters are a system of stars bound by gravity** in which stars are born from the same molecular clouds. All the stars in a cluster follow the evolutionary sequence as per their initial masses at the time of formation of these stars.
- **Open clusters** are also important in probing formation and evolution of Milky Way Galaxy as they are distributed throughout the Galactic disk.
- Astronomers at the Aryabhata Research Institute of Observational Sciences (ARIES), an autonomous science institute under the Department of Science and Technology (DST) Govt. of India, have found **that stars of varied ages can co-exist in open clusters**. This challenges earlier understanding that stars in an open cluster have the same age.
- **The scientists measured the light from three poorly studied open clusters NGC 381, NGC 2360, and Berkeley 68** observed using the 1.3-m telescope at Devasthal situated in the lap of the Himalaya for studying the evolution of stars in these clusters.

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- They found two different stellar evolutionary sequences in the cluster NGC 2360, which has been observed in very few open clusters in the Milky Way Galaxy until now.

Open Cluster

- ❖ **An open cluster is a group of up to a few thousand stars that were formed from the same giant molecular cloud** and are still loosely gravitationally bound to each other. In contrast, globular clusters are very tightly bound by gravity.
- ❖ **Open clusters are found only in spiral and irregular galaxies**, in which active star formation is occurring.
- ❖ **Open clusters are strongly concentrated close to the galactic plane where they form from cold dense clouds** of molecular gas and dust.
- ❖ There are over 1,000 known open clusters in our galaxy, but the actual number may be up to ten times higher. The number of stars in open clusters, typically from hundreds to a few thousands, make them only loosely bound by gravity and thus vulnerable to dynamical disruption in the dense traffic of the galactic disk.
- ❖ **Accordingly, most open clusters are younger than a few hundred million years**, and older clusters are preferentially found at greater distances from the galactic center.
- ❖ **Open stars clusters are collections of stars with similar ages, chemical compositions, and distances from the Sun.** These qualities make open clusters important cosmic laboratories for studies of fundamental astrophysics such as: the formation of stars, stellar evolution, dynamical interactions between stars, and the chemical and dynamical evolution and structure of the disk of our Galaxy. Nearby open clusters play a key role in calibrating our measure of cosmic distances.
- ❖ **Simply put**, Star cluster, either of two general types of stellar assemblages held together by the mutual gravitational attraction of its members, which are physically related through common origin. The two types are open (formerly called galactic) clusters and globular clusters.
- ❖ Four open clusters have been known from earliest times: **the Pleiades and Hyades in the constellation Taurus, Praesepe (the Beehive) in the constellation Cancer, and Coma Berenices.**

SOURCE: NASA, Science Daily and Harvard Edu

5. Detection of fluorine in hot Extreme Helium Stars solves their evolution mystery

- An **extreme helium star** or EHe is a low-mass supergiant that is almost devoid of hydrogen, the most common chemical element of the universe.
- **There are 21 of them detected so far in our galaxy.** The origin and evolution of these Hydrogen deficient objects have been shrouded in mystery.

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- ***Their severe chemical peculiarities challenge the theory of well-accepted **stellar evolution** as the observed chemical composition of these stars do not match with that predicted for low mass evolved stars.***
- ***Scientists detected the presence of singly ionised fluorine for the first time in the atmospheres of hot Extreme Helium Stars makes a strong case that the main formation of these objects involves a **merger of a carbon-oxygen (CO) and a Helium (He) white dwarf**.***
- ***Fluorine plays a very crucial role in this regard to determine the actual evolutionary sequence of these hydrogen deficient objects.***
- ***The detection of enhanced fluorine abundances in the atmospheres of hot EHes solves a decade-old mystery about their formation. It firmly places hot EHes in an evolutionary sequence with cool EHes and other hydrogen-deficient stars and zeros in on the evolutionary scenario, which involves the merger of two double degenerate white dwarfs (WDs).***

Extreme helium star

- ❖ Extreme helium stars (EHes) are ***supergiants much larger and hotter than the sun***, but less massive. They are almost devoid of hydrogen, which is unusual, as hydrogen is the most abundant chemical element in the universe.
- ❖ ***EHes are characterized by relatively sharp and strong lines of neutral helium***, which indicates low surface gravities and atmospheres dominated by helium. Besides helium, these stars also have significant amounts of carbon, nitrogen and oxygen. EHe was first detected in 1942.
- ❖ ***Since there are no known conditions where stars devoid of hydrogen*** can be formed from molecular clouds, it is theorized that they are the product of the mergers of helium-core and carbon-oxygen core white dwarfs.

SOURCE: NASA and PHY.ORG

Stellar evolution

- ❖ ***In astronomy, stellar evolution is the sequence of changes that a star undergoes during its lifetime***; the hundreds of thousands, millions or billions of years during which it emits light and heat.
- ❖ ***There are many pieces of evidence*** that point toward our current understanding of stellar evolution. One was the understanding of the nuclear physics responsible for why stars shine, and the subsequent realization that stars have a large but finite source of fuel to create heat.
- ❖ ***Another piece of evidence was the observational study of star clusters*** -- groups of stars all born at the same time and place -- and the eventual realization that the properties of star clusters differ depending upon how old they are.
- ❖ ***Stars are born within the clouds of dust and scattered throughout most galaxies***. A familiar example of such as a dust cloud is the Orion Nebula. Turbulence deep within these clouds gives rise to knots with sufficient mass that the gas and dust can begin to collapse under its own gravitational attraction. As the cloud collapses, the material at the center begins to heat

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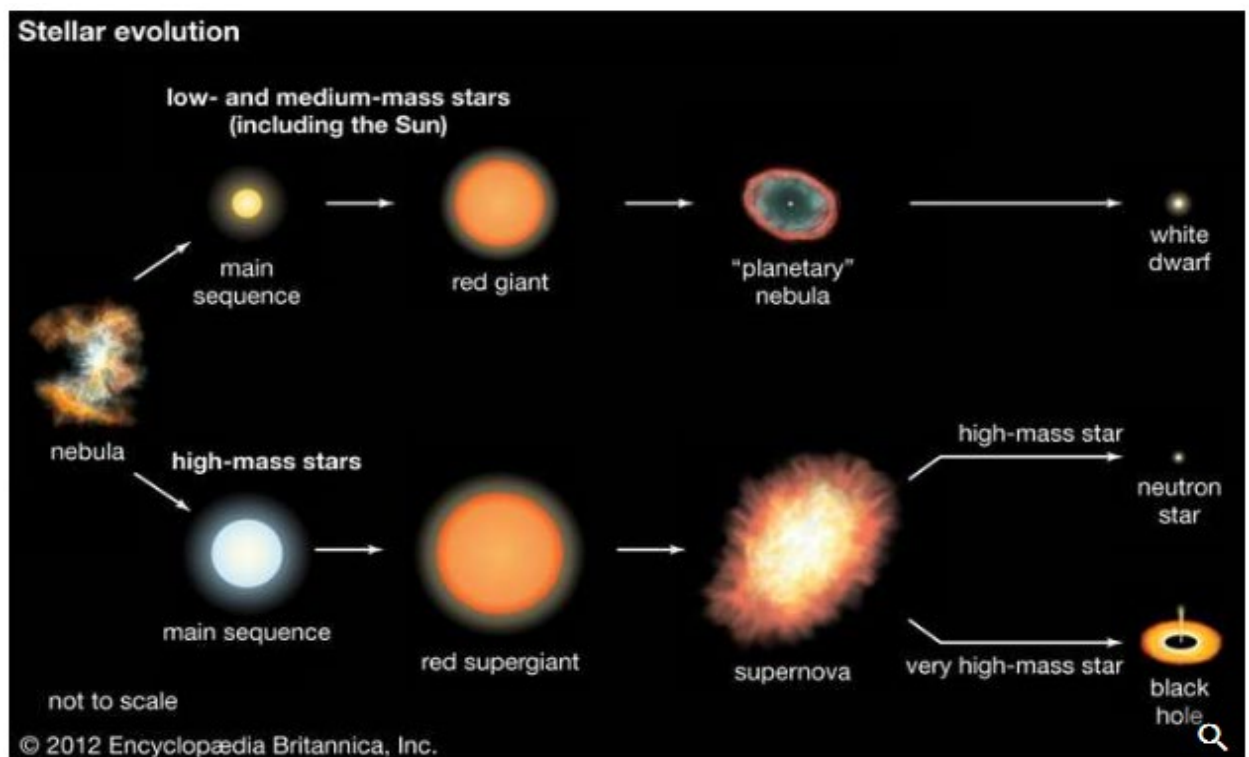
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up. **Known as a protostar**, it is this hot core at the heart of the collapsing cloud that will one day become a star.

- ❖ **Stars are fueled by the nuclear fusion of hydrogen** to form helium deep in their interiors. The outflow of energy from the central regions of the star provides the pressure necessary to keep the star from collapsing under its own weight, and the energy by which it shines.
- ❖ **When a star has fused all the hydrogen in its core, nuclear reactions cease.** Deprived of the energy production needed to support it, the core begins to collapse into itself and becomes much hotter. Hydrogen is still available outside the core, so hydrogen fusion continues in a shell surrounding the core. The increasingly hot core also pushes the outer layers of the star outward, causing them to expand and cool, transforming the star into a red giant.
- ❖ **Simply put**, One of the key concepts in astronomy is that stars change over time -- they're born from clouds of interstellar gas and dust, they shine by their own light created through nuclear fusion of hydrogen in their cores, and eventually they run out of fuel and die, returning some of their mass back to interstellar space.
- ❖ **Their remains can then be taken up into new generations of stars**, starting the process over again. The process of change that a star undergoes during its lifetime is called stellar evolution.



SOURCE: NASA, AAVSO and Britannica

White dwarf

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- ❖ **White dwarfs are among the dimmest stars in the universe.** One reason for the interest in studying it is that white dwarfs represent an intriguing state of matter; another reason is that most stars, including our Sun, will become white dwarfs when they reach their final, burnt-out collapsed state.
- ❖ **For average stars like the Sun, the process of ejecting its outer layers continues until the stellar core is exposed.** This dead, but still ferociously hot stellar cinder is called a White Dwarf.
- ❖ **White dwarfs, which are roughly the size of our Earth** despite containing the mass of a star, once puzzled astronomers - why didn't they collapse further? What force supported the mass of the core? Quantum mechanics provided the explanation. Pressure from fast moving electrons keeps these stars from collapsing.
- ❖ **The more massive the core, the denser the white dwarf that is formed.** Thus, the smaller a white dwarf is in diameter, the larger it is in mass! These paradoxical stars are very common - our own Sun will be a white dwarf billions of years from now. White dwarfs are intrinsically very faint because they are so small and, lacking a source of energy production, they fade into oblivion as they gradually cool down.
- ❖ While still in his twenties Subrahmanyan Chandrasekhar, the Chandra X-ray Observatory's namesake, used relativity theory and quantum mechanics to show that degenerate electron pressure can do only so much. **If the mass of the white dwarf becomes greater than about 1.4 times the mass of the Sun—called the Chandrasekhar limit—it will collapse.** In a binary star system this could happen if a nearby companion star dumps enough material onto a white dwarf to push it over the Chandrasekhar limit.
- ❖ **To think of a white dwarf as a "burned out" or "dead" star can be misleading.** It is more like a transformation or metamorphosis from one stage to the next. As X-ray observations prove, under the right conditions an old star can be quite lively indeed.

SOURCE: NASA and Chandra X-Ray Observatory

6. IACS Kolkata INSPIRE faculty's work on Black Holes and Gravitational Waves to help understanding fundamentals of our nature

- The recent progress in **gravitational wave** astronomy and **black hole** shadow measurement can be exploited to understand gravitational theories better.
- Some of the research works in the area of the gravitational wave will be of significant importance, given the upcoming **LIGO-India observatory** and world-wide interest in understanding fundamental physics using gravitational waves.

Gravitational wave

- ❖ **Gravitational waves are 'ripples' in space-time caused by some of the most violent and energetic processes in the Universe.**
- ❖ **Albert Einstein predicted the existence of gravitational waves in 1916** in his general theory of relativity. Einstein's mathematics showed that massive accelerating objects (such as neutron stars or black holes orbiting each other) would disrupt space-time in such a way that

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'waves' of undulating space-time would propagate in all directions away from the source. These cosmic ripples would travel at the speed of light, carrying with them information about their origins, as well as clues to the nature of gravity itself.

- ❖ **The strongest gravitational waves are produced by cataclysmic events such as** colliding black holes, supernovae (massive stars exploding at the end of their lifetimes), and colliding neutron stars. Other waves are predicted to be caused by the rotation of neutron stars that are not perfect spheres, and possibly even the remnants of gravitational radiation created by the Big Bang.
- ❖ **Simply put, gravitational waves** are ripples in spacetime. When objects move, the curvature of spacetime changes and these changes move outwards (like ripples on a pond) as gravitational waves. A gravitational wave is a stretch and squash of space and so can be found by measuring the change in length between two objects.
- ❖ **Gravitational waves are invisible.** However, they are incredibly fast. They travel at the speed of light (186,000 miles per second). Gravitational waves squeeze and stretch anything in their path as they pass by.
- ❖ **In 2015, scientists detected gravitational waves for the very first time.** They used a very sensitive instrument called LIGO (Laser Interferometer Gravitational-Wave Observatory). These first gravitational waves happened when two black holes crashed into one another. The collision happened 1.3 billion years ago. But the ripples didn't make it to Earth until 2015!

SOURCE: LIGO Observatory and NASA

Black hole

- ❖ **A black hole is a place in space where gravity pulls so much that even light cannot get out.** The gravity is so strong because matter has been squeezed into a tiny space. This can happen when a star is dying.
- ❖ **Because no light can get out, people can't see black holes.** They are invisible. Space telescopes with special tools can help find black holes.
- ❖ **Black holes can be big or small.** Scientists think the smallest black holes are as small as just one atom. These black holes are very tiny but have the mass of a large mountain. Mass is the amount of matter, or "stuff," in an object.
- ❖ **Another kind of black hole is called "stellar."** Its mass can be up to 20 times more than the mass of the sun. There may be many, many stellar mass black holes in Earth's galaxy.
- ❖ **The largest black holes are called "supermassive."** These black holes have masses that are more than 1 million suns together. Scientists have found proof that every large galaxy contains a supermassive black hole at its center. **The supermassive black hole at the center of the Milky Way galaxy is called Sagittarius A.**
- ❖ **At one point the star runs out of fuel, which means the thermal pressure decreases,** and gravity takes over. This is when a core collapse occurs. Stars with an end mass below the **Chandrasekhar limit of 1.4 times** the mass of the Sun will collapse into white dwarfs, stars

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with an end mass between the **Chandrasekhar limit and the Tolman–Oppenheimer–Volkoff limit (TOV limit) of 2–3 times the mass of the Sun** will become neutron stars, and stars with an end mass above the TOV limit will become black holes.

- ❖ **No matter their starting size, black holes can grow throughout their lives**, slurping gas and dust from any objects that creep too close.
- ❖ **Black holes do not go around in space eating stars, moons and planets.** Earth will not fall into a black hole because no black hole is close enough to the solar system for Earth to do that.
- ❖ **Even if a black hole the same mass as the sun were to take the place of the sun, Earth still would not fall in.** The black hole would have the same gravity as the sun. Earth and the other planets would orbit the black hole as they orbit the sun now.
- ❖ **Simply put**, A black hole is a location in space with such a strong gravitational field that the escape velocity exceeds the speed of light. What this means is that you require a velocity greater than the speed of light (a physical impossibility) to escape the black hole.



An artist's drawing a black hole named Cygnus X-1. It formed when a large star caved in. This black hole pulls matter from blue star beside it.

Credits: NASA/CXC/M.Weiss

SOURCE: NASA, FORBES and National Geographic

LIGO-India observatory

- ❖ **The Laser Interferometer Gravitational-Wave Observatory (LIGO) - India is a planned advanced gravitational-wave observatory in located in India** as part of the worldwide network, whose concept proposal is now under active consideration in India and the USA.
- ❖ **LIGO-India is envisaged as a collaborative project** between a consortium of Indian research institutions and the LIGO Laboratory in USA, along with its international partners.
- ❖ **In February 2016, scientists at the US based LIGO announced detection of gravitational waves** rising from the merger of two black holes 1.3 billion years ago.

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- ❖ **The Laser Interferometer Gravitational-wave Observatory (LIGO) project operates three gravitational-wave (GW) detectors.** Two are at Hanford in the state of Washington, north-western USA, and one is at Livingston in Louisiana, south-eastern USA. Currently these observatories are being upgraded to their advanced configurations (called Advanced LIGO).
- ❖ **The proposed LIGO-India project aims to move one Advanced LIGO detector from Hanford to India.**
- ❖ LIGO-India project is envisaged as an international collaboration between the LIGO Laboratory and **three lead institutions in the IndIGO consortium:** Institute of Plasma Research (IPR) Gandhinagar, Inter University Centre for Astronomy and Astrophysics (IUCAA), Pune and Raja Ramanna Centre for Advanced Technology (RRCAT), Indore.
- ❖ LIGO-India received the Indian Government's in-principle approval in February 2016. Since then the project reached several milestones towards selecting and acquiring a site and building the observatory.

How Gravitational waves detected by LIGO

- ❖ **When a gravitational wave passes by Earth, it squeezes and stretches space. LIGO can detect this squeezing and stretching.** Each LIGO observatory has two “arms” that are each more than 2 miles (4 kilometers) long. A passing gravitational wave causes the length of the arms to change slightly. The observatory uses lasers, mirrors, and extremely sensitive instruments to detect these tiny changes.
- ❖ **The Indian Ligo is slated to begin scientific operations in 2024.** Which means the facility has to be ready at least two years before that.

Why Ligo India Is Important To India and The World?

The gravitational wave detectors have to combine measurements from different places to get correct data

<p>The US already has two detectors, and the third one has to be far away from both</p>	<p>India is the best place geographically, as it is at the right distance from US observatories</p>
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For India, building an observatory will give access to technology that can be useful for future precision engineering industries

SOURCE: Indian Express, NASA and LIGO India

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7. Study of optical properties of super-massive black-hole can provide clue to emission mechanism from its close vicinity

- **Scientists from 9 countries from Europe and Asia, including India**, observed the changes in a very high energy gamma-ray emitting blazar '1ES 0806+524' using seven optical telescopes in Europe and Asia.
- **A blazar is a feeding super-massive black-hole (SMBH)** in the heart of a distant galaxy that produces a high-energy jet viewed face-on from Earth.
- **Blazars are one of the most luminous and energetic objects in the known universe** with a jet composed of ionized matter traveling at nearly the speed of light directed very nearly towards an observer.
- In this age of multi-wavelength (MW) time-domain astronomy in which the transient astronomical sources are of great interest due to their rapid change in flux and polarization. Simultaneous MW observation of a particular transient source on an extended period of time is important for understanding the emission mechanism in different electromagnetic (EM) bands.
- **Blazars are among one of the most favourite astronomical transient objects** because they emit radiation in the complete **EM spectrum**, and their flux and polarization are highly variable.

EM spectrum

- ❖ **The electromagnetic (EM) spectrum is the range of all types of EM radiation.** Radiation is energy that travels and spreads out as it goes – the visible light that comes from a lamp in your house and the radio waves that come from a radio station are two types of electromagnetic radiation. The other types of EM radiation that make up the electromagnetic spectrum are microwaves, infrared light, ultraviolet light, X-rays and gamma-rays.
- ❖ Radio waves, gamma-rays, visible light, and all the other parts of the electromagnetic spectrum are electromagnetic radiation.
- ❖ **Electromagnetic radiation can be described in terms of a stream of mass-less particles**, called photons, each traveling in a wave-like pattern at the speed of light.
- ❖ **Each photon contains a certain amount of energy.** The different types of radiation are defined by the the amount of energy found in the photons.
- ❖ **Radio waves have photons with low energies**, microwave photons have a little more energy than radio waves, infrared photons have still more, then visible, ultraviolet, X-rays, and, the most energetic of all, gamma-rays.
- ❖ **Electromagnetic radiation can be expressed in terms of energy, wavelength, or frequency.**

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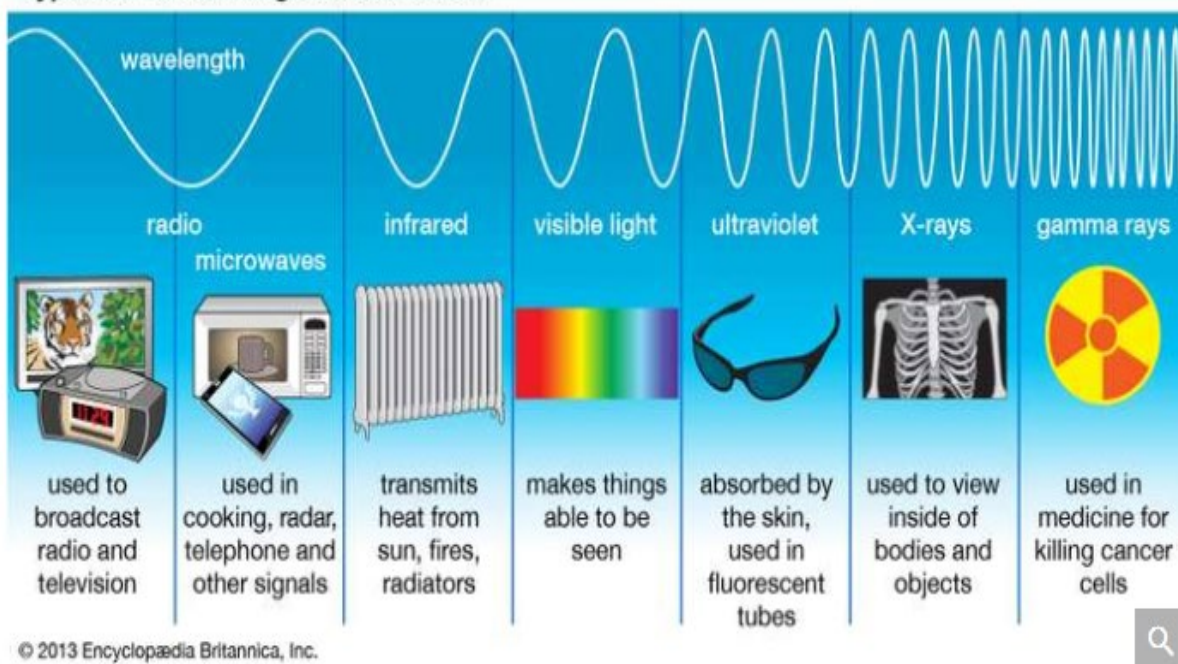
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- ❖ Frequency is measured in cycles per second, or Hertz. Wavelength is measured in meters. Energy is measured in electron volts. Each of these three quantities for describing EM radiation are related to each other in a precise mathematical way.
- ❖ **Astronomers who study radio waves tend to use wavelengths or frequencies.** Most of the radio part of the EM spectrum falls in the range from about 1 cm to 1 km, which is 30 gigahertz (GHz) to 300 kilohertz (kHz) in frequencies. The radio is a very broad part of the EM spectrum.
- ❖ **Most electromagnetic radiation from space is unable to reach the surface of the Earth.** Radio frequencies, visible light and some ultraviolet light makes it to sea level. Astronomers can observe some infrared wavelengths by putting telescopes on mountain tops. Balloon experiments can reach 35 km above the surface and can operate for months. Rocket flights can take instruments all the way above the Earth's atmosphere, but only for a few minutes before they fall back to Earth.
- ❖ **Infrared and optical astronomers generally use wavelength.** Infrared astronomers use microns (millionths of a meter) for wavelengths, so their part of the EM spectrum falls in the range of 1 to 100 microns.
- ❖ Optical astronomers use both angstroms (0.00000001 cm, or 10^{-8} cm) and nanometers (0.0000001 cm, or 10^{-7} cm). **Using nanometers**, violet, blue, green, yellow, orange, and red light have wavelengths between 400 and 700 nanometers. (This range is just a tiny part of the entire EM spectrum, so the light our eyes can see is just a little fraction of all the EM radiation around us.)

Types of Electromagnetic Radiation



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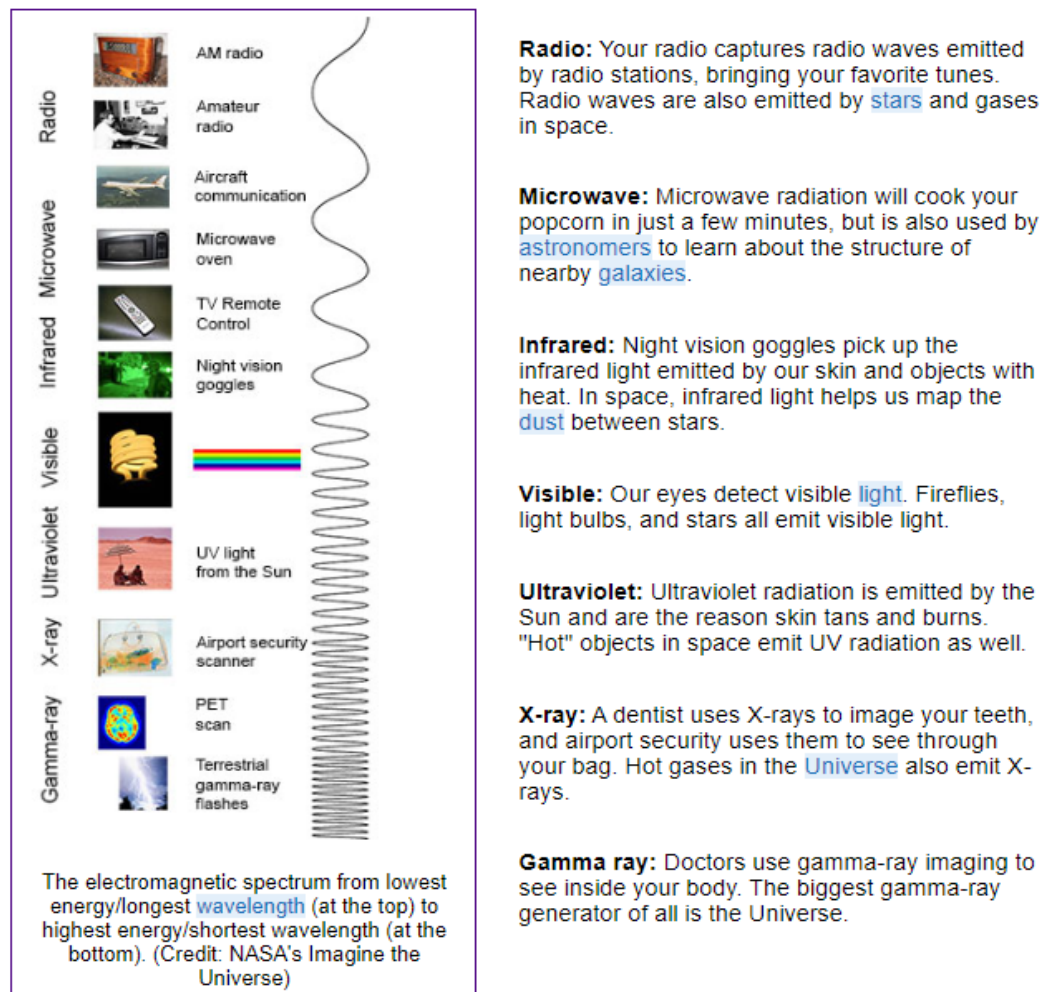
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SOURCE: NASA and Britannica

8. Decarbonising Transport: International Project to Develop Pathway to Low-CO2 Mobility for India

- **NITI Aayog in collaboration with International Transport Forum (ITF) will launch the "Decarbonising Transport in India"** project on 24 June, with the intention to develop a pathway towards a low-carbon transport system for India.
- **India has been a member of ITF**, an intergovernmental organisation for transport policy, since 2008.
- **The India project is carried out in the wider context of the International Transport Forum's "Decarbonising Transport" initiative.** It is part of the "**Decarbonising Transport in Emerging Economies**" (DTEE) family of projects, which supports transport decarbonisation across different world regions.
- **India, Argentina, Azerbaijan, and Morocco are current participants.** The DTEE is a collaboration between the ITF and the Wuppertal Institute, supported by the International

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Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

Decarbonising Transport in Emerging Economies

- ❖ ***One of the biggest challenges for climate change mitigation is to*** enable emerging economies to continue lifting people out of poverty while at the same time reducing greenhouse gas emissions. The ITF's Decarbonising Transport in Emerging Economies (DTEE) project helps governments of emerging nations to identify ways to reduce their transport CO2 emissions and meet their climate goals.
- ❖ ***The DTEE project supports transport decarbonisation in Argentina, Azerbaijan, India and Morocco.*** It is designing a common assessment framework for transport emissions that will cover several transport sub-sectors and transport modes. Country-specific modelling tools and policy scenarios will help the participating governments to implement ambitious CO2-reduction initiatives for their transport sectors.
- ❖ ***Between 2000 and 2015, CO2 emissions from India had increased by 132% compared to a global average of 40%.***
- ❖ ***India's Nationally Determined Contributions (NDCs) reflect that transport is one of the authorities' main action areas for decarbonisation,*** even if no specific mitigation target is set for the transport sector.
- ❖ ***In the context of the ITF's wider Decarbonising Transport (DT) initiative,*** the DTEE project will help governments of emerging countries to establish pathways to reducing transport CO2 emissions and meet CO2 reduction pledges under the Paris Agreement.
- ❖ ***In the lead-up to the Paris Agreement on climate change,*** India committed to cutting its emissions intensity of GDP by 33% to 35% below 2005 levels by 2030, and to achieving 40% of its electricity-generation capacity from non-fossil sources by the same year.
- ❖ ***What structural reforms needed for decarbonisation?***
 - ***First,*** India's electricity pricing policy needs to be significantly overhauled.
 - ***Second,*** revamping the market design of India's electricity sector is a must. For absorbing a greater percentage of variable renewable energy (VRE), i.e. solar and wind, into the grid, conventional power plants, especially those running on coal, would need to operate differently.
 - ***Third,*** banking sector reforms are pivotal for meeting India's ambitious renewable energy goals.
 - ***Fourth,*** India's bond market needs to take off. Experts have highlighted that while green bonds are being issued for supporting renewable energy, India ironically does not have a well-functioning larger bond market.
 - ***Finally,*** Transport sector reforms like adoption of BS-VI engine.

SOURCE: OECD, Live Mint and Deep-decarbonisation organisation

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All India Radio (AIR--News From 20th June to 22nd June 2020)

SPECIFIC AIR NEWS NOT COVERED ABOVE

1. Suggestions invited from stakeholders on proposed amendment in Motor Vehicle Draft rules for facilitating MoU with neighbouring countries

- Motor Vehicle Draft rules for facilitating MoUs (Memorandum of Understandings) with neighbouring countries involving movement of passenger or goods vehicles.
- A draft notification has been issued by the Ministry. The Ministry has been receiving requests from various Government Departments and States regarding supporting rules required under the provisions of **Motor Vehicles Act 1988**, for the facilitation of Movement of Vehicles Carrying Goods and Passengers between Indian States and other neighboring countries from time to time.

Motor Vehicles Act

- ❖ ***The Motor Vehicles Act, passed in the year 1988*** by the Indian Parliament, regulates almost all aspects of road transport vehicles. It has provisions for traffic regulations, vehicle insurance, registration of motor vehicles, controlling permits and penalties. The Act came into force from 1 July 1989.
- ❖ ***To make roads safer, the Government of India in consultation with state transport ministers came up with this Motor Vehicles (Amendment) Bill*** to makes changes to the Motor Vehicles Act, 1988. The Motor Vehicles (Amendment) Bill, 2017, was passed by the Lok Sabha on April 10, 2017.
- ❖ ***The Motor Vehicles (Amendment) Bill, 2019 proposes*** a huge increase in various penalties for traffic violations, protection to Good Samaritans, recall of defective vehicle parts by automobile companies, holding builders accountable for poor quality of infrastructure and making vehicle owners criminally liable for violations committed by juvenile drivers.
- ❖ ***Ministry of Road Transport and Highways (MoRTH) has been receiving*** requests from various government departments and states regarding supporting rules required under the provisions of Motor Vehicles Act 1988, for the facilitation of Movement of Vehicles Carrying Goods and Passengers between Indian states and other neighbouring countries from time to time.
- ❖ ***All regulations have been finalised*** to facilitate operations under MOUs which have been signed between India and other neighbouring countries.

SOURCE: Business standard and The Business Line

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Superfood

- ❖ Superfoods are foods — mostly plant-based but also some fish and dairy — that are thought to be nutritionally dense and thus good for one's health.
- ❖ Blueberries, salmon, kale and acai are just a few examples of foods that have garnered the "superfood" label. However, there are no set criteria for determining what is and what is not a superfood, according to the American Heart Association.
- ❖ Superfoods contain a variety of nutrients, such as antioxidants, which are thought to ward off cancer. They also have healthy fats, thought to prevent heart disease; fiber, thought to prevent diabetes and digestive problems; and phytochemicals — the chemicals in plants responsible for deep colors and smells, which can have numerous health benefits.

SOURCE: Live sciences

Zero budget farming

- ❖ Zero budget farming is a set of farming methods that involve zero credit for agriculture and no use of chemical fertilisers.
- ❖ This is technically known as Zero Budget Natural Farming (ZBNF), as the Food and Agriculture Organisation of the United Nations calls it.
- ❖ Zero budget farming model promises to cut down farming expenditure drastically and ends dependence on loans. It also reduces dependence on purchased inputs as it encourages use of own seeds and locally available natural fertilizers. Farming is done in sync with the nature not through chemical fertilisers.
- ❖ The concept behind ZBNF is that over 98 per cent of the nutrients required by crops for photosynthesis — carbon dioxide, nitrogen, water, and solar energy — are already available “free” from the air, rain, and Sun.
- ❖ Only the remaining 1.5 per cent to 2 per cent nutrients need to be taken from the soil, and converted from “non-available” to “available” form (for intake by the roots) through the action of microorganisms. To help the microorganisms act, farmers must apply ‘Jiwamrita’ (microbial culture) and ‘Bijamrita’ (seed treatment solution), and take up ‘mulching’ (covering plants with a layer of dried straw or fallen leaves) and ‘waaphasa’ (giving water outside the plant’s canopy) to maintain the right balance of soil temperature, moisture, and air.
- ❖ Simply put, Zero Budget Natural Farming (ZBNF) is a set of farming methods, and also a grassroots peasant movement, which has spread to various states in India. It has attained

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wide success in southern India, especially the southern Indian state of Karnataka where it first evolved.

- ❖ Indian farmers increasingly find themselves in a vicious cycle of debt, because of the high production costs, high interest rates for credit, the volatile market prices of crops, the rising costs of fossil fuel based inputs, and private seeds. Debt is a problem for farmers of all sizes in India. Under such conditions, 'zero budget' farming promises to end a reliance on loans and drastically cut production costs, ending the debt cycle for desperate farmers. The word 'budget' refers to credit and expenses, thus the phrase 'Zero Budget' means without using any credit, and without spending any money on purchased inputs. 'Natural farming' means farming with Nature and without chemicals.
- ❖ Issues related to ZBNF:
 - Sikkim (India's first organic state), has seen some decline in yields following conversion to organic farming.
 - 78 per cent of air is nitrogen, but it is not freely available to plants. Being non-reactive, atmospheric nitrogen has to be fixed into a plant-usable form such as ammonia or urea.
 - Many farmers have reverted to conventional farming after seeing their ZBNF returns drop after a few years.
 - ZBNF is effective only if dung and urine from black-coloured Kapila cows is used, and farmers sow traditional varieties/landraces. ZBNF advocates the need of an Indian breed cow, whose numbers are declining at a fast pace.
 - While ZBNF has definitely helped preserve soil fertility, its role in boosting productivity and farmers' income isn't conclusive yet.

SOURCE: Indian Express, India Today and FAO

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SUMMARY AND RELEVANT TERMS
EXPLAINED FROM PIB AND AIR

DATED: 23.06.2020 TO 25.06.2020



Public Information Bureau (PIB-- News From 23rd June to 25th June 2020)

1. Immunity booster Herbal Tea from NIPER Mohali

- National Institutes of Pharmaceutical Education and Research (NIPERs) come up with an immunity booster Herbal Tea to ***strengthen physical resistance to infection.***
- This Herbal Tea is ***aimed at modulating immune response in body*** so that it may be used as a preventive remedy against covid-19 viral infection.
- Modulation of immune response could provide a substitute for anti-viral/anti-microbial drugs. Herbs are known to possess ***immunomodulatory*** properties ***which mean that they produce both specific and nonspecific immune responses.***
- The selection of Herbs was based on ***RASAYANA concept*** described in Ayurveda. Rasayana means rejuvenation.

Immunomodulator

- ❖ These are ***biological or synthetic substances that can stimulate, suppress or modulate*** any aspect of the immune system including both adaptive and innate arms of the immune system.
- ❖ The immune system is not confined to any one part of the body.
- ❖ ***Immune stem cells, formed in the bone marrow,*** may remain in the bone marrow until maturation or migrate to different body sites for maturation. Subsequently, most immune cells circulate throughout the body, exerting specific effects. The immune system has two distinct but overlapping mechanisms with which to fight invading organisms, the antibody-mediated defense system (humoral immunity) and the cell-mediated defense system (cellular immunity).
- ❖ ***Clinically, immunomodulators can be classified into the following three categories:***
 - ***Immunoadjuvants*** are used to enhance the efficacy of vaccines and therefore could be considered specific immune stimulants. Immunoadjuvants hold the promise of being the true modulators of the immune response.
 - ***Immunostimulants*** are inherently non-specific as they are envisaged as enhancements to a body's resistance to infection. They can act through innate as well as adaptive immune responses. In healthy individuals, the immunostimulants are expected to serve as prophylactic and promoter agents, i.e., as immunopotentiators,

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by enhancing the basic level of immune response. In the individual with impairment of immune response, they are expected to act as immuno-therapeutic agents.

- **Immunosuppressants** are a structurally and functionally heterogeneous group of drugs, which are often concomitantly administered in combination regimens to treat various types of organ transplant rejection and autoimmune diseases.
- ❖ Atharvaveda (around 1200BC), Charak Samhita and Sushrut Samhita (1000-500BC) are the main classic reference collections that give a detailed description of over 700 herbs. **Several other were compiled over the centuries such as Bela Samhita, Kashyap Samhita, Agnivesh Tantra, Vagbhata's Ashtang hridaya (600 AD), Madhava Nidan (700 A D).**
- ❖ **According to the World Health Organization (WHO),** about three-quarters of the world population relies upon traditional remedies (mainly herbs) for the health care of its people.

SOURCE: Science Direct and Harvard research

RASAYANA concept

- ❖ It is increasingly being realized that **many of today's diseases are due to "oxidative stress"** that results from an imbalance between formation and neutralization of free radicals.
- ❖ **Free radicals are produced in the body as by-products** of normal metabolism, as a result of exposure to radiation and some environmental pollutants. Because they are highly reactive, they can damage cellular components and are implicated in a variety of diseases.
- ❖ **Free radicals are normally neutralized by efficient systems in the body** that include the antioxidant enzymes (superoxide dismutase, catalase, and glutathione peroxidase) and the nutrient-derived antioxidant small molecules (vitamin E, vitamin C, carotenes, flavonoids, glutathione, uric acid, and taurine).
- ❖ **Rasayana Chikitsa is a unique branch of Ayurveda.** The word Rasayana means the way for attaining excellent Rasadi Dhatus.
- ❖ Several medicinal plants have been described as Rasayanas in Ayurveda. **Ashwagandha and Guduchi are the best among the Rasayanas described by Charaka.**
- ❖ The word Rasayana, a combination of two words (rasa and ayana), **refers to nutrition and its transportation throughout the body.**
- ❖ **Rasayana therapy enhances the qualities of rasa,** enriching it with nutrients so one can attain longevity, improved memory and intelligence, freedom from disorder, youthfulness,

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excellence of hair, complexion and voice, optimum development of physique and sense organs, mastery over phonetics and brilliance.

- ❖ As a dedicated stream of medication for immune promotion, antidegenerative and rejuvenating health care, the ***Rasayana therapy of Ayurveda is known to prevent the effects of ageing and improve the quality of life for healthy as well as diseased individuals.***
- ❖ Rasayana is helpful to improve immunity and is ***normally advised during the degenerative phase of life, which starts from around 45 years in both males and females.***

SOURCE: NCBI and Science Direct

2. Information about Country of Origin by the sellers made mandatory on GeM to promote Make in India and Aatmanirbhar Bharat

- GeM has also **enabled a provision for indication of the percentage of local content in products.** With this new feature, now, the Country of Origin as well as the local content percentage are visible in the marketplace for all items.
- **Buyers can choose to buy only those products that meet the minimum 50% local content criteria.**
- In case of Bids, Buyers can now reserve any bid for ***Class I Local suppliers (Local Content > 50%).***
- For those Bids below INR 200 crore, only ***Class I and Class II Local Suppliers (Local content > 50% and > 20% respectively)*** are eligible to bid, with Class I supplier getting purchase preference.
- **GeM** is enabling quick, efficient, transparent and cost-effective procurement, especially in this hour of need when government organizations require products and services urgently to fight against the Covid-19 pandemic.
- The purchases through GeM by Government users have been authorised and ***made mandatory by Ministry of Finance by adding a new Rule No. 149 in the General Financial Rules, 2017.***

GeM

- ❖ Government e-Marketplace owes its genesis to the recommendations of two Groups of Secretaries made to the Prime Minister in January 2016. ***They recommended setting up of a dedicated e-market for different goods & services procured or sold by Government/PSUs.***

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- ❖ **GeM is a completely paperless, cashless and system driven e-market place** that enables procurement of common use goods and services with minimal human interface.
- ❖ **Finance Minister in his Budget speech for FY 2016-17**, announced setting up of a technology driven platform to facilitate procurement of goods and services by various Ministries and agencies of the Government.
- ❖ DGS&D (Directorate General of Supplies and Disposals) with technical support of National e-Governance Division (Ministry of Electronics and Information Technology) has developed GeM portal for procurement of both Products & Services.
- ❖ Government e Marketplace is a **100 percent government owned company** setup under the aegis of Ministry of Commerce and Industry.
- ❖ **GeM has launched a national outreach program called GeM Samvaad** to attract sellers to sell products online to government buyers.
- ❖ The GeM portal, which is a **special purpose vehicle of the Ministry of Commerce and Industry**, has earlier taken other measures, too, to promote India made goods. These include facilitating entry of small local sellers in public procurement, implementing preference policies for MSMEs, etc.

SOURCE: GeM website and India Yearbook2020

3. Under Make in India initiative in locust control, trials of prototype vehicle mounted ULV sprayer have been successfully conducted in Ajmer and Bikaner

- To overcome the limitation of importing equipment, Department of Agriculture, Cooperation & Farmers' Welfare (DAC&FW), under Make in India initiative, has taken up the challenge to indigenously develop a vehicle mounted **ULV (Ultra ow Volume) sprayer for locust control**.
- The deployment of drones has added another dimension in the capabilities of Locust Circle offices to ensure effective control over desert locust.
- Food and Agriculture Organization (FAO) of the United Nations has appreciated that **India is the first country in the world which is controlling Desert Locust through Drones**.

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ULV (Ultra Low Volume)

- ❖ Ultra-low volume (ULV) is a **method for the application of a minimum volume of liquid insecticide formulation** (usually less than 500 ml/he) per unit area, which provides maximum efficiency in killing target vectors.
- ❖ ULV is usually employed by **applying the undiluted liquid formulations** as received from the manufacturer of the insecticide.
- ❖ **A manufacturer's formulation mixed with compatible oils or other diluents by the applicator may not necessarily be a ULV formulation**, unless the requirement for dilution is determined by a study of the dose mortality and droplet size density.
- ❖ Thus, **a major difference between ULV and conventional applications is that the ULV method requires little or no diluent**, whereas conventional methods require large quantities of diluents such as water or compatible oils.
- ❖ Conventional methods consist of low-volume (LV) and high-volume (HV) applications which **differ mainly in the proportion of diluent to insecticide in the finished formulation**.
- ❖ **Ultra-Low Volume spraying technique, recognized as the most efficient and less harmful one for locust control, especially Desert Locust**. ULV formulations required lower volumes of product and do not need to be mixed with water, which is often scarce in the desert.

SOURCE: WHO and FAO

4. CBIC Enables End to End Paperless Exports under Turant Customs

- Recent initiative is yet another step taken by Central Board of Indirect Taxes and Customs (CBIC) for fulfilling its commitment to a Faceless, Paperless, and Contactless Customs under **the umbrella of its "Turant Customs" programme**.
- These reforms are **based on enhanced use of digital technology** to reduce the time and costs for the importers, exporters and other stakeholders, thereby improving India's ranking in the World Bank's **Trading Across Borders** parameter of its **Doing Business Report**.
- **Turant Customs**, which has as its main component Faceless Assessment, would be implemented in phases across the entire country by 1st January 2021.

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Turant Customs

- ❖ ***In a bid to enter the top 50 ranking in The World Bank's Ease of Doing Business (EoDB) Index***, the Customs Department has announced further reforms under the name of Turant Customs for speedy clearance of goods at air and seaports.
- ❖ ***A critical component of EoDB index rankings 2019 is the 'Trading Across Borders' category*** in which India is ranked 80, as compared with 146 in 2018. This was possible due to reforms like Single Window Interface for Facilitating Trade, ***e-Sanchit (e-Storage and computerised handling of indirect tax documents)***, and ***Direct Port Delivery***. This along with Authorised Economic Operator programme and RFID e-seal programme helped in reducing the time and cost of clearance of goods in various Customs ports.
- ❖ ***Under Turant Customs***, one of the major changes will be in Indian Customs Electronic Data Interchange System (ICES) 1.5 for clearance of imported goods after assessment and duty payment.
- ❖ Ministry of Finance (Central Board of Indirect Taxes and Customs) also launched two Information Technology (IT) initiatives – ***ICEDASH*** (For improved monitoring of customs clearance of imported goods.) and ***ATITHI*** (For facilitating arriving international passengers).

SOURCE: The Business Line and The Economic Times

Trading Across Borders and Doing Business Report

- ❖ ***Doing Business records the time and cost associated with the logistical process of exporting and importing goods.*** Doing Business measures the time and cost (excluding tariffs) ***associated with three sets of procedures***—documentary compliance, border compliance and domestic transport—within the overall process of exporting or importing a ship-ment of goods.
- ❖ ***Trading Across Borders constitutes one of three most important components of the ten parameters*** which the World Bank measures. This parameter assesses the efficiency of time taken in clearing the imported and export goods and the cost involved in these processes.
- ❖ Doing Business measures aspects of ***business regulation affecting domestic small and medium-size firms*** defined based on standardized case scenarios and located in the largest business city of each economy.
- ❖ ***Doing Business covers 11 areas of business regulation across 190 economies.*** Ten of these areas—starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting minority investors, paying taxes, trading across borders,

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enforcing contracts and resolving insolvency—are included in the distance to frontier score and ease of doing business ranking.

- ❖ Doing Business also measures features of labour market regulation, although ***Doing Business does not present rankings of economies on the labour market regulation indicators.***
- ❖ ***This year's Doing Business report presents a gender dimension in four of the indicator sets:*** starting a business, registering property, enforcing contracts and labor market regulation. Three of these areas are included in the distance to frontier score and in the ease of doing business ranking, while the fourth—labor market regulation—is not.
- ❖ ***India has jumped 14 places to rank 63rd out of 190 countries*** in the World Bank's Doing Business 2020 report on account of significant improvement in resolving insolvency and obtaining construction permits.
- ❖ ***The current ranking is topped by*** New Zealand. India's ranking was behind Asian peers Singapore (2nd ranked), Hong Kong (3rd), Korea (5th), Malaysia (12th) and China (31st). The US was placed 6th on the list.

TABLE 2.2 What Doing Business does not cover

Examples of areas not covered

Macroeconomic stability

Development of the financial system

Quality of the labor force

Incidence of bribery and corruption

Market size

Lack of security

Examples of aspects not included within the areas covered

In paying taxes, personal income tax rates

In getting credit, the monetary policy stance and the associated ease or tightness of credit conditions for firms

In trading across borders, export or import tariffs and subsidies

In resolving insolvency, personal bankruptcy rules

SOURCE: World Bank and Economic Times

5. Union HRD Minister virtually launches 'YUKTI 2.0' platform for Higher Education Institutes in New Delhi

- Union Ministry of Human Resource Development ***launched an initiative 'YUKTI 2.0'*** to help systematically assimilate technologies having commercial potential and information related to incubated startups in our higher education institutions.

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- ***YUKTI 2.0 is logical extension of earlier version of 'YUKTI'***, an initiative of MHRD, to identify ideas relevant in COVID 19 pandemic.

YUKTI

- ❖ ***Young India Combating COVID with Knowledge, Technology and Innovation (YUKTI)*** is a unique portal with a dashboard to monitor and record the efforts and initiatives of MHRD.
- ❖ The ***portal will cover various initiatives and efforts of the institutions*** in academics, research especially related to COVID-19, social initiatives by institutions and the measures taken for the betterment of the well-being of the students.
- ❖ The portal will ***cover both qualitative and quantitative parameters*** for effective delivery of services to the academic community at large.
- ❖ The portal will ***also allow various institutions to share their strategies for various challenges*** which are there because of the unprecedented situation of COVID-19 and other future initiatives.

SOURCE: Business Standard and MHRD

6. Financing for Compressed Bio-Gas plants to be brought under Priority Sector Lending

- The Government is in the process of including Compressed ***Biogas*** under ***Priority Sector Lending***.
- ***The 'SATAT' (Sustainable Alternative Towards Affordable Transportation) scheme*** on CBG was launched on 1.10.2018 which envisages targeting production of 15 MMT of CBG from 5000 plants by 2023.
- ***Bio-manure, an important by-product of CBG Plants***, is also in the process of being included in Fertilizer Control Order 1985.
- This will make it easier to market and provide ***an opportunity for organic farming across the country as the 5000 CBG Plants*** are expected to produce 50 MMT Biomanure.
- ***Biogas is a renewable, as well as a clean, source of energy***. The gas generated through bio-digestion is non-polluting and it reduces greenhouse emissions.

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Biogas

- ❖ **Biogas is produced from biomass through the process of anaerobic decomposition.** Anaerobic bacteria—bacteria that live without the presence of free oxygen—occur naturally in soils, in water bodies such as swamps and lakes, and in the digestive tracts of humans and animals. These bacteria eat and break down, or digest, biomass and produce biogas.
- ❖ **Biogas is composed mostly of methane and carbon dioxide.** Methane (CH₄) is the same energy-rich compound found in natural gas. The composition of biogas varies from 40%–60% methane to 60%–40% carbon dioxide (CO₂), and trace amounts of nitrogen, hydrogen, and carbon monoxide.
- ❖ **Biogas technology enables the effective use of accumulated animal waste** from food production and of municipal solid waste from urbanization.
- ❖ **The conversion of organic waste into biogas reduces production of the greenhouse gas methane,** as efficient combustion replaces methane with carbon dioxide. Given that methane is nearly 21 times more effective in trapping heat in the atmosphere than carbon dioxide, biogas combustion results in a net reduction in greenhouse gas emissions.
- ❖ **Biogas can also be produced under controlled conditions in special tanks called anaerobic digesters.** Biogas can be treated to remove CO₂ and other gases, and it can be used as a fuel just like natural gas. The material that is left after anaerobic digestion is complete is called digestate, which is rich in nutrients and can be used as a fertilizer.
- ❖ **Biogas has additional value in comparison to most clean energy** alternatives because it is also a method of waste management, be it animal, human, or food waste.

SOURCE: NITI Aayog, Britannica and USPA

Priority Sector Lending

- ❖ Literally priority sectors are those sectors which are entitled **to financial aid in preference to others.**
- ❖ The term 'priority sector' is used for **those segments of the economy, whose development is essential both for the economic growth of the country and attainment of social justice** and which had received only indifferent attitude of the private sector commercial banks in quantity of credit.
- ❖ Directed lending is a system of compulsory' allocation of bank credit to those segments of the economy which are designated as priority sector. **It is a policy of induced credit delivery by banks to a particular sector and purpose.**

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- ❖ What the priority sector concept attempts to do is to ***allocate through a conscious direction of credit, a certain level of lending to key areas***, which the banks may tend to ignore in their market-oriented functioning.
- ❖ ***Simply put***, it refers to certain economic activities and persons whose development is important to facilitate growth with justice. It covers those sectors, activities, professions that are defined/listed by the RBI/government.
- ❖ ***Directed credit through the priority sector dispensation is a major public policy intervention for ensuring that***
 - vulnerable sections of society get access to credit at an affordable rate, and
 - there is adequate flow of resources to those segments of the economy, which have a higher employment potential and help in making a large impact in poverty alleviation.
- ❖ ***Priority Sector Lending Certificates (PSLCs)*** are a mechanism to enable banks to achieve the priority sector lending target and sub-targets by purchase of these instruments in the event of shortfall.
- ❖ ***This also incentivizes surplus banks as it allows them to sell their excess achievement over targets*** thereby enhancing lending to the categories under priority sector. Under the PSLC mechanism, the seller sells fulfilment of priority sector obligation and the buyer buys the obligation with no transfer of risk or loan assets.

SOURCE: RBI and Sodhganga

7. Purchasing Power Parities and the size of Indian Economy: Results from the 2017 International Comparison Program

- The ***World Bank has released new Purchasing Power Parities (PPPs)*** for reference year 2017, under International Comparison Program (ICP), that adjust for differences in the cost of living across economies of the World.
- Globally 176 economies participated in 2017 cycle of ICP.
- The ***International Comparison Program (ICP)*** is the largest worldwide data-collection initiative, under the guidance of UN Statistical Commission (UNSC), with the goal of producing ***Purchasing Power Parities (PPPs)*** which are vital for converting measures of economic activities to be comparable across economies.

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- Along with the PPPs, the **ICP also produces Price Level Indices (PLI)** and other regionally comparable aggregates of GDP expenditure.
- **India has participated in almost all ICP rounds since its inception in 1970.** The Ministry of Statistics and Programme Implementation is National Implementing Agency (NIA) for India, which has the responsibility of planning, coordinating and implementing national ICP activities.
- India also been a co-Chair of the ICP Governing Board along with Statistics Austria for the ICP 2017 cycle.
- **In 2017, India retained and consolidated its global position, as the third largest economy,** accounted for 6.7 percent (\$8,051 billion out of World total of \$119,547 billion) of global Gross Domestic Product (GDP) in terms of PPPs as against China (16.4%) and United States (16.3%), respectively.
- **India is also third largest economy in terms of its PPP-based share** in global Actual Individual Consumption and Global Gross Capital Formation.

International Comparison Program (ICP)

- ❖ **The ICP is one of the largest statistical initiatives in the world.** It is managed by the World Bank under the auspices of the United Nations Statistical Commission, and relies on a partnership of international, regional, sub-regional, and national agencies working under a robust governance framework and following an established statistical methodology.
- ❖ **The main objectives of the ICP are to:**
 - produce purchasing power parities (PPPs) and comparable price level indexes (PLIs) for participating economies;
 - convert volume and per capita measures of gross domestic product (GDP) and its expenditure components into a common currency using PPPs.

SOURCE: World Bank

Purchasing Power Parities (PPPs)

- ❖ **The theory aims to determine the adjustments needed** to be made in the exchange rates of two currencies to make them at par with the purchasing power of each other. In other words, the expenditure on a similar commodity must be same in both currencies when accounted for exchange rate. The purchasing power of each currency is determined in the process.

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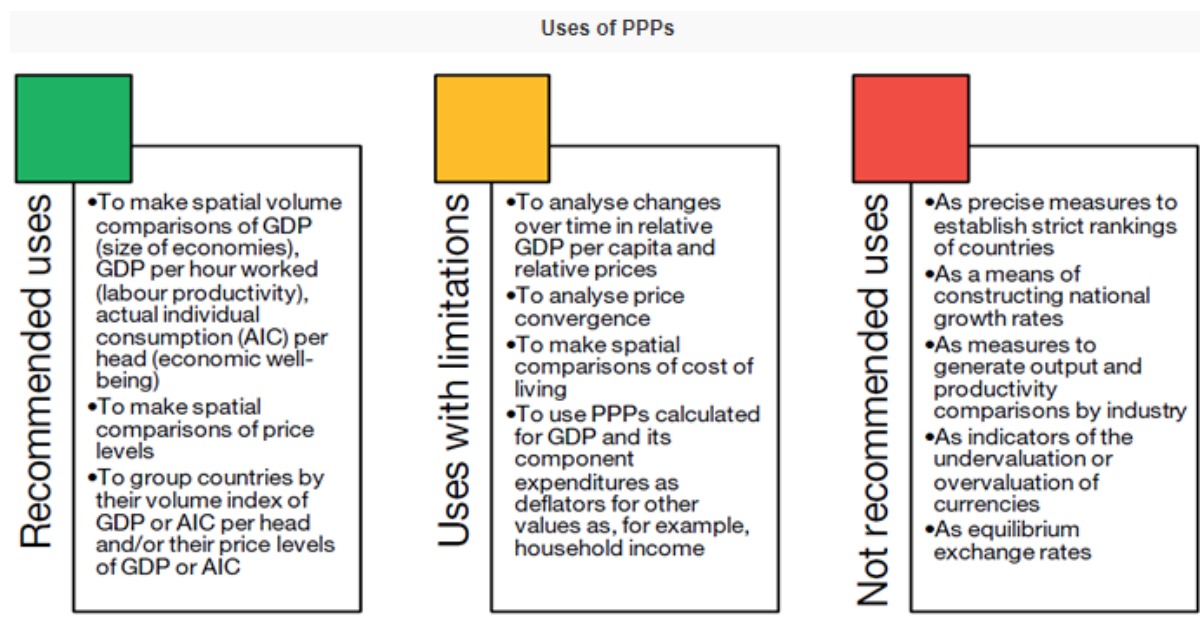
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- ❖ **Purchasing power parity is used worldwide to compare the income levels** in different countries. PPP thus makes it easy to understand and interpret the data of each country.
- ❖ **In their simplest form, PPPs are simply price relatives** that show the ratio of the prices in national currencies of the same good or service in different countries. PPPs are also calculated for product groups and for each of the various levels of aggregation up to and including GDP.



SOURCE: OECD, IMF and Economic Times

8. 16 Seaplane projects will be the reality soon

- **Seaplane projects** will provide faster and hassle-free travel option for the long, treacherous and hilly regions of the country.
- Till now, **16 seaplane routes have been identified** under Regional Connectivity Routes under UDAN scheme.
- Sabarmati and Sardar Sarovar- Statue of Unity route is included in these 16 sea plane routes and hydrographic surveys of this route have been completed.
- Officials to come up with Indian Model of waterdrome (terminal), after thorough study of the **Waterdrome** infrastructure of the countries like the USA, Canada, Maldives and Australia which suits the Indian rules and regulations for operation of Seaplane.

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- After detailed deliberations, **Sagarmala Development Company Limited (SDCL) and Inland Waterways Authority of India (IWAI) join hands to commence the seaplane operation** of the Sabarmati and Statue of Unity route by October 2020.
- The **Bathymetric and Hydrographic surveys** of the seaplane routes to be undertaken by IWAI on behalf of Airport Authority of India will have to be done, latest by September 2020.
- **IWAI will manage the Project of Seaplane in Inland Waterways and SDCL will manage the Projects of seaplane in Coastal Areas.** IWAI and SDCL will coordinate with the Ministry of Shipping, flight operators, Ministry of Tourism as well as DGCA.

Seaplane projects and Waterdrome

- ❖ **Under regional connectivity scheme (UDAN)**, six water aerodrome sites have been awarded to start seaplane and helicopter services.
- ❖ Water aerodrome sites are **Guwahati river front, Nagarjuna Sagar, Sabarmati river front, Shatrunjay Dam, Statue of Unity (Sardar Sarovar Dam) and Umrangso Reservoir.**
- ❖ To boost tourism, the state-run Airport Authority of India (AAI) **will introduce water aerodrome or seaplanes in three locations in Assam for the first time.**
- ❖ At the end of next year or by early 2021, the water aerodrome or seaplane services would be launched in Brahmaputra river and Umrangso reservoir. The three locations selected for the seaplanes include Guwahati, Umrangso (in Dima Hasao district) and the famous Kaziranga National Park.
- ❖ An area of open water that can be used by seaplanes or amphibious planes for landing and take-off is **called a water aerodrome.** They could be connected to the terminal building on land where the pilot can choose to dock like a ship.

SOURCE: Economic Times and Mint

Bathymetric and Hydrographic surveys

- ❖ **Bathymetry is the study of the "beds" or "floors" of water bodies**, including the ocean, rivers, streams, and lakes.
- ❖ **Bathymetry is the foundation of the science of hydrography**, which measures the physical features of a water body. Hydrography includes not only bathymetry, but also the shape and

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features of the shoreline; the characteristics of tides, currents, and waves; and the physical and chemical properties of the water itself.

- ❖ **We use bathymetric surveys for many different types of research including** flood inundation, contour of streams and reservoirs, leakage, scour and stabilization, water-quality studies, dam removal, biological and spill, and storage and fill in reservoirs and ponds.

SOURCE: NOAA, FAO and USGS

9. Private sector participation in Space activities approved

- Space sector can play a major catalytic role in the technological advancement and expansion of our Industrial base. **The proposed reforms will enhance the socio-economic use of space assets and activities**, including through improved access to space assets, data and facilities.
- The newly created **Indian National Space Promotion and Authorization Centre (IN-SPACe)** will provide a level playing field for private companies to use Indian space infrastructure. It will also handhold, promote and guide the private industries in space activities through encouraging policies and a friendly regulatory environment.
- The Public Sector Enterprise '**New Space India Limited (NSIL)**' will endeavour to re-orient space activities from a 'supply driven' model to a 'demand driven' model, thereby ensuring optimum utilization of our space assets.
- Some of the planetary exploration missions will also be opened up to private sector through an 'announcement of opportunity' mechanism.

Indian National Space Promotion and Authorization Centre (IN-SPACe)

- ❖ Indian National Space promotion and Authorization Centre (IN-SPACE) to **provide level playing field for private companies to use space infrastructure which will be extended into the Indian Space Research Organisation (ISRO)**
- ❖ **It will be the new entity of the Department of Space.**
- ❖ With the aid of Indian National Space Promotion and Authorization Centre (IN-SPACe), **Indian start-ups and technology entrepreneurs will be linked up** with nuclear research facilities through technology development and incubation centres to foster synergies.
- ❖ **Allow ISRO to focus more on research and development activities**, new technologies, exploration missions and human spaceflight programme.
- ❖ **It will act as an interface between ISRO and private parties** and assess how best to utilize India's space resources and increase space-based activities.

SOURCE: Mint and The Hindu

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New Space India Limited (NSIL)

- ❖ In order to commercially exploit the products and services emanating from the Indian Space Programme, the ***“New Space India Limited (NSIL)” has been incorporated in March 2019, as a wholly owned Government of India Company, under the administrative control of Department of Space (DOS).***
- ❖ ***NSIL will work with IN-SPaCE*** and enable industry consortia to take on some of the activities of ISRO.
- ❖ NSIL is ***the commercial arm of Indian Space Research Organisation (ISRO)***
- ❖ NSIL will be the ***nodal agency for carrying out PSLV productionisation through*** Indian Industry under consortium route.
- ❖ ***To cater to emerging global small satellite launch service market***, ISRO has taken up the development of Small Satellite Launch Vehicle (SSLV). Manufacturing of SSLV through Indian Industry partners will be the responsibility of NSIL.
- ❖ ***NSIL will be responsible for providing launch service*** to global satellite customer, on-board SSLV, PSLV, GSLV and GSLV-MkIII launchers.

SOURCE: ISRO, NSIL and newspapers

10. Cabinet approves establishment of Animal Husbandry Infrastructure Development Fund

- In pursuance of recently announced Atma Nirbhar Bharat Abhiyan stimulus package for ensuring growth in several sectors, the ***Cabinet Committee on Economic Affairs has approved setting up of Animal Husbandry Infrastructure Development Fund (AHIDF) worth Rs. 15000 crores.***
- Government of India would also set up ***Credit Guarantee Fund*** of Rs. 750 crores to be managed by NABARD.
- Credit guarantee would be provided to those sanctioned projects which are covered under MSME defined ceilings. ***Guarantee Coverage would be up-to 25% of Credit facility of borrower.***
- Government had earlier approved the ***Dairy Infrastructure Development Fund (DIDF) worth Rs. 10,000 crores*** for incentivizing investment by cooperative sector for development of dairy infrastructure.
- ***However, the MSMEs and Private companies also need to be promoted and incentivized for their participation*** in processing and value addition infrastructure in the animal husbandry sector.
- The measures approved through AHIDF ***would help in direct and indirect livelihood creation for about 35 lakh persons.***
- ***The eligible beneficiaries under the Scheme would be*** Farmer Producer Organizations (FPOs), MSMEs, Section 8 Companies, Private Companies and individual entrepreneur with minimum 10% margin money contribution by them. The balance 90% would be the loan component to be made available by scheduled banks.

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Credit Guarantee Fund

- ❖ Public credit guarantee schemes (CGSs) are a **common form of government intervention to unlock finance for small and medium enterprises (SMEs)**. More than half of all countries in the world have a CGS for SMEs and the number is growing.
- ❖ **A credit guarantee scheme provides third-party credit risk mitigation to lenders** through the absorption of a portion of the lender's losses on the loans made to SMEs in case of default, typically in return for a fee.
- ❖ **Loans to MSMEs are mostly given against property** (as collateral) because often there isn't a robust cash flow analysis available. But in times of crisis, like the one currently playing out, property prices fall, and this inhibits the ability of MSMEs to seek loans. It also means that banks are less willing to extend loans.
- ❖ **A credit guarantee by the government helps as it assures the bank that its loan will be repaid by the government in case the MSME falters.** For instance, if the government provides say a 100% credit guarantee up to an amount of Rs 1 crore to a firm, it means that a bank can lend Rs 1 crore to that firm; in case the firm fails to pay back, the government will make good all of Rs 1 crore. If this guarantee was for the first 20% of the loan, then the government would guarantee to pay back only Rs 20 lakh.
- ❖ **To operationalise the scheme**, Government of India and SIDBI set up the Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE).

SOURCE: Ministry of MSME, World Bank and Indian Express

11. Cabinet approves Extension of tenure of the Commission constituted under Article 340 of the constitution

- All persons belonging to the castes/communities which are included in the Central List of SEBCs (Socially and Educationally Backward Classes) but which have not been able to get any major benefit of the existing scheme of reservation for OBCs in Central Government posts & for admission in Central Government Educational Institutions would be benefitted.
- The Commission was constituted under **article 340** of the Constitution with the approval of President on 2nd October 2017.

Article 340

- ❖ Appointment of a Commission to investigate the conditions of backward classes.
- ❖ **102nd Constitution Amendment Act, 2018 provides constitutional status** to the National Commission for Backward Classes (NCBC). Previously NCBC was a statutory body under the Ministry of Social Justice and Empowerment.
- ❖ **The Commission consists of five members** including a Chairperson, Vice-Chairperson and three other Members appointed by the President by warrant under his hand and seal.

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- ❖ **The President may by order appoint a Commission** consisting of such persons as he thinks fit to investigate the conditions of socially and educationally backward classes within the territory of India and the difficulties under which they labour and to make recommendations as to the steps that should be taken by the Union or any State to remove such difficulties and to improve their condition and as to the grants that should be made for the purpose by the Union or any State the conditions subject to which such grants should be made, and the order appointing such Commission shall define the procedure to be followed by the Commission.
- ❖ **A Commission so appointed shall investigate the matters** referred to them and present to the President a report setting out the facts as found by them and making such recommendations as they think proper.
- ❖ **The President shall cause** a copy of the report so presented together with a memorandum explaining the action taken thereon to be laid before each House of Parliament.

SOURCE: Constitution of India and Indian Express

12. Review of various aspects of proposed Bulks drugs and medical device park

- These schemes **will increase competitiveness of domestic production of bulk drugs and medical devices** due to benefits available in clusters in the form of state of art common infrastructure and logistics facilities.
- Development of these parks **will not only reduce our dependency on imports but will also be helpful in making India a major player in global pharma exports.**
- Under promotion of Bulk Drug Parks, Government of India will give one-time **grants-in-aid** to three Bulk Drug Parks with a maximum limit of Rs. 1000 Crore per Bulk Drug Park, or 70 % (90 % in case of hilly States and North East Region) of the project cost of Common Infrastructure Facilities whichever is less.
- In addition, Government has also approved **Production Linked Incentive (PLI) Scheme** for promotion of domestic manufacturing of 53 identified critical KSMs/Drug Intermediates and APIs in the country with outlay of Rs 6,940 crore during the tenure of the scheme from 2020-21 to 2027-28.
- Similarly, for promotion of Medical Device Parks, Government of India will give one-time grants-in-aid to four Medical Device Parks with a maximum limit of Rs. 100 Crore per Medical Device Park, or 70 % (90 % in case of hilly States and North East Region) of the project cost of Common Infrastructure Facilities whichever is less.
- In addition, Government has also approved Production Linked Incentive (PLI) Scheme for promotion of domestic manufacturing of medical devices in the country with outlay of Rs 3420 crore during the tenure of the scheme from 2020-21 to 2025-26.

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Grants-in-aid

- ❖ **Grants-in-aid have emerged as a significant mode of spending for the Union Government** for delivery of public goods. In fact, over a period of time, grants-in-aid has constituted, with the exception of debt repayments, the single largest item of expenditure for the Union Government.
- ❖ **Grants-in-aid are payments in the nature of assistance, donations or contributions** made by one government to another government, body, institution or individual.
- ❖ Grants-in-aid are **given by the Union Government to State Governments and/or Panchayati Raj Institutions**. Union Government also gives substantial funds as grants-in-aid to other agencies, bodies and institutions.
- ❖ **Similarly, the State Governments also disburse grants-in-aid** to agencies, bodies and institutions such as universities, hospitals, co-operative institutions and others.
- ❖ The grants so released are **utilized by these agencies, bodies and institutions for meeting day-to-day operating expenses** and for creation of capital assets, besides delivery of services.
- ❖ Grants-in-aid is given in cash or in kind but have to be **always accounted for as revenue expenditure in the books of the grantor** irrespective of the purpose for which it has been given.
- ❖ **Under Article 275 grants-in-aid** are to be given to States as are in need of financial assistance, and these grants can vary and be discriminatory in nature.

SOURCE: CAG, EPW and Economic Times

Production Linked Incentive (PLI) Scheme

- ❖ In order to position India as a global hub for Electronics System Design and Manufacturing (ESDM) and push further the vision of the National Policy on Electronics (NPE) 2019, **three schemes namely** the Production Linked Incentive Scheme (PLI), Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECs) and Modified Electronics Manufacturing Clusters Scheme (EMC 2.0) have been notified.
- ❖ **The Production Linked Incentive Scheme (PLI)** for Large Scale Electronics Manufacturing proposes a financial incentive to boost domestic manufacturing and attract large investments in the electronics value chain including mobile phones, electronic components and ATMP units.
- ❖ **The scheme shall extend an incentive of 4% to 6% on incremental sales** (over a base year) of goods manufactured in India and covered under target segments, to eligible companies, for a period of five (5) years subsequent to the base year as defined.
- ❖ The scheme has a direct employment generation potential of over 2,00,000 jobs over 5 years.

SOURCE: MeitY and newspapers

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13. Cabinet approves declaration of Kushinagar Airport in Uttar Pradesh as an International Airport

- **Kushinagar is an important Buddhist pilgrimage site**, where Gautama Buddha attained Mahaparinirvana. It is regarded as a very sacred Buddhist pilgrimage centre where Buddhists pilgrims from all over the world come for pilgrimage.
- Kushinagar is dotted with several other Buddhist sites in the nearby surroundings like Sravasti (238 km), Kapilvastu (190 km) and Lumbini (195 km) that makes it an attraction for both followers and visitors alike.
- Kushinagar already serves as the presenting site for Buddhist circuit pilgrimage spanning across India and Nepal.

Important Event of Buddha's Life in table

EVENT	SYMBOL	PLACE
Buddha's Birth	Lotus & Bull	Lumbini
The Great Departure (Mahabhinishkramana)	Horse	
Enlightment (Nirvana)	Bodhi Tree	Bodh Gaya
First Sermon (Dhammachakraparivartan)	Wheel	Sarnath
Death (Mahaparinirvana)	Stupa	Kushinagar

14. New biomolecules to fight drug resistance in Kala-azar

- Leishmaniasis is a neglected **tropical disease** affecting almost 100 countries including India. It is caused by a parasite called Leishmania, which is transmitted through the bite of sand flies.
- **There are three main forms of leishmaniasis** – visceral, which affects multiple organs and is the most serious form of the disease, cutaneous, which causes skin sores and is the most common form); and mucocutaneous, which causes skin and mucosal lesion).
- **Visceral leishmaniasis, which is commonly known as Kala-azar in India**, is fatal in over 95% of the cases, if left untreated. The only drug available against leishmaniasis, miltefosine, is rapidly losing its effectiveness because of emerging resistance to this drug due to a decrease in its accumulation inside the parasite, which is necessary for the drug to kill the parasite.
- The researchers worked with one of the species of Leishmania that causes infection, called Leishmania major. They tried to manipulate these transporter proteins in the species in a manner that would result in increased uptake of the drug and decrease in its being thrown out of the parasite's body.

Tropical disease

- ❖ **Tropical diseases encompass all diseases** that occur solely, or principally, in the tropics. In practice, the term is often taken to refer to infectious diseases that thrive in hot, humid

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conditions, such as malaria, leishmaniasis, schistosomiasis, onchocerciasis, lymphatic filariasis, Chagas disease, African trypanosomiasis, and dengue.

SOURCE: WHO

15. Ministry of Tourism presents 37th webinar titled 'Vedic Food and Spices of India' under Dekho Apna Desh webinar series

- **The presenters made references to three doshas (body elements)** in Ayurveda, which describe the dominant mind/body state: Vata, Pitta, and Kapha.
- **While all three are present in everyone** they explained how Ayurveda proposes that each individual has a dominant body element that's unwavering from birth, and ideally an equal (though often fluctuating) balance between the other two.
- The merit of pans made with various metals was also stressed like how food from **silver vessel cools down the body, relaxes and rejuvenates it. Food cooked in Copper and Brass vessel help in increasing the immunity level and metabolism. Betel leaves also help in controlling the doshas.**

16. NITI Aayog, ITF Launch Decarbonizing Transport Project in India

- Building on this evidence-based assessment of mitigation impacts, bringing DTEE and NDC-TIA together under this collaboration would support our policymaking by identifying various scenarios to achieve **Nationally Determined Contributions (NDCs)** targets submitted by India under the Paris Agreement.
- The **transport sector of India is the third most greenhouse gas (GHG) emitting sector**, where the major contribution comes from the road transport sector. Out of the total carbon dioxide emissions in India, 13% come from the transport sector.
- **These emissions have more than tripled since 1990.** The increasing motorization and demand for mobility in India have contributed to air pollution, congestion, as well as the increase of greenhouse gas emissions, in the urban area.
- In India, CO₂ emitted per inhabitant was just about a twentieth of that of an average OECD country, yet, **India's transport CO₂ emissions are likely to increase by almost 6% annually to 2030.**
- India is actively taking a number of measures to tackle its emissions, including newer fuel emission norms as well as the promotion of electric vehicles in the country.
- **NITI Aayog has been at the helm for the promotion of electric vehicles and sustainable mobility through its 'National Mission on Transformative Mobility and Battery Storage'.**

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Nationally Determined Contributions (NDCs)

- ❖ Countries across the globe adopted an historic international climate agreement at the U.N. Framework Convention on Climate Change (**UNFCCC**) **Conference of the Parties (COP21) in Paris in December 2015.**
- ❖ In anticipation of this moment, **countries publicly outlined what post-2020 climate actions they intended to take under the new international agreement**, known as their Intended Nationally Determined Contributions (INDCs).
- ❖ The climate actions communicated in these INDCs largely determine whether the world achieves the long-term goals of the Paris Agreement: **to hold the increase in global average temperature to well below 2°C, to pursue efforts to limit the increase to 1.5°C, and to achieve net zero emissions in the second half of this century.**
- ❖ **India's INDCs have a strong focus on climate change adaptation.** Of the 8 missions outlined in India's National Action Plan on Climate Change, **4 efforts are focused on adaptation efforts** – sustainable agriculture, increasing water use efficiency, sustaining the Himalayan ecosystem and creating sustainable habitats. **No other country has been able to dedicate the same level of focus and effort on adaptation on as large a scale as India.**
- ❖ Furthermore, **India has also outlined the financial implications of the climate change goals**, in addition to outlining its plan for developing and enabling technology transfers to facilitate INDC achievement.
- ❖ **India's INDC centre around the country's policies and programmes for:**
 - **Sustainable Lifestyles** - To put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation.
 - **Cleaner Economic Development** - To adopt a climate friendly and a cleaner path than the one followed hitherto by others at corresponding level of economic development.
 - **Reducing Emission intensity of Gross Domestic Product (GDP)** - To reduce the emissions intensity of its GDP by 33 to 35 percent by 2030 from 2005 level.
 - **Increasing the Share of Non-Fossil Fuel Based Electricity** - To achieve about 40 percent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030 with the help of transfer of technology and low cost international finance including from Green Climate Fund (GCF).
 - **Enhancing Carbon Sink (Forests)** - To create an additional carbon sink of 2.5 to 3 billion tonnes of CO₂ equivalent through additional forest and tree cover by 2030.
 - **Adaptation** - To better adapt to climate change by enhancing investments in development programmes in sectors vulnerable to climate change, particularly agriculture, water resources, Himalayan region, coastal regions, health and disaster management.

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- **Mobilizing Finance** - To mobilize domestic and new & additional funds from developed countries to implement the above mitigation and adaptation actions in view of the resource required and the resource gap.
 - **Technology Transfer and Capacity Building** - To build capacities, create domestic framework and international architecture for quick diffusion of cutting-edge climate technology in India and for joint collaborative R&D for such future technologies.
- ❖ **India plans to reduce its emissions intensity by 33 - 35% between 2005 and 2030.** However, India 'actions towards climate change mitigation have a strong development impact. To this effect, it is focusing on accelerating the use of clean and renewable energy by 40% by 2030, and on promoting efficient use of energy. By 2030, we also intend to increase our carbon sinks by creating an additional capacity equivalent to 2.5 to 3 billion tonnes of CO₂ through significant afforestation efforts.

SOURCE: Ministry of Env. and Forest, Newspapers and COP website

17. Decline in Arctic sea ice does not sound good for the environment, warns NCPOR

- The National Centre of Polar and Ocean Research (NCPOR) has found a dramatic decline in the Arctic sea ice due to global warming. **The decline of sea-ice has led to localized increase in evaporation, air humidity, cloud cover, and rainfall.**
- **Arctic sea ice is a sensitive indicator of climate change** and has strong retaliatory effects on other components of the climate system.
- In its observations, NCPOR has noted that the **largest decline in Arctic sea ice in the past 41 years happened in July 2019.**
- In the last 40 years (1979-2018), the sea ice has been declining at a rate of '-4.7%' per decade, while its rate was found to be '-13%' in July 2019. If this trend continues, there would be no ice left in the Arctic sea by 2050, which would be dangerous for humanity and the entire environment.

18. Role of ancient algae in building a healthy global marine ecosystem

- A study of a microscopic ancient marine algae (Coccolithophores) led by the National Centre for Polar and Ocean Research (NCPOR) has found that there is a **decrease in the concentration of oceanic calcium carbonate (CaCO₃) in the Southern Indian ocean.**
- This decrease in **CaCO₃ is attributed to the increase in the concentration of another single-celled algae known as diatoms.** This, in turn, will affect the growth and skeleton structure of coccolithophores, with potential significance for the world ocean ecosystem.

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- Coccolithophores are single-celled algae living in the upper layers of the world's oceans. ***They have been playing a key role in marine ecosystems and the global carbon cycle for millions of years.***
- Coccolithophores calcify marine phytoplankton that ***produces up to 40% of open ocean calcium carbonate and responsible for 20% of the global net marine primary productivity.***
- Coccolithophores ***build exoskeletons from individual CaCO_3 plates consisting of chalk and seashells building*** the tiny plates on their exterior. Though carbon dioxide is produced during the formation of these plates, coccolithophores ***help in removing it from the atmosphere and ocean by consuming it during photosynthesis.***
- At equilibrium, ***coccolithophores absorb more carbon dioxide than they produce***, which is beneficial for the ocean ecosystem.
- ***Abundance and diversity enrichment of coccolithophores*** in the southern Indian Ocean is highly dependent on time and influenced by various environmental factors such as silicate concentrations, calcium carbonate concentration, diatom abundance, light intensity and availability of macro and possibly micronutrient concentrations.
- The research team's analysis revealed that the ***reduction of coccolithophore diversity in the early summer and late summer periods is due to an increase in the presence of diatom algae***, which occurs after sea ice breakdown with climate change and ocean acidification, and increases the silicate concentration in the waters of the Southern Ocean.
- The scientists also analyzed the maximum coccolithophore diversity during mid-summer in the Subtropical Zone (STZ) and Sub-Antarctic Zone (SAZ), ***which is controlled by elevated silicate, low temperature, and low salinity conditions.***
- ***These investigations are important for future intervention to bring positive changes in the marine ecosystem and global carbon cycle.***

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All India Radio (AIR--News From 23rd June to 25th June 2020)

SPECIFIC AIR NEWS NOT COVERED ABOVE

1. National TB Elimination Program 2019: Nagaland, Tripura awarded for best performing small states

- **Nagaland and Tripura** have been awarded for being the best performing small states under **National TB elimination programme** in the year 2019, as per annual TB Report 2020.
- In the categories of larger states with more than 50 lakh populations, **Gujarat, Andhra Pradesh and Himachal Pradesh** were awarded as best performing States.
- While, **Dadra and Nagar Haveli, and Daman & Diu** were chosen as the best performers in the category of Union Territory.

National TB elimination programme

- ❖ **On January 1, 2020**, India's TB control programme got a change of name. It is no longer known as the Revised National TB Control Programme (RNTCP) and **has been rechristened as the National Tuberculosis Elimination Programme (NTEP)**.
- ❖ The change in name is in line with the **larger goal of eliminating the disease by 2025**, five years ahead of the Sustainable Development Goals target.
- ❖ **It might be recalled that both in the case of leprosy and polio, the national programme underwent a name change** to align with the larger goal. In the case of leprosy, the name was changed from National Leprosy Control Program to National Leprosy Eradication Program in 1983. Similarly, for polio, the name of the programme was changed from National Program for Control of Poliomyelitis to Polio Eradication Program in India.
- ❖ The goal to end TB by 2025 got a much-needed boost with the **World Health Organization stating that the indigenously developed molecular test (TrueNat MTB)** for diagnosing pulmonary and extrapulmonary TB and rifampicin-resistant TB has high diagnostic accuracy.

SOURCE: The Hindu and Min. of health and Family Welfare

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2. World's first yoga University outside India launched in US

- As part of the 6th International Yoga Day commemorations, the ***world's first yoga university outside India has been launched in Los Angeles***, offering programmes that combine scientific principles and modern research approaches to the ancient Indian practice of yoga.
- ***The Vivekananda Yoga University (VaYU) was launched jointly by both countries.***

NPCI

- ❖ National Payments Corporation of India (NPCI), an ***umbrella organisation for operating retail payments and settlement systems in India***, is an initiative of Reserve Bank of India (RBI) and Indian Banks' Association (IBA) under the provisions of the Payment and Settlement Systems Act, 2007, for creating a robust Payment & Settlement Infrastructure in India.
- ❖ Considering the utility nature of the objects of NPCI, it has ***been incorporated as a "Not for Profit" Company*** under the provisions of Section 25 of Companies Act 1956 (now Section 8 of Companies Act 2013), with an intention to provide infrastructure to the entire Banking system in India for physical as well as electronic payment and settlement systems.
- ❖ ***With Immediate Payment Service (IMPS)***, India has become the leading country in the world in real time payments in retail sector. National Automated Clearing House (NACH), an offline web-based system for bulk push and pull transactions.
- ❖ ***NACH provides electronic mandate platform*** to register mandates facilitating paper less collection process for the corporates and banks. It provides for both accounts based and Aadhaar based transactions.
- ❖ To access these funds at doorstep & drive the financial inclusion in India, ***Aadhaar enabled Payment System (AePS) has been introduced***. Since inception it has become instrumental to increase accessibility of basic banking services in underserved areas.

SOURCE: NPCI website

Green shoots

- ❖ ***Green shoots is used to refer to signs which indicate recovery of the economy***. It draws on the fact that green shoots which appear above the earth are the first visible signs of growth of a plant. Particularly after a recession, green shoots are welcome as symbols of the fact that the economy is slowly treading the path upward.

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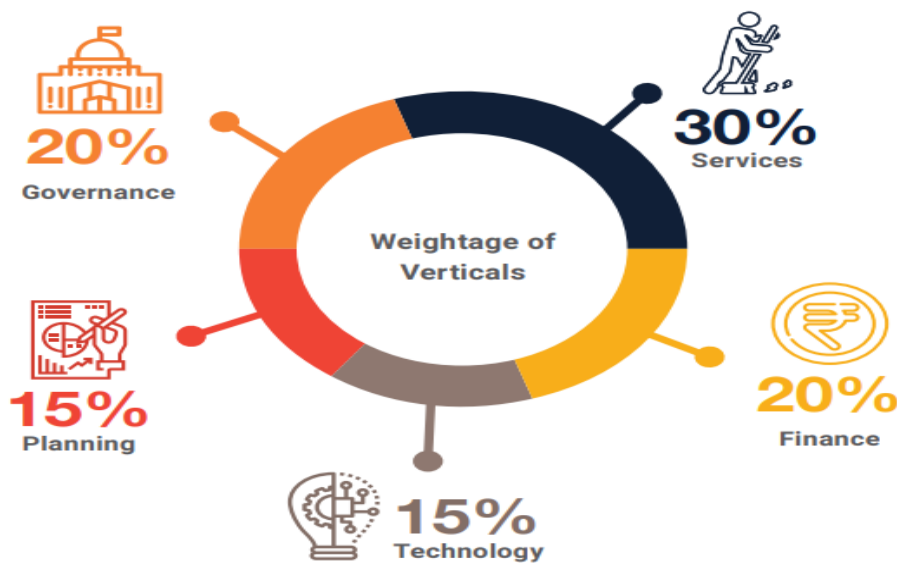
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- ❖ Positive economic data and statistics, including recovery of the banks whose failure literally brought on the financial crisis, the consistent rally of stock markets globally, recovery and stabilisation in the prices of commodities like oil and gold and reduction in unemployment among others, have been seen as green shoots.
- ❖ While there is no consensus on what exactly constitutes green shoots, in India, the improvement in industrial production figures, rise in the car sales, developments in the infrastructure sector, including the steadying of prices of cement and steel, have been seen as green shoots.

SOURCE: Economic Times

Municipal Performance Index

- ❖ The Municipal Performance Index is an **effort to assess and analyse the performance of Indian municipalities** based on their defined set of functions.
- ❖ MPI has been developed **by Ministry of housing and urban affairs**.
- ❖ The Municipal Performance Index **examines the sectoral performance of municipalities across a set of five verticals**, which encompass its mandated functionalities. The five verticals inculcate a total of 20 sectors and 100 indicators within its fold.



Weightages of the Verticals for Municipal Performance Index

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- ❖ Since cities across India show wide variations in level of development and population sizes, it was deemed fit to bifurcate them into different tiers for better comparison. ***The cities will be classified based on population in the following manner.***

Classification	Population Range (As per 2011 Census)
Small Towns	Population less than 50,000
Medium Towns	Population \geq 50,000 < 5 lakh
Large Towns	Population \geq 5 lakh < 1 million
Metropolitan Cities	Population \geq 1 million < 5 million
Megapolis	Population \geq 5 million

SOURCE: MPI paper by MoHUA

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SUMMARY AND RELEVANT TERMS
EXPLAINED FROM PIB AND AIR

DATED: 26.06.2020 TO 30.06.2020



Public Information Bureau (PIB-- News From 26th June to 30th June 2020)

1. Navy Inducts Indigenously Developed Torpedo Decoy System

@GS3- DEFENCE- Indigenization of Technology & Developing New Technology

- Anti - Submarine Warfare capability of the Indian Navy has received a major boost with the conclusion of a contract for **Advanced Torpedo Decoy System Maareech** capable of being fired from all frontline warships.
- Design & Development of this anti-torpedo decoy system has been undertaken indigenously DRDO labs (NSTL and NPOL). **Bharat Electronics Limited, a Defence PSU, would undertake the production of this decoy system.**

Torpedo Decoy System

- ❖ Torpedoes are **self-propelled weapons with a warhead** and can be used under or on the water surface. They are one of the mainstays of sea-warfare attack systems.
- ❖ There are **four basic types of torpedo countermeasures**: maskers, jammers, decoys, and anti-torpedo devices.
- ❖ The **decoy hover between a depth of 10 and 300 meters** listening for the incoming torpedo. A torpedo's active sonar is analyzed by the decoy and classified.
- ❖ **Doppler effect is important to deceiving torpedo logic** because it is one of the many checks the torpedo circuits can make during target verification. When the internal battery runs out, the decoy erases its software and sinks.
- ❖ **The survival capability of a ship is greater if the attacking torpedo can be detected** early and also at a range equal to or more than the escape range of the platform under attack. A fully integrated Maareech system has both torpedo detection and countermeasure capability.
- ❖ **Maareech detects and locate the incoming torpedo** and applies countermeasures to protect the naval platform against attack.
- ❖ This induction not only stands testimony to the joint resolve of the Indian Navy and DRDO towards **indigenous development of defence technology but has also given a major fillip to the government's 'Make in India' initiative and the country's resolve to become 'Atmanirbhar' in niche technology.**

SOURCE: Indian Express

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2. Department of Agriculture Cooperation & Farmers' Welfare, on Reforms in Indian Agriculture, Strategic Policy Shifts and Investment Opportunities

@GS3- Indian Agriculture- Reforms-Economics of Animal-Rearing

- India has a **strong advantage in the Agriculture sector which contributes to about 15% of the GDP** and livelihood for more than 50% of the population.
- The **country is the fourth largest producer of agrochemicals**, has the largest livestock population of around **31% of world's livestock and largest land area under irrigation**.
- **Food processing in India is less than 10% and the target is to increase it to 25%**. There is increasing demand for value-added health-fortified and processed food. The global organic market is growing at 12% per annum.
- The **agri ecosystem is also being strengthened by several enabling schemes like** the Agri Infra Fund of Rs. 1 lakh crore for post-harvest infrastructure, scheme for 10000 FPOs, special drive to include 25 million farmers who still do not have the KCC and developing a digital agri-stack which will be a key enabler for online marketplaces and smart agriculture.
- The per capita consumption of milk in India is still only 394 gms per day as compared to 500-700 gms per day in US & Europe.
- The **aim is to raise market demand in dairy sector from 158 million mt tonne presently to 290 million mt tonnes over next five years**. The share of the organized sector in milk processing is targeted to be raised to 50% from present 30-35%.
- **Animal tagging of five species through Pashu-Aadhar** – about 57 crore animals will have unique ID over next 1.5 years on digital platform for mapping their parentage, breed and productivity; improving cattle breeds through artificial insemination, IVF and surrogacy; and aiming to unleash rural entrepreneurs by growing better feed and fodder for animals.

Pashu-Aadhar

- ❖ Pashu Aadhaar, also **known as the Information Network for Animal Productivity and Health (INAPH)**, is being developed by the National Dairy Development Board (NDDB). If implemented successfully, INAPH will be the world's largest database of animals.
- ❖ **The first phase of the project is expected to cover 94 million productive "in milk" female cows and buffalos**. Once these are covered, male cows and calves, as well as stray animals, will be counted. UID technology will come with a cheap, tamper-proof polyurethane tag containing the cow's biological details.

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- ❖ Animals that get the ***Pashu Aadhaar will be provided with an ear tag that contains its own 12-digit UID***. This will help in maintaining data of livestock such as the pedigree of the animal, calving, milk production, artificial insemination, vaccination, feeding/nutrition history and ancestral information.
- ❖ In fact, one of the ***major causes behind zoonotic diseases is the difficulty faced*** in identifying and tracing affected animals.
- ❖ Although India has the world's largest livestock population and is the biggest milk producer, the ***country is not able to maximise its potential due to the abysmally low productivity and poor animal health***, which the government attributes to the absence of animal identification and traceability mechanisms.

SOURCE: Indian Express and Financial Express

3. Governing Council Meeting of National Productivity Council held under Ministry of Commerce and Industry

@GS2-Governance- Government Policies & Interventions in Various Sectors

- The 49th Governing Council Meeting of National Productivity Council (NPC), an ***autonomous body under Department for Promotion of Industry & Internal Trade (DPIIT)***, Ministry of Commerce & Industry, Government of India was held on 27th June.
- ***Some of the suggestions made in the meeting were-*** sector ***formulation of specific action plans by NPC especially in agriculture and logistics sectors, identification of Champion sectors*** which has the potential to drive the economy, adoption of technology to increase the productivity and delivering cost-effective solutions for marginalised sector, interlinking of academia and industry for creation of a highly skilled labor force, financing of specific products to support MSMEs and increase their productivity, national audit on security impact etc.

Champion sectors

- ❖ ***The government has identified "champion sectors"*** including leather, gems and jewellery, renewable energy, pharma and textiles, to provide hand holding for investors with a focus on improving India's manufacturing capabilities.
- ❖ ***The Union Cabinet has approved Rs 50 billion fund to promote 12 "Champion Services"***.
- ❖ ***The sectors identified for special focus are:***
 - IT and IT enabled services (ITeS)
 - Tourism and hospitality
 - Medical value travel
 - Transport and logistics

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- Accounting and finance
 - Audio visual
 - Legal
 - Communication
 - Construction and related engineering
 - Environment
 - Financial
 - Education
- ❖ The **manufacturing sector contributes about 15 per cent in the country's economy** and the government is aiming to increase it significantly.
 - ❖ It will increase share of **India's services sector in global services exports from 3.3% (in 2015) to 4.2 % (in 2022)**.
 - ❖ It will increase the **share of services in Gross Value Added (GVA) from 53% for India (in 2015) to 60% (in 2022)**.
 - ❖ Promoting manufacturing **will help in creating more jobs and pushing India's dwindling exports**. Boosting these twelve champion sectors will help in pushing overall economic growth and job creation
 - ❖ It would be important for the government to give **greater attention to sustain and enhance sunrise sectors such** as electronics, semi-conductors, solar panel manufacturing and electrical vehicles manufacturing. Focus on these sectors would help achieve goals including catering to domestic demand, reduce the dependence on import and boost exports through local employment generation.
 - ❖ To **revive employment generation and overall growth**, the focus has to be on employment-intensive sectors such as 'rubber and plastic products, electronic and optical products, transport equipment, machinery, basic metals and fabricated metal products, chemicals and chemical products, textiles and leather and leather products.

DON'T CONFUSE IT WITH CHAMPIONS PORTAL

- ❖ A web **portal 'CHAMPIONS' a tech-driven control room-cum-management information system**, was launched by the Ministry of Micro, Small Medium Enterprises (MSME), Government of India as part of its effort to support enterprises.
- ❖ CHAMPIONS stand for creation and harmonious application of modern processes for increasing the output and national strength. The **objective of the portal is to assist MSMEs in India to march them** into the big league as national and global champions.

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- ❖ The portal is for ***making the smaller units big by solving their grievances***, encouraging, supporting, helping and handholding. It is a real one-stop solution of MSME Ministry.
- ❖ It is a tech-packed control room-cum-MIS. In addition to ICT tools, including telephone, internet and video conference, the system is enabled by Artificial Intelligence, Data Analytics and Machine Learning.

SOURCE: MSME Website and Newspapers

4. Culture Ministry to celebrate “Sankalp Parva” to plant trees from 28th June to 12 July 2020

- Ministry of Culture recommends to plant five trees which have been identified by Prime Minister and which ***represent the herbal heritage of our country***.
- ***These trees are*** (i) “Bargad” (ii) “Awla” (iii) “Pepal” (iv) “Ashok” (v) “Bel”. He further said that if sapling of these trees is not available then people may do plantation of any other sapling of their choice.

5. President Promulgates Banking Regulation (Amendment) Ordinance, 2020

@GS3-Economic Development-Banking Sector

- ***In pursuance of the commitment to ensure safety of depositors across banks***, the President has promulgated the Banking Regulation (Amendment) Ordinance, 2020.
- ***The Ordinance amends the Banking Regulation Act, 1949*** as applicable to Cooperative Banks.
- The Ordinance seeks to protect the interests of depositors and ***strengthen cooperative banks by improving governance and oversight by extending powers already available with RBI*** in respect of other banks to Co-operative Banks as well for sound banking regulation, and by ensuring professionalism and enabling their access to capital.
- ***The amendments do not affect existing powers of*** the State Registrars of Co-operative Societies under state co-operative laws.
- ***The amendments do not apply to Primary Agricultural Credit Societies (PACS)*** or co-operative societies whose primary object and principal business is long-term finance for agricultural development, and which do not use the word “bank” or “banker” or “banking” and do not act as drawees of cheques.

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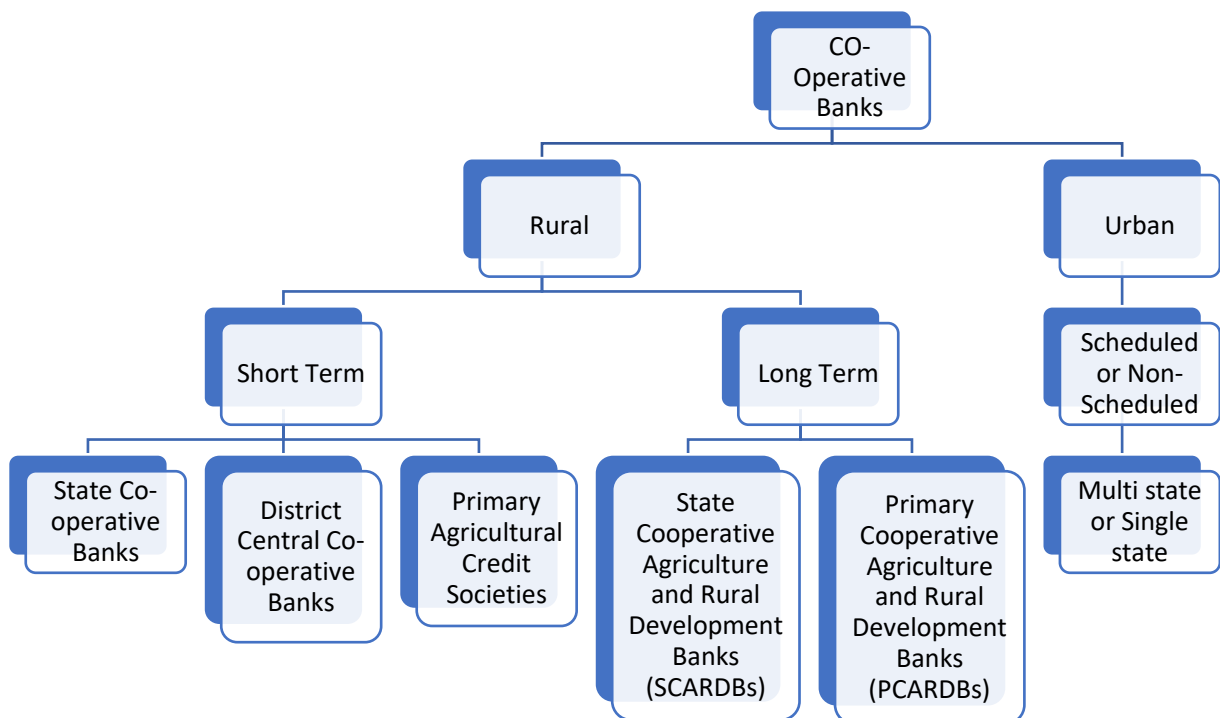
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Cooperative Banks

- ❖ **Co-operative banks are financial entities established on a co-operative basis** and belonging to their members. This means that the customers of a co-operative bank are also its owners. These banks provide a wide range of regular banking and financial services. However, there are some points where they differ from other banks.
- ❖ **In India, co-operative banks play a crucial role in rural financing**, with funding of areas under agriculture, livestock, milk, personal finance, self-employment, setting up of small-scale units among the few focus points for both urban and rural cooperative banks.
- ❖ **Broadly, co-operative banks in India are divided into two categories - urban and rural.**



- ❖ Large cooperative banks with **paid-up share capital and reserves of Rs.1 lakh** was brought under the purview of the **Banking Regulation Act 1949** with effect from 1st March 1966 and within the ambit of the Reserve Bank's supervision.
- ❖ **This marked the beginning of an era of duality of control over these banks.**
- ❖ Banking related functions (viz. licensing, area of operations, interest rates etc.) were to be **governed by RBI and registration**, management, audit and liquidation, etc. **governed by State Governments** as per the provisions of respective State Acts. In 1968, UCBS were extended the benefits of Deposit Insurance.

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What recent ordinance means?

- ❖ **Dual regulation between the RBI and Registrar of Co-operative Society (RCS) was worsening the mess at India's opaquely run co-operative banks.**
- ❖ **The decision assumes significance in the wake of scams in cooperative banks**, including the Punjab and Maharashtra Cooperative (PMC) Bank, affecting lakhs of customers who are facing difficulty in withdrawing their money due to restrictions imposed by the Reserve Bank of India (RBI).
- ❖ Till now, co-operative banks have suffered from loose regulation as the RBI didn't have complete control over the regulation of these banks, unlike commercial banks.
- ❖ Also, till now, **regulation of UCBs was split between the RBI and the Registrar of Co-operative Societies (RCS)**, while that of smaller co-operative banks is divided between National Bank for Agriculture and Rural Development (Nabard) and RCS.
- ❖ RCS reports to the central government. With the changes in the Banking Regulation Act, the **RBI will finally get more power over UCBs.**
- ❖ **The Banking Regulation Act (amendment) Ordinance enables cooperative banks** to raise money via public issue and private placement, of equity or preference shares and unsecured debentures, subject to the central's bank's approval. Under the extant norms, cooperative banks' access to capital is limited.
- ❖ **Larger co-operative banks will now be regulated like commercial banks.** With this amendment, the RBI will have more power to audit the books of urban co-operate banks and deal with wrongdoers.

SOURCE: Indian Express, Financial Express, Economic Times and RBI

6. Rise in carbon emission may lead to more extreme rainfall events in Chennai

@GS3-Climate Change & Degradation-Environment and Disaster Management.

- **India has the second highest fatality average due to hazards of climate change.** The situation is not going to get any better in the future also, especially for those living in coastal areas, including Chennai.
- A modelling study carried by the researchers of the Indian Institute of Technology (IIT) Chennai **points to such uncomfortable climate-change-related scenarios in the future.**
- **Chennai is one of the cities in India where the per capita greenhouse gas (GHG) emissions fall in the higher category.**

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- The geographical extent of the region receiving extreme rainfall event is likely to get worse as the duration of the event would get longer. The south Indian states have encountered an increased number of heavy rainfall events leading to massive floods.
- This research has been carried out as part of the **project 'Climate change impacts on coastal infrastructure and the adaptation strategies'** funded by the Department of Science and Technology, Government of India, **under the SPLICE-climate change programme**. The study used Weather Research and Forecasting (WRF) model for predictions.

Climate change impacts on coastal infrastructure and the adaptation strategies

- ❖ **India is the third worst-affected country due to climate- induced natural disasters.** The country's coastal regions, in particular, are highly vulnerable because of rapid urbanisation, high population densities and related economic activities such as agriculture, aquaculture, tourism, industries and trade.
- ❖ **The 7,517-km-long coastline is home to 260 million people or one- third of India's population,** who live in low-lying areas within 50 km of the seacoast and are perennially exposed to climate variabilities and extreme weather events.
- ❖ **Warming oceans leading to sea-level rise provide a source of thermal expansion of sea water, contributing to more intense and frequent storm surges** and cyclones in the coastal regions.
- ❖ Indian Institute of Technology Madras has launched a 'DST Centre of Excellence (CoE) in climate change impact on coastal infrastructure and the adaptation strategies' in the campus.
- ❖ The centre is being **established by Department of Science and Technology under Indo-German Centre for Sustainability.**
- ❖ It will **help communities along the country's coastline to deal with rise in sea levels** and increased frequency of tropical cyclones.
- ❖ It **will carry out research on predicting climate change impact on coastal communities** and coastal infrastructure such as ports, power plants and major industries.
- ❖ Studies will be undertaken to **evaluate the intensity and frequency of tropical cyclones and extreme rainfall events** under futuristic global-warming scenarios and the corresponding effect on the coastal infrastructure.

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- ❖ Further, **climate change and sea level rise impact on availability of water resources** and its quality due to enhanced saltwater intrusion and ineffective waste management will be investigated.

SOURCE: The Business Line and ORF

7. "Statistics Day" to be celebrated on 29th June, 2020

- The Government has been celebrating the Statistics Day, **to popularise the use of Statistics in everyday life and sensitise the public** as to how Statistics helps in shaping and framing policies.
- It has been designated as one of the Special Days to be celebrated at the national level and is **celebrated on the birth anniversary of Prof. P C Mahalanobis**, on 29th June, in recognition of his invaluable contribution in establishing the National Statistical System.
- Every year, **Statistics Day is celebrated with a theme of current national importance**, which runs for a year by way of several workshops and seminars, aimed at bringing about improvements in the selected area.
- **The theme of Statistics Day, 2019 was "Sustainable Development Goals (SDGs)"** and carrying this forward the theme of Statistics Day, 2020 is selected as SDG- 3 (Ensure healthy lives and promote well-being for all at all ages) & SDG- 5 (Achieve gender equality and empower all women and girls).

Sustainable Development Goals (SDGs)

- ❖ The **Sustainable Development Goals are the blueprint to achieve a better and more sustainable future for all**. They address the global challenges we face, including those related to poverty, inequality, climate change, environmental degradation, peace and justice.
- ❖ The **17 Goals are all interconnected**, and in order to leave no one behind, it is important that we achieve them all by 2030.
- ❖ The **17 Sustainable Development Goals (SDGs), with their 169 targets, form the core of the 2030 Agenda**. They balance the economic, social and ecological dimensions of sustainable development, and place the fight against poverty and sustainable development on the same agenda for the first time.
- ❖ **UNDP is well-placed to help implement the Goals** through our work in some 170 countries and territories.

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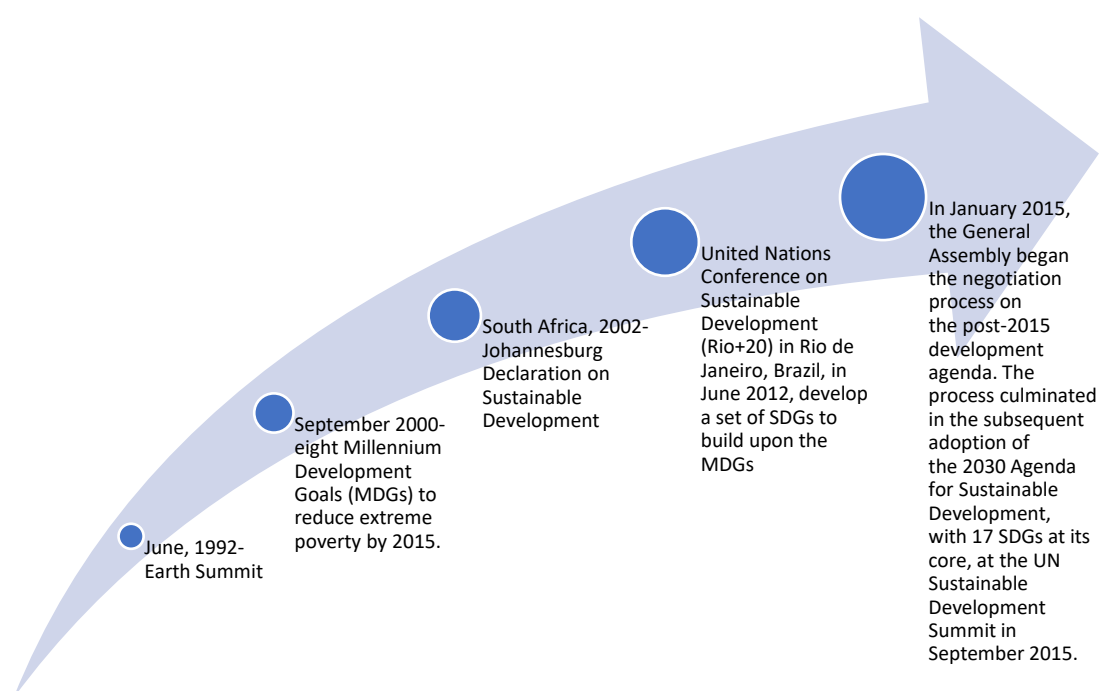
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Sustainable Development Goals



A brief chronology of evolution of SDGs



Other important development in 2015:

- ❖ **Sendai Framework** for Disaster Risk Reduction (March 2015)
- ❖ **Addis Ababa Action Agenda** on Financing for Development (July 2015)
- ❖ **Transforming our world:** the 2030 Agenda for Sustainable Development with its 17 SDGs was adopted at the UN Sustainable Development Summit in New York in September 2015.
- ❖ **Paris Agreement on Climate Change** (December 2015)

SOURCE: SDGUN

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8. Mobile soil testing lab by NFL

- To give further boost to the Soil Testing facility in the country **for promoting appropriate use of fertilizers**, NFL (National Fertilizers Limited) has launched five Mobile Soil Testing Labs for testing the soil samples at the doorstep of farmers free of cost.
- These Mobile Labs, **loaded with latest soil testing equipment**, shall be used for **macro and micronutrient** analysis of soil.

Macro and micronutrient in soil

- ❖ A **mineral element is considered essential to plant growth and development** if the element is involved in plant metabolic functions and the plant cannot complete its life cycle without the element.
- ❖ **Usually the plant exhibits a visual symptom indicating a deficiency** in a specific nutrient, which normally can be corrected or prevented by supplying the nutrient.
- ❖ **Sixteen elements are considered essential to plant growth.** Carbon (C), hydrogen (H) and oxygen (O) are the most abundant elements in plants.
- ❖ **The photosynthetic process in green leaves converts CO₂ and H₂O into simple carbohydrates** from which amino acids, sugars, proteins, nucleic acid and other organic compounds are synthesized.
- ❖ **Carbon, H and O are not considered mineral nutrients.** The supply of CO₂ is relatively constant. The supply of H₂O rarely limits photosynthesis directly but does indirectly through the various effects resulting from moisture stress.
- ❖ **The remaining 13 essential elements are classified as macronutrients and micronutrients** and the classification is based on their relative abundance in plants.
- ❖ **The macronutrients are nitrogen (N), phosphorus (P), potassium (K), sulfur (S), calcium (Ca) and magnesium (Mg).**
- ❖ **Compared to the macronutrients, the concentrations of the seven micronutrients** – iron (Fe), zinc (Zn), manganese (Mn), copper (Cu), boron (B), chlorine (Cl) and molybdenum (Mo) – are very small.
- ❖ **Five additional elements** – sodium (Na), cobalt (Co), vanadium (Va), nickel (Ni) and silicon (Si) have been established as essential micronutrients in some plants.

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- ❖ ***Micronutrients are often referred to as minor elements***, but this does not mean that they are less important than macronutrients. Micronutrient deficiency or toxicity can reduce plant yield similar to macronutrient deficiency or toxicity.
- ❖ ***When plant material is burned, the remaining plant ash contains all the essential and nonessential mineral elements except, C, H, O, N and S which are burnt off as gases.***

SOURCE: TNAU

9. Eco-friendly Synthesis of Gold Nanoparticles from Antarctic Bacteria for Therapeutic Use

@GS3-Awareness in the fields of Nano-technology- Indigenization of Technology & Developing New Technology

- The National Centre for Polar and Ocean Research (NCPOR) and the Goa University (GU) have ***successfully synthesized gold nanoparticles (GNPs) using psychrotolerant*** Antarctic bacteria through a non-toxic, low-cost, and eco-friendly way.
- Through a study, NCPOR and GU have established that 20-30-nm-sized spherical-shaped GNPs could be synthesized in a controlled environment. ***These GNPs can be used as a composite therapeutic agent clinical trials, especially in anti-cancer, anti-viral, anti-diabetic, and cholesterol-lowering drugs.***
- Nanoparticles (NPs) have wide variety of ***potential applications in the fields of biomedical, optical and electronics research.***

What is nanotechnology and nanoparticle (NP)?

- ***Nanotechnology is a technology*** that creates new and novel materials through controlled manipulation at a size range of 1 nm (Nanometer) to 100 nm (1 nm equals to 10^{-9} m).
- ***And NPs are those materials that are at least one dimension smaller than 100 nanometres.*** NPs have a high surface-to-volume ratio and they can provide tremendous driving force for diffusion, especially at elevated temperatures.
- ***Sintering***, i.e., coalescing into solid or porous mass by means of heating without liquefaction, can occur at lower temperatures at shorter time scales than larger particles.
- ***GNPs are melted at much lower temperatures*** (300 °C) than bulk gold (1064 °C).
- ***NPs have been found to impart various desirable properties to different day-to-day products.*** For example, GNPs are found to have greater solar radiation absorbing ability than the conventional bulk gold, which makes them a better candidate for use in the photovoltaic cell manufacturing industry.

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- GNPs are also found to be useful in the electronics industry.

10. PM FME Scheme to generate total investment of Rs 35,000 crore and 9 lakh skilled and semi-skilled employment

@GS3-Food Processing and Related Industries in India- Scope' and Significance, Location, Upstream and Downstream Requirements, Supply Chain Management.

- With a view to providing financial, technical and business support for upgradation of existing micro food processing enterprises, the **Ministry of Food Processing Industries (MoFPI)** has **launched an all India "Centrally Sponsored PM Formalisation of Micro food processing Enterprises (PM FME) scheme"** to be implemented over a period of five years from 2020-21 to 2024-25 with an outlay of Rs 10,000 crore
- **The expenditure under the scheme would to be shared in 60:40 ratio between Central and State Governments, in 90:10 ratio with North Eastern and Himalayan States, 60:40 ratio with UTs with legislature and 100% by Centre for other UTs.**
- **The Scheme adopts One District One Product (ODODP) approach** to reap benefit of scale in terms of procurement of inputs, availing common services and marketing of products.
- **The States would identify food product for a district** keeping in view the existing clusters and availability of raw material.
- **The ODOP product could be a perishable produce-based product or cereal based products** or a food product widely produced in a district and their allied sectors.
- **Operation Greens Scheme**, being **implemented by MoFPI has been extended from tomato, onion and potato (TOP) crops to other notified horticulture crops** for providing subsidy for their transportation and storage from surplus production area to major consumption centres.
- **The objective of intervention is to protect the growers of fruits and vegetables** from making distress sale due to lockdown and reduce the post-harvest losses.

Operation Greens Scheme

- ❖ In the budget speech of **Union Budget 2018-19**, a new Scheme **"Operation Greens"** was **announced on the line of "Operation Flood"**, with an outlay of Rs.500 crore to **promote Farmer Producers Organizations (FPOs), agri-logistics, processing facilities and professional management.**

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- ❖ Accordingly, the Ministry of food processing industries has formulated a scheme for ***integrated development of Tomato, Onion and Potato (TOP) value chain***.
- ❖ ***It also aims for price stabilisation for producers and consumers*** by proper production planning in the tomato, onion and potato clusters besides reduction in post-harvest losses by creation of farm gate infrastructure.
- ❖ ***National Agricultural Cooperative Marketing Federation of India (NAFED) will be the nodal agency to implement price stabilisation measures.***
- ❖ ***The scheme will have a 50% subsidy*** on transportation from surplus to deficient markets and 50% subsidy on storage, including cold storage.
- ❖ ***Objectives:***
 - ***Enhancing value realisation of TOP farmers*** by targeted interventions to strengthen TOP production clusters and their FPOs and linking/connecting them with the market.
 - ***Price stabilisation for producers and consumers*** by proper production planning in the TOP clusters and introduction of dual use varieties.
 - ***Reduction in post-harvest losses*** by creation of farm gate infrastructure, development of suitable agro-logistics, creation of appropriate storage capacity linking consumption centres.
 - ***Increase in food processing capacities*** and value addition in TOP value chain with firm linkages with production clusters.
 - ***Setting up of a market intelligence network*** to collect and collate real time data on demand and supply and price of TOP crops.

SOURCE: Economic Times and MoFPI

11. Vice President calls for bridging **digital divide** to ensure equitable education

@GS1- Effects of Globalization on Indian Society

- Artificial Intelligence, **Virtual Reality, and Augmented Reality** will enter classrooms more rapidly, and would transform the way teachers teach and students learn.

Virtual Reality (VR), and Augmented Reality (AR)

- ❖ ***VR is fully immersive***, which tricks your senses into thinking you're in a different environment or world apart from the real world. Using a head-mounted display (HMD) or headset like HTC Vive, Oculus Rift or Google Cardboard, you'll experience a computer-generated world of imagery and sounds in which you can manipulate objects and move around using haptic controllers while tethered to a console or PC.

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WORDS IN RED ARE RELEVANT TERMS

- ❖ INDICATES RELEVANT TERMS EXPLAINED

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- ❖ In the case of Google Cardboard, Samsung Gear VR and Google Daydream, it's a smartphone that creates the virtual experience, while the Oculus Go can do it all because it's a standalone VR headset.
- ❖ **AR overlays digital information on real-world elements.** Augmented reality keeps the real world central but enhances it with other digital details, layering new strata of perception, and supplementing your reality or environment. Examples of augmented reality experiences include Snapchat lenses and the game Pokemon Go.
- ❖ **Mixed Reality or MR brings together real world and digital elements.** In mixed reality, you interact with and manipulate both physical and virtual items and environments, using next generation sensing and imaging technologies.
- ❖ Mixed Reality allows you to see and immerse yourself in the world around you even as you interact with a virtual environment using your own hands—all without ever removing your headset.
- ❖ **Put simply, the difference between virtual, augmented, and mixed reality is:**
 - **Virtual reality (VR):** A fully immersive experience where a user leaves the real-world environment behind to enter a fully digital environment via VR headsets.
 - **Augmented reality (AR):** An experience where virtual objects are superimposed onto the real-world environment via smartphones, tablets, heads-up displays, or AR glasses.
 - **Mixed reality (MR):** A step beyond augmented reality where the virtual objects placed in the real world can be interacted with and respond as if they were real objects.

SOURCE: Forbes, Intel and other papers

Digital divide

- ❖ The "digital divide" - a term that **refers to the gaps in access to information and communication technology (ICT)** - threatens the ICT "have-nots", whether individuals, groups or entire countries. Education and learning lie at the heart of these issues and their solutions. The gaps that define the "learning digital divide" are thus as important as the more obvious gaps in access to the technology itself.
- ❖ The importance of ICT to both economic and social development explains the priority of bridging what has come to be known as the "digital divide".
- ❖ **This digital divide could be between** male and female; rural and urban; literate and illiterate etc.

SOURCE: OECD

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12. RRI comes up with simulation toolkit to ensure safety in secure quantum communication platforms

@GS3-Developing New Technology and Cyber Security

- *The secure part of any information transfer protocol is in the distribution of the key* used to encrypt and decrypt the messages.
- *Such standard key distribution schemes, usually based on mathematical resolution of problems, are vulnerable to algorithmic breakthroughs* and possibility to run new codes on the up and coming quantum computers.
- *The solution to ensuring the security of the key transfer process lies* in using the laws of quantum physics, wherein any eavesdropping activity will leave tell-tale signs and hence will be easily detected. This is achieved by using Quantum Key Distribution or QKD.
- *To tackle this challenge*, researchers from Raman Research Institute (RRI), an autonomous institute of the Department of Science & Technology (DST), Government of India have come up with a unique simulation toolkit for end-to-end QKD simulation named as 'qkdSim', which is based on modular principles that allow it to be grown to different classes of protocols using various underpinning technologies.
- *As QKD is growing rapidly in academic, industrial, government, and defence laboratories*, this newly developed simulation toolkit, accompanied by an instructive application to the uniquely designed B92 experiment, will be extremely influential.
- *The B92 is a QKD protocol*, which uses single photons and associated laws of Physics like the Uncertainty Principle and the No-Cloning theorem to assure perfect security.
- With the advent of the upcoming **National Mission on Quantum Technologies** and Applications, this work provides the bedrock for such developments in the country and hence will be of great interest.

National Mission on Quantum Technologies

- ❖ *Quantum Technologies & Applications is one of the 9 missions of national importance*, being driven by the Prime Minister's Science and Technology Innovation Advisory Council (PM-STIAC) through the (Principal Scientific Advisor) PSA's office to leverage cutting edge scientific research for India's sustainable development.
- ❖ *The government in its budget 2020 has announced a National Mission on Quantum Technologies & Applications (NM-QTA) with a total budget outlay of Rs 8000 Crore* for a period of five years to be implemented by the Department of Science & Technology (DST).

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- ❖ **Quantum technologies are rapidly developing globally with a huge disruptive potential.** The next generation transformative technologies that will receive a push under this mission include quantum computers and computing, quantum communication, quantum key distribution, encryption, crypt analysis, quantum devices, quantum sensing, quantum materials, quantum clock and so on.
- ❖ **Their applications which will receive boost include those in** aero-space engineering, numerical weather prediction, simulations, securing the communications & financial transactions, cyber security, advanced manufacturing, health, agriculture, education and other important sectors with focus on creation of high skilled jobs, human resources development, start-ups & entrepreneurship leading to technology lead economic growth.
- ❖ **Quantum Technology is based on the principles of quantum theory,** which explains the nature of energy and matter on the atomic and subatomic level. It concerns the control and manipulation of quantum systems, with the goal of achieving information processing beyond the limits of the classical world. Quantum principles will be used for engineering solutions to extremely complex problems in computing, communications, sensing, chemistry, cryptography, imaging and mechanics. Quantum field has not yet matured for commercialization, due to the extreme scientific challenges involved.
- ❖ **Quantum computers store and process information using quantum two level systems (quantum bits or qubits)** which unlike classical bits, can be prepared in superposition states. This key ability makes quantum computers extremely powerful compared to conventional computers when solving certain kinds of problems like finding prime factors of large numbers and searching large databases.
- ❖ The prime factorization quantum algorithm has **important implications for security** as it can be used to break RSA encryption, a popular method for secure communication.

SOURCE: PIB, DST and The Hindu

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All India Radio (AIR--News From 26th June to 30th June 2020)

SPECIFIC AIR NEWS NOT COVERED ABOVE

1. India calls for reformed multilateralism to restore faith in meaningful, equal partnerships

- The *"Alliance for Multilateralism"* launched by the French and German foreign ministers, is an informal network of countries united in their conviction that a rules-based multilateral order is the only reliable guarantee for international stability and peace.

#CNG, LNG and PNG

- ❖ *Natural gas as its name indicates is a Gaseous fuel*, consisting of 87-92% of Methane with a small percentage of other higher hydrocarbons.
- ❖ *Natural Gas catches fire only when it forms a 5-15% mixture with air whereas LPG catches fire when it forms 2% or above mixture with air.*
- ❖ *PNG, CNG & LNG are different forms of Natural gas* under varied temperature & pressure.
- ❖ *Piped Natural Gas (PNG) is generally under atmospheric temperatures* but the pressure can up to as high as 90 Kg/cm² in transmission lines and limited to less than 24 Kg/cm² in City Gas grids due to risk involved in movement of high-pressure gas inside crowded cities/towns.
 - PNG is not stored at one place but is continuously supplied through the pipeline from the source
 - Cheaper than LPG
- ❖ *LNG (Liquefied Natural Gas) is liquid form of Natural gas*, generally intended for transportation of large volumes through ships, where cross country pipelines are not feasible.
 - *Natural gas can be reduced to liquid state by cooling to 160 C* so that it will occupy 1/600th of its gaseous volume and it is called as Liquefied Natural Gas which eliminates more space for gas transportation. In fact, during the process of liquefaction of NG to LNG lot of impurities are eliminated. Hence LNG is the purest form of Natural Gas.
 - In India we have LNG import-cum-re-gasification terminals and we do not have liquefaction plants, as India is not a gas-exporting nation.

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- ❖ ***Compressed Natural Gas (CNG) means natural gas used as fuel for vehicles***, typically compressed to the pressure ranging from 200 to 250 kg/cm² in the gaseous state
 - It is used pre-dominantly for automotive purpose as the energy requirement for running a car (for 150-200 km).

#Dokra metal craft

- ❖ Dhokra is a form of ancient bell metal craft practiced by the Ojha metal smiths living in states like Jharkhand, Chhattisgarh, Odisha, West Bengal and Telangana.
- ❖ In Telangana, they are also known as Wojaris or Ohjas or Ojjis who make brass metal art objects using the complex but the perfect lost wax technique for casting of the metal.
- ❖ These Dokra artifacts are mainly made in brass and are highly unique wherein the pieces do not have any form of joints. The whole object is fully handcrafted.
- ❖ The method of making Dokra is done by combining the metallurgical skills with that of the lost wax technique.
- ❖ The uniqueness of this art form is that no two sculptures are the same, as they are not made out of a pre-designed cast.
- ❖ Recently Adilabad Dokra, along with Warangal durries bag GI tag.

SOURCE- Telangana Tourism and The Business line

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