

# NEWS ANALYSIS

## For Civil Services Exams

Issue II

August 16-30, 2017

### CONTENTS

#### **Lead article**

- *Niti Aayog favours simultaneous LS, assembly polls from 2024*

#### **National News**

- *Commission to examine the Sub-Categorization within OBCs*

#### **International Affairs and Issues**

- *India-Israel Industrial R&D and Technological Innovation Fund*
- *Cabinet approves MoU with Myanmar for the Conservation of Pagodas at Bagan*
- *MoU between India and Brazil for cooperation in the fields of Zebu Cattle Genomics and Assisted Reproductive Technologies*
- *2 New Earthworm Species Found In Kerala*

#### **Environment Issues & Affairs**

- *Workshop on implementation of Emergency Action Plan for Dams held:*

#### **Economy**

- *Approval for Public Sector Banks to amalgamate through an Alternative Mechanism (AM)*
- *'Swasth Bachche, Swasth Bharat'*
- *FarmerZone: The future of agriculture*
- *India, China jointly oppose trade-distorting agri subsidies*
- *YUVA – a skill development programme*

#### **Science and Technology**

- *India's Exclusive Rights to Explore Polymetallic Nodules Extended*
- *Commissioning of Second Ship of Landing Craft Utility MK-IV*
- *Atomic fuel reserve in Kazakhstan to ensure supply*
- *International Atomic Energy Agency (IAEA):*
- *New state of matter discovered*
- *World's smallest surgical robot created*
- *World's biggest X-ray laser gun*



**PANACEA BHARTI**  
**Institute**

- Opp. New Court, Near Bhaiwala Chowk, Ferozepur Road, Ldh
- PAU Gate No. 3 Road • SCO 37, 32 Sector Market, Chd. Road, Ludhiana

**M : 9888 405 906 | [www.panaceabharti.com](http://www.panaceabharti.com)**

## Lead article

### *Niti Aayog favours simultaneous LS, assembly polls from 2024*

The Niti Aayog has favoured conducting synchronised two-phase Lok Sabha and assembly elections from 2024 in “national interest”. All elections in India should happen in a free, fair and synchronised manner to ensure **minimum “campaign mode” disruption to governance**, the government think tank said in its report released recently.

**NITI Aayog has proposed the following in this regard:**

- To implement this in the national interest, a **focused group of stakeholders** comprising constitutional and subject matter experts, think tanks, government officials and representatives of various political parties should be formed to work out appropriate implementation related details.
- This may include drafting appropriate Constitution and statutory amendments, agreeing on a workable framework to facilitate transition to simultaneous elections, developing a stakeholder communication plan and various operational details.
- It has made **the Election Commission the nodal agency to look into the suggestion and set a “timeline” of March 2018 for this purpose.**

**Simultaneous elections is a good idea?**

- This will help save public money.
- It will be a big relief for political parties that are always in campaign mode.
- It will allow political parties to focus more on policy and governance.

**Need for simultaneous elections:**

- **Unnecessary expenditures:** Elections are held all the time and continuous polls lead to a lot of expenditure. More than Rs.1,100 crore was spent on the 2009 Lok Sabha polls and the expenditure had shot up to Rs4,000 crore in 2014.
- **Use of manpower:** Also, over a crore government employees, including a large number of teachers, are involved in the electoral process. Thus, the continuous exercise causes maximum harm to the education sector.

- **Security concerns:** Security forces also have to be diverted for the electoral work even as the country’s enemy keeps plotting against the nation and terrorism remains a strong threat.

**Significance of this proposal:**

The recommendation of the Aayog assumes significance as former president Pranab Mukherjee and Prime Minister Narendra Modi have pitched for simultaneous Lok Sabha and assembly polls. Mukherjee in his speech on the eve of this year’s Republic Day had favoured holding Lok Sabha and assembly elections together.

**Way ahead:**

The time is ripe for a constructive debate on electoral reforms and a return to the practice of the early decades after Independence when elections to the Lok Sabha and state assemblies were held simultaneously. It is for the Election Commission to take this exercise forward in consultation with political parties.

### *Northeast yet to implement SC judgement on parliamentary secretaries*

The Supreme Court had in July struck down an Assam legislation of 2004, which allowed the appointment of parliamentary secretaries, viewing it as “unconstitutional”. However, no state in the Northeast has implemented it as yet.

- Nagaland, Arunachal Pradesh, Manipur, Mizoram and Meghalaya, which appointed parliamentary secretaries as a matter of political convenience, have not yet implemented the SC judgment.

**Background:**

The Supreme Court, in July, held **unconstitutional a law enacted by Assam government in 2004 that allowed appointment of parliamentary secretaries enjoying the rank of minister of state.** As per the Act parliamentary secretary was given *the rank and status of a minister of state and exercised such powers, functions and duties as were assigned by the chief minister.*

- The court said, **“Article 194 does not expressly authorise the state legislature to create offices such as the one in question.”** Therefore, the legislature of Assam lacked the competence to create the post of

parliamentary secretaries.

- Arunachal Pradesh and Nagaland have 26 parliamentary secretaries, which is more than 43% of the total strength of the 60-member legislative assemblies of the two states.

### Who is a parliamentary secretary?

A Parliament Secretary is similar to a **Minister of State who assists a Minister in his or her duties.**

### Issues associated:

**Office of profit:** First, the Constitution specifies conditions which disqualify MPs, MLAs, Municipality and Panchayat members from membership of their respective institutions. The first is holding an “Office of Profit” under the state or central government. The essence of this disqualification is that there should be no conflict between the duties and interests of an elected member. MPs and MLAs hold the government accountable for its work, and if they held an “Office of Profit” under the government, they might be susceptible to government influence and might not discharge their constitutional mandate fully.

**Cap:** Second, the Constitution caps the number of members in the union and state cabinet. Article 164(1A) specifies that the number of ministers including the Chief Minister has to be within 15% of the total number of members of the Assembly (10% in the case of Delhi, which is not a ‘full’ state).

Over the last few years, courts across the country have struck down the appointment of Parliamentary Secretaries for violating the Constitution.

### *NITI Aayog’s 3-Year Agenda*

NITI Aayog has come out with a detailed plan for reforms in the economy, judiciary, regulatory structure and social sectors, in the three-year document to be implemented from 2017-18 to 2019-20.

### Key facts:

- NITI Aayog’s three year action agenda has set stiff economic targets and meeting those would benefit the economy.
- According to the ‘Three-Year Action Agenda’ India has good prospects of achieving over 8% growth within 2-3 years. Therefore, the chances of massive cut in the poverty rate in the upcoming decade are excellent.

**The action plan suggests a host of reforms to ensure prosperity for all citizens. Some important reforms proposed are as follows:**

- Link central government expenditure to future priorities, shifting additional allocations to high-priority sectors which are more likely to promote development.
- Expand expenditures by 2019-20 on education, health, agriculture, rural development, defence, railways, roads and other categories of capital expenditure.
- Facilitate urbanisation in the country and deal with key challenges like affordable housing, infrastructure development, public transport and promotion of Swachh Bharat.
- Eliminate corruption and black money, and increase tax base besides reforms in civil services and electoral process.
- Reform the judicial system by streamlining human resource availability and performance, increasing and strengthening avenues for dispute resolution and extensive use of ICT to improve efficiency.
- On the social sector, bring in changes in segments like education, skill development, health and issues facing specific groups, such as scheduled castes, scheduled tribes and women.
- Strengthen and streamline regulatory structure governing sustainability of environment.

### Background:

In May 2016, the Prime Minister’s Office directed Niti Aayog to come up with a 15-year vision document for the period up to 2031-32. This would be complemented with a seven-year strategy starting 2017-18 to convert the vision document into implementable policy and action as part of the National Development Agenda and a three-year draft action plan.

## *National news*

### *Commission to examine the Sub-Categorization within OBCs*

The Union Cabinet has approved a proposal for setting up of a **Commission under article 340 of the Constitution to examine the issue of sub-categorization of the Other Backward Classes (OBCs).**

- The Commission shall submit its report within 12 weeks from the date of appointment of the Chairperson of the Commission. The Commission shall be known as the Commission to examine the sub-categorization of Other Backward Classes.

**The proposed terms of references of the Commission are as follows:**

- **To examine the extent of inequitable distribution of benefits of reservation** among the castes/ communities included in the broad category of OBCs, with reference to the OBCs included in the Central list.
- To work out the mechanism, criteria, norms and parameters, in a scientific approach, **for sub-categorization** within such OBCs.
- **To take up the exercise of identifying** the respective castes/communities/ sub-castes/ synonyms in the Central List of OBCs and classifying them into their respective sub-categories.

**Is sub-categorisation permissible under the law?**

The Supreme Court in its order in **Indra Sawhney and others vs. Union of India** observed that there is no Constitutional or legal bar to a State categorizing backward classes as backward or more backward and had further observed that if a State chooses to do it (sub-categorization), **it is not impermissible in law.**

**How are OBC reservations offered at present?**

At present, there is a single Central OBC list, with entries from each State. People belonging to all of these castes can seek reservation from within the single 27% OBC reservation pie for Central government jobs and Central educational institutions. **Nine States, however, have already sub-categorised OBCs.** These are Andhra Pradesh, Telangana, Puducherry, Karnataka, Haryana, Jharkhand, West Bengal, Bihar, Maharashtra and Tamil Nadu. OBC reservation became a reality after the implementation of the Mandal Commission report, which categorised many castes as constituting backward classes and deserving of quotas. New castes have been added to the list over the years.

**What are the political and social implications**

**of the move?**

Politically, this can be seen as an attempt by the government to reach out to the most backward castes among the OBCs. At present, many feel that the more advanced OBC castes corner the lion's share of the benefits and have become influential. Not only will such a move offer more opportunities to the most backward castes among the OBCs but also give the government and the ruling party an opportunity to carve out a new political constituency.

## *International Affairs and Issues*

### *India-Israel Industrial R&D and Technological Innovation Fund*

The Union Cabinet has approved a Memorandum of Understanding (MoU) between India and Israel on "**India-Israel Industrial R&D and Technological Innovation Fund (I4F)**". The MoU was concluded in July, 2017.

**Key facts:**

- The MoU envisages promotion of bilateral Industrial R&D and Innovation cooperation in the fields of science and technology by extending support to joint projects for innovative or technology-driven new or improved products, services or processes.
- Such projects will lead to affordable technological innovations in focus areas of mutual interest such as water, agriculture, energy and digital technologies. Institutional support in building up consortia including private industry, enterprises and R&D institutions from India and Israel will be enabled through these collaborative projects.
- **India and Israel will make an contribution of four million US Dollars each for the Fund, both equivalent amount, annually for five years.**
- The Innovation Fund will be **governed by a joint Board** which will consist of four members from each country.

**Benefits of this MoU:**

- The activities supported by the Joint Fund would increase the techno-economic collaboration between the two countries by investing in jointly developed technology

projects and collaborations based on technological innovation.

- It would leverage the complementary strengths of Israel and India to encourage Israel-Indian joint projects that capitalize on both the national and global marketplace.
- It would provide a comprehensive set of support tools to encourage joint projects that convert “know-how” into “show-how”.
- It is expected that this will foster and strengthen the eco-system of innovation and techno-entrepreneurship in India and will contribute directly to the Start-up India programme.

### ***Cabinet approves MoU with Myanmar for the Conservation of Pagodas at Bagan***

The Union Cabinet has approved the Memorandum of Understanding (MoU) between India and Myanmar for the conservation of earthquake-damaged pagodas at Bagan, Myanmar.

#### **Significance of this MoU:**

- Implementation of the project will further strengthen India’s enduring ties in culture and religion with Myanmar.
- It will also generate immense goodwill for India among the people of Myanmar due to the religious significance as well as the touristic significance of the project.
- It will also contribute to India’s development partnership with Myanmar.
- It will be an opportunity to showcase India’s expertise in the restoration and conservation of monuments not only to the people of Myanmar but also to the tourists from other countries.

#### **About Bagan:**

Bagan in central Burma is one of **the world’s greatest archeological sites**. The Ayeyarwady (Irrawaddy) River drifts past its northern and western sides. From the 9th to 13th centuries, the city was **the capital of the Pagan Kingdom**, the first kingdom that unified the regions that would later constitute modern Myanmar. During the kingdom’s height between the 11th and 13th centuries, over 10,000 Buddhist temples, pagodas and monasteries were constructed in the Bagan plains alone.

#### ***MoU between India and Brazil for***

### ***cooperation in the fields of Zebu Cattle Genomics and Assisted Reproductive Technologies***

The Union Cabinet was recently apprised of Memorandum of Understanding (MoU) signed between India and Brazil for cooperation in the fields of Zebu Cattle Genomics and Assisted Reproductive Technologies. The MoU was signed in October, 2016.

#### **Highlights of the MoU:**

- The MoU aims to strengthen the existing friendly relations between India and Brazil and promote development of Genomics and Assisted Reproductive Technologies (ARTs) in Cattle through joint activities to be implemented through mutually agreed procedures.
- An implementation committee shall be created with an equal number of representatives of each party for the purpose of regularly determining the activities and developing work plans and subsequently their evaluation.
- It will be done through joint projects in the fields of Productivity Improvement of cattle and buffaloes, for the purpose of broadening the existing knowledge base on sustainable dairy development and institutional strengthening.

#### ***The MoU would promote and facilitate scientific cooperation and setting up of genomic selection programme in Zebu Cattle through:***

- Application of genomic in Zebu Cattle and their crosses and buffaloes.
- Application of assisted reproductive technologies (ARTs) in cattle and buffaloes.
- Capacity building in genomic and assisted reproductive technology.
- Related research and development in Genomics and ART in accordance with the respective laws and regulations of the two countries and is covered.

#### **About Zebu cattle:**

Zebu, sometimes known as **indicine cattle or humped cattle**, is a species or subspecies of domestic cattle originating in the Indian subcontinent. Zebu are characterised by a fatty hump on their shoulders, a large dewlap, and sometimes drooping ears. They are well adapted to withstanding high

temperatures, and are farmed throughout the tropical countries, both as pure zebu and as hybrids with taurine cattle, the other main type of domestic cattle. Zebu are used as draught oxen, dairy cattle, and beef cattle, as well as for byproducts such as hides and dung for fuel and manure. In 1999, researchers at Texas A&M University successfully cloned a zebu.

## ***2 New Earthworm Species Found In Kerala***

Scientists have discovered two new primitive species of earthworm in the Western Ghats mountain ranges in Kerala. They have named the new earthworm species **Drawida polydiverticulata** and **Drawida thomasi**.

- There had been sixteen *Drawida* species known from the state with ten of them being unique. The present discovery of two new species and five new local records further contributes to the vast species richness of the genus in Kerala.

### **About *Drawida polydiverticulata*:**

For *Drawida polydiverticulata*, its multiple lobes, also called diverticulum – an organ located in the front of its body – are unique amongst the members of the genus. This species was found to be widespread in the protected shola grasslands of the Munnar region, including Eravikulam National Park, Pampadun Shola National Park and Chinnar Wildlife Sanctuary, researchers said.

### ***About *Drawida thomasi*:***

The second new earthworm, *Drawida thomasi*, was collected at the Kozhippara Waterfalls near Kakkadampoyil, at the border between Malappuram and Kozhikode.

### **Background:**

To date, there are 73 species of the genus *Drawida* confirmed to be living in the Indian subcontinent. However, the greatest concentration (43 species) is found in the Western Ghats. The genus has an important centre of speciation in Kerala.

## ***Environment Issues & Affairs***

### ***Workshop on implementation of Emergency Action Plan for Dams***

### ***held:***

With the purpose of increasing awareness about dam safety measures in the country and finalisation of Emergency Action Plan (EAP) a stakeholders consultation Workshop was recently organised by Tamil Nadu Water Resources Department in collaboration with Central Water Commission. Delegates representing the stakeholders involved with relief and rescue operations and representatives from National Disaster Management Authority, State Disaster Management Authority, India Meteorological Department, State Health, Fire, Police, Revenue and Road Departments and Railways participated in the Workshop.

- Need for the preparation of EAP for each dam and involvement of all agencies in ensuring effective relief and rescue operations was highlighted during the meeting.

### **Background:**

**India ranks third globally with 5254 large dams in operation and 447 large dams under construction.** About 4% of these large dams (209) are over 100 years old and about 17% (876 dams) are more than 50 years old. Many of these dams are facing varying degrees of inadequacies in meeting the current standards of dam health and safety due to various reasons.

### **What's being done in this regard?**

The ongoing Dam Rehabilitation and Improvement Project (DRIP) under the Ministry of Water Resources, River Development and Ganga Rejuvenation is facilitating the rehabilitation of about 198 large dam projects in seven States, in addition to the institutional strengthening of the implementing agencies for sustainable dam safety initiatives.

### **About DRIP:**

DRIP is a project involving 9 implementing agencies (IAs) across seven states of India (Kerala, Madhya Pradesh, Orissa, Tamil Nadu, Karnataka, Uttarakhand, and Jharkhand) and targets rehabilitation of about 225 dam projects across the country.

### **Way ahead:**

Even though our dams are quite safe, in the rare event of a dam failure, extensive damage to property, environment and sometimes loss of life occurs. Managing the exigencies caused by a failure of a dam requires coordinated efforts

of all national and States agencies. The preparation of Emergency Action Plan (EAP) for all DRIP dams is one of the important activities under DRIP. This document defines clear roles for all concern agencies as well as Standard Operating Protocols during various stage of exigencies, as well as contains all technical details about the flood waves moving downstream affecting the downstream habitation.

## *Economy*

### *Approval for Public Sector Banks to amalgamate through an Alternative Mechanism (AM)*

The Union Cabinet has given in-principle approval for Public Sector Banks to amalgamate through an Alternative Mechanism (AM). The decision would facilitate consolidation among the Nationalised Banks to create strong and competitive banks.

#### **The salient features of the approval Framework for Consolidation of Public Sector Banks are as follows:**

- The decision regarding creating strong and competitive banks would be solely based on commercial considerations.
- The proposal must start from the Boards of Banks.
- The proposals received from Banks for in-principle approval to formulate schemes of amalgamation shall be placed before the Alternative Mechanism (AM).
- After in-principle approval, the Banks will take steps in accordance with law and SEBI's requirements.
- The final scheme will be notified by Central Government in consultation with the Reserve Bank of India.

#### **Background:**

In 1991, it was suggested that India should have fewer but stronger Public Sector Banks. However, it was only in May 2016 that effective action to consolidate public sector banks began to be taken by announcing amalgamation of six banks into the State bank of India. The merger was completed in record time, unlike earlier mergers of State Banks of Indore and Saurashtra.

#### **Need for fewer banks:**

There are now 20 PSBs other than SBI. The

banking scenario has changed since 1970/80 when banks were nationalised, with an increased banking presence from Private Sector Banks, non-banking Financial Companies, Regional Rural Banks, Payment Banks and Small Finance Banks.

**To meet the credit needs of a growing economy, absorb shocks and have the capacity to raise resources without depending unduly on the state exchequer,** presence of strong and competitive banks in public sector space is necessary.

#### **'Swasth Bachche, Swasth Bharat'**

'Swasth Bachche, Swasth Bharat' Programme, an initiative of **Kendriya Vidyalaya Sangathan** to prepare a physical Health and Fitness Profile Card for more than 12 lakhs of Kendriya Vidyalaya students was recently launched in Kochi.

#### **What you need to know about the programme?**

Swasth Bachche, Swasth Bharat programme will provide a **comprehensive and inclusive report card for children covering all age groups and children of different abilities.**

**Objective of the programme:** Making students, teachers and parents aware about the importance of good health and fitness and encouraging 60 minutes of play each day is an objective of the programme.

#### **Other objectives:**

- Imbibe values of Olympics and Paralympics amongst students.
- Bring back the childhood amongst children and make physical activity and recreational games an integral part of learning process.
- Motivate potentially outstanding performers in various games and sports of excellence, using technology for data capture and analytics, and giving access to schools, parents and teachers are also the objectives of the programmes.

#### **FarmerZone: The future of agriculture**

The Department of Biotechnology (DBT), under the Ministry of Science and Technology, had recently convened the Smart Agriculture Conclave in New Delhi, in partnership with the UK's Biotechnology and Biological Sciences Research Council

(BBSRC) and Research Councils UK (RCUK) India. The objective of this conclave was to set the stage for “FarmerZone”.

### **What you need to know about FarmerZone?**

**It is a collective open-source data platform for smart agriculture which will use biological research and data to improve the lives of small and marginal farmers.**

- FarmerZone has been envisioned by the DBT and aligns with the Indian Prime Minister, Mr. Narendra Modi’s call for effective decision-making in agriculture that integrates science, technology, innovation and the farm ecosystem.
- It is envisaged that “FarmerZone” will help cater to all needs of the farmer, from dealing with climate change, weather predictions and soil, water, and seed requirements to providing market intelligence.
- The FarmerZone platform will connect farmers and scientists, government officials, thought leaders in agriculture, economists and representatives from global companies who work in the big-data and e-commerce space to bring about technology-based localised agri-solutions.
- The platform will work on getting relevant quality data related to agriculture into the cloud, develop sentinel sites to help link with farmers and evolve PPP based enterprises for data delivery

### ***India, China jointly oppose trade-distorting agri subsidies***

India and China, in a joint proposal to the World Trade Organization (WTO), have called for elimination of trade-distorting agricultural subsidies given by developed countries. The proposal counters the efforts of some WTO member countries that are targeting the subsidies given by the developing economies to their poor farmers while letting the developed rich nations retain their huge farm subsidies.

- It is an important proposal by India and China in view of **the ongoing negotiations for the ministerial conference of the WTO to be held in Buenos Aires in December.**

### **What’s the issue?**

India and China have raised objections over developed countries, including the US, the EU and Canada, that have been consistently

providing trade-distorting subsidies to their farmers at levels much higher than the ceiling applicable to developing countries. In WTO parlance, these subsidies are called as **Aggregate Measurement of Support (AMS) or Amber Box support.**

- The subsidies by the developed countries amount to about USD 160 billion. On the other hand, countries like India provide a subsistence amount of about USD 260 per farmer annually. Most of the developing countries, including India and China, do not have AMS entitlements.
- Besides, developed members of the WTO have access to huge amount of AMS beyond their de minimis — the minimal amount of domestic support that are allowed even though they distort trade up to 5% of the value of production for developed countries, 10% for developing. In contrast, most developing members have access only to de minimis resulting in a major asymmetry in the rules on agricultural trade.

### **How are subsidies categorised?**

The WTO divides subsidies into **amber, blue and green box subsidies.** Amber box are trade-distorting subsidies, blue box are subsidies with restrictions designed to reduce distortion and green box subsidies are non-trade distorting subsidies. Direct cash transfers, coupons and subsidies that do not impact production are not considered trade-distorting subsidies and categorised as green box.

### **Way ahead:**

Elimination of this support, “India and China believe, should be the starting point of reforms rather than seeking reduction of subsidies by developing countries.

### ***YUVA – a skill development programme***

The **YUVA – a skill development programme** and an *initiative by Delhi Police under Pradhan Mantri Kaushal Vikas Yojana was recently launched.*

### **About the YUVA initiative:**

The ‘YUVA’ initiative by Delhi Police **aims to connect with youth by upgrading their skill as per their competencies.** It will help them to get a gainful employment under Pradhan Mantri Kaushal Vikas Yojna under the Ministry of Skill Development.

- Delhi Police has tied up with **National Skill Development Corporation (NSDC) and Confederation of Indian Industry (CII)** for providing mass job linked skill training for the selected youth.
- National Skill Development Corporation shall be providing skill training to the youth under 'Pradhan Mantri Kaushal Vikas Yojna' (PMKVY) and CII will provide job linked training through its Sector Skill Councils who are connected to industry and thereby provide job guarantee.

### Significance of this move:

The youth coming for skill training in a police station building will be a huge step in building up their confidence and faith in police organization and will go a long way in building a positive image of police in the long run.



### PMKVY:

Pradhan Mantri Kaushal Vikas Yojana (PMKVY) is **the flagship outcome-based skill training scheme of the Ministry of Skill Development & Entrepreneurship (MSDE)**. The objective of this skill certification and reward scheme is **to enable and mobilize a large number of Indian youth to take up outcome based skill training and become employable and earn their livelihood**. Under the scheme, **monetary reward would be provided to trainees** who are successfully trained, assessed and certified in skill courses run by affiliated training providers.

## Science and Technology

### India's Exclusive Rights to Explore Polymetallic Nodules Extended

India's exclusive rights to explore polymetallic nodules from seabed in Central Indian Ocean Basin (CIOB) have been extended

by five years. This has been approved unanimously in the 23rd session of International Seabed Authority (ISA) concluded recently at Kingston, Jamaica.

### Key facts:

- The rights extended are over 75000 sq. km of area in international waters allocated by International Seabed Authority for developmental activities for polymetallic nodules.
- The estimated polymetallic nodule resource potential in this region is 380 million tonnes, containing 4.7 million tonnes of nickel, 4.29 million tonnes of copper and 0.55 million tonnes of cobalt and 92.59 million tonnes of manganese.

### Background:

**India is the first country to have received the status of a pioneer investor in 1987 and was allocated an exclusive area in Central Indian Ocean Basin by United Nations (UN) for exploration and utilization of nodules.** India is one among the top 8-countries/ contractors and is implementing a long-term programme on exploration and utilization of Polymetallic Nodules through Ministry of Earth Sciences. This includes survey and exploration, environmental studies, technology development in mining and extractive metallurgy, in which significant contributions have been made.

### What are PMN?

Polymetallic nodules (also known as manganese nodules) are potato-shaped, largely porous nodules found in abundance carpeting the sea floor of world oceans in deep sea. Besides manganese and iron, they contain nickel, copper, cobalt, lead, molybdenum, cadmium, vanadium, titanium, of which nickel, cobalt and copper are considered to be of economic and strategic importance.

### About ISA:

**International Seabed Authority (ISA) is a UN body set up to regulate the exploration and exploitation of marine non-living resources of oceans in international waters.** India actively contributes to the work of International Seabed Authority. Last year, India was re-elected as a member of Council of ISA. India's nominees on Legal and Technical Commission and Finance Committee of the ISA were also elected last year.

### Commissioning of Second Ship of

## ***Landing Craft Utility MK-IV***

IN LCU L52, the second ship of landing craft utility MK- IV, was recently commissioned into the Indian Navy.

### **Key facts:**

- **IN LCU L52** is the second Landing Craft Utility (LCU) Mk-IV class to be inducted into the Indian Navy.
- The ship has been indigenously designed and built by Garden Reach Shipbuilders and Engineers, Kolkata.
- The commissioning of L-52 is yet another manifestation of the potential of the country's indigenous design and ship building capability.

### **Background:**

**LCU MK-IV** ship is an amphibious ship with the primary role to transport and deploy Main Battle Tanks, Armoured Vehicles, troops and equipment from ship to shore. These ships would be based in the Andaman and Nicobar Command and can be deployed for multirole activities like beaching operations, search and rescue, disaster relief operations, supply and replenishment and evacuation from distant islands.

The ship is capable of transporting various kinds of combat equipment such as Main Battle Tanks Arjun, T72 and other vehicles. The ship is fitted with state-of-the-art equipment and advanced systems like Integrated Bridge System (IBS) and Integrated Platform Management System (IPMS).

## ***Atomic fuel reserve in Kazakhstan to ensure supply***

Kazakhstan is all set to open **the world's first Low Enriched Uranium Bank in Oskemen**. The **International Atomic Energy Agency launched the project in 2010**.

- The bank will hold 90 tons of uranium—enough to power a large reactor for three years—and member states that withdraw from the bank will cover the cost of restocking.
- To ensure transport, the IAEA signed an agreement with Russia in 2015 to allow the material to travel through the country.

### **What is it for?**

- The bank will serve as **a source of last resort for low-enriched uranium** when

IAEA members are unable to either produce it or if it becomes unavailable on the international market for whatever reason.

- This function will help **non-proliferation efforts**. By providing uranium, it will disincentivise countries from developing their own uranium enrichment capacities—as even supposedly peaceful programs could see uranium enriched to a weapons-grade level.
- The bank seeks **to ensure that in the event of an international crisis or similar circumstances**, countries dependent on nuclear power would still have access to uranium.

The IAEA, which manages the reserve, has established a series of strict criteria for a member state to request and purchase uranium from the bank. These criteria include:

- First, **there must be a disruption in supply “due to extraordinary circumstances”** that would render the country in question unable to obtain fuel by the usual means.
- In addition, **the IAEA must have certified that nuclear material has not been diverted by the country in the past** and that the country complies with all safety measures.
- The buying country **must commit to using uranium only to produce fuel**, never for weapons, and not to enrich it or transfer it to third parties without the express consent of the IAEA.
- If these conditions are met and the uranium is purchased at the prevailing market price, the material will be introduced into special cylinders and transferred from northern Kazakhstan, where the bank is located, to a facility where LEU can be converted into fuel.

## ***International Atomic Energy Agency (IAEA):***

The IAEA is the world's centre of cooperation in the nuclear field. It was set up as **the world's “Atoms for Peace” organization in 1957 within the United Nations family**. It also seeks to promote the peaceful use of nuclear energy, and to inhibit its use for any military purpose, including nuclear weapons.

- It is not under direct control of the UN.

Though established independently of the United Nations through its own international treaty, the IAEA Statute, **the IAEA reports to both the United Nations General Assembly and Security Council.**

- The Agency works with its Member States and multiple partners worldwide to promote safe, secure and peaceful nuclear technologies.
- The IAEA Secretariat is headquartered at the Vienna International Centre in Vienna, Austria.
- The IAEA serves as an intergovernmental forum for scientific and technical cooperation in the peaceful use of nuclear technology and nuclear power worldwide.

### ***New state of matter discovered***

Scientists have discovered a potential new state of matter that may help explain phenomena like superconductivity.

#### **About the new state- electronic nematic state:**

The high-magnetic-field state of the heavy fermion superconductor CeRhIn<sub>5</sub> revealed a so-called electronic nematic state.

- In the new state, **the material's electrons are aligned in a way to reduce the symmetry of the original crystal**, something that now appears to be universal among unconventional superconductors.
- The appearance of the electronic alignment, called nematic behavior, in a prototypical heavy-fermion superconductor highlights the interrelation of nematicity and unconventional superconductivity, suggesting nematicity to be common among correlated superconducting materials.

#### **Background:**

A nematic state is most well known in liquid crystals, wherein the molecules of the liquid are parallel but not arranged in a periodic array. Nematic-like states have been observed in transition metal systems near magnetic and superconducting phase transitions. The occurrence of this property points to nematicity's correlation with unconventional superconductivity. The difference, however, of the new nematic state found in CeRhIn<sub>5</sub> relative to other systems is that it can be easily rotated by the magnetic field direction.

#### **What is superconductivity?**

Superconductivity is a phenomenon of exactly

zero electrical resistance and expulsion of magnetic flux fields occurring in certain materials, called superconductors, when cooled below a characteristic critical temperature. The phenomenon is largely used in magnetic resonance imaging (MRI), particle accelerators, magnetic fusion devices, and microwave filters.

### ***World's smallest surgical robot created***

Scientists in the UK have developed the world's smallest surgical robot with low-cost technology used in mobile phones and space industries. **The robot is called Versius.** The robot is controlled by a surgeon at a console guided by a 3D screen in the operating theatre.

#### **Functions performed by the robot:**

It mimics the human arm and can be used to carry out a wide range of procedures in which a series of small incisions are made to circumvent the need for traditional open surgery. These include hernia repairs, colorectal operations, as well as prostate, ear, nose and throat surgery.

#### **Benefits:**

- The robot is much easier to use than existing systems, and take up about a third of the space of current machines.
- It works like a human arm and contains technology that detects resistance to make sure the right amount of force is used when the instruments are inside the patient. Such procedures reduce complications and pain after surgery and speed up recovery time for patients.

### ***World's biggest X-ray laser gun***

The world's largest X-ray laser- European X-ray Free Electron Laser (XFEL)- is all set to open in Germany, promising to shed new light onto very small things by letting scientists penetrate the inner workings of atoms, viruses and chemical reactions.

#### **Key facts:**

- The 1.5-billion-euro (\$1.7 billion) facility, which took 8 years to build with funding from 11 countries, has been hailed as one of the largest and most ambitious European research projects ever.
- It boasts a list of superlatives: the light's brilliance is a billion times higher than that of the best conventional X-ray sources.
- The mega-project will generate extremely intense laser flashes, at a mind-boggling rate

of 27,000 per second, inside a 3.4-kilometer (2.1-mile) tunnel up to 38 meters (125 feet) below the northern city of Hamburg.

- This ultrafast strobe light will allow researchers for the first time to look deep inside matter and take snapshots and films at the nano-level.

**Applications:**

- The huge laser is “like a camera and a microscope that will make it possible to see more tiny details and processes in the nano-world than ever before. Teams from around the world will be able to map the atomic details of viruses, take 3-D images of the molecular make-up of cells or film chemical reactions as they happen.

- The applications are sweeping – images of biomolecules may help understand and treat illnesses, while a peek inside a building material might explain why it tears or cracks.
- The light beams can also be bundled to create extreme pressure and temperatures to study process like those at the Earth’s core.

**LET US GROOM YOU FOR YOUR DREAM CAREER**

**PANACEA BHARTI Institute**  
A PANACEA FOR YOUR DREAM CAREER

4000+ PREVIOUS SUCCESS

- Opp. New Court, Near Bhaibala Chowk, Ferozpur Road, Ludhiana.
- PAU Gate No. 3 Road, Gobind Nagar, Ludhiana.
- SCO 37, Sector 32 Mkt. Chandigarh Road, Ludhiana

**M : 9888 405 906** [www.panaceabharti.com](http://www.panaceabharti.com)