

**POLITY AND GOVERNANCE****Context: All India Judicial Services**

Well-intentioned policies aren't necessarily the best ones. The argument over whether a national system of recruitment at the district judge level is desirable is being reignited by President Droupadi Murmu's suggestion that the establishment of an All India Judicial Service (AIJS) will help diversify the judiciary by allowing bright young people from varied backgrounds to become judges through a merit-based process.

**AIJS, or the All India Judicial Service:**

- Similar to IAS, IPS, and other existing services, AIJS is a proposed service at the national level of India that aims to identify and develop gifted persons for the judicial service while guaranteeing participation from underrepresented social groups.
- Currently, state governments oversee the selection of district judges under Articles 233 and 234 of the Constitution. Recruitment is handled by State Public Service Commission under the direction of High Courts.
- The Union government has been debating official policy with regard to AIJS for a long time. But as the Union Law Minister revealed in the Rajya Sabha last year, there isn't agreement on the plan. Thirteen High Courts were against the plan, with only two supporting it.

**Benefits and necessity of AIJS:**

- **Clear pendency of cases:** There are approximately 5400 open positions in the lower judiciary and 2.78 crore cases are backlogged.
- **Financial Incentives:** Because state services pay less, they frequently struggle to draw in top people.
- **Subjectivity and Training:** There are insufficient training resources in state-run institutions;
- **Prevent favouritism and nepotism in the recruitment process for judges:** subjectivity and nepotism taint the existing appointments.
- **Ensure the quality of justice:** A better recruitment strategy is required due to the judicial officials' diminishing calibre.
- **Additional benefits:** AIJS seeks to improve judicial effectiveness, standardize pay, hasten hiring, and guarantee consistent training.

**Arguments against AIJS:**

- It's possible that the AIJS is not a cure-all. Because there is room for reservation and a clear understanding of local customs and conditions, the current system of recruiting district judges through the respective High Courts and other subordinate judicial officers through public service commissions is more conducive to ensuring diversity.
- Unlike the civil service, judges must be well-versed in the relevant topics in order to perform their duties as judges; they do not receive decision-making support from a more senior bureaucracy.
- The Constitution's Article 312 as modified by the 42nd Constitutional, which calls for the establishment of an AIJS, a parliamentary bill, and a resolution approved by the Council of States with a two-thirds majority.
- This Constitution acknowledges that in order for this proposition to become a reality, laws controlling the States' inferior judiciaries will need to be replaced by a federal statute. It seems improbable that every State will consent to the centralization of one additional topic under its purview.
- On the surface, it could seem that a national service program for judges that is on par with the position of district judges, with a 60-year superannuation age, will entice young attorneys to apply. It is important to remember, though, that there is a lack of national consistency in legal education.
- After enrolling, attorneys usually evaluate court service more on the basis of real-world experience than academic merit. Top students are unlikely to take the national judicial service recruiting exam, especially those from the few premium legal schools.
- In contrast, it will seem more advantageous to pursue options like litigation, joining law firms, and entering the corporate sector.
- Furthermore, the uncertainty surrounding professional advancement may make a national judicial service unappealing, as the number of district judges promoted to the High Courts is significantly lower than that of judges from the Bar.

**Conclusion:**

Over the years, numerous law commissions, parliamentary panels, and most recently, NITI Aayog, have all advocated the idea of AIJS. Together, the Supreme Court and Parliament should consider the advantages and disadvantages of the matter and decide on a course of action.

**SCIENCE AND TECHNOLOGY**

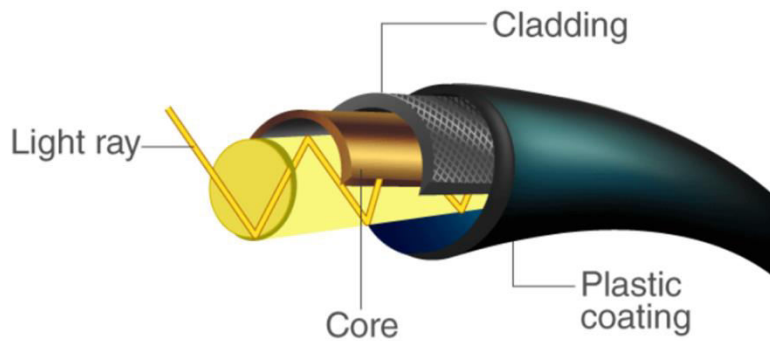
**Context: Fibre Optic Cables, Evolution of Internet, Challenges in Fibreisation, Government's Initiative In News, why?**

Optical fibres have become a reality for high-speed data transmission in the modern day due to the growing need for high-speed internet connections.

**An optical fibre: what is it?**

**About:**

- Optical fibers are glass fibers that are thin and cylindrical, usually about the same diameter as a human hair.
- These fibers have the amazing capacity to send data in almost any format—text, photos, audio, video, phone calls, and any other type of digitized data—over long distances at speeds close to the speed of light.
- Because of their strength, low weight, and extraordinary flexibility, they can be buried underground, submerged underwater, or wound around a spool.
- Glass fibers, as opposed to the widely used copper cables, were suggested as a better communication channel by physicist Charles Kao over sixty years ago.
- He shared in the 2009 Nobel Prize in Physics for his ground-breaking work in fiber optic communication.



**Working:**

- Principle of Total Internal Reflection: The foundation for guiding light in optical fibers is the phenomenon of Total Internal Reflection (TIR).
- Light may not leave a medium if it moves at a certain angle from one with a higher refractive index—like glass—to one with a lower index—like air. Instead, it may be completely reflected back into the medium. We refer to this phenomenon as TIR.

**Signal Encoding:**

- Binary digits (zeroes and ones) are commonly represented by quickly flickering light pulses that carry information in optical signals.
- These optical signals are sent into one end of an optical fibre, and because of total internal reflection, they pass through the glass walls by reflecting and bouncing.

**Signal Transport:**

- The encoded signals are transported over several kilometres via optical fibre with little to no loss of signal integrity.
- A receiver at the destination replicates the data that was encoded in the optical signal that was transmitted.

**Advantages:**

**High Speed:**

- Copper cannot achieve the standardized performance and increased bandwidth that fibre can offer, up to and including 10 Gbps.
- Fiber has a higher bandwidth than copper line, allowing it to convey more information significantly more efficiently.

**Transmission Range:**

- Data can flow at higher speeds and longer distances because fiber-optic cables transfer data in the form of light, which means that very little signal loss happens during transmission.
- Interference-resistant: Compared to copper wire, fiber-optic cable is also far less prone to noise and electromagnetic interference.
- It is so effective that, in most circumstances, 99.7% of the signal reaches the router.

- Durability: Unlike copper wire, fiber-optic cable is impervious to a wide range of environmental variables.
- Since glass is an insulator, no electric current can pass through the core.

**What is the state of fibre optics in India right now?**

- Since then, fibre optics technology has found extensive application in sensing, laser technology, medical science, and telecommunication.
- In the Union Budget of 2020, the Indian government launched a national effort aimed at securing communication and advancing quantum research. The "National Mission on Quantum Technologies and Applications" is expected to cost Rs 8,000 crore over the course of five years.
- Fibre optic networks are expanding at an accelerated rate, with the potential to reach our houses. Fibre optic communication and quantum optics are both at the forefront of a new age.

**Conclusion:**

Fiber optic technology has greatly impacted the world in many ways providing faster internet speeds, improved communication and advancements in various fields such as medicine, industry and research. As technology continues to evolve, it is likely that we will see more ways in which fibre optic technology will shape our world. Fiber optic cables is very reliable with less signal interference as well as less cable maintenance compared to traditional copper cables. As it is an essential component of digital infrastructure so the govt of India has taken necessary steps in expanding it at an accelerated rate.

**PRELIM FACTS****1.Global Biodiversity Framework Fund**

**Context:** Recently, experts said that the world's new biodiversity framework fund is without any real financial commitment to meet conservation targets.

- It is created to ramp up investment in nature restoration and renewal.
- It has been designed to mobilize and accelerate investment in the conservation and sustainability of wild species and ecosystems, whose health is under threat from wildfires, flooding, extreme weather, and human activity including urban sprawl.
- The framework was adopted at the 15th Conference of the Parties (COP15) to the UN Convention on Biological Diversity last December.
- The fund was established at the 7th Assembly of the Global Environment Facility in Vancouver, Canada.
- It will be managed by the Global Environment Facility (GEF), and will raise funds through private, philanthropic and government investments.
- It will help countries achieve the 23 targets set under the Kunming-Montreal Global Biodiversity Framework (KMGBF).
- At the 15th Conference of Parties (COP15) to the UN Convention on Biological Diversity "Kunming-Montreal Global Biodiversity Framework" (GBF) was adopted.
- GBF includes 4 goals and 23 targets for achievement by 2030.

**2.Intergovernmental Negotiating Committee (INC-3)**

**Context:** The 3rd session of the Intergovernmental Negotiating Committee was recently held at Nairobi, Kenya.

- Intergovernmental Negotiating Committee is a committee that was created to facilitate five meetings to negotiate a global framework.
- INC-3 targets for a legally binding instrument on plastic pollution.
- INC-3 session holds immense significance in shaping the global response to plastic pollution.
- Global Coalition for Plastics Sustainability was announced by it.
- The INC-3 delegates based their discussions on a Zero Draft of the future instrument.
- The UN plastic pollution treaty will introduce new global binding rules to regulate production and consumption.
- These rules will include measures to Ban, Phase-out, Phase-down, Circulate, Manage high-risk plastic products.
- INC-2 – The second session of the INC took place at the UNESCO Headquarters in Paris, France in June 2023.

**3. Himalayan Chandra Telescope**

- Astronomers from the Indian Institute of Astrophysics (IIA) have photographed the enigmatic Comet P12/Pons-Brooks by using the Himalayan Chandra Telescope (HCT) from the Indian Astronomical Observatory in Hanle, Ladakh.

- It is a celestial object that has been playfully nicknamed the 'Devil Comet' or likened to the 'Millennium Falcon' for its distinctive appearance.
- This comet, first discovered in the year 1812, completes an orbit around the Sun every 71 years. Its recent activity has been particularly striking, with multiple outbursts of gas and dust that have dramatically increased its brightness.
- The comet's atmosphere, visible as a spherical halo, spans an impressive 3,50,000 kilometers in diameter

#### **Key facts about Himalayan Chandra Telescope**

- It is a 2-meter optical-infrared telescope named after Nobel laureate Subramaniam Chandrasekhar.
- It is at the Indian Astronomical Observatory (IAO) in Hanle near Leh in Ladakh.
- It is currently the tenth highest optical telescope in the world, situated at an elevation of 4,500 meters.
- The telescope remotely operated using a dedicated satellite communication link from the Centre for Research & Education in Science & Technology (CREST), Indian Institute of Astrophysics (IIA), Bengaluru.
- Imaging instruments include a Faint Object Spectrograph, a near infra-red and an optical CCD camera.

#### **4. INS Imphal**

- The crest of Yard 12706 (Imphal), the third amongst the four Project 15B stealth guided missile destroyers, was unveiled by Raksha Mantri Shri Rajnath Singh in New Delhi on November 28, 2023.
- It is the third in the Visakhapatnam-class stealth-guided missile destroyers.
- It is among the largest Destroyers constructed in India, with an overall length of 164 metres and a displacement of over 7500 tonnes.
- Speed: Over 30 knots (approx 55 Kmph).
- The ship is a potent platform capable of undertaking a variety of tasks and missions, spanning the full spectrum of maritime warfare.
- The ship boasts of a high indigenous content of approximately 75% that includes Medium Range Surface-to-Air Missiles, BrahMos Surface-to-Surface Missiles Indigenous Torpedo Tube Launchers, Anti-Submarine Indigenous Rocket Launchers (Larsen & Toubro, Mumbai) 76mm Super Rapid Gun Mount (BHEL, Haridwar).
- The crest design depicts the Kangla Palace on the left and 'Kangla-Sa' on the right.
- The Kangla Palace is an important historical and archaeological site of Manipur, and was the traditional seat of the past kingdom.
- With a dragon's head and lion's body, the 'Kangla-Sa' is a mythical being from Manipur history, and is symbolic as the guardian/protector of its people. 'Kangla-Sa' is also the state emblem of Manipur.
- It is the first capital warship to be named after a city in the North-east, Imphal -- the capital of Manipur.

#### **5. Nolamba Dynasty**

**Context:** Ancient inscriptions, hero stones, and idols of Shiva Linga and Nandi have been unearthed during recent research about the history of Nolamba Pallavas.

#### **About the Nolamba Dynasty:**

- They were one of the significant political powers in South India.
- The Nolambas ruled from the 8th to the 12th centuries C.E. over an area traditionally called Nolambavadi, which extended over south-east Karnataka and parts of Tamil Nadu and Andhra Pradesh.
- They ruled first as feudatories to Pallavas, Chalukyas of Badami, Gangas, and Rashtrakutas, and later to Chalukyas of Kalyani.
- Nolambas commonly referred to themselves as Nolamba Pallava in several inscriptions.
- Their earlier capital was Chitradurga, which they later shifted to Hemavati in modern Andhra Pradesh. Hemavathi was the capital between the 8th and 10th centuries AD.
- Origin: Mangala Nomabathi Raja (735–785 A.D.) was considered the founder of the Nolamba dynasty.
- Inscriptional evidence suggests that they came into existence as governors when the Pallavas and Chalukyas were supreme powers.
- With the seizure of Badami by the Pallava ruler Mamalla Narasimhavarman I, the Chalukyas ceded the territories that were ruled by the Banas and Vaidumbas to the Pallavas.
- The Banas and Vaidumbas thus became feudatories of the Pallavas.
- The Nolambas, who were perhaps related to the Pallava family, governed the region adjacent to these lands of Pallava feudatories, namely the Banas and Vaidumbas.



- Sometime later, during the rule of Vikramaditya I, the Chalukyas regained their lost territories. The Banas and Vaidumbas thus had to change their political relationship back to the Chalukyas.
- The Pallava chiefs, who were adjacent to the Banas and Vaidumbas, were defeated by the Chalukyas, who soon came under their protection. These Pallava chiefs soon came into existence under the name of “Nolambas”.
- Decline: Nolambas were overrun by the Ganga king Marasimha, who boasts of having destroyed the Nolamba family and had the title Nolambakulantaka.
- Three grand temple complexes that are attributed to this dynasty's glory are the Kalleshwara Temple in Aralaguppe, the Bhoganandishwara Temple in Nandi, and the Ramalingeshwara Temple in Avani.
- The Nolambas were Shaivites, and the temples they built were dedicated to Lord Shiva.

### ANSWER WRITING

**Q. River interconnection can offer workable answers to the multifaceted, interconnected issues of flooding, droughts, and disrupted navigation. Analyze critically.**

In contrast to the states in the south, the Himalayan perennial rivers that flow through the northern plains of India provide a plenty of water. The goal of the river interlinking project is to connect 60 rivers so that water can be moved from the surplus to the shortage basin. The project's goal is to connect 60 rivers, including the Mahanadi-Godavari, Daman Ganga-Pinjal, and Ken-Betwa.

#### Proposed Benefits

- **Hydropower Generation:** According to the river interlinking project, a total of 34 GW of power would be produced, helping India meet its increasing energy needs and fulfill its commitment to the Paris Climate Deal.
- **Flood Control:** The goal is to preserve seasonal flows for hydropower production, flood control, and irrigation. For example, the connection will move the surplus flows of the Gandak, Ghagra, and Kosi to the west.
- **Drought Mitigation:** The goal of drought mitigation is to move water to areas that are vulnerable to drought. It is suggested to connect the Ganga and Yamuna to distribute excess water to regions in Gujarat, Rajasthan, and Haryana that are vulnerable to drought.
- **Year-round Waterway Connectivity:** This solution will tackle the low water levels in the rivers of southern India and offer year-round waterway connectivity. 10,000 km of navigation will be created as part of the project, which will lower transportation costs.
- **Benefits of Irrigation:** By connecting rivers, the nation's overall capacity for irrigation will grow. In the areas with little water, it will give an extra 35 million hectares of irrigation

#### Concerns with the Project

- **Perennial Rivers are Not So Perennial:** According to a recent study of rainfall data, river basins experiencing surplus water dropping in those experiencing scarcities have growing monsoon shortages.
- **Federal Issue:** The states have historically disagreed with each other over water sharing. Mahadayi conflicts and Cauvery are two examples.
- **Associated Nations:** Persuading neighbours will not be an easy feat. Bangladesh, for instance, is less likely to accept India's interlinking scheme because it is a lower riparian state.
- **High Environmental Cost:** Building dams will cause the Himalayan woods to be submerged and cause a large-scale population displacement. For instance, 23 square miles of forest area will be consumed by the Ken-Betwa project. It would also negatively impact a number of biological elements, including aquatic life, mangrove growth, and delta creation.

#### Conclusion:

A case-by-case analysis should be conducted to determine the necessity and viability of river interlinking, with sufficient attention paid to mitigating federal concerns and environmental costs. Local remedies (such as improved irrigation techniques) and watershed management ought to be prioritized in addition.

### MCQs

1. Consider the following statements about Global Biodiversity Framework Fund
  1. The framework was adopted at the COP15 to the UN Convention on Biological Diversity.
  2. The fund will be managed by the Global Environment Facility (GEF).
  3. The fund will be used by the countries to achieve the 23 targets set under the Kunming-Montreal Global Biodiversity Framework (KMGBF).

How many of the statements given above are correct?

- a) Only one
  - b) Only two
  - c) All three**
  - d) None of the above
2. Consider the following statements about Intergovernmental Negotiating Committee (INC-3)
1. INC-3 targets for a legally binding instrument on plastic pollution.
  2. Global Coalition for Plastics Sustainability was announced by it.
- Choose the incorrect statements:
- a) 1 only
  - b) 2 only
  - c) Both 1 and 2
  - d) Neither 1 nor 2**
3. Consider the following statements regarding the Himalayan Chandra Telescope:
1. It is an optical-infrared telescope located in Ladakh.
  2. It is remotely operated from the Centre for Research & Education in Science & Technology (CREST), Bengaluru.
- Which of the statements given above is/are correct?
- a) 1 only
  - b) 2 only
  - c) Both 1 and 2**
  - d) Neither 1 nor 2
4. INS Imphal, a stealth-guided missile destroyer, belongs to:
- a) Kolkata class
  - b) Delhi class
  - c) Rajaput class
  - d) Visakhapatnam class**
5. Consider the following statements
1. They were one of the significant political powers in South India.
  2. They ruled from the 8th to the 12th centuries C.E. over an area that extended over south-east Karnataka and parts of Tamil Nadu and Andhra Pradesh.
  3. Their earlier capital was Chitradurga, which they later shifted to Hemavati in modern Andhra Pradesh.
  4. Three grand temple complexes that are attributed to this dynasty's glory are the

Kalleshwara Temple in Aralaguppe, the Bhoganandishwara Temple in Nandi, and the Ramalingeshwara Temple in Avani.

The above-mentioned statements refer to which one of the following dynasties?

- a) Nolamba Dynasty**
  - b) Chalukya Dynasty
  - c) Gangas Dynasty
  - d) Pallava Dynasty
6. Recently, 'Hammer Candlesticks' was in the news. It is related to which one of the following fields?
- a) Mining
  - b) Trading**
  - c) Decoration
  - d) Chemical Synthesis
7. Recently, 'P12/Pons-Brooks' was in the news. It is a/an
- a) Exo-planet
  - b) Newly discovered protein molecule
  - c) Comet**
  - d) Black hole
8. Consider the following statements about Pressmud
1. It is a residual by-product in the sugar industry.
  2. It is used as a feedstock for biogas production through anaerobic digestion.
  3. It eliminates pre-treatment costs as it lacks the organic polymer lignin, unlike agriresidue.
- How many of the statements given above are correct?
- a) Only one
  - b) Only two
  - c) All three**
  - d) None of the above
9. Madras Labour Union was established in—
- a) 1918**
  - b) 1920
  - c) 1925
  - d) 1928
10. World Climate Action Summit (WCAS) is held annually under—
- a) Conference of Parties to UNFCCC**
  - b) UNEP Annual Summits
  - c) Davis summit
  - d) Climate Action Network summit