

**ENVIRONMENT**

❖ **MISHTI**

➤ **CONTEXT:** In the Union Budget 2023-24 presented on February 1, Finance Minister announced a new MISHTI scheme.

➤ **What is MISHTI scheme?**

• **According to Union Budget 2023-24** Building on India's success in afforestation, 'Mangrove Initiative for Shoreline Habitats & Tangible Incomes', MISHTI, will be taken up for mangrove plantation along the coastline and on salt pan lands, wherever feasible, through convergence between MGNREGS, CAMPA Fund and other sources.

➤ **Why mangroves?**

• Mangroves have been the focus of conservationists for years and it is difficult to overstate their importance in the global climate context. Mangrove forests (consisting of trees and shrub that live in intertidal water in coastal areas) host diverse marine life. They also support a rich food web, with molluscs and algae-filled substrate acting as a breeding ground for small fish, mud crabs and shrimps, thus providing a livelihood to local artisanal fishers.

• Equally importantly, they act as effective carbon stores, holding up to four times the amount of carbon as other forested ecosystems. Mangrove forests capture vast amounts of carbon dioxide from the atmosphere and their preservation can both aid in removal of carbon from the atmosphere and prevent the release of the same upon their destruction.

➤ **Mangrove Alliance for Climate (MAC)**

• At the 27th session of Conference of Parties (COP27), this year's UN climate summit, the Mangrove Alliance for Climate (MAC) was launched with India as a partner. The move, in line with India's goal to increase its carbon sink, will see India collaborating with Sri Lanka, Indonesia and other countries to preserve and restore the mangrove forests in the region.

✓ Attending the event in Sharm El-Sheikh, Egypt, the Union Minister for Environment Forest and Climate Change said that India is home to one of the largest remaining areas of mangroves in the world (the Sundarbans) and has years of expertise in restoration of mangrove cover that can be used to aid global measures in this direction.

• An initiative led by the United Arab Emirates (UAE) and Indonesia, the Mangrove Alliance for Climate (MAC) includes India, Sri Lanka, Australia, Japan, and Spain. It seeks to educate and spread awareness worldwide on the role of mangroves in curbing global warming and its potential as a solution for climate change.

• However, the inter-governmental alliance works on a voluntary basis which means that there are no real checks and balances to hold members accountable. Instead, the parties will decide their own commitments and deadlines regarding planting and restoring mangroves. The members will also share expertise and support each other in researching, managing and protecting coastal areas.

➤ **The current state of the mangroves**

• South Asia houses some of the most extensive areas of mangroves globally, while Indonesia hosts one-fifth of the overall amount.

• India holds around 3 per cent of South Asia's mangrove population. Besides the Sundarbans in West Bengal, the Andamans region, the Kachchh and Jamnagar areas in Gujarat too have substantial mangrove cover.

• However, infrastructure projects such as industrial expansion, building of roads and railways, and natural processes shifting coastlines, coastal erosion and storms, have resulted in a significant decrease in mangrove habitats.

• Between 2010 and 2020, around 600 sq km of mangroves were lost of which more than 62 per cent was due to direct human impacts, the Global Mangrove Alliance said in its 2022 report.

➤ **Apple grant to help protect and restore Raigad mangroves with help from local community**

• A 2,400-hectare mangrove ecosystem in Maharashtra's Raigad district will be among Apple's focus areas as it works to support communities around the world worst impacted by climate change. With a grant from the tech giant, Applied Environmental Research Foundation (AERF) will work with the local community to protect the mangrove forest, which provides an important buffer against climate change.

• As part of the partnership, AERF will ink conservation agreements with local community members and support them in exchange for conserving and protecting the mangroves on their land. The goal of the partnership, is to help transition the local economy to one that relies on keeping mangroves intact and healthy.

• Apple's grant will also support the restoration of mangroves across a 50-hectare area where they have degraded. It will also purchase and distribution portable bio-stoves that allow people to cook without cutting down mangroves for firewood.

• AERF will also engage Conservation International to verify the climate benefits of the mangroves, accounting for the carbon sequestered in both the trees and soil. Along with protecting coastal communities from climate impacts like the unpredictable monsoons and rising tides like in Raigad, mangroves act as "carbon sinks" that absorb carbon dioxide from the atmosphere and store it in their soil, plants, and other sediments.

• the partnership a great opportunity to explore "how mangrove conservation and community benefits can go hand in hand". "Though mangrove conservation issues are diverse and different in each place, here in our project area,

opportunities are also many. Training our young, enthusiastic team as well as local communities for blue carbon will surely help us travel a long way to achieve mangrove conservation in this vibrant coastal area along the Arabian Sea.”

- Conservation International’s blue carbon finance project in Cispatá Bay, Colombia, supported by Apple was the first in the world to adequately and accurately measure not only the carbon that mangrove trees store in their trunks and leaves but also what they sequester in their soil. AERF will apply the learnings from this project to their work in Raigad, and later scale it across India.

➤ **The innovative reforestation technique to save mangrove forests**

- The sensitive ecology of mangrove forests in India is being harmed by growing industrialisation and climate change. However, some restoration methods have the potential of restoring the declining mangroves.
- In odisha **fishbone channel plantation method** being implemented in Bhitarkanika wetlands.



✓ The water from creeks in Bhitarkanika are being diverted to gaps in mangroves through fish bone shaped channels, so that the saline barren land becomes fertile to support planted mangrove species. The shape allows the water to reach every nook and corner of the area.

- According to the Gujarat Forest Department, the fishbone channel plantation technique is used to artificially inundate areas that do not get regular tidal inundation. By flooding dried-up wetlands near the intertidal zones, new mangroves can be reforested.
- According to report the fishbone channel plantation technique helped revive the mangrove cover in the Krishna Wildlife Sanctuary in Andhra Pradesh.

➤ **The importance of mangroves**

- They usually consist of small, shrubby, highly specialised plants, of which there are over a 100 species. They stick it out at the muddy edges of the coast, absorbing the corrosive action of salt water, filtering mud and sediment, and putting away more carbon dioxide from the atmosphere into “long term storage” than any of the world’s forests. NASA has called them “the best carbon scrubbers”.
- their roots grow upwards, sticking out into the air from the mud, which enables them to breathe and deal with the low oxygen levels in the cloying mud. They have sophisticated salt-filtering systems that can remove excess salt from the water and which we could potentially adapt for desalinisation plants. They filter out heavy metals from the mud and deposit rich sediments.
- Their extensive root system slows down the tumult of the sea, preventing the sort of erosion that recently saw in Kerala. Their greatest recent accomplishment was the taming of the Boxing Day tsunami in 2004 which killed so many people on unprotected coastlines. The mangroves on our eastern shores behaved rather like a car’s impact-absorbing bumpers and crumple zones, swallowing the massive energy and impact of the waves.
- For human mangrove swamps and mangrove forests may seem inhospitable, but for around 174 species of marine mega fauna, they’re home. They provide a secure dwelling for oysters, algae, barnacles, sponges, shrimps and mud oysters. They’re where those quirky odd land-loving fish, the mudskippers, emerge from with every ebb and flow of the tides.
- Mangrove forests grow in warm tropical and subtropical tidal areas like estuaries and marine coastlines. According to one report, the total area in India under mangroves is 4,921 sq. km, a little over three per cent of the world total. Our largest and most famous mangrove forest is, of course, the Sundarbans , spanning both India and Bangladesh, and which has been declared a World Heritage site and a Biosphere Reserve by UNISCO. It is the largest delta clothed in mangrove forests and vast saline mudflats in the world.
- It is home to the fiercest and the largest number of Royal Bengal tigers in the world. The Sundarbans is also a haven for birds (over 250 species), reptiles, and fish (120 species) and its beehives have tempted honey gatherers to risk their lives. It serves as a flood barrier to Kolkata, protecting the city from the ravages of cyclonic activity which is all too common in this area.
- Second-largest mangrove habitat is Bhitarkanika on the Odisha coast, an important Ramsar wetland featuring saltwater crocodiles and the largest-known nesting area for Olive Ridley sea turtles. Over 220 species of birds have been recorded here, including 57 winter migrants and over 80 nesting species.
- Western coast, even maddening Mumbai has its mangroves, protecting it from tidal surges and some of these have been put on death row. Between 1972 and 1975 over 200 km of the Maharashtra coast was covered with mangroves, and by 2001, there was just 118 km left.

**PRELIMS**

**1. Laboratory-grown diamonds (LGD)**

2

- **CONTEXT:** The 2023 Union Budget shines special attention on laboratory-grown diamonds (LGD). In Budget speech, Finance Minister Nirmala Sitharaman said that the sector has “high employment potential” and announced a number of schemes to promote their research and development in India.
- **What are laboratory-grown diamonds?**
  - As the name suggests, LGD are manufactured in laboratories, as opposed to naturally-occurring diamonds. However, the chemical composition and other physical and optical properties of the two are the same.
  - Naturally-occurring diamonds take millions of years to form; they are created when carbon deposits buried within the earth are exposed to extreme heat and pressure. On the other hand, LGDs are mostly manufactured through two processes – high pressure, high temperature (HPHT) method or Chemical Vapour Deposition (CVD) method.
  - Both HPHT and CVD methods of growing diamonds artificially begin with a seed — a slice of another diamond. In the HPHT method, the seed, along with pure graphite carbon, is exposed to temperatures around 1,500 degrees Celsius and extremely high pressure.
  - In the CVD method, the seed is heated to around 800 degrees Celsius inside a sealed chamber filled with a carbon-rich gas. The gas sticks to the seed, gradually building the diamond.
  - Scientists working at a General Electric research laboratory in New York are credited with the creation of the world’s first-ever LGD in 1954.
- **Are LGDs better than naturally-occurring diamonds?**
  - Visually and chemically, the two are the same. However, the environmental footprint of a diamond grown in a laboratory is much lesser than that of a naturally-occurring diamond.
  - According to a report, it takes ten times more energy to extract a natural diamond from the earth than it takes in creating one above the ground. Open-pit mining, one of the most common methods of mining naturally-occurring diamonds, involves moving tonnes of earth and rock to extract these precious stones.
- **Provisions regarding lab-grown diamonds in the 2023 Budget**
  - India is a global leader in cutting and polishing natural diamonds, but as its resources are becoming scarce, the industry is shifting towards LGDs.
  - The 2023 Union Budget promises to reduce the basic customs duty on seeds used in the manufacture of lab-grown diamonds in a bid to popularise their production in India— the duty on seeds for rough LGDs will be reduced from 5% to nil. The change will come into effect starting February 2, 2023.
  - A five-year research grant will also be provided to one of the Indian Institute of Technologies (IITs) for research and development in the field of LGDs.
  - The budget also proposed the creation of new tariff lines to help in better identification of a number of products, including synthetic diamonds. The aim of the move is to help facilitate trade as well as to have clarity on availing concessional import duty.
- 2. **‘puisne’ judge**
  - **CONTEXT:** While recommending two names for appointment as judges of the Supreme Court, the Collegium headed by Chief Justice of India D Y Chandrachud said in a statement on that the collegium had taken into “consideration the seniority of Chief Justices and senior puisne Judges ”
  - **What does puisne mean, and who are puisne judges?**
    - The word puisne has French origins, which means “later born” or younger. It is pronounced /'pju:ni/, like “puny”, the English word that means small or undersized.
    - Puisne is almost always used in the context of judges, and essentially denotes seniority of rank. The term puisne judge is used in common law countries to refer to judges who are ranked lower in seniority, i.e., any judge other than the Chief Justice of that court.
    - ✓ Common law is the body of law that is created by judges through their written opinions, rather than through statutes or constitutions (statutory law). Common law, which is used interchangeably with ‘case law’, is based on judicial precedent. The United Kingdom (UK) and the Commonwealth countries, including India, are common law countries.
  - **Is a “puisne judge” in India the same as in the UK?**
    - In the UK, puisne judges are judges other than those holding distinct titles. The Supreme Court of Judicature Act, 1877 defined a “puisne judge” as any judge of the High Court besides the Lord Chancellor, the Lord Chief Justice of England, and the Master of the Rolls.
    - In India, all judges have the same judicial powers. As the seniormost judge of a court, the Chief Justice has an additional administrative role. In India, there is a reference to a puisne judge only while considering the order of seniority for appointments, elevations to High Courts, etc, but it does not have a bearing on the exercise of a judge’s judicial power.
  - **What did the collegium say about puisne judges?**
    - The Supreme Court collegium recommended Justice Rajesh Bindal and Justice Aravind Kumar, the current Chief Justices of the Allahabad and Gujarat High Courts respectively, for appointment as judges of the Supreme Court.
    - that the decision was made taking “into consideration the seniority of Chief Justices and senior puisne Judges in their respective parent High Courts as well as the overall seniority of the High Court Judges”. This was done



because seniority is one of the several criteria that are considered while making appointments to the higher judiciary.

- In the Third Judges Case ruling in 1998, one of the two cases that led to the evolution of the collegium system, the Supreme Court clarified that “The Chief Justice of India must make a recommendation to appoint a Judge of the Supreme Court and to transfer a Chief Justice or puisne Judge of a High Court in consultation with the four seniormost puisne Judges of the Supreme Court.”

### 3. **Pen Monument**

➤ **CONTEXT:** A planned offshore memorial to the late DMK patriarch M Karunanidhi was opposed by representatives of some opposition parties and fishermen’s and environmental groups on grounds of environmental damage and loss of livelihoods in Chennai.

- The proposed ‘Muthamizh Arignar Dr Kalaignar Pen Monument’ off Marina beach falls under Coastal Regulation Zones (CRZ) IA, II, and IVA, and requires clearance under Section 4(ii)(j) of the Union Environment Ministry’s Coastal Regulation Zone Notification, 2011 (amended up to March 22, 2016).
- The Rs 81-crore ‘Pen Monument’, standing in the Bay of Bengal 360 m from the coast, was proposed by the government in 2022, and is expected to become a Chennai landmark on completion.
- It has been planned as a representation of Tamil culture and architecture, and will incorporate regional motifs, architecture, and designs with Tamil heritage elements.

#### ➤ **The Memorial**

- The Pen Memorial pays tribute to Karunanidhi, one of the most influential figures in Tamil Nadu and Dravidian politics who also contributed to Tamil literature as an orator, poet, and writer of non-fiction and fiction, plays, and films.
- According to an official document, the memorial in the shape of a pen represents his many contributions to Iyal (poetry and literature), Isai (music), and Naadagam (theatre), the three fundamental pillars of both ancient and contemporary Thamizh, or Tamil.
- The design of the monument is based on the Veena, a traditional Carnatic music instrument that is handmade in Tamil Nadu with extreme precision.
- The Thumba is used to represent the pen pedestal, the neck portion the long bridges, the music hole a pen statue, and the peg the tensile canopy seating on the bridge.
- The frets are used to represent the distance between the bridge’s columns, and the strings are used to represent the Meru or Kudira, according to the project document.
- The design for the landscaped garden on the memorial pedestal is inspired by Sikku Kolam, a traditional drawing made by Tamil women in their homes, in which a geometric shape is created using dots and circles. Locally procured granite will be used for the memorial, the project document says.

#### ➤ **The Access Bridge**

- The idea of a monument on water derives from the metaphorical catamaran to which Karunanidhi compared himself. The monument will be 42 metres tall and 2.60 metres in diameter, and will be accessible by a lattice bridge from the existing Karunanidhi memorial on Marina beach.
- Two hundred and ninety metres of the 650-metre bridge will be above land (the Marina seashore), the remaining portion will be above water. There will be wave patterns on the parapet walls of the bridge.
- The floor of the bridge will be made of non-slip material such as rough semi-polished granite to make walking safe even in the rainy season.
- Other proposed safety features include a public address system, emergency exits at strategic locations, life rafts and lifeboats, at least two buggies on site to support the elderly and special-needs visitors, and a display of meteorological information and warnings at the entrance.

### **ANSWER WRITING**

**Q. Discuss the role of probity in public administration and evaluate its impact on the functioning of public institutions.**

Introduction

- Probity, also known as honesty, integrity, and ethics, is a crucial aspect of public administration that governs the behavior of individuals and organizations working in the public sector.
- The term "probity" refers to the quality of having strong moral principles, being honest, and adhering to ethical values. In the context of public administration, probity is particularly important as public institutions are responsible for managing public resources and serving the needs of citizens.
- The Importance of Probity in Public Administration:
  - Probity is critical in public administration for several reasons.
  - Firstly, public institutions are entrusted with managing public resources, and it is crucial that these resources are used efficiently and effectively.
- Therefore, probity ensures that individuals within public institutions act with integrity and in the best interests of the public, reducing the risk of mismanagement or corruption.

- Secondly, public institutions are accountable to citizens, and it is essential that they are transparent in their actions and decisions.
  - Probity ensures that individuals within public institutions act openly and fairly, promoting accountability and trust in public institutions.
- Furthermore, probity is essential in promoting fairness and equality in public administration. Public institutions are responsible for implementing policies and programs that affect the lives of citizens, and it is important that these policies and programs are implemented impartially.
  - Therefore, it ensures that individuals within public institutions act without bias or discrimination, promoting fairness and equality in the administration of public services.
- The Impact of Probity on the Functioning of Public Institutions:
- The impact of probity on the functioning of public institutions can be seen in several ways.
  - Firstly, probity promotes efficiency in the use of public resources, as individuals within public institutions are more likely to act in the best interests of the public, reducing the risk of mismanagement or corruption.
  - Secondly, probity enhances accountability and transparency in public administration, as individuals within public institutions are more likely to act openly and fairly, promoting trust in public institutions.
  - Additionally, probity promotes fairness and equality in the administration of public services, as individuals within public institutions are more likely to act impartially.
    - This helps to ensure that policies and programs are implemented fairly and without discrimination, promoting social justice and equality.
  - Moreover, probity contributes to the development of a positive organizational culture within public institutions. Public institutions are more likely to be seen as trusted and credible organizations when individuals within these institutions display high levels of probity.
    - This can help to improve the public's perception of public institutions, enhancing their reputation and improving public trust in these institutions.

#### Conclusion

Probity plays a crucial role in public administration and has a significant impact on the functioning of public institutions. Public officials who act with integrity, impartiality, and transparency are more likely to be trusted by the public, and this can result in improved governance and the efficient and effective delivery of services.

#### MCQs

1. Which of the following schemes announced in Budget 2023 is related to mangroves?
  - (a) PRANAM
  - (b) PRASHAD
  - (c) **MISHTI**
  - (d) None of the above
2. Consider the following statements with respect to Mangrove Alliance for Climate:
  1. Mangrove Alliance for Climate is Launched at Cop27 of the UNFCCC is led by the United Arab Emirates (UAE) and Indonesia.
  2. It seeks to educate and spread awareness worldwide on the role of mangroves in curbing global warming.
  3. India is not a part of it.

Which of the following statements is/are true?

- (a) **1 and 2 only**
  - (b) 2 and 3 only
  - (c) 1 and 3 only
  - (d) 1, 2 and 3
3. With reference to Fishbone channel plantation technique often mentioned in news consider the following
    1. It is used to artificially inundate areas that do not get regular tidal inundation.
    2. The fishbone channel plantation technique helps revive the mangrove cover

Which of the above statement/s is/are correct?

- (a) 1 only
  - (b) 2 only
  - (c) **Both 1 and 2**
  - (d) Neither 1 nor 2
4. With reference to Lab Grown Diamond (LGD) consider the following
    1. Lab-grown diamonds are diamonds which are grown inside a lab using cutting-edge technology
    2. Like natural Diamonds, LGD can use in jewellery industry only but not other areas like in computer chips, satellites, 5G networks

Which of the above statement/s is/are not correct?

- (a) 1 only
- (b) **2 only**
- (c) Both 1 and 2
- (d) Neither 1 nor 2

5. Consider the following statements
1. Common law is the body of law that is created by judges through their written opinions, rather than through statutes or constitutions.
  2. Common law, which is used interchangeably with 'case law', is based on judicial precedent.
  3. The United Kingdom (UK) and the Commonwealth countries, including India, are common law countries.

Which of the above statement/s is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1,2 and 3**

6. Consider the following pairs/terms which are in news recently

1. Iyal - poetry and literature
2. Isai – music
3. Naadagam - theatre

Which of the above pairs are correctly matched?

- (a) 1 only
- (b) 2 and 3 only
- (c) 3 only
- (d) 1,2 and 3**

7. Lamu Archipelago often mentioned in news, with reference to this consider the following

1. It is the largest Archipelago in indo-Pacific region
2. It is administered by Kenya

Which of the above statement/s is/ are correct?

- (a) 1 only
- (b) 2 only**
- (c) Both 1 and 2
- (d) Neither 1 nor 2

8. India has handed over to Kenya 100 nautical charts; with reference to Natural Chart consider the following

1. A nautical chart is a map that depicts the configuration of the shoreline and seafloor.
2. It provides water depths, locations of dangers to navigation, locations and characteristics of aids to navigation, anchorages, and other features.

Choose the correct statement/s using the codes given below

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2**
- (d) Neither 1 nor 2

9. With reference to Nai Manzil scheme consider the following

1. It is a Central Sector Scheme (CSS) for minorities.
2. For the scheme 50% of cost financed by World Bank.
3. Under this scheme grants are released to State Governments for implementation of the scheme

Which of the above statement/s is /are not correct?

- (a) 1 and 3 only
- (b) 2 and 3 only
- (c) 1 and 2 only
- (d) 3 only**

10. With reference to Pradhan Mantri Shram Yogi Maan-Dhan (PM-SYM) pension scheme consider the following statements

1. It provides monthly pension of Rs.3000/- after attaining the age of 70 years
2. The workers in the age group of 18-40 years whose monthly income is Rs. 15000/- or less and not a member of EPFO/ESIC/NPS can join the PM-SYM Scheme
3. Under this scheme no monthly contribution is payable by the beneficiary full contribution is paid by the Central Government

Which of the above statement/s is/are not correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only**
- (d) 2 only