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APRIL 2024
WEEKLY CURRENT AFFAIRS

YOJNA IAS WEEKLY CURRENT AFFAIRS
01/04/2024 TO 07/04/2024

WEEKLY CURRENT AFFAIRS

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TECHNIQUES OF BONE GRAFTING

WHY IN THE NEWS?

Recently, the Indian Institute of Technology (IIT) Kanpur entered into an agreement with a biotechnology company based in Canada, Conlis Global, through a Memorandum of Understanding (MoU). This agreement involves the licensing of a pioneering technology developed domestically by IIT Kanpur known as "Nano Hydroxyapatite-Based Porous Polymer Composite Scaffold for Bioactive Molecule Delivery in Musculoskeletal Regeneration".

ABOUT NANO HYDROXYAPATITE–BASED POROUS POLYMER COMPOSITE SCAFFOLD

Nano hydroxyapatite-based porous composite scaffolds are a new generation of biomaterial with immense potential in bone repair. Here's a closer look at their properties and applications:

PROPERTIES

- **Biodegradable**: These scaffolds naturally break down over time within the body, eliminating the need for additional surgery.

- **Bone Regeneration**: They possess both osteoinductive and osteopromotive properties, meaning they can stimulate bone growth and formation.

- **Biocompatible**: The material is highly compatible with living tissues, promoting good interaction with osteoblast cells, which are crucial for bone formation.

- **Strong and Stable**: These scaffolds exhibit high mechanical strength, providing a sturdy support structure for bone regrowth.

APPLICATIONS

- **Orthopaedics and Dentistry**: They are finding use in various orthopaedic and dental implants, including bone graft substitutes, coatings for prosthetic devices, and tissue engineering scaffolds.

- **Large Bone Defects**: Functionalized versions of these scaffolds can be used as fillers for large bone defects. Their porous structure ensures proper blood circulation and oxygen supply, which is vital for bone healing.

- **Enhanced Healing**: By promoting tissue formation and mineralisation, these scaffolds can accelerate bone defect repair.

ABOUT BONE GRAFTING

Bone grafting is a surgical technique to address missing bone or heal complex fractures. It essentially involves transplanting bone tissue to promote bone growth and regeneration. This procedure is employed in various fields like orthopaedics, dentistry, and maxillofacial surgery.

TYPES OF GRAFT MATERIALS

- **Autografts**: The patient's own bone, often taken from the hip, ribs, or other suitable sites. This offers the best compatibility but requires additional surgery for harvesting.

- **Allografts**: Bone from a deceased donor, processed to minimise rejection risks.

- **Xenografts**: Animal bone, typically from cows or pigs, specially treated for biocompatibility.

- **Alloplastic Grafts**: Synthetic materials like ceramics, polymers, or biocompatible metals that mimic bone structure and stimulate new bone growth.

COMMON REASONS FOR BONE GRAFTING

- **Fracture Healing**: To promote healing in complex fractures, non-unions (fractures that haven't healed on their own), or bone defects.

- **Filling Bone Defects**: Bone loss due to trauma, tumours, infections, or birth defects can be addressed with grafts.

- **Spinal Fusion**: For stabilising the spine, treating disc problems, or correcting spinal deformities in orthopaedic and neurosurgical procedures.

- **Dental Implants**: To increase jawbone volume for successful placement of dental implants.

- **Maxillofacial Reconstruction**: Restoring facial bone structure and function after trauma, birth defects, or tumour removal.

BONE GRAFTING PROCESS & TECHNIQUES

- **Harvesting Bone Grafts**: Techniques for obtaining autografts can involve traditional open surgery or minimally invasive procedures.

- **Preparing the Graft**: Allografts and xenografts undergo processing to remove cellular components while preserving the bone structure and growth factors.

- **Graft Placement**: The graft material is surgically inserted into the defect site and often secured with fixation devices like screws, plates, or meshes.

- **Bone Graft Substitutes**: Synthetic materials or biological agents can be used to stimulate bone formation and regeneration in some cases.

PRELIMS PRACTISE QUESTIONS

Q1. **Consider the following diseases:**

1. Hepatitis B

2. HIV-AIDS

How many of the diseases above can be transmitted from one person to another through tattooing?

(a) Only one

(b) Only two

(c) All three

(d) None

Answer: B

MAINS PRACTISE QUESTIONS

Q1. **What are the potential applications of nanotechnology, such as nanobots, in the healthcare sector? Discuss how these nanotechnologies could revolutionise medical treatment, diagnosis, and drug delivery methods.**

CLIMATE CHANGE AND THE NEED FOR WATER CONSERVATION AND PROMOTION

SOURCE – THE HINDU AND PIB.

GENERAL STUDIES – WATER CONSERVATION, WATER CRISIS AND CITIZENS LIFE IN INDIA, SUSTAINABLE DEVELOPMENT, WORLD WATER DAY 2024, RAIN WATER CONSERVATION, MANAGEMENT AND PROMOTION, CATCH THE RAIN CAMPAIGN

WHY IN THE NEWS ?

- According to the latest report released recently by the Central Water Commission, only 23 percent of the total water holding capacity is available in all the reservoirs of South India. This is nine percentage points less than the recurring decadal average, indicating the magnitude of the water crisis in India.

- Even before the latest report released by the Central Water Commission, South India had to face a water crisis in summer 2017. This year the water crisis is set to be different and worse due to some other reasons.

- 223 of Karnataka's 236 taluks are affected by drought, including Mandya and Mysore districts, which are Bengaluru's water sources.

- As summer heats up in India, around 7,082 villages across Karnataka are at risk of drinking water crisis in the coming months.

- India's monsoon is affected by various factors. One of the major factors of which is El Nino which has made the Indian monsoon more irregular.

- El Nino – occurred in the year 2014-16, but this phenomenon was so significant that it is one of the five strongest phenomena in the contemporary history of India.

- Due to the effect of El Nino in India, irregularities occur in the Indian monsoon.

- Due to climate change, after the record heat in the year 2023, the current heat situation is expected to get worse in 2024 also.

- Record-breaking heat could occur by 2026, the United Kingdom's Meteorological Office reports.

- Due to climate change, India's agricultural system, which is dependent on monsoon, will have to face more devastating effects. Therefore, the Government of India also needs to bring positive changes in the implementation of its sustainable development policies.

- Recently, 'World Water Day' was celebrated all over the world on 22 March 2024.

- World Water Day, held annually on 22 March since 1993, is an annual day of the United Nations. The main objective of which is to focus on the importance of freshwater.

- The main objective of World Water Day is to raise awareness about people living without access to safe water.

- Main topic or theme of World Water Day 2024 is **"Leveraging Water for Peace"**.

- Recently, India's Jal Shakti Ministry launched a program for rainwater harvesting and other sustainable water management systems by starting **'Jal Shakti Abhiyan: Catch the Rain – 2024 Campaign'**.

- This program in India **' Water power through women power '** was based on a theme. It was organized at the Convention Center of New Delhi Municipal Council, as part of the fifth edition of the campaign of the Ministry of Jal Shakti.

- The campaign ' **Water power through women power** ' seeks to establish a strong link between women empowerment and sustainable management of water resources in India.

- In this program which was organized in India ' **Jal Shakti Abhiyaan 2019 to 2023 – A public-led movement towards water security** ' screening of a documentary titled and two books –**Talks by champions and women water warriors of 'Jal Shakti Abhiyan: 2019 to 2023' and '101 Jal Jeevan Mission'** was also unveiled.

HISTORY OF WORLD WATER DAY :

- A proposal was passed on the topic of celebrating the festival and availability of clean water in the Environment and Development Conference held in Brazil in 1992 **' World Water Day '.**

- The United Nations General Assembly (UNGA) adopted this resolution in 1992 and every year at the global level ' **World Water Day' on 22 March** ' announced to be celebrated.

- **Therefore, 'World Water Day' was celebrated for the first time in the year 1993.**

- The UN recognized the right to safe, clean drinking water and sanitation as a human right in 2010,.

- The main objective of recognizing the right to safe, clean drinking water and sanitation as a human right is to focus people's attention on the global water crisis.

IMPORTANCE OF WORLD WATER DAY :

- The main goal of World Water Day is to support the achievement of Sustainable Development Goal (SDG) 6.
- The main goal of celebrating World Water Day is to provide clean water and sanitation to all by 2030 at the global level.

WHY IS THERE A NEED FOR WATER CONSERVATION IN THE PRESENT TIMES?

- According to the United Nations, 1.4 million people die every year from diseases caused by lack of sanitation, hygiene and clean water. About 25% of the world's population lacks access to clean water and almost half the global population lacks clean toilets. The global water scarcity is projected to increase by 55% by the year 2050.
- Water is extremely essential for everyday activities in human life. Proper use of water plays an important role in the management of freshwater reserves.
- On an average, a person wastes 45 liters of water a day through his daily activities. Therefore, making a few changes in daily water usage can save a considerable amount of water for future use.
- More than 3 billion people around the world migrate to other countries due to water dependence.
- Only 24 countries worldwide have signed cooperation agreements for shared water use.

CHALLENGES FOR WATER MANAGEMENT IN INDIA :

The following challenges exist before water management in India –

- To reduce the gap between demand and supply of water.
- Providing sufficient water for food production and balancing use among competing demands.
- To meet the growing demands of metros and other big cities.
- Treatment of wastewater.
- Sharing of water among neighboring countries as well as among the states.

WAY FORWARD :

- India is home to 18 percent of the world's population, but only about 4 percent of the people have

- access to adequate water resources.

- Nearly 90 million people in India do not have access to safe water. The normal annual rainfall of India is 1100 mm which is more than the world average rainfall of 700 mm.

- According to data released by the India Meteorological Department, the south-west monsoon has been below normal in 42 percent of the districts during June to August 2023. In August 2023, rainfall in the country was 32 percent below normal and 62 percent below normal in the southern states.

- India received the least rainfall in August last year after 1901 i.e. in the last 122 years.

- Less rainfall in India will not only have a serious impact on Indian agriculture, but it can also lead to severe water shortage in various areas of the country.

- The net quantity of water that can be used in a year in India is estimated at 1,121 billion cubic meters (BCM).

- Data published by the Water Resources Ministry shows that the total water demand will be 1,093 BCM in 2025 and 1,447 BCM in 2050. As a result, there is a possibility of a huge reduction in water availability in the next 10 years.

- India exploits groundwater the most in the world. This quantity is more than the combined exploitation of the world's second and third largest groundwater exploiters (China and the United States).

- According to the Falkenmark Water Index, about 76 percent of the people in India are already facing water shortage.

- According to a NITI Aayog report, by the year 2030 the country's water demand will double compared to the current available supply.

- Water consumption can be measured and limited using modern technologies like Artificial Intelligence, Remote Sensing etc.

- Expanding water sources, improving water efficiency, and protecting water resources can improve water availability and quality in India.

- Technological measures like buried clay pot plantation irrigation can also be used to overcome water crisis in India and for water conservation, thereby saving water and improving crop productivity.

- To overcome the water crisis in India and for water conservation, it is extremely important to improve policies at the government level to conserve water resources and expand micro irrigation techniques to ensure accurate and correct consumption of water. Can go.

- Watershed management can prove to be a good option for water conservation and groundwater recharge in India.

- The main objective of development of water harvesting in India is to conserve every drop of rain water, control soil erosion, increase soil moisture and recharge, water harvesting per unit area and per unit water despite adversities of weather. Productivity has to be maximized.

- Special emphasis should also be given to the traditional system of water conservation in India.

- In order for the rivers flowing in different areas of India to remain perennial, it is very important to make policies at the government level and make efforts for water conservation.

- It is extremely important to establish a water bank in each area along with creating a clear framework for water budgeting and water auditing in rural areas of India.

- In water conservation, symposiums and seminars should be organized from time to time with ground-

water scientists to create awareness about water conservation in the society. In the present situation, for a permanent solution to this problem, everyone will have to make collective efforts for water conservation and promotion.

- Bureaucratic, non-transparent and non-participatory approach still persists in the functioning of water governance institutions in India. Therefore, it cannot be denied that there is a need for improvement in the water administration of the country.

- It is necessary that reliable information and related data about natural disasters like drought and flood are available to us as soon as possible so that they can be dealt with in time and possible damage can be reduced. Therefore, important decisions regarding increasing the groundwater level and regulating groundwater use in India need to be taken urgently.

- The condition of rivers in the country is pathetic. Therefore, the condition of rivers can be seriously considered.

- There are policies related to water management or conservation in India, but the problem lies at the level of implementation of those policies. The laxity in the implementation of water conservation policies in India should be removed and better implementation should be ensured so that the biggest problem of water mismanagement in the country can be tackled.

- In low and middle income countries like India Climate change will have a more lethal impact by creating multiple crises simultaneously. While this process will change the way weather events co-evolve, it will also affect their frequency such that two events will be more likely to occur simultaneously than before – for example, drought and disease. outbreak, which will further worsen the socio-economic conditions of marginalized groups.

- Governments and policy makers need to keep in mind that other future crises may not just be due to climate change but will be connected to water.

PRACTICE QUESTIONS FOR PRELIMINARY EXAM :

Q.1 Consider the following statements regarding water conservation management and promotion in India in relation to climate change.

1. India's monsoon is also affected by external factors like El Nino.

2. Watershed management is a good option for water conservation and groundwater recharge in India.

3. The main theme of World Water Day 2024 is 'Leveraging Water for Peace'.

4. The main theme of World Water Day 2024 in India was Water Power through Women Power.

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

A. Only 1, 2 and 3.

B. Only 2, 3 and 4.

C. None of these.

D. All of the above .

Answer – D

Q.1. Underlining the various threats arising from climate change, Discuss in detail the challenges and their solutions to water conservation, management and promotion in India.

900 YEAR OLD CHALUKYAN INSCRIPTION DISCOVERED IN TELANGANA

WHY IN THE NEWS?

- A Kannada inscription dating back 900 years from the Kalyana Chalukya dynasty has been unearthed in Gangapuram, a temple town situated in the Jadcherla mandal of Mahabubnagar, Telangana.

- The inscription, dated June 8, 1134 CE (Friday), was authorised by the Customs Officers of Taila-pa-III, the son of Kalyana Chalukya Emperor 'Bhulokamalla' Someswara-III.

- It documents the exemption of toll taxes for the maintenance of the perpetual lamp and incense offerings at the temple of God Somanatha.

ABOUT CHALUKYAS

RISE OF THE CHALUKYAN EMPIRE

- The Chalukyas emerged as a dominant force in the 6th century CE, establishing their capital at Badami in present-day Karnataka.

- Pulakeshin I, the dynasty's founder, led a period of expansion, defeating neighbouring kingdoms like the Kadambas and Mauryas.

- Pulakeshin II, a renowned ruler, further solidified their power through conquests and alliances. Under his reign, the empire reached its zenith, encompassing vast territories across South and Central India.

DIFFERENT BRANCHES OF THE DYNASTY

The Chalukya Empire eventually divided into distinct branches:

- **Badami Chalukyas**: Renowned for their artistic and architectural achievements, they ruled from Badami.

- **Western Chalukyas**: Based in Kalyani, they continued their predecessors' legacy, dominating parts of Karnataka and Maharashtra.

- **Eastern Chalukyas**: Carving out their own kingdom in Vengi (Andhra Pradesh), they played a significant role in South Indian politics.

FAITH AND ART

- The Chalukyas were patrons of a rich cultural environment.

- While Hinduism flourished under their rule, with magnificent temples dedicated to various deities built, they also displayed religious tolerance.

- Jainism and Buddhism received support, leading to the construction of impressive caves and monasteries.

ADMINISTRATION OF CHALUKYAS

Divisions and Revenue Collection

The vast Chalukyan Empire relied on a well-structured administrative system to maintain order and ensure a steady flow of income. The **empire was divided into smaller units called Rashtras or Mandalas**, each governed by a local administrator known as a **Mandaleshwara**. This ensured efficient local governance and responsiveness to the needs of the people.

Hierarchical Structure

For larger regions, the Chalukyas appointed **provincial governors called Rashtrakutas**. These governors **oversaw multiple Mandalas and reported directly to the king**, providing a centralised control mechanism. This hierarchical structure ensured **efficient communication and a clear chain of command**.

Land Revenue

Land revenue was the primary source of income for the Chalukyan Empire. The empire had a sophisticated system of land measurement and taxation. This **system ensured that taxes were levied fairly and accurately**, generating a consistent revenue stream to support the empire's infrastructure, military, and cultural endeavours.

DECLINE OF THE EMPIRE

- From the 12th century onwards, the Chalukya Empire faced internal conflicts, dynastic rivalries, and external threats, leading to its gradual decline.

- The Western Chalukyas succumbed to the Cholas in the 12th century, while the Eastern Chalukyas continued ruling in Vengi until the 13th century.

- They established an efficient administrative structure with well-defined divisions and a sophisticated revenue system.

Virupaksha Temple, Pattadakal

ARCHITECTURAL MARVELS

- **Chalukyan temples** stand as testaments to their artistic brilliance, characterised by a unique blend of Dravidian and Nagara styles (known as the 'Gadag Style').

- The **Virupaksha Temple at Pattadakal**, **a UNESCO World Heritage Site**, exemplifies this style with its intricate carvings and towering gopurams.

- Similarly, the **Durga Temple at Aihole** showcases ornate pillars and sculpted panels depicting Hindu deities and mythological scenes.

LITERATURE AND ART FORMS

- The Chalukya era witnessed a flourishing of literature and classical dance forms.

- Pampa, a court poet, composed the epic poem "Vikramarjuna Vijaya" in Kannada.

- Sculptures suggest the development of Bharatanatyam during this period.

- Ranna, another prominent poet, celebrated Jain figures in his poem "Ajita Tirthankara Purana."

PRELIMS PRACTISE QUESTION

Q1. Consider the following statements:

1. Ranna, a prominent Chalukyan poet, composed the epic poem "Vikramarjuna Vijaya".

2. Rashtrakutas governed the administrative units known as 'Mandalas' in the Chalukyan Empire.

3. The Western Chalukyas were based on Kalyani

How many of the statements above are NOT correct?

(a) Only one

(b) Only two

(c) All three

(d) None

Answer: B

MAINS PRACTISE QUESTIONS

Q1. Discuss the architectural innovations introduced by the Chalukyas and their significance in shaping the temple architecture of Southern India during their era.

PM SOLAR ROOFTOP SCHEME

SOURCE – THE HINDU AND PIB.

GENERAL STUDIES – SOLAR ENERGY, RENEWABLE ENERGY, MINISTRY OF RENEWABLE ENERGY, INTERNATIONAL ENERGY AGENCY, SUSTAINABLE DEVELOPMENT

WHY IN THE NEWS ?

- Recently, the Finance Minister of India, while presenting the interim budget in the Parliament on 1 February 2024, has announced the PM Solar Rooftop Scheme to promote solar energy in India.

- Under this scheme, up to 300 units of free electricity will be given every month to one crore families in India.

- The primary goal of this scheme is to make India self-reliant in the energy sector and reduce the electricity bills for the poor and middle class people of India.

- The government aims to promote the use of renewable energy and encourage widespread adoption of solar energy at the household level by reducing dependence on traditional energy sources.

IMPORTANCE OF SOLAR ENERGY IN THE ENERGY SECTOR IN INDIA :

- According to the International Energy Agency (IEA), India is expected to experience the largest energy demand growth globally in the next 30 years.

- A reliable and sustainable source of energy is important to meet the growing demand in the energy sector in India, which requires India to reduce its dependence on traditional sources of energy such as coal.

- Solar power has seen particularly significant growth in recent times, from 10 MW in 2010 to 70.10 GW in 2023.

CURRENT SOLAR ENERGY CAPACITY OF INDIA :

- Currently, according to a report released by the Ministry of Renewable Energy, by December 2023, India's total solar capacity is about 73.31 gigawatt (GW), of which rooftop solar power contributes about 11.08 GW. ,

- In terms of solar power capacity in India, Rajasthan leads among all the states in India in terms of total rooftop solar power capacity (18.7 GW) while Gujarat tops in India in terms of total rooftop solar power capacity (2.8 GW). .

- Solar energy has an important place in India's total renewable energy capacity, which is about 180 GW.

- India has set a target of becoming completely self-reliant in the field of renewable energy by the year 2030, under which a target has been set to achieve 500 GW renewable energy capacity by 2030.

WHAT IS A ROOFTOP SOLAR PANEL ?

- Rooftop solar panels are installed on the roof of the house. Solar plates are installed in these panels. This is a technology that produces electricity by absorbing energy from the sun's rays.

- Photovoltaic batteries are installed in its panels which convert solar energy into electricity.

- The electricity produced under solar energy also works the same as the electricity coming from the power grid.

PM SOLAR ROOFTOP SCHEME :

- The PM Solar Rooftop Scheme was started in the year 2014. The scheme focuses on expanding the capacity to install rooftop solar in the residential sector.

- The main objective of this scheme is to provide financial assistance and incentives to solar power distribution companies (DISCOMs) at the central level.

- Under this program, a target has been set to achieve 40 GW rooftop solar installed capacity by March 2026.

- There has been significant progress in the PM Solar Rooftop Scheme in recent days. Under its plan, it has increased from 1.8 GW in March 2019 to 10.4 GW in November 2023.

- Under this scheme, any consumer in India can avail the benefits of this scheme through tender projects or national portal (www.solarrooftop.gov.in). The scheme empowers consumers to choose the vendor and solar equipment based on their preferences.

- Under this scheme, after the installation and inspection of solar plants, the subsidy given by the government is directly transferred to the bank accounts of the consumers.

- Consumers have been provided the right to export surplus solar power to the grid, while receiving monetary benefits as per the prevailing rules laid down by the State Electricity Regulatory Commissions (SERCs) or Joint Electricity Regulatory Commissions (JERCs).

WHY IS THIS SCHEME SO IMPORTANT ?

- The scheme will help India meet its commitment under the Paris Agreement to reduce its carbon emission intensity by 33-35% by 2030.

- Under this scheme, India will be helped in reducing its energy dependence on fossil fuels and becoming self-reliant in the energy sector.

- With the aim of also accelerating the social and economic development of India, this scheme can provide clean and affordable electricity to millions of homes in India.

- Along with this, access to energy can be ensured through renewable sources of energy, especially in rural and remote areas of India where access to the electricity grid is limited.

IMPORTANT FEATURES OF PM SOLAR ROOFTOP SCHEME :

- The main goal of this scheme is to target low and middle income households of India who can benefit through lower electricity bills and additional income from surplus power generation.

- Under this scheme, financial assistance will be provided in the form of subsidy, loan or incentive to those eligible families of India, depending on their category and location, whose homes have still not reached electricity or other sources of energy.

- Under this scheme, technical assistance will also be provided by the government in the installation, operation and maintenance of rooftop solar systems to people's homes in India.

- In India, the scheme will be implemented by the Ministry of New and Renewable Energy (MNRE) in collaboration with state governments, distribution companies, banks and other stakeholders.

OTHER GOVERNMENT INITIATIVES FOR SOLAR ENERGY

1. **Solar park scheme**

2. **Atal Jyoti Yojana (Ajay)**

3. **National Solar Mission**

4. **Srishti Yojana**

5. **International Solar Alliance (ISA)**

CHALLENGES EXISTING IN PM SOLAR ROOFTOP SCHEME IN INDIA :

- Even after so many years of independence in India, there is a lack of awareness and knowledge among consumers about the benefits and processes of rooftop solar installation.

- This is due to the high upfront costs incurred under the scheme and the lack of easy financing options for consumers to invest in rooftop solar systems.

- There are a number of regulatory constraints and policy uncertainties in India with respect to net metering, grid connectivity, tariff structure, etc., which vary across states and regions in India.

- Poor quality of solar energy related equipment, technical issues like grid integration and management in its installation and its maintenance services etc. affect the performance of rooftop solar systems and its reliability in India,

WAY FORWARD :

- Pradhan Mantri Suryodaya Yojana is a welcome initiative and a very important scheme of the government to promote rooftop solar in India.

- The scheme can also help India achieve its renewable energy targets and climate goals as well as enhance its energy security and social and economic development.

- At present many challenges exist in this scheme. Therefore, for successful implementation of this scheme, there is a need to find solutions to those challenges through effective implementation and coordination among various stakeholders.

- For successful implementation of the scheme in India, there is a need to increase awareness and reach among consumers through large scale media campaigns, workshops, exhibitions etc.

- It is extremely important to provide financial incentives and subsidies to consumers, especially low and middle income households, to reduce the upfront cost and payback period of rooftop solar systems.

- There is a need to streamline and harmonize the regulatory and policy framework across different states and regions of India to ensure uniformity, clarity and consistency for rooftop solar installation and operations.

- In India, there is a need to improve the technical standards and quality of services related to installation and maintenance of rooftop solar equipment, grid integration and management etc. under this scheme.

- There is also a need to ensure the safety, efficiency and sustainability of rooftop solar systems under the PM Solar Rooftop Scheme in India.

- India's domestic manufacturers should also be brought under strict quality scrutiny and should not have to compromise on input costs and quality merely on the basis of being nationalistic or indigenous.

- While the Indian solar industry should also become another high quality exporter, it should also not forget that the scheme in India is like a road with no easy destination and they have a long way to go, so that This scheme can be successfully implemented in India and every house in India can get freedom from darkness.

PRACTICE QUESTIONS FOR PRELIMINARY EXAM :

Q.1. Consider the following statements regarding the PM Solar Rooftop Scheme.

1. This scheme has a provision to provide up to 300 units of free electricity every month to one crore families in India.

2. This will help India become self-reliant in the energy sector by reducing its energy dependence on fossil fuels.

3. India has set a target of becoming completely self-reliant in the field of renewable energy by the year 2030.

4. This scheme is operated by the Ministry of Renewable Energy in India.

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

A. Only 1, 2 and 3

B. Only 2, 3 and 4

C. None of these.

D. All of the above .

Answer – D

PRACTICE QUESTIONS FOR MAIN EXAM :

Q.1. What is the future of renewable energy in India? Discuss in detail the major challenges and their solutions for successful implementation of PM Solar Rooftop Scheme in India.

SC ISSUED A TEMPORARY SUSPENSION ON THE ESTABLISHMENT OF FACT CHECK UNITS

WHY IN THE NEWS?

The Indian Supreme Court has issued a temporary suspension of the central government's notification regarding the establishment of a Fact Check Unit (FCU). This action follows a petition filed in the Bombay High Court contesting the revised Information Technology (IT) Rules of 2023, which granted the government authority to detect fake news circulating on social media platforms.

ABOUT THE FACT-CHECKING UNIT AND THE AMENDED IT RULES

The rise of social media has created a breeding ground for misinformation, and India is taking steps to address this challenge with the introduction of the Fact-Checking Unit (FCU) in 2023.

FACT-CHECKING UNITS:

- Established in 2023 as part of the Press Information Bureau (PIB), the FCU acts as a government-appointed watchdog specifically tasked with monitoring social media for information related to the central government and its departments.

- This unit meticulously examines online content, identifying and flagging posts that it deems to be false or misleading. By acting as the government's eyes and ears on social media, the FCU aims to combat the spread of disinformation that could potentially erode public trust in the government.

THE AMENDED IT RULES

To effectively combat misinformation, the FCU isn't operating in a silo. The amended IT Rules, introduced alongside the FCU in 2023, **establish a broader framework for tackling fake news.** These rules place new responsibilities on online intermediaries like Facebook, Twitter, and YouTube, along with internet service providers (ISPs) such as Airtel and Jio.

- **Proactive Measures**: Online platforms are now obligated to implement measures that prevent the spread of inaccurate information about the government in the first place. This could involve content moderation strategies or flagging mechanisms for users to report suspicious content.

- **Fast Response**: When the FCU identifies demonstrably false information, the IT Rules mandate that these platforms take "reasonable efforts" to remove such content. This creates a system where the FCU acts as the investigator, identifying misinformation, while online platforms function as the enforcers, taking down flagged content.

- **Safe Harbor protection at risk**: The IT Rules come with a potential penalty for non-compliance. Failure to adhere to these regulations could result in online intermediaries losing their "safe harbour" protection. This legal shield currently safeguards them from lawsuits over content posted by their users. Losing this protection could expose them to significant legal liabilities.

CONCERNS RAISED

- **Unclear Standards**: The Fact-Checking Unit (FCU) might have too much leeway in deciding what's "false information" about the government. This raises concerns about biased judgments and targeting specific viewpoints, which might have a negative impact on **Freedom of Speech and Expression(Article-19).**

- **Silencing the Dissent**: Some argue the rules, particularly the **amendment to Rule 3(1)(b)(v),** violate fundamental rights like free speech and equality enshrined in the Indian Constitution. They fear these rules could be used to silence criticism of the government.

- **Burden on Platforms**: Social media platforms like Facebook and YouTube face a heavy task: monitoring and removing content flagged by the FCU. This could lead to excessive censorship.

- **Conflict of Interest**: The fact-checking unit's function presents a notable conflict of interest since it assumes the roles of adjudicator, evaluator, and enforcer simultaneously.

GOVERNMENT'S RATIONALE BEHIND ESTABLISHING FCU'S

- **Tackling the False Information**: This fact-checking entity can play a crucial role in addressing the problem of false news and misinformation circulating on digital platforms, which has the potential to cause harm to society.

- **Enhancing Accountability of Social Media Intermediaries**: Designating PIB's Fact-Check Unit as the government's official fact-checking body will heighten the accountability of social media intermediaries such as Facebook and Twitter. They will now be obligated to remove content that is false or misleading.

- **Strengthening Cybersecurity Measures**: PIB's Fact-Check Unit has the capacity to bolster cybersecurity efforts by preventing the misuse of online platforms for illicit or harmful purposes. For instance, regulating the dissemination of deepfakes can be part of this endeavour.

- **Curbing Hate Speech and Violence**: The Fact-Check Unit aims to ensure adherence to Indian laws such as the IT Act and statutes pertaining to national security. This endeavour helps thwart the exploitation of social media platforms and other digital media channels to propagate hate speech or instigate violence.

PRELIMS PRACTISE QUESTION

Q1. Consider the following:

1. Service providers

2. Data centres

3. Body corporate

For how many of the above is it legally mandatory to report on cyber security incidents?

(a) Only one

(b) Only two

(c) All three

(d) None

Ans: D

MAINS PRACTISE QUESTION

Q1. How does the unregulated dissemination of information on the internet potentially exacerbate social tensions in diverse countries like India, where different cultural, religious, and ethnic groups coexist?

GROSS GOODS AND SERVICES TAX (GST) COLLECTIONS IN INDIA MARCH 2024

SOURCE – THE HINDU AND PIB.

GENERAL STUDIES – DEVELOPMENT OF INDIAN ECONOMY, GROSS GOODS AND SERVICES TAX, UNION FINANCE MINISTRY, DEVOLUTION OF CENTRAL TAXES UNDER CENTRE – STATE RELATIONS IN INDIA
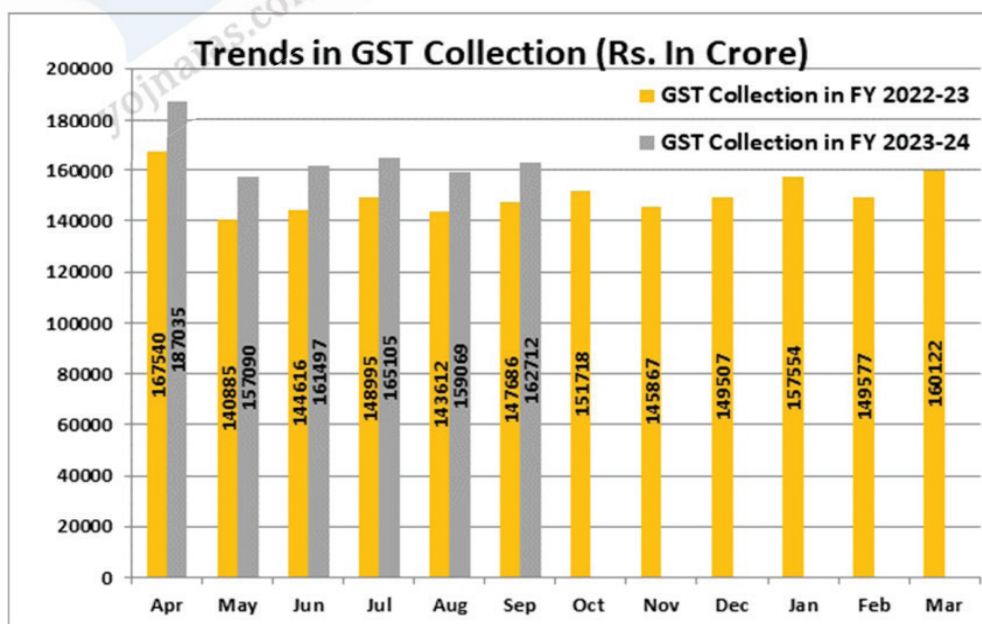
WHY IN THE NEWS ?

- This is the first time in the historical journey of revenue and total tax collection in India that for the first time in a financial year, the total collection of Gross Goods and Services Tax (GST) has crossed Rs 20 lakh crore.

- The total gross GST collection in the financial year 2023-24 was Rs 20.18 lakh crore, showing a growth rate of 11.7% over the previous financial year.

- The average monthly collection for fiscal year 2023-24 was Rs 1.68 lakh crore, higher than last year's average tax collection of Rs 1.5 lakh crore.

- The net GST revenue after settlement till March 2024 for the current financial year is Rs 18.01 lakh crore, showing a growth rate of 13.4 per cent compared to the same period last year.

- The highest gross GST collection in India in March 2024 was Rs 1.78 lakh, which is an increase of 11.5% over the previous year i.e. March 2023.

- This was the second highest monthly collection of GST in a month since the implementation of GST in India in the month of July 2017.

- The highest ever single-month gross GST collection of Rs 1.87 lakh crore was achieved in India in the month of April 2023.

- According to the Union Finance Ministry, the main reason for the highest gross GST collection in March 2024 is the increase in domestic transactions.

- Net GST revenue after refund in March 2024 in India is Rs 1.65 lakh crore, which is 18.4% higher tax collection compared to the same period last year.

- Maharashtra ranks first in GST collection in India in March 2024. In India, only the state of Maharashtra has the highest contribution to the total tax collection of Rs 27,688 crore.

India has witnessed a positive performance across all components of tax collection. Therefore, the details of total tax collection in March 2024 are as follows –

- **Central Goods and Services Tax (CGST): ₹34,532 crore**

- **State Goods and Services Tax (SGST): ₹43,746 crore**

- **Integrated Goods and Services Tax (IGST): ₹87,947 crore, including ₹40,322 crore collected on imported goods.**

- **₹12,259 crore in cess, which includes ₹996 crore collected on imported goods.**

DETAILS OF GROSS GST COLLECTION IN THE FINANCIAL YEAR 2023 – 24 :

Trends in GST Collection (Rs. In Crore)

Month	GST Collection in FY 2022-23	GST Collection in FY 2023-24
Apr	167540	187035
May	140885	157090
Jun	144616	161497
Jul	148995	165105
Aug	143612	159069
Sep	147686	162712
Oct	151718	
Nov	145867	
Dec	149507	
Jan	157554	
Feb	149577	
Mar	160122	

The contribution of various sectors in GST collection during the financial year 2023 – 24 is as follows –

- Central Goods and Services Tax (CGST) Rs 3,75,710 crore,

- State Goods and Services Tax (SGST) Rs 4,71,195 crore;

- Integrated Goods and Services Tax (IGST) was Rs 10,26,790 crore, which also includes Rs 4,83,086 crore collected on imported goods.

- Cess: Rs 1,44,554 crore collected, including Rs 11,915 crore on imported goods.

SOME IMPORTANT FACTS RELATED TO GOODS AND SERVICES TAX IN INDIA :

- The continued strong performance in terms of total gross GST collections in India in FY 2023-24 is a milestone. The average monthly tax collection this financial year is ₹1.68 lakh crore, which is higher than last year's average of ₹1.5 lakh crore.

- The GST revenue net of refunds till March 2024 for the current financial year is ₹18.01 lakh crore, an increase of 13.4% over the same period last year.

- Under the Inter-Governmental Settlement in India, in the month of March, 2024, the Central Government has settled ₹43,264 crore to CGST and ₹37,704 crore to SGST from the collected IGST.

- In India, this amounts to a total revenue of ₹77,796 crore for CGST and ₹81,450 crore for SGST for March, 2024 after regular settlement in terms of taxes.

- For FY 2023-24, the Central Government has settled ₹4,87,039 crore to CGST and ₹4,12,028 crore to SGST from the collected IGST.

WHAT IS GOODS AND SERVICES TAX ?

- GST is known as Goods and Services Tax. It is an indirect tax which has replaced many indirect taxes in India like excise duty, VAT, service tax etc.

- Goods and Services Tax (GST) was passed by the Parliament in India on 29 March 2017 and this tax system was implemented across India from 1 July 2017.

- Goods and Services Tax was included in the Constitution of India by the 101st Constitutional Amendment Act 2016.

- This Amendment Act made provision for Goods and Services Tax by including a new Article 246A in the Constitution.

- Goods and Services Tax (GST) It is imposed on the supply of goods and services.

- The Goods and Services Tax law in India is a comprehensive, multi-stage, destination-based tax that is levied on every value addition.

- GST is a single domestic indirect tax law for the entire country.

- The Goods and Services Tax has simultaneously replaced almost all the indirect taxes imposed by the Central Government and the State Government.

Indirect taxes in India which have not been replaced by GST. Well the tax is as follows–

1. **Basic customs duty**
2. **Value added tax on petrol and diesel**
3. **Tax on tobacco and alcohol**
4. **Stamp duty on property**
5. **Electricity charges**
6. **Vehicle tax**
7. **Property tax**

PROCESS OF TRANSFER OF CENTRAL TAXES UNDER CENTRE-STATE RELATIONS IN INDIA :

- The central government transfers taxes to the states on the basis of the recommendations of the Finance Commission. Which is transferred through monthly installments.

- In the last two years, a significant portion of the total funds were transferred in the latter half of the financial year.

- In 2021-22, the Center transferred 50% of the funds during the fourth quarter (January-March). This figure was 36% in 2022-23.

- In the first quarter (April-June) of 2023-24, the Center has transferred 23% of the total funds allocated to the states.

- This is significantly higher than 2021-22 and 2022-23. Advance transfer of central taxes may allow states to avoid spending in the final months of the financial year.

- According to the General Financial Rules, 2017 issued by the Finance Ministry of India – excess of expenditure in the last months of the financial year is considered a violation of propriety.

- The uneven pace of expenditure by states in a financial year may be affected by the patterns of receipts. Tax transfers from central taxes to states may also allow states to better plan their expenditure patterns during that financial year.

SOLUTION / WAY FORWARD :

- The journey of GST in India so far and the huge surge in GST revenues provide an opportunity to make some much needed reforms in this tax system, indicating the opening of a window for GST.

- The surge in overall GST growth should allow the next government to be formed after the Lok Sabha general elections in 2024 to focus on much-needed reforms in this tax system.

- The increase in GST collections is due to tax demands made for previous years and crackdown on known methods of tax evasion such as fake invoices and fraudulent input tax credits.

- Therefore, the government also needs to tighten its grip on tax evaders in India so that a transparent tax system can be ensured in India.

- These reforms should include reimagining the plan to rationalize this tax by removing different rates and bringing excluded items like electricity and petroleum products under its ambit and reducing high duties on key products like cement and insurance. .

- The GST compensation cess, which is now being used to compensate states for repaying COVID-19 pandemic-era borrowings, was worth Rs 1.44 lakh crore last year, before being settled before the extended deadline of March 2026. Let it be given.

- It is extremely important for the Central Government to avoid the temptation to impose implicit cess except on genuinely demerit items like tobacco.

- Imposing taxes on hybrid vehicles at more than 40 per cent, despite encouraging consumption and private investment, will make it difficult for India to achieve its green goals. Therefore, the Central Government also needs to rationalize this existing tax system, so that India can easily and successfully achieve its green target.

PRACTICE QUESTIONS FOR PRELIMINARY EXAM :

Q.1. Consider the following statements regarding Goods and Services Tax (GST) in India.

1. Goods and Services Tax in India has been implemented by the 101st Constitutional Amendment Act 2016.

2. GST in India is a single domestic indirect tax law for the entire country.

3. The contribution of Central Goods and Services Tax (CGST) is ₹34,532 crore while the contribution of State Goods and Services Tax (SGST) is ₹43,746 crore in India in March 2024.

4. Taxes on tobacco and alcohol and property tax are also included in GST In India.

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

A. Only 1, 2 and 3.

B. Only 2, 3 and 4.

C. Only 3 and 4.

D. Only 1, 3 and 4.

Answer – A

PRACTICE QUESTIONS FOR MAIN EXAM :

Q.1. What do you understand about the Goods and Services Tax? Discuss in detail the effects of GST on the Indian economy, its challenges and its solutions.

6 SITES OF MP ADDED TO THE TENTATIVE UNESCO LIST OF WORLD HERITAGE SITES

WHY IN THE NEWS?

Recently, six new sites from Madhya Pradesh have been added to the Tentative UNESCO list of World Heritage Sites (WHS).

SIGNIFICANT FEATURES OF THE SELECTED 6 SITES

1. **HISTORICAL GROUP OF DHAMNAR**

- The Historical Group of Dhamnar boasts a remarkable **collection of 51 caves, stupas, and dwellings**. Dating back to the 7th century AD, this site offers a glimpse into India's rich Buddhist heritage.

- A true centrepiece is the **colossal statue of Gautam Buddha in a peaceful reclining posture (nirvana pose).** This awe-inspiring figure is just one of the many treasures found at Dhamnar.

- The significance of Dhamnar extends beyond its size. The northern caves, particularly **Bari Kacheri and Bhima Bazar**, stand out for their historical importance and architectural beauty.

- Interestingly, the site's modern name, Dhamnar, might have Shaivite roots. Some believe it stems from the term "**Dharmanatha," which hints at the region's diverse cultural influences.** While its historical name was Chandananagari-mahavihara, Dhamnar's current name reflects its enduring legacy.

2. **ROCK ART SITES OF CHAMBAL VALLEY**

- The Chambal Valley is renowned for **hosting the largest concentration of rock art sites** globally, offering a captivating glimpse into ancient human life and cultural progression.

- These sites, spread across Madhya Pradesh, Rajasthan, and Uttar Pradesh, portray scenes from diverse historical epochs and civilisations. Notable locations such as Bhimlat Mahadev, Chaturbhuj

Nath Nala, and Garadia Mahadev contribute significantly to the region's rich rock art heritage.

- **Flourishing amidst the hilly terrain of the Vindhyan, Satpura, and Kaimur ranges,** this artistic expression seamlessly integrates with the surrounding natural landscape.

Rock art site at Chambal valley
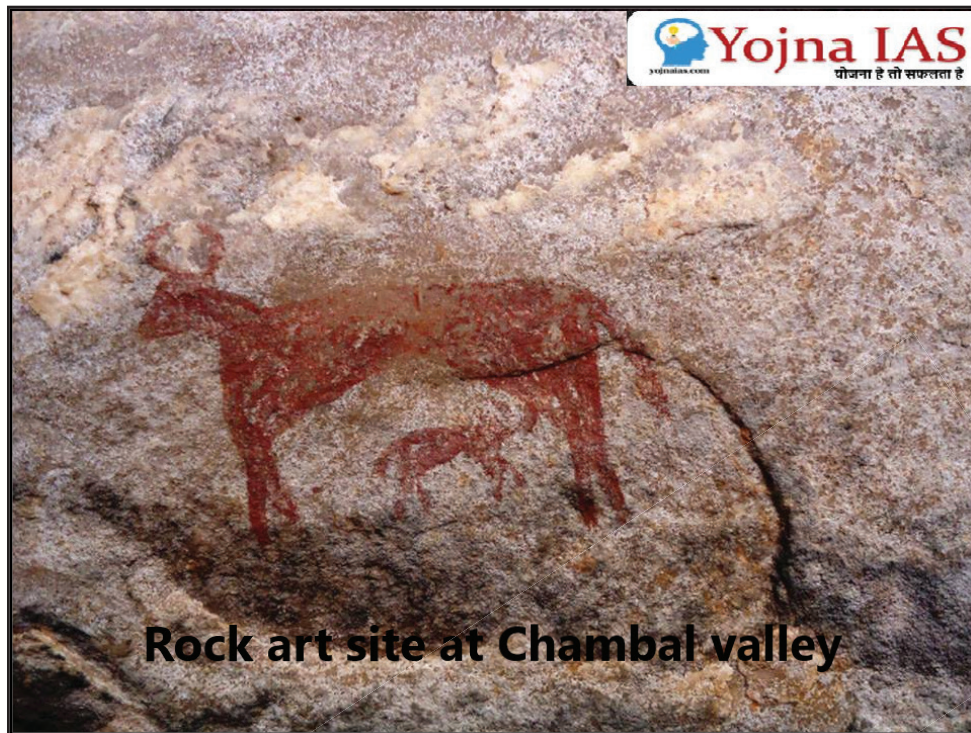
3. GOND MEMORIAL OF RAMNAGAR

- The Gond Memorial in Ramnagar, Mandla, serves as a tribute to the esteemed cultural heritage of the Gond tribe, which is historically significant in the Central Provinces of India.

- **Comprising structures like Moti Mahal, Raibhagat ki Kothi, Suraj Mandir, Begum Mahal, and Dalbadal Mahal,** this collection embodies the architectural and historical richness of the area.

- Located at the heart of what was formerly recognised as Gondwana, the site provides insight into the diverse cultural heritage of India, spanning present-day Madhya Pradesh, Chhattisgarh, and Maharashtra.

4. BURHANPUR KHOONI BHANDARA

- Burhanpur's Khooni Bhandara stands as a fascinating **example of ancient water management systems** comprising eight subterranean water structures. **Constructed under the supervision of Abdurrahim Khankhana using the Persian Qanat technique**, this engineering marvel played a crucial role in sustaining the historical city.

- In the era of the Mughal empire, innovations such as Persian Qanats made their way to India, demonstrating cultural exchange and inventive engineering techniques of the time. The **distinct mineral-rich water, tinted with a reddish hue, earned the name "khooni" (bloody),** adding to the site's intrigue and historical importance.

5. BHOJESHWAR MAHADEV TEMPLE

- Built under the patronage of Raja Bhoj during the 11th century, the Bhojeshwar Mahadev Temple serves as a symbol of ancient architectural excellence and reverence for Lord Shiva.

- Its magnificence is evident not just in its colossal Linga crafted from a single rock but also in its elaborate engravings and statues. The temple embodies the Bhumija architectural style, which is marked by its towering shikhara and intricate adornments, incorporating elements influenced by the Dravidian architectural tradition.

Bhojeshwar Mahadev temple

6. ` GWALIOR FORT

- Situated atop a hill, Gwalior Fort is famed not just for its imposing fortifications but also for offering awe-inspiring panoramic vistas of the surrounding city. Historical records attribute the fort's origins to the 6th century AD, credited to the Rajput warrior Suraj Sen.

- Throughout its existence, Gwalior Fort has witnessed a turbulent history marked by invasions, reconstructions, and shifts in governance. Among its notable features are ancient temples like Teli ka Mandir, Chaturbhuj Temple, Sas Bahu Temples, and the Gurdwara Data Bandi Chhor, all contributing to its cultural significance.

- References in ancient Sanskrit inscriptions such as Gopachala or Gopagiri highlight its strategic perch atop basalt rock hills.

PRELIMS PRACTISE QUESTION

Q1. Which one of the following statements is correct? (UPSC 2022)

(a) Ajanta Caves lie in the gorge of the Waghora River.

(b) Sanchi Stupa lies in the gorge of the Chambal River.

(c) Pandu-Lena Cave Shrines lie in the gorge of the Narmada River.

(d) Amaravati Stupa lies in the gorge of the Godavari river.

Answer: A

MAINS PRACTISE QUESTION

Q1. **How can the recognition of world heritage sites contribute to sustainable tourism and economic development?**

THREATS OF GLACIAL LAKE OUTBURST FLOOD

UPSC GS3 MAINS SYLLABUS: DISASTER AND DISASTER MANAGEMENT

WHY IN THE NEWS?

The Uttarakhand administration has formed two expert teams tasked with assessing the danger posed by five potentially perilous glacial lakes situated in the area. These lakes are susceptible to Glacial Lake Outburst Floods (GLOFs), incidents that have caused numerous calamities in the Himalayan regions in recent times.

GLACIAL LAKES IN UTTARAKHAND

- Uttarakhand is home to 13 of the 188 glacial lakes identified in the Himalayan region. These lakes gained significant attention following a catastrophic event in February 2021 when a glacial lake outburst in Chamoli district resulted in the destruction of a small hydropower project on the Rishi Ganga river and triggered devastating flash floods that claimed numerous lives.

- The glacial lakes in Uttarakhand are classified into **three categories**: **'A', 'B', and 'C',** with **'A' denoting the most sensitive ones**. Among the 13 lakes in Uttarakhand, five are classified as 'A' (highly sensitive), four as 'B' (**sensitive**), and four as 'C' (**relatively less sensitive**).

- Notably, the **Pithoragarh district hosts four of the highly sensitive lakes**, while **one is situated in the Chamoli district**. In terms of sensitive lakes, Pithoragarh has two, with one each in Chamoli and Tehri districts.

TEAMS DEPLOYED TO ASSESS UTTARAKHAND'S RISKIEST GLACIAL LAKES

- The **first team comprises** experts from various institutions such as the National Institute of Hydrology, Roorkee; the Geological Survey of India, Lucknow; the Indian Institute of Remote Sensing, Dehradun; the Uttarakhand State Disaster Management Authority; and the Uttarakhand Landslide Mitigation and Management Centre. Their **focus is on evaluating two glacial lakes, utilising satellite data analysis, data collection, bathymetry, and area surveys.**

- Simultaneously, a second team **led by the Centre for Development of Advanced Computing (C-DAC), Pune,** in collaboration with institutions like the Indian Institute of Remote Sensing in Dehradun, the Wadia Institute of Himalayan Geology, the Uttarakhand State Disaster Management Authority, and the Uttarakhand Landslide Mitigation and Management Centre, **will undertake the study of the remaining three 'A' category glacial lakes.**

ABOUT GLACIAL LAKE OUTBURST FLOOD (GLOF)

- A Glacial Lake Outburst Flood (GLOF) is a devastating flood event occurring when the natural dam containing a glacial lake collapses, leading to the sudden release of a large volume of water. Such floods are typically instigated by accelerated glacier melting, excessive precipitation, or an influx of meltwater into the lake. In February 2021, Chamoli district in Uttarakhand experienced flash floods suspected to be caused by GLOFs.

- **Various factors can trigger these floods**, including glacier volume changes, lake water level fluctuations, and seismic activity. The National Disaster Management Authority (NDMA) attributes the emergence of numerous new glacial lakes in the Hindu Kush Himalayas, primarily due to climate change-induced glacial retreat, as a major driver of GLOFs.

NDMA GUIDELINES TO ADDRESS GLACIAL LAKE OUTBURST FLOOD THREATS

- **Identification of Potentially Hazardous Lakes**: Identification involves field assessments, historical event records, and analysis of the lake's physical characteristics and surroundings.

- **Flood Management Techniques**: Techniques include reducing water volume through controlled breaching, pumping, or creating tunnels through moraine barriers or ice dams.

- **Early Warning Systems (EWS)**: Enhancing operational GLOF Early Warning System, which are currently limited in number globally. Some instances in the Himalayan region demonstrate the use of sensor and monitoring-based systems for early warning.

- **Comprehensive Alarm Systems**: Utilising modern communication technologies, such as cell phones, to complement or replace traditional alarm infrastructure like acoustic sirens, ensuring efficient warning dissemination.

- **Technological Utilisation**: The promotion of Synthetic-Aperture Radar imagery aids in automatically detecting changes in water bodies, especially new lake formations, during monsoon periods.

- **Local Manpower Training**: Emphasising the importance of trained local personnel alongside specialised forces like the National Disaster Response Force (NDRF), ITBP, and the Army. Local communities often play a crucial role in search and rescue operations before formal intervention.

MAINS PRACTISE QUESTION

Q1. **Evaluate the guidelines outlined by the National Disaster Management Authority (NDMA) to address Glacial Lake Outburst Flood threats. How effective are these guidelines in enhancing disaster preparedness and resilience in vulnerable regions like Uttarakhand?**

VVPAT VS RE – COUNTING AND VERIFICATION OF VOTES

SOURCE – THE HINDU AND PIB.

WHY IN THE NEWS ?

- Recently the various phases and dates of the Lok Sabha Elections 2024 of India have been announced by the Election Commission of India.

- With the announcement of various phases of the Lok Sabha General Elections 2024 to be held in India, a petition has been filed by various political parties in the Supreme Court of India regarding matching of VVPAT slips with the votes cast in EVMs.

- The bench of Justice BR Gavai and Justice Sandeep Mehta of the Supreme Court of India has issued a notice to the Election Commission and the Central Government and sought their response on this petition filed regarding election reforms in India.

- Congress General Secretary Jairam Ramesh has supported this decision of the Supreme Court of India and said that –**"100 percent VVPATs should be used to increase public confidence in EVMs and ensure integrity of the electoral process in general elections in India."**

- At present, in the general elections held in India, VVPAT paper slips of 5 random polling stations are matched with EVMs to verify the vote count.

- The Lok Sabha elections 2024 to be held in India is the world's largest democratic electoral process, in which the voters of India will cast their votes using more than 900 million Electronic Voting Machines (EVMs) and ensure their participation in this electoral process.

INTRODUCTION OF VVPAT :
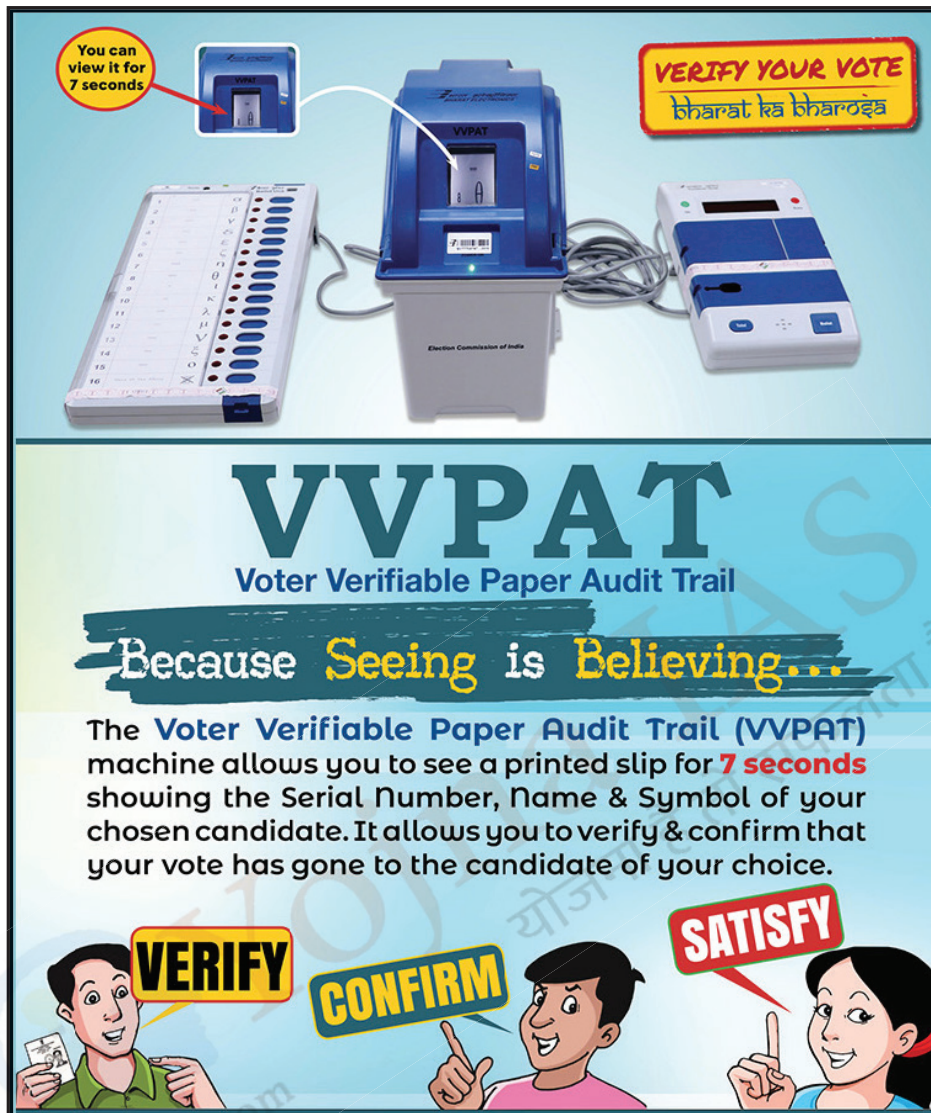
- **Full name of VVPAT –** Voter verifiable paper is the audit trail that is attached to the electronic voting machines (EVMs) in the election process. When a voter casts a vote using an EVM, the VVPAT prints a paper slip displaying the voter's choice. This slip is visible behind glass for a few seconds, allowing the voter to verify his choice before depositing it in the box.

- Voter Verifiable Paper Audit Trail (VVPAT) is a method of providing feedback to voters using a ballot-less voting system.

- VVPAT is intended to be an independent verification system for voting machines, designed to allow voters to verify that they are voting and to detect potential election fraud or malfunction, and to provide a means to audit stored electronic results. It has been confirmed that their vote has been cast correctly.

- It contains the name of the candidate (for whom the vote has been cast) and the election symbol of the party/individual candidate.

BACKGROUND OF USING VVPAT IN GENERAL ELECTIONS IN INDIA :

- Use of VVPAT in general elections in India The idea of EVMs was first proposed by the Election Commission of India (ECI) in 2010, when several political parties raised concerns about the reliability and security of electronic voting machines (EVMs). ECI conducted several field trials and demonstrations of VVPAT machines in various states and had also sought feedback in this regard from various stakeholders.

- In the year 2013, the Supreme Court of India had directed the ECI to implement VVPAT in a phased manner.

- The Supreme Court of India in the year 2017 had ordered the ECI to use VVPAT along with EVMs in all future elections held in India.

IMPORTANCE OF VVPAT IN GENERAL ELECTIONS OF INDIA :

- This allows voters to verify that their votes have been cast as per their preferences.

- This prevents any discrepancy or manipulation in the recording of votes by the EVMs.

- It provides a means of auditing the stored electronic results and enables cross-checking of votes in case of any dispute or doubt.

- This serves as an additional barrier to votes being altered or destroyed by corrupt or malfunctioning voting machines or personnel.

- This enhances the confidence of voters in the electoral system conducted in India and reduces the scope for any allegations or complaints made against EVMs.

FEATURES OF VVPAT :
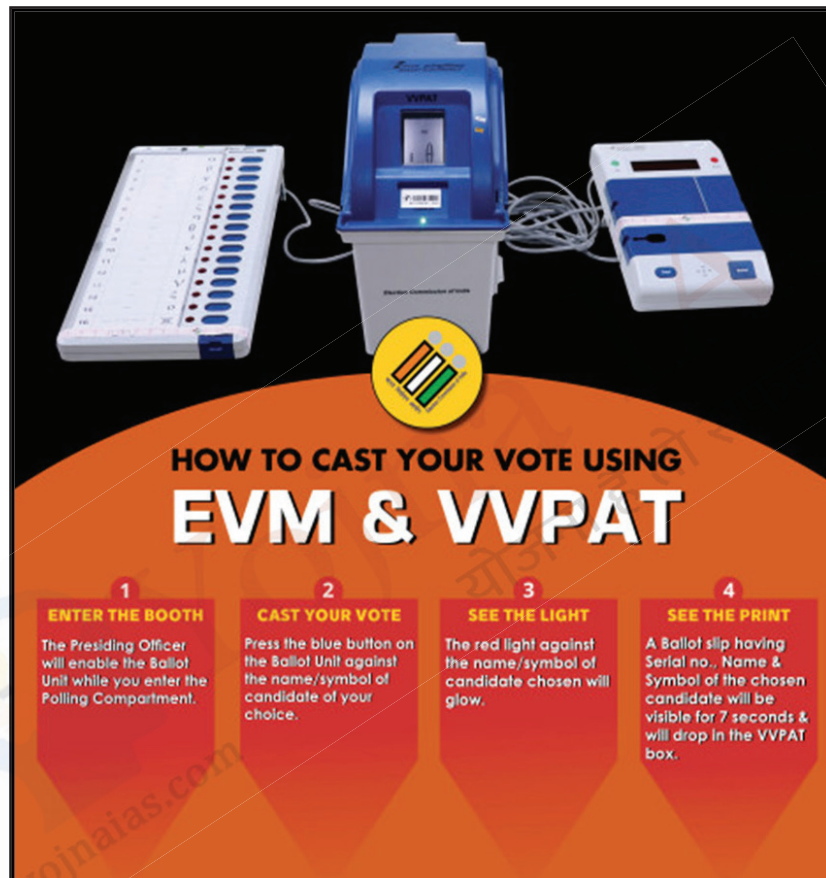
- VVPAT The machine is a printer-like device attached to the EVM. When a voter presses the button on the EVM against the selected candidate, the VVPAT machine prints a paper slip with the candidate's serial number, name and his election symbol.

- The slip is visible to the voter for seven seconds through a transparent window in the VVPAT machine, after which it is automatically cut and falls into a sealed drop box.

- VVPAT does not require batteries as it runs on a power pack battery.

- Normally a VVPAT takes one hour to count votes.

- VVPAT was first conducted in September 2013 in the by-election to Noksen assembly seat in Tuen-sang district of Nagaland.

- The VVPAT consists of a printer and a VVPAT Status Display Unit (VSDU).

- In case of recount or audit this slip can be obtained only by the polling officials.

CORRECTIVE STEPS TAKEN BY ELECTION COMMISSION OF INDIA RELATED TO VVPAT :

- ECI has procured over 16 lakh VVPAT machines from two public sector undertakings, Bharat Electronics Limited (BEL) and Electronics Corporation of India Limited (ECIL), at a cost of about Rs 3,000 crore.

- ECI has conducted extensive training and awareness programs for polling officials, security personnel, political parties, candidates and voters on the use and operation of VVPAT machines.

- ECI has introduced a randomization process for allocation and distribution of EVMs and VVPATs to ensure fairness and confidentiality.

- The ECI has ordered that as per the Supreme Court direction, at least one polling station in each assembly constituency will be randomly selected for counting the VVPAT slips along with the EVM votes.

- ECI has also developed a technical protocol for counting of VVPAT slips in case of any mismatch or discrepancy between EVM and VVPAT results.

## CHALLENGES RELATED TO VVPAT BEFORE THE ELECTION COMMISSION OF INDIA :

- VVPAT machines are prone to technical faults, malfunctions, jamming or printing errors due to various factors such as faulty hardware, software bugs, power fluctuations, environmental conditions, human errors or sabotage.

- VVPAT machines require more maintenance, storage space, security arrangements and transportation costs compared to stand-alone EVMs.

- VVPAT machines increase the time and complexity of the voting process, as voters have to wait for the paper slip to appear and verify it before leaving the polling station.

- VVPAT machines may not be completely effective in ensuring voter verification, as some voters may not check or understand the paper slips properly, or may not report any discrepancies or complaints to polling officials.

- VVPAT machines may not be sufficient to resolve all disputes or doubts about election results, as counting of paper slips is limited to a few polling stations and is subject to human errors or manipulation.

SOLUTION / WAY FORWARD :

- VVPAT is widely considered a best practice for ensuring the integrity and reliability of electronic voting systems. However, it also presents some technical and operational challenges that need to be addressed carefully. It is important to thoroughly test and evaluate VVPAT systems on a large scale before implementing them in elections in India.

- It is also extremely important to ensure adequate legal and regulatory framework for its use and validation in general elections in India.

- In India, the Election Commission is required to increase the recount sample by selecting certain assemblies of each State/Union Territory to make it more statistically significant or only on those seats

where the margin of victory is very small (e.g., total votes This problem can be solved by increasing the recalculation sample. But insisting on a complete recount shows exaggeration and a clear lack of trust in EVMs.

- Verification of a statistically significant sample of VVPAT slips should suffice for elections in India.

- The VVPAT system plays an important role in the electoral system of India, as it enhances fairness, accuracy, transparency and public trust of the voting process.

- India's electoral process also requires continuous improvement and innovation to address its challenges and limitations.

- ECI should ensure adequate testing, quality control, calibration and certification of VVPAT machines before and after each election and promptly replace or repair any defective or defective machines.

- The ECI should conduct regular training and refresher courses for polling officials, security personnel, political parties, candidates and voters on the use and operation of VVPAT machines and resolve any queries or complaints effectively.

- The ECI should increase random sampling and counting of EVM votes as well as VVPAT slips and adopt a scientific and transparent method for selection of polling stations for this purpose.

- ECI should develop a robust and secure protocol for counting of VVPAT slips and ensure proper documentation and verification of the process in case of any mismatch or discrepancy between EVM and VVPAT results.

- To conduct elections in India in a fair manner, the ECI should also explore other technological solutions or alternatives such as end-to-end verifiable voting systems, blockchain-based voting systems or paper-based voting with optical scanners that would be possible in India. Can replace the VVPAT system in general elections.
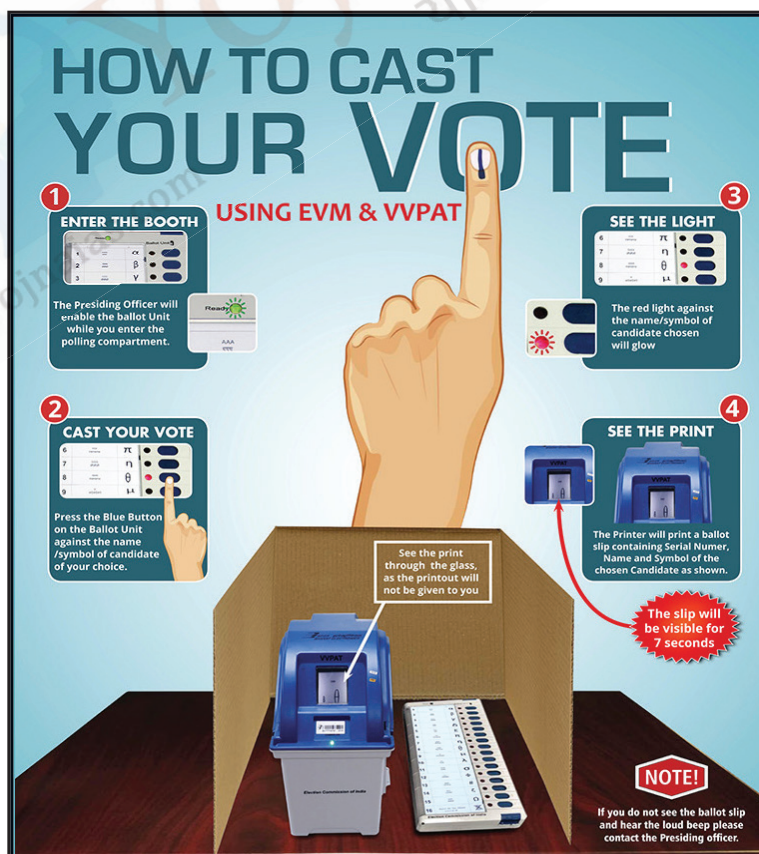
PRACTICE QUESTIONS FOR PRELIMINARY EXAM :

Q.1. Consider the following statements regarding the demand for vote verification through recounting of VVPAT slips in the direction of electoral reforms in India.

1.   The use of VVPAT in general elections in India was first proposed by the Election Commission of India (ECI) in 2010.

2.   This prevents any type of malpractice from taking place in elections.

3.   VVPAT machines in India are manufactured by Bharat Electronics Limited (BEL) and Electronics Corporation of India Limited (ECIL).

4.   This allows cross-checking of votes in case of any dispute or doubt related to the votes in the election.

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

A. Only 2, 3 and 4.

B. Only 1, 2 and 3.

C. Only 1, 3 and 4.

D. All of these.

Answer – D

PRACTICE QUESTIONS FOR MAIN EXAM :

Q.1.   Highlighting the main challenges in conducting a transparent and fair election process in India, discuss how the demand for vote verification through recounting of VVPAT slips is helpful in increasing electoral transparency, fairness and public trust in India ?

IMPACT OF KUNMING-MONTREAL GLOBAL BIODIVERSITY FRAMEWORK ON TRIBES

WHY IN THE NEWS?

A recent conference hosted by the University of Arizona shed light on apprehensions regarding the Kunming-Montreal Global Biodiversity Framework (GBF) and its potential ramifications, specifically concerning the indigenous tribes of India.

ABOUT KUNMING-MONTREAL GLOBAL BIODIVERSITY FRAMEWORK

- **In December 2022**, at the 15th Conference of the Parties (**COP15**) to the UN Convention on Biological Diversity, a landmark agreement emerged – the **Kunming-Montreal Global Biodiversity Framework (GBF).**

- This framework builds on past efforts and seeks to achieve the ambitious goal of living in harmony with nature by 2050, aligning with broader sustainable development objectives.

TARGETS SET BY KUNMING–MONTREAL GLOBAL BIODIVERSITY FRAMEWORK

- The GBF outlines a clear path for a future where biodiversity thrives. **It establishes four overarching goals for 2050**, encompassing aspects like maintaining healthy ecosystems, reducing threats to biodiversity, ensuring sustainable use benefits everyone, and ultimately achieving a harmonious relationship between humans and nature.

- To translate these goals into action, the **GBF sets 23 specific targets to be achieved by 2030**. These targets **focus on** key areas like **mitigating threats to biodiversity, promoting sustainable use with fair benefit-sharing, and establishing effective tools** for implementation and mainstreaming biodiversity considerations.

LEGAL MANDATE OF THE FRAMEWORK

- Although GBF **isn't a legally binding treaty**, it serves as a powerful international instrument fostering collective action. All participating countries agree to set national targets aligned with the framework's goals and targets.

- This collaborative approach promotes a sense of shared responsibility and accountability for achieving a sustainable future.

INDIA'S PROGRESS IN ACHIEVING THE TARGETS TILL NOW

- **Target 3 – 30×30**: India has announced the inclusion of 22% of its terrestrial area and 5% of marine and coastal areas within the Protected Area Network.

- Although India demonstrates progress in expanding protected areas, concerns have surfaced regarding the legal definitions and potential diversion of these areas for non-conservation purposes.

- **India's Forest (Conservation) Amendment Act of 2023** broadened the scope of forest activities to incorporate commercial ventures such as zoos and ecotourism, indicating a commitment to sustainable development.

- Nevertheless, the Supreme Court has issued directives mandating that any proposals for establishing zoos and safaris within forest areas (excluding protected areas) must undergo prior approval from the court.

- **Other Effective Area-Based Conservation Measures (OECMs)**: India has identified 14 categories of OECMs, including initiatives led by citizens. However, the voluntary nature of their declaration raises questions regarding legal protection.

CONTROVERSY AROUND TARGET 3 OF THE KUNMING–MONTREAL FRAME-WORK

- **Target 3 of the GBF aims to ensure that by 2030**, at least 30% of the world's land, waters, and seas are preserved. Currently, protected areas (PAs) encompass approximately 16% of these areas. **This objective is commonly referred to as the "30 by 30" target.**

- Analysts argue that while this target appears beneficial, it often **prioritises corporate interests over those of indigenous communities, particularly in Southeast Asia.** For instance, in **Cambodia's Beng Per Wildlife Sanctuary**, an indigenous leader named Heng Saphen was unjustly convicted for cultivating her own land.

- Critics contend that **involving the private sector in forest conservation is problematic.** They point to India's Forest (Conservation) Amendment Act of 2023 as an example of this trend. The act expands the definition of forest activities to include zoos, safaris, and ecotourism facilities.

- According to experts, **colonial elites initially established protected areas for recreational and hunting purposes.** This legacy persists today, with ecotourism projects often treating indigenous peoples as attractions, showcasing their traditional cultures in contrived settings.

STEPS THAT CAN BE TAKEN TO PROTECT TRIBAL LANDS

- **Consent from tribals**: The Panchayats (Extension to Scheduled Areas) Act emphasises "free, prior, and informed consent" from tribals before any decisions affecting their land are made. Upholding this right is essential for ensuring their agency and protecting their cultural heritage.

- **Capacity Building**: Provide educational and training opportunities to equip tribal communities with the skills and knowledge needed to manage their lands effectively and advocate for their rights.

- **Considering them as Guardians of the forests**: Laws should be amended to formally recognise tribal communities as guardians of protected areas. Their deep understanding of the local ecosystem and traditional conservation practices make them invaluable partners in protecting biodiversity. This approach fosters a sense of ownership and empowers communities to manage their lands sustainably.

- **Community-Based Conservation**: Support collaborative conservation initiatives led by tribal communities, ensuring their knowledge and practices are integrated into land management strategies.

- **Legal Framework and Enforcement**: Strengthen the legal framework by enforcing existing legislations like the Forest Rights Act to secure individual and community ownership of land for forest-dwelling Scheduled Tribes and other traditional forest dwellers.

- **Incorporating Indigenous and Expertise Knowledge**: Governments have the opportunity to utilise the traditional wisdom held by indigenous communities, such as the Khasi and Jaintia tribes of Meghalaya, who possess a deep-rooted heritage in safeguarding "sacred groves" – regions of natural flora and fauna preserved through local customs and prohibitions.

PRELIMS PRACTISE QUESTION

Q1.Consider the following statements:

1. Forest rights can be asserted by individuals who have resided in the area for a minimum of two generations prior to the specified date.

2. The gram sabha holds the authority to commence the procedure for ascertaining the type and scope of forest rights.

Which of the above statements is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2
ANSWER: A

MAINS PRACTISE QUESTION

Q1. How can collaborative efforts between indigenous peoples and conservation organisations harness traditional knowledge to combat threats like deforestation and habitat degradation?