

SCIENCE & TECHNOLOGY**How the Digital India Act will shape the future of the country's cyber landscape**

Context: Nations all over the world are wrestling with the necessity to modernize their legal frameworks in order to adapt to the changing digital landscape. India is no exception, with its ambitious 'Digital India' plan. The recently announced Digital India Act 2023 (DIA) is an important step in establishing a future-ready legal framework for the country's burgeoning digital ecosystem.

Details**Digital India Act 2023 (DIA)**

- The Ministry of Electronics and Information Technology (MEITY) has taken a proactive approach to regulating and influencing the nation's digital destiny. The DIA, which is set to replace the two-decade-old Information Technology Act of 2000 (IT Act), is intended to meet the difficulties and opportunities posed by the internet's extraordinary expansion and developing technology.
- The DIA's major goal is to align India's regulatory landscape with the digital revolution of the twenty-first century. Since its inception, India's internet user count has increased from 5.5 million to 850 million.
- With the advent of various intermediaries and the spread of new forms of user harm, such as cyberstalking, trolling, and doxing, the nature of internet usage has also transformed. The DIA is aware of these changes and intends to create a thorough legislative framework to handle them.

Key provisions

- For starters, it emphasizes online safety and trust, with a commitment to protecting citizens' rights in the digital sphere while being adaptable to new market dynamics and international legal principles.
- Second, the DIA gives rules for the proper use of new age technologies such as artificial intelligence and blockchain, recognizing their expanding importance. The DIA does not just let the market determine the path of these technologies, but actively participates in guiding their development and usage within a regulatory framework.
- It encourages ethical AI techniques, data privacy in blockchain applications, and accountability measures in the usage of these technologies. This forward-thinking approach not only benefits residents and businesses, but it also positions India as a responsible player in the global technological environment, poised to capitalize on the full potential of emerging technologies while mitigating associated dangers.
- Third, it supports the open internet concept by striking a balance between accessibility and the required rules to maintain order and safeguard users.
- Furthermore, the DIA requires strict Know Your Customer (KYC) standards for wearable devices, which are supported by criminal law sanctions.
- Lastly, it contemplates a review of the "safe harbour" principle, which presently shields online platforms from liability related to user generated content, indicating a potential shift in online accountability standards.

The numerous difficulties

- One major source of concern is the potential impact on innovation and business ease. Stricter rules, particularly in developing technology, may unintentionally impede entrepreneurial endeavors and discourage foreign investment.
- Furthermore, a reassessment of the "safe harbour" principle, which protects internet platforms from responsibility for user-generated content, could lead to a more cautious stance among these platforms, thereby limiting freedom of expression.
- Furthermore, the success of the DIA is dependent on effective enforcement, which will necessitate significant resources, knowledge, and infrastructure.
- Balancing the interests of numerous stakeholders, especially IT titans, while protecting citizen rights is a huge task.

Conclusion:

- Therefore, while the DIA is a progressive move, its implementation and potential repercussions warrant vigilant monitoring and adaptability to avoid unintended consequences. The DIA is a crucial step towards ensuring a secure, accountable, and innovative digital future for India.

GEOGRAPHY**More Frequent Cyclones in Eastern Arabian Sea**

Context: A study published recently in the Nature Journal highlighted the worries about Climate Change producing frequent Tropical Cyclones (TC) in the Eastern Arabian Sea.

The study is part of the "Forecasting with Fisher's" project, by the Advanced Centre for Atmospheric Radar Research (ACARR) at Cochin University of Science and Technology (CUSAT).

Key findings of the study**Increasing Frequency and Severity of Cyclones:**

- Warming patterns in the ocean and atmosphere are causing more frequent and severe tropical storms in the Eastern Arabian Sea, which is next to India's west coast.
- Tropical cyclones in the Arabian Sea are most common towards the commencement of the southwestern monsoon season, between March and June, and after the season, between October and December.

- The Arabian Sea accounts for around 2% of the yearly global average of tropical cyclones, yet it poses a significant threat due to its highly populated coastlines.

Impact of Indian Ocean Dipole (IOD):

- The positive phase of the Indian Ocean Dipole (IOD), in which one part of the ocean warms faster than the other, causes warmer sea surface temperatures and increased precipitation in the western Indian Ocean region.
- IOD, sometimes known as the Indian Nino, is a phenomenon similar to El Nino that occurs in the Indian Ocean between the Indonesian and Malaysian coastlines in the east and the African coastline around Somalia in the west.

Anthropogenic Influence:

- The recent increase in the frequency of extremely severe cyclonic storms over the Arabian Sea during the post-monsoon season is attributed to anthropogenic (human-caused) influence rather than natural variability.
- Human-induced climate change is contributing to the intensification and higher frequency of cyclones in the Arabian Sea.

Impact on the Western Indian Coastline:

- The intensification and increased frequency of cyclones pose a significant threat to the densely populated coastal regions along India's western coast, from Gujarat to Thiruvananthapuram, which face higher risks such as strong winds, storm surges, heavy rainfall, and other associated hazards.

Coastal Community Concerns:

- Changes in cyclone patterns are predicted to have a considerable impact on the lives and livelihoods of indigenous coastal people and artisanal fishers, demanding additional research and adaptation techniques.

Recommendations:

- The report recommends revisions to development strategies to account for increased cyclone risks, as well as the need for updated storm warning regulations and technologies, as well as localized weather services.

More information about Tropical cyclone:

- Cyclones in the Bay of Bengal (BOB) are relatively more frequent and intense than those of the Arabian Sea.
- The Bay of Bengal typically sees multiple cyclonic events during the tropical cyclone season, which is primarily from April to December.
- The BOB usually has higher sea surface temperatures, especially during the pre-monsoon and post-monsoon seasons, providing the necessary energy and moisture for cyclone formation and intensification.
- The convergence of winds in the BOB, combined with the Coriolis Force (resulting from the Earth's rotation), creates an environment suitable for cyclone genesis. These converging winds form areas of low pressure, which can develop into tropical disturbances and cyclones.

PRELIM FACTS**1. Dandeli Forest**

Context: The Dandeli forest in Karnataka's Uttara Kannada district, known for its diverse wildlife and ecosystem, faces substantial environmental shifts due to changing climate patterns and human interventions.

Key facts about Dandeli Forest

- The Dandeli forest lies in Karnataka's Uttara Kannada district and is part of the Western Ghats, a worldwide renowned biodiversity hotspot.
- Because of its great biodiversity, including a broad range of flora and fauna, the forest is an important wildlife habitat.
- The Kali Tiger Reserve is located next to the Dandeli Forest.
- The Tiger Reserve includes two of the region's most important protected areas: Dandeli Wildlife Sanctuary and Anshi National Park.

2. Indian Air Force Day 2023

Context: Indian Air Force Day is celebrated on 8th October every year to commemorate the establishment of the Royal Indian Air Force on 8th October 1932.

About

- The IAF unveiled its new ensign during the 91st IAF Day celebrations. The new ensign prominently displays the IAF crest in the top right corner, along with the national flag in the upper left canton and the IAF tri-colour roundel in the lower right. This design was officially adopted in 1951.
- The theme for Indian Air Force Day 2023 is "IAF - Airpower Beyond Boundaries."
- The Motto of the IAF is "Touch the sky with Glory" has been taken from the eleventh chapter of the Bhagavad Gita.
- Till now, IAF has fought four conflicts with Pakistan in 1947-1948, 1965, The Bangladesh Liberation War (1971) and 1999 (Kargil War), and Operation Meghdoot.

3. Sixth Basic Taste

Context: For many years, the traditional five basic flavors of sweet, sour, salty, bitter, and umami have been part of our concept of taste. Recent scientific research, however, has revealed evidence of a sixth basic taste experience.

About

- According to a recent study published in Nature Communications, there is a sixth basic taste.
- Ammonium chloride triggers this novel flavor, which activates the same protein receptor that signals sour taste.
- According to research, the protein OTOPI is responsible for detecting sour taste.
- OTOPI is found within cell membranes and serves as a route for hydrogen ions to enter the cell.
- Scientists employed a technology that monitors electrical conductivity to simulate nerve signal conduction to test their findings.
- Ammonium chloride boosted the action potentials of normal mouse taste cells. Genetically modified mice missing OTOPI did not respond. This supported their theory that OTOPI responds to salt by producing an electrical signal in taste bud cells.

4. World Dyslexia Day

Context: World Dyslexia Day, observed annually on October 8th, puts light on the difficulties that people with dyslexia confront. In addition, from the 2nd to the 8th of October each year, Dyslexia Awareness Week is observed.

About

- Dyslexia is a specific learning disorder that primarily affects a person's ability to read, write, and spell accurately.
- It is characterized by difficulties in processing language-related tasks, including recognizing and decoding written words. However, Dyslexia is not related to intelligence.
- Theme for 2023: **Uniquely You**

5. Ruddy Shelduk

Context: The first group of roughly 50 Ruddy Shelduks, also known as 'Surkhab' birds, landed in Uttarakhand for a six-month winter stay.

About

- It (*Tadorna ferruginea*) belongs to the family Anatidae under the order Anseriformes.
- In India it is known as the Brahminy duck.
- It is distributed in Europe, Asia, Indian Subcontinent and a few pockets in Africa.
- These ducks are migratory birds.
- They winter in the Indian Subcontinent, South India and Southeast Asia.
- They inhabit large wetlands, salt lakes, crater lakes, rivers with mud flats and shingle banks.
- It is a mainly nocturnal bird.
- It is omnivorous and feeds on grasses, the young shoots of plants, grain and water plants as well as both aquatic and terrestrial invertebrates.
- They are no sitting ducks; they scale the mighty Himalayas when flying to India from the north attaining heights of 6,800 metres.
- Conservation status
- IUCN : Least Concern

6. Udangudi Panangarupatti

Context: Recently, Udangudi 'Panangkarupatti' (palm jaggery/ gur) from Tamil Nadu has received a Geographical Indication (GI) tag.

About

- The palm jaggery preparation technique in this location is still traditional to this day, with no new modern strategies incorporated.
- **Uniqueness:**
- Karupatti made from palm sap from the region around Udangudi in Tiruchendur taluk in Thoothukudi district is distinctive.
- This is owing to the region's occurrence of red sand dune soil.
- This soil has a lower capacity to store groundwater. Because of the dry weather conditions, the moisture concentration in the atmosphere is lower, resulting in a high sucrose content, which adds flavor.
- The region's dry climate is also ideal for storing karupatti for an extended period of time.
- It is made without the use of any chemical additives such as triple super phosphate or phosphoric acid.

Key facts about Geographical Indication (GI) tag

- It is a sign used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin.
- This is typically used for agricultural products, foodstuffs, wine and spirit drinks, handicrafts and industrial products.
- The Geographical Indications of Goods (Registration and Protection) Act, 1999 seeks to provide for the registration and better protection of geographical indications relating to goods in India.
- This GI tag is valid for 10 years following which it can be renewed.

7. Mont Blanc

Context: According to new data, Mont Blanc, France's highest peak, has shrunk in height over the last two years.

About

- It is the highest peak (4,807 metres) in Europe.
- It is located in the Alps and lies along the French-Italian border and reaches into Switzerland.
- It is nicknamed as "the roof of Europe".
- Its name comes from the perennial snow cap that covers it, meaning literally "the white mountain".
- The mountain stands in a range called the Graian Alps, between the regions of Aosta Valley, Italy, and Savoie and Haute-Savoie, France.

Key facts about Alps

- The Alps emerged during the Alpine orogeny an event that began about 65 million years ago as the Mesozoic Era was drawing to a close.
- They are young fold mountains with rugged relief and high conical peaks.
- The Alps arose as a result of the collision of the African and Eurasian tectonic plates in which the Alpine Tethys which was formerly in between these continents disappeared.
- The Alps extend north from the subtropical Mediterranean coast near Nice, France, to Lake Geneva before trending east-northeast to Vienna (at the Vienna Woods).
- There they touch the Danube River and meld with the adjacent plain.
- The Alps form part of France, Italy, Switzerland, Germany, Austria, Slovenia, Croatia, Bosnia and Herzegovina, Montenegro, Serbia, and Albania.

8. Javan Rhinos

Context: Officials in Indonesia recently reported the sighting of a new Javan rhino calf in Ujung Kulon National Park, which is home to the critically endangered species' final surviving population.

About

- The Javan rhino, also known as the lesser-one-horned rhino, is the most threatened of the five rhino species.
- Scientific Name: *Rhinoceros sondaicus*

Distribution:

- They once lived throughout northeast India and Southeast Asia.
- Today, the entire population of the Javan rhinos is found in the Ujung Kulon National Park on the very western tip of Java, Indonesia.
- Habitat: They inhabit forests, marshy areas, and regions of thick bush and bamboo.
- Population: In 2020, park managers, relying on camera trap data to identify and track the animals, estimated that no more than 68–74 surviving individuals remained.

Features:

- It is a smaller and lighter relative of the greater one-horned rhino. They can reach a height of 1.7 m (5.6 ft) and weigh up to 2,300 kg (5,070 lb).
- They have grey or grey-brown skin, almost black when wet, with pink colouring in the folds.
- Similar to the Indian rhino, the Javan rhinoceros has a single horn, unlike the other three species of rhinos, which have two.
- It has the smallest of horns for all species of rhinoceros measuring less than 20 cm (7.9 in) in length.
- Lifespan: 30 to 45 years in the wild.
- They're herbivorous, only eating plants.
- They're solitary animals, except for mating pairs and mothers with young.
- Conservation Status: IUCN Red List: Critically Endangered

9. Economics Nobel 2023

Context: The Nobel Prize in Economics for 2023 was awarded to Claudia Goldin, a Harvard University professor, for having advanced our understanding of women's labour market outcomes.

Key details:

- Goldin's pathbreaking work has shed light on the participation of women in the labour market over the past 200 years.
- She also explained why the pay gap between men and women refuses to close even as many women are likely to be better educated than men in high income countries.
- While her research focused on the US, her findings are applicable to many other countries.

Key findings:

Older data gave more perspective

- Goldin reached back to older data to reveal that before industrialisation, more women were likely to have been involved in economic activity related to agriculture and various cottage industries.
- With greater industrialisation, work was concentrated in factories, and women found it difficult to leave their homes and travel to work.

- This trend reversed in the early 20th century, with the growth of the services sector.

Marriage's Limitations

- According to Goldin's research, during the early twentieth century, while around 20% of women were gainfully working, the share of married women was just 5%.
- Goldin observed that "marriage bars" legislation frequently barred married women from continuing to work as teachers or office workers.
- Goldin also established that another major element in the sluggish narrowing of the job gap between men and women was women's expectations for their future professions.
- Women's expectations were shaped by their mothers' experiences, and hence their educational and professional choices were not made with the expectation of a long, uninterrupted, and profitable career.

Contraceptive pills

- Women could exert greater control over births and really plan careers and parenting by the end of the 1960s, as easy-to-use contraceptive tablets became increasingly common.
- Women also studied courses other than the service sector, such as law, economics, and medicine.
- Women were now catching up in terms of education and work opportunities.
- However, one significant disparity remained and continues to exist today: the gender wage gap.

Pay gap and parenthood

- Till the time men and women worked in factories, where the pay depended on the day's countable output, the pay gap was not too high.
- It became wider when monthly pay contracts came into the picture.
- One factor significantly impacted how men were paid versus women — childbirth.
- Once a child was born, they were also punished for this at the work front in terms of a slower rise on the payscale.

ANSWER WRITING

Q. Analyze the impact of development projects and policies on tribal communities in India.

Introduction

- Tribal people make up 8.6% of India's population yet account for 46% of total poverty, according to the Ministry of Tribal Affairs. In India, development initiatives and regulations have had a tremendous impact on tribal tribes, which frequently reside in remote and environmentally sensitive places.

Impact of Development projects and policies on Tribal communities:

Positive impacts:

- Government policies and programs, including as the Forest Rights Act (FRA), the Panchayats (Extension to Scheduled Areas) Act (PESA), and the Tribal Sub Plan concept, have tried to promote and preserve tribal groups' socioeconomic development and rights.
- The FRA and PESA give tribal people legal recognition and protect their land rights.
- The Tribal Sub Plan strategy ensures that plan monies are allocated to tribal sub-plans in accordance to their population.
- The Eklavya model residential schools have been successful in promoting education in indigenous areas.
- The PESA Act gives indigenous groups the authority to control their own affairs and strengthens local self-government.

Negative impacts:

Forced displacement:

- Development projects such as mining, dam construction, and industrialization often require large tracts of land, which frequently results in the forced displacement of tribal communities.
- The Vedanta Group's mining project in the sacred Niyamgiri Hills of Odisha was blocked by the Supreme Court because the tribe living there, Dongria Kondh, had not given their free, prior, and informed consent.

Loss of livelihoods:

- Development projects often lead to the loss of traditional livelihoods of tribal communities. The Virginius Xaxa committee report states that tribals have been pushed out of their traditional habitats due to land acquisition and displacement, which has impacted their agricultural and forest-based livelihoods.
- The Sardar Sarovar Dam case is an example of this. The dam construction on the Narmada River in Gujarat resulted in the displacement of over 100,000 people, many of whom were tribal communities. The project also led to the submergence of fertile agricultural land and destruction of livelihoods.

Destruction of cultural heritage:

- Development projects and undue outside interference can also lead to the destruction of the cultural heritage of tribal communities, which is against the idea of 'Tribal Panchsheel' propagated by J.L. Nehru.

Lack of recognition of land and water rights:

- Tribal communities have been using their land and water resources for generations, but these are often violated by development projects.

Conclusion

- Development projects and policies have had both positive and negative impacts on tribal communities in India. The way forward involves ensuring the participation and consultation of tribal communities in decision-making processes and promoting their inclusion and empowerment in mainstream society.

MCQs

- Consider the following statements with relation to Dandeli Forest:
 - The Dandeli forest can be found in the Eastern Ghats.
 - The Kali Tiger Reserve, which is next to the Dandeli Forest, is a protected area.
 - In the forest, the invasive Eupatorium weed is displacing native grasses.
 How many of the statements given above are correct?
 - Only one
 - Only two**
 - All three
 - None
- Consider the following statements:
 - A wilful defaulter means a borrower or a guarantor who has committed wilful default and the outstanding amount is Rs 25 lakh and above.
 - A large defaulter refers to a borrower with an outstanding balance of Rs 1 crore or more, whose account has been categorized as doubtful or a loss.
 Which of the statements given above is/are correct?
 - 1 only
 - 2 only
 - Both 1 and 2**
 - Neither 1 nor 2
- With reference to India-Maldives relations, consider the following statements?
 - Under Operation Neer, the Indian Armed Forces have helped the government of Maldives in the neutralization of the coup attempt.
 - Under Operation Cactus, India supplied drinking water to Maldives to deal with the drinking water crisis.
 Which of the statements given above is/are correct?
 - 1 only
 - 2 only
 - Both 1 and 2
 - Neither 1 nor 2**
- Consider the following statements with relation to the Cyclones:
 - Arabian Sea cyclones are more common and powerful than those in the Bay of Bengal.
 - The Bay of Bengal typically has higher sea surface temperatures, which provide the energy and moisture required for cyclone creation and intensification.
 - The convergence of winds in the BOB, together with the Coriolis Force (caused by the Earth's rotation), produces a setting conducive to the formation of cyclones.
 How many of the statements given above are correct?
 - Only one**
 - Only two
 - All three
 - None
- Consider the following statements with relation to Javan Rhino:
 - It is larger than a larger one-horned rhinoceros.
 - It has the tiniest horns of any rhinoceros species.
 - The IUCN Red List classifies it as Critically Endangered.
 How many of the above statements are correct?
 - Only one
 - Only two**
 - All three
 - None
- Consider the following statements regarding Directorate General of GST Intelligence (DGGI):
 - It works under the direct supervision of the GST Council.
 - It has the power to conduct investigations into suspected cases of GST evasion or non-compliance.
 Which of the statements given above is/are correct?
 - 1 only
 - 2 only**
 - Both 1 and 2
 - Neither 1 nor 2
- What is the motto of the Indian Air Force?
 - Service with Honour
 - Win over the enemy in the sky
 - Service is our prime duty
 - Touching the Sky with Glory**
- Consider the following statements about Mount Blanc:
 - It is Europe's tallest summit.
 - It is situated in the Alps, near the French-Italian border.
 Which of the above statements is/are correct?
 - 1 only
 - 2 only
 - Both 1 and 2**
 - Neither 1 nor 2
- Consider the following statements regarding the Ruddy Shelduk:
 - It is known as Brahminy duck in India.
 - It is found only in the Indian subcontinent.
 Which of the statements given above is/are correct?
 - 1 only**
 - 2 only
 - Both 1 and 2
 - Neither 1 nor 2
- Udangudi Panangkarupatti' is a Geographical Indication (GI) that belongs to:
 - Kerala
 - Andhra Pradesh
 - Tamil Nadu**
 - Telengana