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MINISTRY OF SCIENCE AND TECHNOLOGY

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THE HINDU Page 4

MAHAD SATYAGRAHA
(Syllabus: GS Paper 1 - Modern History)

Demand for removal of Manu statue from Rajasthan HC revived

Mohammed Iqbal
JAIPUR


Activists staging a protest at Shaheed Smarak in Jaipur.
SPECIAL ARRANGEMENT

The demand for the removal of the ancient Hindu law-giver Manu's statue, installed in the Jaipur Bench of Rajasthan High Court, has revived here, as civil rights activists observed the day by commemorating the burning of *Manusmriti* during B.R. Ambedkar's Mahad Satyagraha of 1927. A section of activists has been raising objections to the statue's presence on the High Court premises since 1989.

Activists staged a protest under the banner of Daman Pratirodh Andolan at Shaeed Smarak here on Sunday, while affirming that the Manu statue was a "symbol of injustice", which should have no place in the books and the courts of law.

The protesters said Hindu society's mindset of inequality and discrimination had its origin in *Manusmriti*, which had "provisions against Shudras and women".

The agitation commemorated the historic event of December 25, 1927, when thousands of people led by Ambedkar had gathered in Mahad, a small town in Konkan region, to burn the *Manusmriti* in order to assert the dignity of Dalits and women.

The agitation in Jaipur has shifted focus on a long-drawn-out controversy over the 10-foot-high stone sculpture, as the issue of shifting it from the High Court premises has been pending ever since its installation in 1989. Though it was built by the Rajasthan Judicial Officers' Association and installed after securing the permission of the then Chief Justice, Dalit lawyers and activists had raised an immediate objection.

After a full court resolution directed that the statue be relocated, Jaipur-based Vishwa Hindu Parishad leader, the late Acharya Dharmendra, challenged the decision judicially and obtained a stay order. Since then, the matter has come up in the court time and again without any final decision.

Context: The demand for the removal of the ancient Hindu law-giver **Manu's statue**, installed in the Jaipur Bench of Rajasthan High Court, has revived,, as civil rights activists observed the day by commemorating the burning of Manusmriti during B.R. Ambedkar **Mahad Satyagraha of 1927.**

Mahad Satyagraha

- **About**: Mahad Satyagraha was launched by **Dr. Bhim Rao Ambedkar** on 20 March 1927 at Mahad in current **Raigarh District of Maharashtra.**
- **Background**: In August 1923**, Bombay Legislative Council** passed a resolution that people from the depressed classes should be allowed to use places which were built and maintained by the government.
    - In January 1924, **Mahad which was part of the Bombay Province** passed the resolution in its municipal council to enforce the act.
    - In 1926, **Municipal Board of Mahad**, Maharashtra passed orders to throw open the famous tank of Mahad city to all communities.
    - Earlier, untouchables were not allowed to use water from Mahad tank.
    - High caste Hindus opposed this order of Municipal Board.
    - **Surendranath Tipnis**, the president of the Mahad municipality declared its public spaces open to untouchables and invited Ambedkar to hold a meeting at Mahad in 1927.
    - **Mahad, a town in Konkan**, was selected for the event because it had a nucleus of support from 'caste hindus'.
    - In response, **Ambedkar organised a conference of ten thousand untouchable delegates** at Mahad on March 20, 1927 to support the decision of Municipal Board.
    - Ambedkar **drank water from the tank** and thousands of untouchables followed him.
- **Key Personalities associated:** **A.V.Chitre,** an activist from the Marathi Chandraseniya Kayastha Prabhu (CKP) community; **G.N.Sahasrabudhe,** a Chitpawan Brahmin of the Social Service League and **Surendranath Tipnis,** a CKP who was president of the Mahad municipality.
    - 'Radical' upper caste women namely **Lakshmibai Tipnis and Indirabia Chitre.**
- **Legacy of Mahad Satyagraha:** Every year, March 20 is observed as Social Empowerment day in India to commemorate the Mahad Satyagrah.

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BUSINESS STANDARD

Page 4

URBAN COOPERATIVE BANKS

(Syllabus: GS Paper 3 - Economy)

UCB profiles improve on dip in bad loans

ABHIJIT LELE
Mumbai, 27 December

The profile of urban co-operative banks (UCBs) improved in 2021-22 on the back of augmented capital buffers, a decline in bad loans and improved profitability.

However, the growth in deposits and advances took a knock as liabilities shrunk on the back of high base in 2020-21, according to RBI's Report on Trend and Progress of Banking in India.

The combined net profit of UCBs was up 85 per cent to ₹2,881 crore in 2021-22. Anaemic credit growth in a low rate regime pulled down their interest income. However, the contraction in interest expenditure was even sharper leading to improvement in their profitability.

Also, the amalgamation of a large debt-ridden and stressed UCB (Punjab & Maharashtra Coop Bank) with a small finance bank also helped improve profitability.

On the other hand, the increase in non-interest expenditure, especially staff costs, coupled with a sharp reduction in non-interest income, had a moderating influence.

The asset quality of UCBs, measured by the gross non-performing assets (GNPA) ratio showed improvement for the first time since 2012-13. They had continuously deteriorated during 2015-16 to 2020-21 before improving in 2021-22.

The provisioning requirements have also reduced.

UCBs showed prudence and their provision coverage ratio increased year-on-year, although it still remains below that of commercial banks.

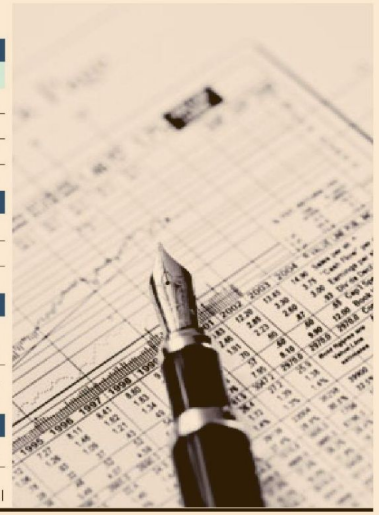
The RBI report said the deposits contracted during 2021-22 for the first time in nearly two decades, leading to a deceleration in UCBs' balance sheet. The high deposits base of 2020-21 was a reflection of pandemic-driven precautionary savings, which normalised during 2021-22. On the asset side, loans and advances showed flat growth.

At end-March 2022, about 94 per cent of UCBs maintained capital to risk-weighted assets ratio (CRAR) above the regulatory minimum of nine per cent. Over the last decade, the capital buffers of UCBs have improved, with fewer banks defaulting on regulatory requirements, it added.

FINANCIALS OF UCBs

Profitability indicators (In %)	2020-21	2021-22
Net profit (₹ cr)	1,558	2,881
Return on assets	0.24	0.43
Return on equity	3.11	5.27
Net interest margin	2.36	2.69
Asset quality (In %)		
Gross NPAs	12.1	9.7
Net NPAs	5.8	4.4
Provision coverage ratio	58.9	62.9
Business performance (In ₹ cr)		
Deposits	529,229 (5.7%)#	526,021 (-0.6%)#
Advances	313,961 (2.8%)#	314,741 (0.2)#
Capital adequacy (In %)		
Capital adequacy ratio	12.5	15.6

NPA: Non-performing assets
Figures in bracket are for YoY growth
Source: RBI



Context: The profile of **urban cooperative banks (UCBs)** improved in 2021-22 on the back of augmented capital buffers, a decline in bad loans and improved profitability.

Urban Cooperative Banks (UCB)

- **About:** The term Urban Co-operative Banks (UCBs), though **not formally defined,** refers to primary cooperative banks located in urban and semi-urban areas.
  - Until 1996, these banks were **only permitted to lend money for non-agricultural purposes.**
- **Functions**: These banks primarily **lent to small borrowers and businesses** centred on communities, neighbourhoods, and workplace groups.
  - They primarily finance entrepreneurs, small businesses, industries, and self-employment in urban areas, as well as home purchases and educational loans.
- **Registration:** They are registered and governed by the respective states' **cooperative societies acts, as well as the Banking Regulation Act of 1949**, and thus are subject to **dual regulatory control.**
  - **Primary credit societies (PCSs)** in urban areas that meet certain criteria may apply to the RBI for a banking licence in order to operate as urban co-operative banks (UCBs).
  - Primary UCBs with **deposits of more than Rs. 50 crore** are also permitted to operate in more than one state, subject to certain conditions.
- **Regulation**: Their banking operations are **governed by the RBI**, which establishes capital adequacy, risk management, and lending standards.
  - Their management and resolution in the event of a crisis are **governed by the Registrar of Co-operative Societies**, who works for either the state or the federal government.
- **Rights and obligation**: They have certain rights and obligations because they are covered by the **RBI Act, 1934 (2nd Schedule)** – rights to obtain refinance and loans from the RBI and obligations such as maintaining cash reserves, submitting returns to the RBI, and so on.
- **Small Finance Bank (SFB)**: The **Shivalik Mercantile Co-operative Bank Limited** is the first Urban Co-operative Bank (UCB) to be granted 'in-principle' permission by the Reserve Bank of India to convert into a Small Finance Bank (SFB).
- **Recent developments**: Recently, the committee headed by former **RBI Deputy Governor NS Vishwanathan** has proposed setting up an umbrella organisation to oversee co-operative banks.

INDIAN EXPRESS

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DELIMITATION COMMISSION

(Syllabus: GS Paper 2 - Polity & Governance)

46 YEARS AFTER LAST SUCH EXERCISE IN ASSAM

J&K exercise over, EC starts process for delimitation of Assam's constituencies

2001 Census will be basis, poll panel bans new admin units from January 1

APURVA VISHWANATH & DEBRAJ DEB
NEW DELHI, AGARTALA, DECEMBER 27

THE ELECTION Commission of India said Tuesday it has begun the process of delimitation of Assembly and Parliamentary constituencies in Assam.

The process will be based on Census data from 2001. The last delimitation of constituencies in Assam was done in 1976 on the basis of the 1971 Census.

In 1971, Assam's population was 1.46 crore. In 2001, it increased to 2.66 crore and to 3.12 crore in 2011.

The EC also issued a directive banning the creation of new administrative units in the state with effect from January 1 next year until completion of the delimitation exercise in the state.

Assam currently has 14 Lok Sabha, 126 Assembly constituencies.

"As mandated under Article 170 of the Constitution, census figures (2001) shall be used for the purpose of readjustment of Parliamentary and Assembly Constituencies in the State. Reservation of seats for the Scheduled Castes and Scheduled Tribes will be provided as per Articles 330 & 332 of the Constitution of India," the EC said.

It said the delimitation exercise in the state has been initiated following a request from the Ministry of Law and Justice.

"The Commission will design and finalise its own guidelines and methodology for the purpose of delimiting the constituencies. During the delimitation exercise, the Commission will keep in mind the physical features, existing boundaries of administrative units, facility of communication, public convenience and as far as practicable,

CONTINUED ON PAGE 2

EXPLAINED

2001 vs 2011: Opp concern

ASSEMBLY POLLS are not due in Assam until 2026. The state currently has 126 Assembly constituencies and sends 14 MPs to Lok Sabha. The state Opposition is questioning why the delimitation exercise is being done on the basis of the 2001 Census, and not the 2011 Census.

Key Facts

- The **first delimitation exercise** was carried out by the President (with the help of the Election Commission) in 1950-51.
- The **Delimitation Commission Act** was enacted in 1952.
- Delimitation Commissions had been **set up four times** - 1952, 1963, 1973 and 2002 under the Acts of 1952, 1962, 1972 and 2002.
- There was **no delimitation after the 1981 and 1991 Censuses.**

Context: The Election Commission of India has begun the process of **delimitation of Assembly and Parliamentary constituencies in Assam**.

Key Points

- The process will be **based on Census data from 2001.**
- The **last delimitation of constituencies in Assam was done in 1976** on the basis of the 1971 Census.
- In 1971, Assam's population was 1.46 crore. In 2001, it **increased to 2.66 crore and to 3.12 crore in 2011.**
- Assam currently has **14 Lok Sabha, 126 Assembly constituencies.**
- **Section 8A of the Representation of the People Act** allows for delimitation of Parliamentary and Assembly constituencies in Arunachal Pradesh, Assam, Manipur or Nagaland.
- In March 2020, the **Centre notified a Delimitation Commission** for Jammu and Kashmir, Assam, Arunachal Pradesh, Manipur and Nagaland.

Delimitation Commission

- **About**: The Delimitation Commission is a high-level body set up by an **act of the Parliament.**
  - Delimitation is the **process of fixing limits or boundaries of territorial constituencies** in a country to represent changes in population.
- **Constitutional Provisions:** The delimitation commission is an independent body **constituted under Article 82** after the Parliament enacted a Delimitation Act after every census.
  - Under **Article 170**, States also get divided into territorial constituencies as per Delimitation Act after every Census.
- **Appointment**: The Delimitation Commission is **appointed by the President of India** and works in collaboration with the Election Commission of India.
- **Composition**:
  - A retired judge of the Supreme Court
  - The Chief Election Commissioner
  - State Election Commissioners (of the respective states)
- **Decision**: If the members of the Commission have differing opinions, then the **decision of the majority will be taken into consideration.**
- **Duties**: It shall be the duty of the Commission to readjust the representation of the several territorial constituencies in the House of the People and of the several territorial constituencies in the Legislative Assembly of each state on the basis of the latest census figures of population.

LIVEMINT Page 1

ONLINE GAMING

(Syllabus: GS Paper 3 - Economy)

Meity to be nodal ministry for gaming

The ministry of electronics and information technology (Meity) has been appointed as the nodal ministry for online gaming, a move the industry said would bring clarity and certainty for all stakeholders.

The department of sports under the ministry of youth affairs and sports has been notified as the nodal ministry for "eSports as part of multi-sports events".

The Centre notified these amendments to the Allocation of Business Rules recently.

Minister of state for IT Rajeev Chandrasekhar tweeted that Meity will soon come out with norms for online gaming intermediaries. The government is committed to fully encouraging tech innovation, but also to ensure no illegal content/services is possible. The online gaming space has been under the regulatory lens, and IT minister Ashwini Vaishnaw had recently said the Centre would come out with a proper policy or a new law on online gaming given the impact it has on society. PTI

Context: The **Ministry of electronics and information technology (MeitY)** was appointed as the nodal ministry for online gaming.

- In addition, the **Ministry of youth affairs and sports (MYAS)** has been appointed to regulate esports as part of multiple sports events.

Online gaming

- **About**: Online gaming refers to those games which **require an internet connection for playing them**.
  - This is a part of the **sunrise industry** and these days there is increasing demand for access to different types of games. For example poker, rummy, and other artificial intelligence games based on augmented reality.
    - Sunrise industry is a **colloquial term for a burgeoning sector or business** in its infancy stage showing promise of a rapid boom.
    - Sunrise industries are typically characterized by **high growth rates, numerous startups, and an abundance of venture capital funding.**
- **Two categories:**
  - **Game of chance**: All games that are **played at random** are considered games of chance. These games **rely heavily on chance.** These games can be played without any prior knowledge or comprehension. Dice games, choosing a number, etc. are a few examples. In India, these games are regarded as unlawful.
  - **Game of skill**: Games of skill are many video games that are p**layed depending on the player's prior knowledge** or gameplay expertise. A person will need abilities like **analytical decision-making**, capability, logical thinking, etc. Some games could also need some preliminary practice to succeed. Most Indian states consider these games to be legal.
- **India's status**: India has the **second largest number of gamers** after South Korea.
  - China has put restrictions on the number of hours for children less than eighteen years to three hours per week.
- **India's Strategy**: The Indian government has announced the **formation of a committee** to control internet gambling and designate a Ministry to be in charge of it.
  - The committee's objective is to **research international best practices** and recommend an online gambling regulatory framework.
  - Recently, the **Rajasthan government unveiled a draft bill** to control internet games, particularly fantasy games. In states like Tamil Nadu, Telangana, Andhra Pradesh, and Karnataka, online game restrictions have already been implemented. However, state high courts overruled them because a total ban would be unfair to games of skill.
  - During the budget session 2022-23, the **Online Gaming (Regulation) Bill, 2022** was presented in Lok Sabha as a Private Member's Bill.

ECONOMIC TIMES

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DARK PATTERNS

(Syllabus: GS Paper 3 - Cyber Security)

INTERFACES CRAFTED TO TRICK USERS INTO BUYING MORE EXPENSIVE ITEMS

Govt Calls 'Dark Patterns' Unfair Trade Practice, to Frame Rules

Shambhavi.Anand
@timesgroup.com

New Delhi: Have you ever tried to buy something online only to notice, at the final checkout page, some extra item had been sneakily added into your cart? Or while booking an airline ticket you are informed "Only 2 seats left at this price" to create a sense of urgency to make an immediate decision?

Known as dark patterns, these user interfaces are crafted to trick or manipulate users into making choices that are detrimental to their interest and the Indian government is looking to frame regulations to restrict the usage of dark patterns as an "unfair trading practice."

"Dark patterns are unfair trade practice and a cause of concern," Rohit Kumar Singh, secretary, ministry of consumer affairs, said.

The issue of dark patterns is now an increasing concern for those working in the area of ecommerce. Dark patterns mainly pertain to advertising or unfair trade practices, he added.



VARANI SAHU

Dark patterns, most prevalent in advertising, are used to lure consumers into buying a more expensive product, paying more than what was initially disclosed, sharing data or making choices based on false or paid-for reviews.

The European Data Protection Board (EDPB) has adopted guidelines on dark patterns in social media platform interfaces and offer practical recommendations to designers and users of social media platforms on how to assess and avoid so-called "dark patterns" in social media interfaces that infringe on GDPR requirements.

According to a report on dark patterns by the Advertising Standards Council of India (ASCI), 29% of advertisements processed by self-regulatory body in 2021-22 pertained to disguised ads by influencers, which is a kind of dark pattern. Cryptocurrencies, fashion, personal care, ecommerce, food & beverage and finance being some of the categories with most violations.

"Dark patterns are a highly prevalent phenomenon on digital platforms. These prevent consumers from making informed choices as their choices are manipulated in sophisticated ways," said Manisha Kapoor, CEO, ASCI.

"Some dark patterns pertain to advertising and ASCI will look to formulate guidelines on the same based on our discussion paper and the feedback that we receive from different stakeholders," she added.

Context: The Indian government is looking to frame regulations to restrict the usage of **dark patterns as an "unfair trading practice.**

Dark Patterns

- **About** Dark patterns are **manipulative or deceptive practices built into user interfaces** by developers that have the effect, intentionally or unintentionally, of obscuring, subverting, or impairing consumer autonomy, decision-making, or choice.
  - Dark patterns are often carefully **designed to alter decision-making by users** or trick users into actions they did not intend to take.
- **Origin**: **Harry Brignull,** a user experience consultant and researcher of human-computer interactions who is based in the UK, is the author of the phrase "dark patterns."
  - He coined the phrase to **explain the subtle ways in which software can deceive users** into taking actions they weren't intending to.
- **Some examples of dark pattern usage include:**
  - **Deception**: Use of dark patterns to induce false beliefs, such as a countdown timer that is irrelevant to an offer expiring.
  - **Hidden Costs**: Hiding fees or costs from users until they spend time and enter their information to get to a checkout page, only to find there are significant additional fees that were not disclosed up front.
  - **Asymmetric Presentation**: Making one option (such as agreeing to information sharing) very prominent and accessible, while the other options (such as opting out of information-sharing) are difficult to locate.
  - **Covert Ask**: Presenting an offer that asks for the consumer to provide certain data in exchange for a reward (e.g. provide their email for $25 discount), and then asks the consumer for more information (e.g. their phone number).
  - **Forced Continuity**: A consumer signs up for a free trial and is required to enter credit card information. There is then no opt out email or reminder to cancel before the free trial is over, and the consumer automatically begins paying.
- **India's Strategy**: The Indian advertising industry's self-regulatory body, the **Advertising Standards Council of India (ASCI),** recently said that it intends to broaden its code to address issues with "dark patterns" in digital advertising.
  - According to ASCI, influencers used ordinary content to pass off nearly a third of the advertisements it processed in FY22 as advertisements.
  - An **investigation task force** has been established by the ASCI.

TIMES OF INDIA

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Centre, Manipur rebel outfit sign peace pact

TIMES NEWS NETWORK

New Delhi: Taking forward the series of peace initiatives with rebel outfits in the northeast region, the Centre and Manipur government have entered into a "cessation of operations" agreement with Manipur-based armed group Zeliangrong United Front (ZUF).

The tripartite pact was signed in presence of Manipur chief minister N Biren Singh, by senior officers of the home ministry and Manipur government as well as representatives of ZUF.

ZUF had been active in Manipur for more than a decade.

A home ministry release on Tuesday said the 'cessation of operations' agreement with ZUF fulfills "the vision of the Prime Minister Narendra Modi of an insurgency-free and prosperous northeast". It added that the pact, signed "under the guidance of home minister Amit Shah", will be a significant boost to the peace process in Manipur.

Representatives of ZUF have agreed to abjure violence and join the peaceful democratic process as established by law of the land. The agreement provides for rehabilitation and resettlement of the armed cadres. A joint monitoring group will be constituted to oversee enforcement of the agreed ground rules of the peace agreement.

MANIPUR INSURGENCY

(Syllabus: GS Paper 3 - Internal Security)

Context: Taking forward the series of peace initiatives with rebel outfits in the northeast region, the Centre and Manipur government have entered into a **"cessation of operations" agreement** with Manipur Based armed group Zeliangrong United Front (ZUF).

Manipur Insurgency

- **Rise of separatist insurgency**: The perceived unhappiness over Manipur's purported **"forced" merger with the Union of India** and the consequent delay in awarding it full statehood is largely responsible for the growth of separatist insurgency in Manipur.
  - The former Kingdom of Manipur was **amalgamated with India on October 15, 1949**, but it wasn't until 1972 that it was given statehood.
- **Rise of Militancy:** The **People's Liberation Army (PLA), People's Revolutionary Party of Kangleipak (PREPAK), Kangleipak Communist Party (KCP), and Kanglei Yawol Kanna Lup (KYKL)**, among others, were among the militant groups that were founded in subsequent years.
  - They have been **demanding an independent Manipur.**
- **Greater Nagalim Demand**: The **Naga movement** in neighbouring Nagaland spilled over into Manipur's hill districts with the **National Socialist Council of Nagaland-Isak Muivah (NSCN-IM)** controlling most of it while pressing for "Nagalim" (Greater Nagaland), which is perceived in the valley as a "threat" to Manipur's "territorial integrity".
- **Ethnic conflict**: While the hills account for **nine-tenths of Manipur's geographical area,** they are sparsely populated, with most of the state's population concentrated in the valley.
  - The **Meitei community** forms a majority in Imphal valley, while the surrounding hill districts are inhabited by Nagas and Kukis.
  - In the early 1990s, the ethnic clashes between **Nagas and Kukis** led to the formation of several Kuki insurgent groups, which have now scaled down their demand from a separate Kuki state to a Territorial Council.
  - The further continuance of insurgency led to the **formation of smaller outfits** like the Zeliangrong United Front (ZUF), People's United Liberation Front (PULF) and other splinter groups.

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PIB

Dec 28

DHANU YATRA

(Syllabus: GS Paper 1 - Art & Culture)

PM greets everyone as Dhanu Yatra begins

Context: The Prime Minister has greeted everyone as **Dhanu Yatra** begins.

- The vibrant Dhanu Yatra is associated with the **culture of Odisha**.

Dhanu Yatra/Jatra

- **About**: Dhanu Jatra is the **annual drama-based open-air theatrical performance** celebrated in and around **Bargarh** city, Odisha.
- **Mythological story**: It is based on **mythological story of Krishna (locally known as Krushna),** and his demon uncle Kansa.
  - It is about the **episode of Krishna and Balaram's visit to Mathura** to witness the Dhanu ceremony organized by their (maternal) uncle Kansa.
  - The plays start with the **dethroning of emperor Ugrasena** by the angry prince Kansa, over the marriage of his sister Debaki with Basudeba, and ends with **death of Kansa**, and Ugrasen restoring back to become the king.
  - There is **no written script** used in these enactments.
  - During this festival **Kansa can punish people** with penalty for their mistakes.
  - Biju Patnaik, the former **Chief Minister of Odisha was fined once** along with his ministers.
- **Associated River**: **Jeera river**, flowing on West side to the main town, is transformed into river Yamuna for these 10 days. The river is used in the drama in 3 days of the play:
  - When Krishna is born and Vasudeva goes to leave Krishna, his son at king **Nanda's place**, for the safety from the killer hands of Kansa.
  - During Raas Leela of Krishna with Gopis along the banks of the river **(Gopapura - Ambapaali).**
  - When minister Akrura goes and brings Krishna Balaram Brother duos to show them Dhanu jatra at **Mathura (Bargarh) city.**
- **Guinness Book of World Record:** It is considered to be the **world's largest open-air theatrical festival** that finds a mention in the Guinness Book of World Records.
- **Legacy**: The annual festival came into being in 1947-48 to celebrate India's Independence and to **symbolize the victory of good over evil.**
  - The department of Culture of the Government of India has **accorded National Festival status** to Dhanu Jatra in November 2014.

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Dec 28

BIMETALLIC AGENT FOR CANCER TREATMENT

(Syllabus: GS Paper 3 - Sci & Tech)

Bimetallic antitumor agents can help manage platinum-resistant cancers

Context: A newly found **bimetallic highly potent antitumor agent** that inhibits new blood vessel development (antiangiogenic) can help treat cancer cases that become resistant to platinum drugs commonly used for tackling the disease.

Key Points

- **Platinum drugs**: These are the **frontline treatment option for many cancers**. But their broad applicability is severely **limited due to the fast development of resistance** against these drugs.
  - Several platinum-based anticancer drugs, including c**isplatin, carboplatin, oxaliplatin, nedaplatin, and lobaplatin**, are the frontline treatment options for various cancers.
  - Unfortunately, the acquired or intrinsic resistance significantly limits the uses of platinum-based treatment.
- **Ruthenium–Ferrocene Bimetallic agent:** Scientists have discovered a Ruthenium–Ferrocene Bimetallic agent that shows a highly potent antitumor effect in **platinum-resistant cancers.**
  - The new agent is the first rationally designed Ruthenium-Ferrocene bimetallic complex identified to date that **possesses low toxicity** but both potent antitumor as well as anti-angiogenic properties.
  - The complex can **inhibit primary tumor growth** and metastasis as well as kill cancer cells efficiently.
  - It functions through a multi-pronged mechanism that can overcome platinum resistance and **stop angiogenesis.**
    - **Angiogenesis** is the formation of new blood vessels.
  - Platinum-resistant cells showed significantly **less resistance against this bimetallic derivative** as compared to monometallic platinum drugs.
  - Their extensive biological investigations in cellular, as well as on zebrafish, revealed the **anticancer and antiangiogenic properties** of the agent as well as its low toxicity.
  - Ru-Fc (Ruthenium–Ferrocene) hybrid binds to nucleophilic biomolecules and **produces reactive oxygen species**, which causes mitochondrial dysfunction and induces stress on the Endoplasmic Reticulum (ER) of cells, leading to poly (ADP–ribose) polymerase-mediated cell death.

DST

Dec 28

PALAEOCLIMATIC RECORDS OF HIMALAYAN TECTONICS

(Syllabus: GS Paper 1 - Geography)

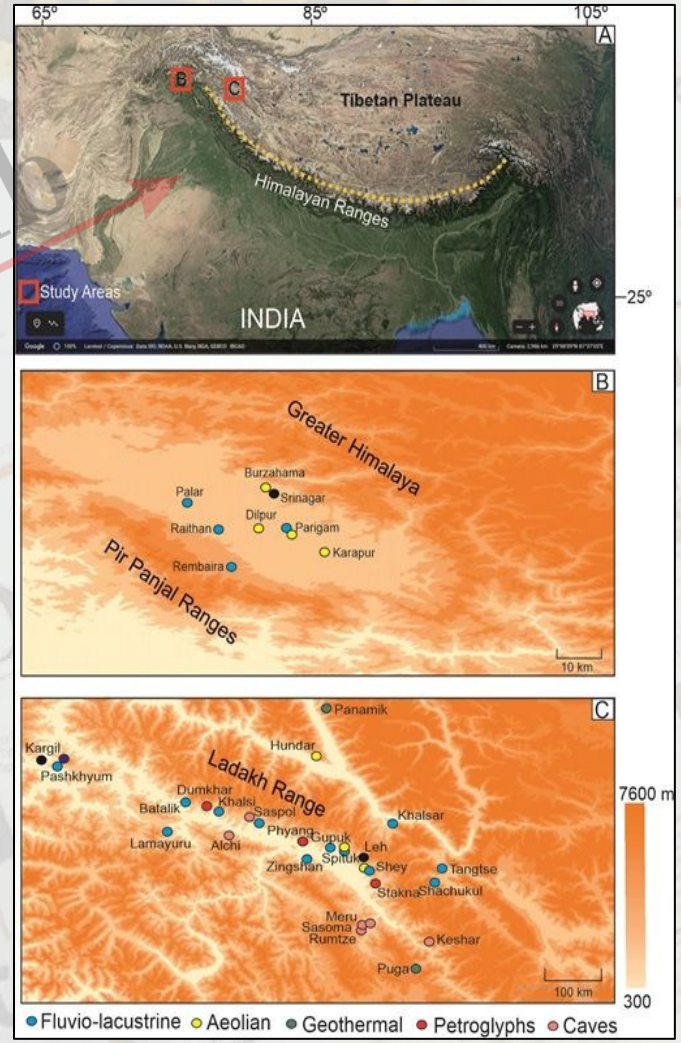
Repository of palaeoclimatic records of Himalayan tectonics & geomorphic evolution in Kashmir Valley and Ladakh region needs preservation

Context: Researchers investigating **sedimentary landforms present in parts of the Kashmir Valley and Ladakh regions** of the North West Trans-Himalaya have found them to be a repository of palaeoclimatic records of Himalayan tectonics and geomorphic evolution of the scenic landscape.

- Scientists have suggested that many of these areas need instant attention for conservation, preservation and should be declared as **National geo-heritage sites.**

Key Points

- **Need for conservation and promotion**: The **Quaternary** (current and most recent of the three periods in the geologic time scale), sediments of **Karewa Basin** in Kashmir valley and deposits relating to sedimentation partly in lake and partly in stream waters of Ladakh Trans-Himalaya has highlighted the importance, possible threats and well as the need for conservation and promotion of the Geoheritage sites.
- **Palaeoclimatic records**: The **panoramic Geotourism sites** in the Himalayan range are an archive of palaeoclimatic records of Himalayan tectonics and geomorphic evolution of this scenic landscape.
  - Consisting of **lake sediments, caves, petroglyphs/rock art, and hot springs sites**, they are a treasure trove of information on geomorphology, landscape evolution, paleoclimate, and palaeoecology.
  - The **neo-tectonic**s of this recent period is helpful in the understanding of climate change, hydroclimate, ecology, and mountain geomorphology.
  - At the same time, the Ladakh sediment archive is along the **Indus River** in the form of fluvial terraces, alluvial fans, lakes, and moraine and are exposed under a wide range of tectonics, seasonal climatic changes, mass wasting, erosion, and major development projects regimes.
- **Geosites of Ladakh under threat:**
  - Stone dumping at rock art site at Stakna.
  - Wall painting inside a cave in Saspol, many of these caves are collapsing.
  - Keshar, Sumdo caves used as storage.
  - Car wash and construction work on the Spituk palaeolake site.
  - Building on the fluvial section in Pashkyum.
  - Shachukul section.
  - Roadside rock art destroyed by tar.
  - Mining of sand for construction work in Spituk section.
  - Shey palaeolake section.
  - Puga hot spring, the lingam is breaking as there is no protection of site.
  - Shachukul site, Sedimentary features being destroyed because of road construction.



DTE

Dec 28

GREEN WALL

(Syllabus: GS Paper 3 - Env & Eco)



Context: The West Bengal Pollution Control Board (WBPCB)'s decision to set up a **bio-shield - a wall of mega plantations** - along its western fringe for stopping air pollutants from entering the state has raised questions.

- The Board's rationale is that **pollution from other states** is responsible for close to half of West Bengal's pollution load.

Key Points

- **Bio-shield or Green Wall Project:** The project will cover around 800 kilometres (km) across the **Purulia, Birbhum, Paschim Bardhaman and Jhargram districts.**
  - All four districts are part of the **Rarh region and lie on Bengal's border** with Bihar, Jharkhand and Odisha.
  - The **West Bengal Biodiversity Board** has been entrusted to execute the project.
- **Concerns raised by experts:** The green wall is **not likely to have any direct role** in countering the flow of transboundary pollution.
  - **Transboundary pollutants** were unlikely to be arrested by bio-shield which will be at a much low height.
  - **Green walling with plantations** can only filter dust to some extent and that too if it is hugely extensive
- **Transboundary pollution status**: West Bengal **receives less transboundary pollution** at a proportional scale, compared to many states..
  - **Telangana receives the maximum** amount of transboundary pollution - 68 per cent - among Indian states and Union territories, according to the paper.
  - It is followed by Chandigarh with 65 percent and Odisha with 62 percent.
  - Of 22 states considered for the study; 13 receive a higher proportion of transboundary pollution compared to West Bengal.

- **Solution**: Rather than having a bioshield, perhaps West Bengal **requires a treaty and coordinated programme** with adjoining states and places like Bangladesh to minimise the impact.
  - **Massive plantations** may play a limited role in arresting the pollutants which mix with local pollutants once they land; or to address locally generated pollutants.
  - **Transboundary movement of pollution** can be curbed only with a **regional clean action strategy** to cut emissions from a large number of pollution sources spread across the region.

THANK YOU!

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