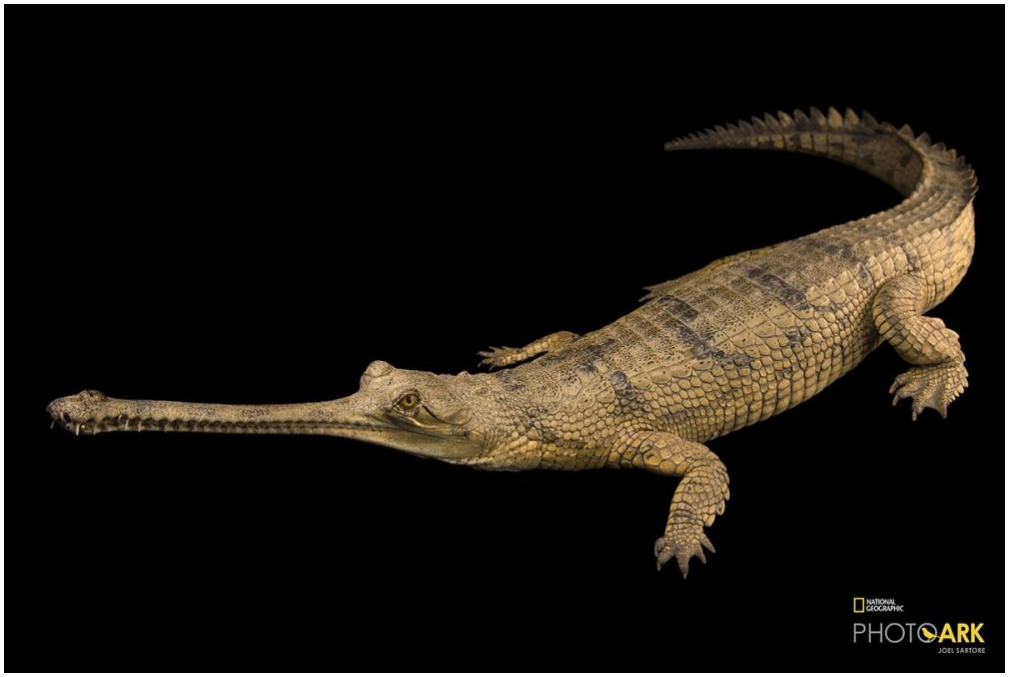
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Gharial Crocodiles

Why in News?

Madhya Pradesh Chief Minister recently released 10 gharials into Chambal River at the National Chambal Gharial Sanctuary in Morena.

- It is a type of ***Asian crocodilian*** distinguished by their long, thin snouts.
- **Scientific Name** - Gavialis gangeticus.
- **Place in mythology** - Gharials hold sacred significance, often depicted as the divine mount of the goddess Ganga.
- The name 'gharial' comes from the Hindi word ghara, meaning ***pot or vessel,*** referring to the bulbous snout tip of adult males, resembles an inverted pot.
- **Appearance -** Their slender snouts, lined with numerous sharp, interlocking teeth, are adapted to trap fish, the mainstay of their diet.



- **Size -**Males grow from 3-6 meters, and females 2.6–4.5 meters.
- **Breeding -** Gharials mate during November, December, and January.
- **Habitat -** Sandbanks, sandbars, and islands are critical to their ecology, serving as preferred sites for basking and nesting.
- **Distribution –** India and Nepal.
- **Diet –** Fish eating (carnivores).
- Gharials do not stalk and lunge at prey like other crocodilians, their snouts contain ***sensory cells*** that can detect vibrations in the water.
- **Threats**
    - **Historical** - Overhunting for skins, trophies, eggs, and traditional medicine.

    - **Modern -** Dam construction, irrigation canals, siltation, river course changes, embankments, sand-mining, pollution, and fishing.
    - **Specific threat -** Gill nets kill gharials of all sizes, even in protected areas.

- **Conservation Efforts –** Captive breeding to rear and release hatchlings back into the river, monitoring populations, actively managing threats and engaging local communities in preservation.
- Today, the species survives primarily in **5 refuges**

Sanctuaries	Location	River
National Chambal Sanctuary (NCS)	Uttar Pradesh, Madhya Pradesh, and Rajasthan	Chambal River
Katerniaghat Sanctuary	Uttar Pradesh	Girwa River
Chitwan National Park	Nepal	Rapti River
Son River Sanctuary	Madhya Pradesh	Son River
Satkosia Gorge Sanctuary	Odisha	Mahanadi River

- **Conservation Status**
    - **IUCN** – Critically Endangered.
    - **WPA, 1972** - Schedule I.
    - **CITES -** Appendix I.

References

1. The Indian Express | Why gharials are endangered?
2. WII | Gavialis gangeticus
3. National Geographic | Gharial

Time Use Survey, 2024

Why in News?

The results of the Time Use Survey, 2024 (second such All-India Survey) was recently released by Ministry of Statistics and Programme Implementation.

- **Time Use Survey (TUS) –** It will enable measuring time spent by individuals on different activities.
- The primary objective is to measure participation of men, women and other groups of persons in ***paid and unpaid activities.***
- The survey will be an important source of information on the time spent in unpaid care giving activities, unpaid volunteer work, unpaid domestic service producing activities of the household members.
- This will also provide information on time spent on learning, socializing, leisure activities, self-care activities, etc. by the household members.
- **Conducted by -** National Statistics Office (NSO).
- **Nodal Ministry -** Ministry of Statistics & Program Implementation.

Key Highlights of the survey

- **Duration -** January – December, 2024.

- **Major Indicators**

Participation Rate	• Participation rate in a day in any activity is calculated as the percentage of persons performing that activity during the day.
Average time spent in a day per participant	• The average time spent in a day per participant for any activity is calculated by considering those who participated in the activity. • Estimates of average time in a day in different activities derived by considering only the participants in the activities are referred to as average time spent in a day per participant.
Average time spent in a day per person	• The average time spent in a day per person for any activity is calculated by considering all the persons irrespective of whether they participated in the activity or not. • By this approach, the distribution of the total time of ***1440 minutes*** of a day per person in different activities is derived.

- **Increasing participation rate, 2024** - **75%** of the males and **25%** of the females of 15-59 years, participated in employment and related activities during the reference period of 24 hours.
    - Such participation was 70.9% for males and 21.8% for females in the age group 15-59 years during 2019.
- **Shift from unpaid to paid -** Female participants aged 15-59 years in unpaid domestic services has come ***down to 305 minutes*** during 2024 signifying the shift from unpaid to paid activities.
    - During 2019 they spent about 315 minutes in unpaid activities.
- **Participation rate in care-giving -** 41% of females aged 15-59 years participated in caregiving for their household members, male participation in this age group in such caregiving was 21.4%.
- Also, female participants in caregiving activities spent about 140 minutes in a day, compared to 74 minutes spent by male participants aged 15-59 years.
- This corroborates the Indian social fabric wherein most of the caregiving responsibilities for household members are ***borne by the females*** of the household.
- **Final goods production in rural areas -** 24.6% of the rural population aged 15-59 years participated in producing goods for own final use and they spent 121 minutes a day doing such activities.
- **Learning of children -** 89.3% of children aged 6-14 years participated in learning activities and they spent around 413 minutes in a day for such activities.
- **Leisure activities rate -** People aged 6 years and above spent 11% of their days' time in culture, leisure, mass media and sports practices during 2024, compared to 9.9% of the days' time spent during 2019.
- **Self-care and maintenance rate -** 708 minutes in a day was spent on self-care and maintenance activities by persons aged 6 years and above.
- Females of this age group spent 706 minutes while males spent 710 minutes in such activities.

References

1. The Hindu | "Time Use Survey"
2. PIB | TIME USE SURVEY (TUS)
3. Business Today | Time Use Survey

NAKSHA Scheme

Why in News?

Union Rural Development Minister launched the Central government's new initiative, NAKSHA recently from Raisen in Madhya Pradesh.

- **NAKSHA -** National geospatial Knowledge-based land Survey of urban Habitations.
- NAKSHA is a ***city survey initiative*** under the existing Digital India Land Records Modernization Programme (DILRMP).
- **Aim -** To create a comprehensive and accurate geospatial database for urban land records.
- **Spearheaded by -** Department of Land Resources (DoLR), under the Ministry of Rural Development.
- Under the new initiative, maps of towns and cities will be prepared.
- **Implementation -** The programme has been launched as a pilot across 152 urban local bodies in 26 states.
- The pilot *will be completed* in a year.
- **Eligibility criteria -** The cities selected meet 2 criteria
    - Area less than 35 sq km, and
    - Population less than 2 lakhs.
- **Funding** – The initiative is ***100% centrally*** funded.
- **Features -** Integrates aerial and field surveys with advanced GIS technology.
- The survey will be done through aerial photography using two types of cameras simple cameras and oblique angle cameras with ***LiDAR sensors.***
- Geospatial data enhances decision-making, land use planning, and property transactions.
- It provides digital urban land records, reduces disputes, aids in faster planning, improves tax collection, simplifies transactions, and improves credit access.
- **Need of the scheme -** Most urban areas, barring a few states like Tamil Nadu, Maharashtra, Gujarat, Goa, have outdated or unstructured land records, causing inefficiencies in governance & taxation.

Reference

The Indian Express | NAKSHA Scheme

Effects of Space Travel on Astronaut Health

Why in News?

Recent research published in 2024 reveals the effects on the health of astronauts who participated in SpaceX's Inspiration4 mission (2021), the first all-civilian team to orbit the Earth.

> *The human body evolved over millions of years to function optimally in the earth's environment, includes its gravity, atmospheric composition and relatively low levels of radiation.*

- **Physiological challenges - DNA damage-** High-energy radiation can damage DNA.
- **Increased cancer risk-** High-energy radiation can increase the risk of cancer.

- **Neurodegenerative effects-** Cosmic radiation may increase the risk of developing neurodegenerative diseases such as *Alzheimer's disease and Parkinson's disease.*
- **Gastrointestinal effects -** Without gravity to help move food through your GI tract, the intestinal system can decrease motility.
- **Vision changes -** Without gravity, bodily fluids shift upward, leading to facial swelling and increased intracranial pressure, which can affect vision.
- It can attribute to a condition called *Spaceflight Associated Neuro-Ocular Syndrome (SANS).*
    - Dysfunction in subcellular structures called mitochondria plays a role in SANS.
- **Bone density loss -** The lack of mechanical loading on bones and muscles associated with the leads to bone density loss and muscle atrophy.

Astronauts can lose 1-2% of their bone mass every month they spend in space and up to 10% over a six-month period (on Earth, older men and women lose bone mass at a rate of 0.5%-1% every year).

- **Cardiovascular changes** – The heart and blood vessels struggle to adapt, complicating blood pressure regulation after return.
- Orthostatic intolerance: The changed gravity field can cause orthostatic intolerance.
- Altered heart electrical rhythm: The changed gravity field can alter heart electrical rhythm.
- **Psychological challenges** - **Social isolation -** The isolating nature of space travel can have profound effects on the mind.
- Long-duration missions in spaces with ***limited natural stimuli*** cause sleep disturbances, mood swings, cognitive decline and interpersonal conflicts.
- **Post-mission recovery** – Astronauts will ***undergo physical rehabilitation*** to help them regain strength, balance and coordination after returning from space.
- **Research needed areas -** While it is known that space radiation elevates cancer risk, accelerates aging and induces cellular damage, the precise biological mechanisms of following remain unclear.
    - Limited data on lung function in space
    - Role of Mitochondria in cellular energy production and repair.
    - Effects on long-term brain function and neuroplasticity unclear.
    - Reproduction in Space embryonic development and multi-generational effects on human in space unknown.
    - Critical gap for space colonization, a potential topic in geopolitics and future human survival.

Reference

The Hindu | Effects on Human Health Caused by Space Travel

High Court Ruling on Arresting Women at Night

Why in News?

The Madurai Bench of Madras High Court ruled that legal provision which restricts arrest of a woman after sunset and before sunrise, is directory and not mandatory.

- Two safeguards are provided under ***Section 43(5) of BNSS*** (which corresponds to Section

46(4) of CrPC) for the arrest of a woman by the police.

1. No arrest of a woman shall be made after sunset and before sunrise except in exceptional circumstances.
2. Even in exceptional circumstances, the prior permission of the jurisdictional magistrate must be sought by a woman police officer by making a written report.

- However, the provision does not explain what would constitute an exceptional situation.
- In addition, the provision to ***Section 46(1)*** states that the arresting police officer should not touch the person of the woman, unless it is a woman police offer or if the circumstances otherwise require it.
- **History of Section 46(4) CrPC** – The 135th report of the Law Commission of India on Women in Custody (1989) recommended no women shall be arrested after sunset and before sunrise.
- Similar recommendations were made in the 154th report of the Law Commission in 1996, and Section 46(4) of CrPC was inserted with some changes in 2005.
- **Madurai high court bench stance** – Declared the provision directory, not mandatory and ruled following observation.
    1. The rule isn't mandatory, but police can't ignore it completely.
    2. If police break it, they need a good reason, or they'll face questions.
    3. The rule still aims to keep women safe during arrests.
    4. Police must make a list of what counts as "special situations" to bend the rule.
    5. It's flexible but not weak if police follow through properly.
    6. If not watched closely, some might misuse it, but it's still meant to help women.
- **Other judgements** – In a case, the *Nagpur Bench of the Bombay High Court* that no female persons shall be detained without the presence of a lady constable, and in no case after sunset and before sunrise.
- Supreme Court noted that always following the rule strictly can create real-world problems for police.

Reference

The Hindu | HC Rule About Arresting Women at Night

One Liners 27-02-2025

History, Art and Culture

TRIFED's B2B Tribal Marketing Shift.

• **Nodal Agency –** Ministry of Tribal Affairs.
• **Partnerships -** TRIFED partnered with National Institute of Fashion Technology (NIFT) & Himachal Pradesh Horticulture Produce Marketing and Processing Corporation Ltd (HPMC)
• **TRIFED Facilitates** - Tribal businesses, transitioning from B2C to B2B.
• **NIFT Collaboration -** Will assist in product curation and design development.
• **Aims** - At enhancing handloom & handicraft products of tribal artisans.
• **HPMC Role:** Will augment technology & tertiary processing.
• Aims to - Focuses on horticulture and minor forest products.
• **TRIFED's Mission -** Aims for socio-economic development of tribal communities. They achieve this through marketing tribal products.

Chandra Shekhar Azad

• **Early Fervor** - Born 1906, joined Non-Cooperation Movement at 15.
• **Disillusionment & HRA** - Disappointed by Gandhi, joined Hindustan Republican Association.
• **HSRA & Bhagat Singh** - Transformed HRA to HSRA, collaborated with Bhagat Singh.
• **Key Actions** - Kakori Robbery, Saunders shooting, Viceroy train attempt.
• **Unwavering Bravery** - Evaded capture, symbol of resistance.
• **Final Stand on 27th Feb 1931** – In Alfred Park, Chandra Shekhar Azad fought bravely. Refusing capture, he died by his own hand, upholding his vow of freedom.

Rajaditya Cholan,

• **Cholan's Lineage** - Son of Parantaka I, a key warrior in the Chola dynasty.
• **Title earned** - 'Yanaimel Thunjiya Devar' (The king who died on the back of an elephant).
• **Death** -His death in 949 CE in Battle of Thakkolam against the Rashtrakutas is a celebrated moment in Tamil literature and inscriptions

Geography

Caspian Sea: Environmental Challenges

Caspian Sea is experiencing a concerning drop in water levels. This poses a significant threat to the region's biodiversity and human activities.
• **Size** - Sea spans approximately 370,000 square kilometers.
• **Bordered by 5 countries** - Kazakhstan, Azerbaijan, Russia, Turkmenistan & Iran.
• **Level of Salinity** - The northern part is less salty and shallower.
- The southern part is saltier and reaches depths of 1,025 meters.

Polity & Governance

Maharashtra-Karnataka Border Dispute

• **Dispute Originated -** From 1956 linguistic reorganization of Indian states.
• **Disputed Area** - Belagavi, with its mixed language population,
• **States Reorganization Commission (SRC) -** 1955 SRC recommended Belagavi remain in Karnataka, prioritizing administrative and economic factors.
• **SRC Recommendation** - While acknowledging linguistic diversity, it deemed language alone insufficient for boundary decisions.
• **Mahajan Commission Report -** Suggested Belagavi city & 247 villages stay in Karnataka, with 264 villages transferring to Maharashtra.
• **Maharashtra** - Rejected the report.

International Relations and Issues

Intergovernmental Panel on Climate Change (IPCC)

• **UN Body-** assessing climate change science.
• **Founded in -** 1988 by World Meteorological Organization (WMO) & United Nations Environment Programme (UNEP).
• **Functions**- evaluates, rather than conducts, research.
• **Aims -** Goal is to provide governments with scientific climate data.
• **Membership:** 195 UN and WMO member states.
• **Represents -** Scientific and Political Persons.

Environment

National Chambal Sanctuary (NCS)

• **NCS** - It is a protected area in northern India that protects the gharial, Ganges river dolphin, and other wildlife.
• **Established in** - 1979.
• It is situated in 3 states namely, *Madhya Pradesh, Uttar Pradesh and Rajasthan.*
• **Located -** along the Chambal River and its ravines in the Indus-Ganges Monsoon Forest belt.
• **The sanctuary** is an IUCN Category IV (Managed Nature Reserve)

Security

Central Industrial Security Force (CISF)

CISF has rename its Arakkonam Recruits Training Centre "Rajaditya Cholan Training Centre"

• **Nodal Agency**- Ministry of Home Affairs.
• **CISF** - Established in 1969.
• **Initially formed** - to protect Public Sector Undertakings (PSUs).
- Over time, its mandate has broadened to address evolving security threats.

Science

EU Classifies Caffeine as Harmful

EU has classified swallowed caffeine as harmful under chemical safety rules. This decision sparked debate regarding daily consumption.

• **Finding by** - European Food Safety Authority's.
• **Side Effects of Caffeine** - Impact cardiovascular health, hydration affects sleep, anxiety, and behavior in adults and children.
• Pregnant women face potential birth weight issues.
• **Agricultural Ban:** The regulation primarily bans caffeine as a pesticide.

Spinal Muscular Atrophy

SMA, a genetic disorder damaging motor neurons.

• **Groundbreaking in-Advance treatment -** Marks a first for SMA, offering hope before Child birth.
• **SMA** - Is a genetic neuromuscular disorder causing muscle weakness and atrophy.
• **Originates** - From loss of motor neurons in the spinal cord, affecting roughly 1 in 10,000 births.
• **Genetic Cause** - Mutations in the SMN1 gene, causing a deficiency in a crucial protein, are the primary cause. This protein is essential for motor neuron survival.

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