

## FORTUNE IAS NEWS DAILY EXPLAINER

### Bursts of rain may deal a double whammy to soil moisture, nitrogen

**Prelims:** General Studies Paper - 1  
General issues on Environmental ecology, Biodiversity and Climate Change.

**Mains:** General Studies - 3  
Conservation, environmental pollution and degradation, environmental impact assessment.

#### 1. Key Findings on Water Availability

- **Climate change** is causing rainfall to occur in **fewer but more intense events**.
- Heavy rainfall often exceeds the soil's **infiltration capacity**, leading to **surface runoff** instead of groundwater recharge.
- Longer **dry intervals** between rain events increase **evaporation losses**.
- As a result, **soil moisture** and **aquifer recharge** decline even when total annual rainfall remains unchanged.
- Even if annual rainfall increases, **rainfall concentrated in a few heavy downpours can reduce the overall availability of water**.

#### 2. Impact on Soil Nitrogen and Ecosystems

- A study found a critical threshold of **700 mm annual rainfall** for nitrogen retention in soils.
  - ➔ **Below 700 mm:** Soil tends to retain **nitrogen** due to limited water movement.
  - ➔ **Above 700 mm:** Increased moisture causes **nitrogen leaching**, leading to nutrient loss.
- Intense rainfall can wash away **nitrogen**, an essential nutrient for **plant growth**, before plants can use it.

#### 3. Global and Indian Implications

- Around **27% of the world's population** could experience **abnormally dry conditions** due to concentrated rainfall alone.

- Evidence suggests the **Southwest Monsoon** is becoming more **episodic**, with intense downpours separated by longer dry spells.
- **Annual rainfall totals alone may no longer accurately reflect water availability or ecosystem health.**
- The combination of **water loss through evaporation** and **nutrient loss through leaching** can negatively affect agriculture and ecosystems.

### Scientists rule out worst-case climate scenario, with caution

**Prelims:** General Studies Paper - 1  
Current events of national and international importance

**Mains:** General Studies - 3  
Conservation, environmental pollution and degradation, environmental impact assessment.

#### 1. Why has the RCP8.5 "doomsday scenario" been retired?

- RCP8.5 (Representative Concentration Pathway 8.5) is a **high-emission climate scenario developed by scientists to study the effects of severe climate change**.
- It **assumes very high greenhouse gas emissions, heavy dependence on fossil fuels, and limited climate action**, leading to global warming of around 4.4°C by 2100.
- Scientists **now consider it unlikely due to the rapid growth of renewable energy**.
- Emissions **have peaked or are declining in the U.S. and Europe, and are stabilizing in China**.
- The scenario assumed massive coal use and little climate action, which no longer reflects current trends.

#### 2. Does the retirement of RCP8.5 mean the climate crisis has been solved?

- No, **there is still no clear pathway to keep global warming below 1.5°C** without temporarily exceeding it (overshoot).
- Under current policies, **the world is still expected to warm by about 2.8°C by 2100.**
- Even 2°C warming can increase droughts, extreme rainfall, heatwaves, and wildfires.
- Countries like **India remain highly vulnerable to climate-related disasters** under future warming scenarios.

### 3. What is the significance of the transition from RCPs to SSPs in climate modelling?

- Under the new CMIP6 framework, scientists started using SSPs(Shared Socioeconomic Pathways) along with emission pathways to better predict future climate change by including social and economic developments.

**CMIP (Coupled Model Intercomparison Project)** is a global climate-model coordination programme conducted under the World Climate Research Programme. It enables scientists worldwide to compare climate models using standardized experiments. CMIP results form a major scientific basis for assessments by the Intergovernmental Panel on Climate Change.

- SSPs **consider not only emissions but also population growth, economic development, and technology.**
- SSPs provide a **more realistic picture of future climate risks and challenges.**
- The change shows how climate science updates its projections using new data and better knowledge.

### Why did SC back curbs on online gaming?

**Prelims:** General Studies Paper - 1  
Current events of national and international importance

**Mains:** General Studies - 3  
Indian Economy and issues relating to planning, mobilization, of resources, growth, development and employment.

### 1. What did the Court have to decide?

- The **Supreme Court heard two sets of appeals concerning the regulation and taxation of online gaming platforms.**
- The **first case involved laws enacted by Tamil Nadu and Karnataka prohibiting online betting and wagering.**
- The States **argued that betting and gambling fall under Entry 34 of the State List, giving them legislative authority.**
- The **second case concerned the applicability of 28% GST on online gaming involving money stakes.**
- The Union government challenged High Court rulings that had quashed GST proceedings against gaming companies.

### 2. Why was the GST levy upheld?

- The **GST Council in August 2023 decided to impose 28% GST on the full value of stakes** in online gaming involving bets or wagers.
- The Court **held that online gaming with money stakes is akin to betting and wagering, irrespective of whether skill is involved.**
- It ruled that **GST can be levied on the entire amount staked by players, not merely on the platform's revenue or commission.**

### 3. Why did the Court uphold State curbs on real-money gaming?

- **Betting and gambling were classified as res extra commercium** (activities outside legitimate commerce).
- The **Court held that adding money stakes converts even skill-based activities into a form of wagering.**
- States **have legislative power under Entry 34, State List (betting and gambling) to regulate or prohibit such activities.**
- The **Court noted concerns regarding addiction, financial losses, and social harm caused by online betting platforms.**
- It also recognised Entry 1, State List (public order) as a basis for regulating online gambling activities.

### 4. What are the implications?

- The **judgments strengthen both State regulatory powers and the Centre's authority to levy GST on real-money gaming.**
- Gaming companies may face huge retrospective tax liabilities, amounting to several lakh crore rupees.
- Many firms have shifted towards social gaming, e-sports, fintech, or overseas operations following regulatory changes.
- The **rulings could trigger insolvency proceedings for companies unable to meet GST demands.**
- The verdict may influence ongoing legal challenges to the **Promotion and Regulation of Online Gaming Act, 2025**, particularly regarding legislative competence.

The **Promotion and Regulation of Online Gaming (PROG) Act, 2025**, passed by the Indian Parliament on August 21, 2025, establishes a comprehensive national framework for the gaming industry. It strictly prohibits all forms of online money games, recognizes e-sports as a legitimate sport, and aims to foster safe digital environments.

## Why did riots break out in Southampton?

**Prelims:** General Studies Paper - 1  
Current events of national and international importance

**Mains:** General Studies - 2  
Effect of policies and politics of developed and developing countries on India's interests, Indian diaspora.

### 1. Why have protests erupted now?

- Protests followed the **release of police bodycam footage** showing Henry Nowak (British university student) being handcuffed while dying.
- This came after **Vickrum Digwa was sentenced to life imprisonment (June 1)** for stabbing Nowak multiple times.
- Despite saying he could not breathe, Nowak was **dragged, made to sit up, handcuffed, and disbelieved.**
- Digwa **denied the attack and falsely claimed racial abuse.**
- The footage suggested **harsher treatment of the victim and leniency towards the accused**, sparking outrage.

### 2. How has the political establishment reacted?

- The incident drew **widespread condemnation.**
- Right-wing leaders alleged **'two-tier policing' based on race and ideology.**
- Conservative leader **Chris Philp raised concerns over racial bias.**
- The **Labour government and Metropolitan Police rejected such claims.**
- Home Secretary **Shabana Mahmood confirmed an IOPC (Independent Office for Police Conduct) probe and stressed equality before law.**
- Leaders across parties **warned against social division**, while the victim's father urged focus on **knife crime as an emergency.**

### 3. What next for the police?

- **One officer has resigned** after the incident.
- The **Independent Office for Police Conduct (IOPC) is investigating police conduct.**
- The **National Police Chiefs' Council (NPCC) is reviewing anti-racism guidelines.**
- Current policy stresses **"equality of outcomes" rather than identical treatment**, which is under debate.
- The case may lead to **reforms in policing practices and accountability.**

### 4. How have Sikh groups reacted?

- Sikh groups **condemned the murder and supported the victim's family.**
- They **distanced themselves from Digwa**, stating he does not represent Sikh values.
- Clarified that the weapon was **not the usual small concealed kirpan.**
- The court noted that **Nihang Sikhs may carry a larger kirpan**, though not mandatory.
- The community stressed **responsible use of religious symbols** and highlighted **Sikh contributions to Britain.**
- **People called for reviewing public weapon laws**, pointing to the need for **clearer regulations on carrying religious weapons, stronger police accountability, and balanced policies that ensure both public safety and protection of religious freedoms as a way forward.**

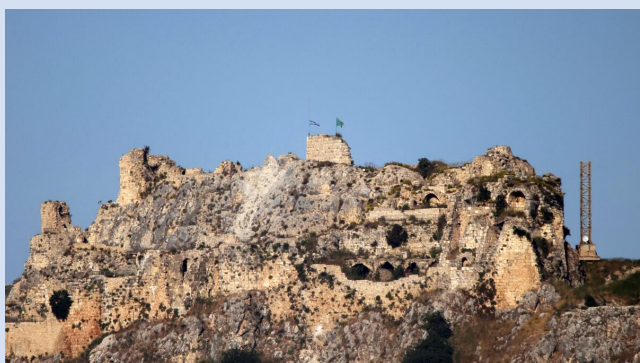
**KEYWORDS**

**HAWK (Hostile Activity Watch Kernel)**

- HAWK (Hostile Activity Watch Kernel) is **India's first centralized, AI-driven digital wildlife and forest crime management system.**
- It has **been developed by the Wildlife Trust of India (WTI) with the support of Fondation Segré and Japan-based NTT DATA (Nippon Telegraph and Telephone Data),.**
- **Kerala was the first state to adopt the HAWK system** at Periyar Tiger Reserve in 2019.
- The system tracks wildlife and forest crime cases from initial reports to court verdicts.
- HAWK operates through four integrated digital modules to streamline conservation and law enforcement:
  - ➔ **Peregrine** – The core forest and wildlife crime management module that tracks all crime data from initial reports to court judgments.
  - ➔ **Shikra** – A centralized system for reporting and monitoring wildlife mortality incidents.
  - ➔ **Harrier** – A mobile-based application that tracks repeat offenders and records suspect details in the field.
  - ➔ **Kestrel** – A module dedicated to the digitization and integration of older legacy crime records

**Places In News**

**Beaufort Castle, Lebanon**



- **Beaufort Castle** is a **900-year-old Crusader fortress** located in **southern Lebanon** on a hill overlooking **northern Israel**, the **Litani River**, and the **Beqaa Valley**.
- Originally known as **Qalaat al-Shaqif** ("Castle of the High Rock"), it was built by **European Crusaders in 1139** and later captured by **Saladin, the first Sultan of Egypt and Syria, in 1190.**
- Due to its **strategic military location**, the castle changed hands multiple times, including among the **Crusaders, Mamluks, Ottomans, French, and Israel.**
- The fortress features unique defensive architecture, including **rock-cut staircases, defensive towers added during the Mamluk period**, and a natural defence provided by a **300-metre cliff.**
- During the **Israel-Lebanon conflict**, it served as a base for the **Palestine Liberation Organization (PLO)** and was later occupied by **Israel from 1982 to 2000.**
- The castle is on **Lebanon's UNESCO Tentative List** and received **provisional enhanced protection under the 1954 Hague Convention in 2024** due to its cultural and historical significance.

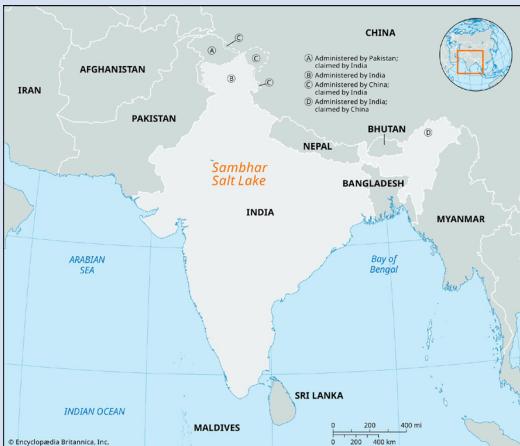


**Sambhar Salt Lake, Rajasthan**

- **Sambhar Salt Lake**, India's **largest saline lake**, is a **saline wetland** located amidst the **Aravalli Hills.**
- Spread over an area of about **190-230 sq. km**, it receives water from **six rivers**, including the **Mendha, Rupangarh, Khandel, and Kharian**

rivers.

- The lake basin is divided by a **5.1-km-long sandstone dam**.
- It produces nearly **196,000 tonnes of salt annually**, contributing about **0.66% of India's total salt production**.
- Designated as a **Ramsar Site**, Sambhar Lake serves as an important **wintering ground for pink flamingos** and numerous other migratory birds.
- Its unique **algae and bacterial communities** give the water its distinctive colours and play a vital role in sustaining the lake's ecosystem and supporting **migratory waterfowl**.



### Pratas Islands

- The **Pratas Islands (Dongsha Islands)** are strategically located in the **northern South China Sea**, about **445 km southwest of Taiwan** and **320 km southeast of Hong Kong**, along major **maritime trade routes**.
- The geographical structure is a **circular coral atoll**, where **Dongsha Island is the only above-water feature**, while the **Northern and Southern Vereker atolls are completely submerged**.
- The islands are currently **administered by Taiwan**, which maintains a **marine garrison**, but are **fully claimed by the People's Republic of China**.
- The region has high **ecological significance** and is designated as **Dongsha Atoll National**

Park to protect **marine biodiversity, coral reefs, and migratory bird habitats**.

- The islands have emerged as a **military flashpoint**, with **frequent Chinese reconnaissance flights and coast guard activity**, raising concerns over **escalation in the South China Sea**.



## Species in news

### Greater Adjutant Stork



- The **Greater Adjutant Stork (Leptoptilos dubius)** is a **massive stork species**, identified by its **bare head, wedge-shaped bill, and distinctive inflatable gular pouch**.
- In a major conservation success, it was **downlisted from 'Endangered' to 'Near Threatened'** (IUCN Red List, 2023) due to **community-led conservation efforts**; in India,

it is protected under **Schedule I of the Wildlife (Protection) Act, 1972.**

- Once widespread, its breeding range is now restricted to **three key regions globally**- the **Brahmaputra Valley (Assam), Bhagalpur (Bihar), and Cambodia**; a survey in **Kaziranga National Park** recorded it as the **rarest stork species**, with only **three individuals sighted**.
- It is an **opportunistic omnivore and scavenger**, often feeding alongside **vultures on carrion**, and acts as a **"friend of farmers"** by controlling **crop pests like rats**.
- The species remains vulnerable to **wetland destruction due to urbanisation, loss of tall nesting/roosting trees**, and **poisoning from contaminated fish and chemically treated rodents**.

