Today's Prelims Topics

Finn Weaver

Context

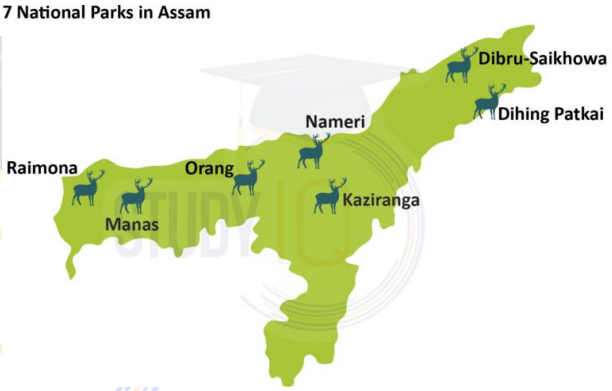
In a survey of Kaziranga National Park and Tiger reserve, researchers found a great diversity of grassland bird species (including Bengal florican, the endangered Finn's weaver, and the swamp grass babbler).

About Finn Weaver

- **Conservation Status: Vulnerable** on the IUCN Red List
- **Local name**: *Tukura Chorai* in Assam.
- **Habitat:** Terai grasslands of Uttarakhand and Uttar Pradesh.
- **Key Features:** Master **nest-builder atop trees**.
    - Known for complex woven nests.

About Kaziranga National Park (KNP)

- **Location:** Golaghat and Nagoan districts of Assam, between the Brahmaputra River and the Karbi (Mikir) Hills.
- It is a **National Park, Tiger Reserve, Important Bird Area (IBA), and UNESCO World Heritage Site (1985).**
- It has the **Largest population of Indian one-horned rhinoceros (2,613 as per 2022 census).**
- It is located at the **junction of the Australasia and Indo-Asian flyway.**
- It is the largest **undisturbed area** in the Brahmaputra Valley floodplain.
- **Flora**: It is famous for elephant grasses, rattan cane and aquatic plants like water hyacinths.
- **Fauna:** Greater one-horned rhinoceros, Hoolock Gibbon, Tiger, Leopard, Indian Elephant, Sloth Bear, Wild water buffalo, swamp deer.



Recently In News

➔ The **Pallas's fish eagle** (Mongolian Endangered Bird), named **Ider,** continues flying to the same location in Assam's Kaziranga National Park and Tiger Reserve for breeding season since 2020.

Source: The Hindu

GLP-1 Drugs

Context

Lotte Bjerre Knudsen won the **Lasker Award** for co-inventing **GLP-1 drugs**, which revolutionized treatment for **diabetes and obesity**.

What are GLP-1 Drugs?

- **GLP-1 (Glucagon-Like Peptide-1)** is a natural hormone (incretin) released after eating.
- It helps **regulate blood sugar, fat metabolism**, and **control appetite**.
- **GLP-1 receptor agonists** are synthetic drugs that mimic GLP-1, activating similar responses in the body.
- Mostly administered through **injections**, though **oral forms** are being developed.
- **Popular GLP-1 drugs** include:
    - **Semaglutide** (by Novo Nordisk)
    - **Tirzepatide** (by Eli Lilly)
- Both are now available in **India** and are significantly improving diabetes and obesity treatment.

How Do GLP-1 Drugs Work?

- Stimulate **insulin release** when blood sugar is high.
- Inhibit **glucagon secretion**, lowering liver glucose output.
- **Slow down gastric emptying**, preventing sugar spikes.
- **Suppress appetite**, leading to reduced food intake.
- **Tirzepatide** also mimics **GIP hormone** for a **dual-action effect**.

Genesis and Development

- **Incretins** were first mentioned in **1906**, but gained attention post-**insulin discovery in 1921**.
- **GLP-1 hormone** was isolated in **1986**.
- Early research in the **1990s** showed potential, but the hormone was **unstable**.
- **Novo Nordisk** developed:
    - **Liraglutide** (daily injectable)
    - **Semaglutide** (weekly dose), offering better **weight loss** and **fewer side effects** with dose control.

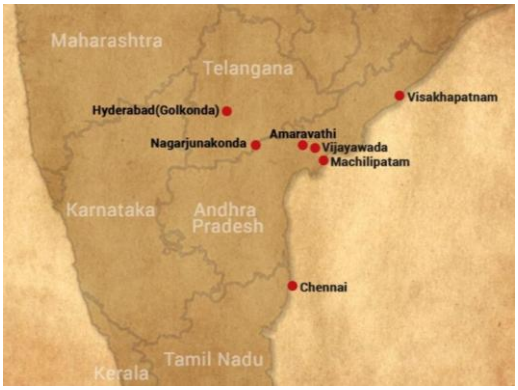
Source: IndianExpress

Machilipatnam

Context

Nearly 48% of the Machilipatnam Greenfield Port is complete, with operations expected by end-2026.

About Machilipatnam (Masulipatnam / Bandar)



- Coastal city in **Krishna district**, Andhra Pradesh.
- Situated at the **mouth of the Krishna River** along the **Bay of Bengal**.
- Flourished during the **Satavahana era** (1st century AD).
- **Golconda Sultanate Era**: Gained prominence for **muslin and textile exports** to Persia, Europe, and Southeast Asia.
- **European Trading Posts**:
    - **Dutch**, **British**, and **French** established factories in the 17th century.

Source: TheHindu

Locust Infestation

Context

Scientists have identified a **pheromone** that triggers **locust swarming** and discovered a method to **block it**, offering a breakthrough in controlling locust outbreaks.

About Locust Infestation

- **What are Locusts?**
  Locusts are grasshoppers that can transform into a **swarming phase**, forming massive groups that migrate and destroy crops.
- **Swarming Trigger:**
  Scientists have identified a specific **pheromone called 4-vinylanisole (4VA)** which causes solitary locusts to gather and swarm.
- **Impact of Infestation:**
  - A single locust swarm can consume **as much food as 35,000 people in one day**.
  - Swarms devastate crops, pasture, and vegetation, leading to **food insecurity** and **economic loss**.
  - Countries in Africa, the Middle East, and South Asia are especially vulnerable.
- **Favorable Conditions:**
  - Triggered by **heavy rains**, **cyclones**, and **moist soil**, which promote locust breeding.
  - Climate change may increase the frequency of such conditions.

How to Prevent or Control Locust Infestation

- **Pheromone Blockage (Latest Discovery):**
  - Scientists have found a **molecule that blocks the 4VA pheromone**, potentially preventing the formation of swarms.
  - This opens doors for **targeted, eco-friendly pest control** in the future.
- **Chemical Spraying:**
  - Aerial or ground spraying of **organophosphate pesticides** is commonly used during outbreaks.
  - Effective mainly in the **early hopper stage** before swarming.
- **Biological Control:**
  - Use of biopesticides like *Metarhizium anisopliae*, a fungus that infects and kills locusts.
  - **Environmentally safe** alternative to chemical pesticides.
- **Surveillance & Early Warning:**
  - Real-time monitoring using **satellites, drones, and field patrols**.
  - Systems like **FAO's Desert Locust Watch** issue alerts to affected countries.
- **Egg Site Management:**
  - Destroying or disturbing soil in breeding grounds prevents locusts from maturing.
- **International Coordination:**
  - Since swarms cross borders, effective control needs **regional collaboration** (e.g., between India, Pakistan, and African nations).

Source: TheHindu

New Governors Appointed For Haryana and Goa

Context

The President appointed new Governors and Lt. Governor– Kavinder Gupta as Lt. Governor of Ladakh, Ashok Gajapathi Raju as Governor of Goa, Ashim Kumar Ghosh as Governor of Haryana.

Constitutional Provisions (Governor's Post)

- **Article 153**: There shall be a Governor for each state. However, the same person can be appointed Governor for two or more states.
- **Article 154**: The executive power of the state is vested in the Governor.
- **Article 155**: The Governor is appointed by the President of India.
- **Article 156**: The Governor holds office **at the pleasure of the President**, with no fixed term.
- **Article 157**: Qualifications for appointment as Governor.
- **Article 158**: Conditions of the Governor's office.

Eligibility Criteria for Governor

- Must be a **citizen of India**.
- Must have **completed 35 years** of age.
- **Must not hold any office of profit**.
- Cannot be a member of Parliament or any state legislature.
- Should be eligible for election as a member of the Lok Sabha.

Key Supreme Court Observations

- The post of Governor is not merely ceremonial; the **Governor is a constitutional head** and must act as a link between the Centre and State.
- In **BP Singhal vs Union of India (2010)**, SC ruled:
    - The President can remove a Governor **without giving reasons**, but the power **cannot be exercised arbitrarily**.
    - **Political considerations alone are not valid grounds** for removal.
- SC emphasized the **apolitical and neutral role** of the Governor to maintain **constitutional balance**.

Source: The Hindu

Denmark Proposed Bill Against Deepfake

Context

Denmark has introduced a **bill to amend its copyright law** to combat the **rising threat of deepfakes**.

About the Bill

- **Purpose**: To curb the misuse of deepfake technology by giving individuals copyright-like control over their **facial features, voice, and appearance**.
- **Approach**: Introduces **consent-based protection**, making it illegal to share deepfake content without the individual's permission.
- **Provisions:**
    - Bars public sharing of **realistic digital recreations** of a person's **face, voice, or physical traits**.
    - **Covers non-verbal and improvised artistic performances** that may not qualify under traditional copyright rules.
    - Applies not only to celebrities but **extends rights to every individual**, even **50 years after their death**.
    - Targets **digital mimicry** of artists such as **musicians, actors, and performers**.

Indian Context

- No specific law against deepfakes in India.
- Courts rely on **privacy**, **defamation**, and **publicity rights**.
- Delhi High Court granted protection to celebrities like **Amitabh Bachchan (2022)** and **Anil Kapoor (2023)**.
- However, such protections are **not extended to common citizens** — unlike Denmark's proposed approach.

Source: Indian Express

Eased FGD Norms for Thermal Power Plants

Context

The Ministry of Environment has relaxed the norms related to Flue Gas Desulphurisation (FGD) systems for thermal power plants.

Rationale Behind

- **Declining Sulphur Dioxide (SO_2) Levels:** India has witnessed a **decline in ambient SO_2 concentrations**.
    - In a 2023 assessment across **492 cities**, only **two (Dehradun and Kolar)** exceeded the SO_2 limit.
    - India's annual SO_2 standard (**50 µg/m³**) is **stricter than** countries like Japan (66), EU (52.4), and Australia (66).
- **Limited Role of SO_2 in PM2.5 Health Impacts:** Scientific studies indicate that **SO_2 is not a major contributor** to **PM2.5 pollution**, which is more harmful to health.
    - Cities with and without FGD units show **no significant difference in SO_2 levels**, suggesting marginal public health benefits.
- **High Financial and Environmental Costs:** The **cost of installing FGD** is high: **₹1.2 crore per MW**, totaling approximately **₹2.54 lakh crore** for all plants.
    - The Ministry argued this would lead to only **marginal improvements** in PM2.5 levels, making it a **disproportionate investment**.
- **Composition of Indian Coal:** Indian coal has **low sulphur content (0.5%)** but **high ash content**, which naturally results in **lower SO_2 emissions** compared to other countries.
- **Targeted Regulation:** Under the new policy, only **22% of thermal plants** (mostly near cities with historically poor air quality) must install FGDs.
    - This **targeted approach** focuses on **high-impact zones**, improving cost-effectiveness without compromising environmental priorities.

Source: The Hindu

Editorial Summary

Women in STEM Careers

Context

As we mark **World Youth Skills Day on July 15**, India needs to work on eliminating the **gender paradox in India's STEM sector**.

Importance of Women's Participation in STEM

- **Demographic Dividend**: Women form nearly half of India's population. Tapping into this talent pool is essential for **sustainable growth**.
- **Boost to GDP**: According to McKinsey Global Institute, enabling **68 million more women to work** could add **$700 billion to India's GDP by 2025**. The World Bank estimates that a **50% female labour force participation rate** could raise GDP growth by **1%**.
- **Innovation & Diversity**: Diverse teams in STEM drive **better problem-solving and innovation**—vital for India's digital and technological aspirations.
- **Social Empowerment**: Economic empowerment leads to **greater decision-making power for women**, impacting households, communities, and policymaking.
- **Aligning with National Goals**: Women's inclusion in STEM aligns with the vision of **Viksit Bharat**, making development **inclusive, equitable, and future-ready**.

Challenges Faced by Women in STEM

- **Education-Employment Disconnect:** Despite high enrolment in STEM courses, **limited job transitions** occur due to lack of industry readiness, networks, or supportive policies.
    - **E.g.,** While **43% of India's STEM graduates are women**—the highest among major economies—only **27% of the STEM workforce** comprises women.
- **Workplace Gender Bias:** Technical roles are often perceived as **"masculine"**, and workplaces remain **unwelcoming** or inflexible towards women's life stages (e.g., maternity, caregiving).
- **Urban-Rural Divide:** As per **PLFS 2023–24**, **urban FLFPR** remains low at **25.4%**, showing formal job barriers despite rising rural participation (**47.6%**).
- **Lack of Support Systems: Mentoring, awareness, and family support** are missing, especially in conservative and rural communities.
- **Safety and Mobility Concerns:** Inadequate **transport, workplace safety, and sanitation** facilities deter women from entering or staying in technical roles.

Solutions & Way Forward

- **Policy Strengthening and Targeted Interventions: NEP 2020** integrates life skills and vocational training in education.
    - **Union Budget 2025–26** increased the gender budget to **8.8%** and introduced term loans, National Skill Training Institutes, and digital skilling platforms.
- **Industry as a Change Agent:** Industries must shift from being **passive recruiters to active enablers**—through mentoring, internships, and workplace reform.
    - Partnering with educational institutions to create **classroom-to-career pipelines**.
- **Community Engagement & Behavioural Change:** Initiatives like **UN Women's WeSTEM Programme** engage families, promote female role models, and conduct workplace safety sessions to change mindsets.
- **Infrastructure & Safety Enhancements:** Safe transport, flexible workspaces, and **gender-sensitive policies** are crucial to retain women in STEM fields.
- **Awareness & Mentorship:** Launch **national mentorship networks**, industry bootcamps, and career counselling to improve confidence and visibility of opportunities.

Source: The Hindu

India Must not trade away its farm

Context

As the U.S. tariff deadline nears, India is pushing to seal a trade deal. However, U.S. demands on agriculture have sparked concerns in India, especially about farmer livelihoods and market access.

US Approach to the Trade Deal with India

- **One-Sided Concessions: India** may offer tariff elimination on US industrial goods and limited opening of agricultural markets.
    - **US** reciprocation is weak — likely limited to a **non-binding letter** promising tariff treatment, not firm commitments.
- **Forced Purchases:** The deal may include **mandatory multi-billion-dollar purchases** of US goods: LNG, oil, aircraft, defence equipment, and farm commodities.
    - Mirrors US deals with other countries (e.g., UK, Vietnam), where purchasing commitments were made under pressure.
- **Regulatory Demands: Ease of doing business for US firms**:
    - Access to India's government procurement market.
    - Dilution of patent protection.
    - Relaxed e-commerce norms for giants like Amazon and Walmart.
    - Unrestricted data transfer by tech companies.
- **Tariff Threats Despite Deal:** Trump has threatened:
    - **10% tariffs on all BRICS countries**.
    - **500% tariff on nations buying oil from Russia** (India's top supplier).
    - Tariffs based on unrelated issues (e.g., Brazil's tariffs after action on X).
    - **Deal doesn't guarantee tariff protection**.

Country/Region	US Demands	Partner Country Concerns	Status	Likely Outcome
EU	Guaranteed purchases of US LNG, beef, aircraft; lower tariffs on US autos and steel; broad access to EU agriculture markets	Harm to EU farmers and auto sector; won't drop CBAM; fears Trump may still impose tariffs	Talks ongoing, but tense. Trump has threatened 30% tariffs	**Uncertain**
Japan	Guaranteed buys of meat, LNG, aircraft; access to rice and government contracts; relaxed auto standards	Rice is politically sensitive; risk of domestic backlash; fears deal won't stop future US tariffs	Talks slow due to political resistance	**No comprehensive deal expected; symbolic ties likely**
South Korea	More duty-free access for US meat and LNG; relax food safety and auto rules; support US aviation	Fears of damage to farmers; concerns Trump will demand more post-deal; lack of trust despite existing FTA	Talks continue, but little headway	**Possible MoU or narrow deal**
Australia	Cut tariffs on US drugs, metals, meat; allow	Resentment over US tariff hikes; trade	Negotiations active, but	**Mini-deal likely**

	more access to agri and rare earths; commit to large US purchases (meat, energy, defence)	deficit; reluctant to lock in quotas	unresolved	
China	Lower tariffs on US goods; commit to buying US energy and aircraft; reforms to SOEs, digital, and subsidies	Strong opposition to political demands; fears of losing strategic autonomy; deep distrust of US	Fragile ceasefire in select sectors	**No broad deal, only standstills**
India	Reduce tariffs on autos, dairy, grains; allow GM feed; remove data localisation; commit to big US buys (oil, gas, defence)	Impact on 700 million farmers; food security; digital sovereignty; fears of new tariffs even after deal	Final-stage talks for limited deal	**Uncertain. Partial deal likely, US may still charge 15% base tariffs**

Potential Impact on Indian Agriculture

- **Exposure to Subsidised Imports:** US demands **zero-duty entry** for:
  - **Dairy products** (cheese, whey, milk powder) – threatens over **80 million small dairy farmers**.
  - **Frozen chicken legs** – impacts **30 million informal poultry workers**.
  - **Wheat and rice** – risks **domestic price collapse**, long-term import reliance.
- **Push for GM Feed and Products:** US pushing for:
  - GM animal feed like **soyameal and DDGS (Distillers' Dried Grains with Solubles)**.
  - GM oils like **soyabean oil**
  - India currently bans GM feed to protect GM-free status and export markets (EU).
  - US self-certification system makes it hard to verify GM-free imports.
- **Regional Crop Impact:** Duty cuts on **US apples** could hurt apple farmers in **Kashmir and Himachal Pradesh**.
  - Tariff cuts on GM **soy oil** could damage India's **edible oil sector**, affecting **6 million oilseed farmers**.
- **Vulnerability to Global Market Fluctuations:**
  - Historical examples:
    - **2014–16 global price crash**: could have devastated Indian farmers without tariffs.
    - **2005–08 price spike**: countries like Ghana, Nigeria suffered due to import reliance.

Conclusion

India is being pressured into a **"MASALA" deal — Mutually Agreed Settlement Achieved through Leveraged Arm-twisting** — with minimal benefits and **major risks to its farming sector**. With over **700 million Indians** dependent on agriculture, India must avoid hasty concessions that threaten **livelihoods, food security, and rural stability**. Agriculture is not just a trade issue — it's the backbone of the nation.

Source: Businessline