DAILY CURRENT AFFAIRS 17-01-2025

GS-1

1. **Rat-Hole Mining**

GS-3

2. **Rupee depreciation**
3. **Blood Money**
4. **Bhargavastra Micro-Missile System**
5. **Spotted dear**

Rat-Hole Mining

Syllabus: GS-1; Geography- mining practices

Context

- At least 220 illegal "rat hole" coal mines have been detected around the flooded mine at Umrangso in Assam's Dima Hasao district, in which nine workers got trapped recently.

Definition of Rat-Hole Mining

- Rat-hole mining involves digging narrow, horizontal tunnels that are just big enough for miners to crawl through. These tunnels branch off vertically from a central shaft, and coal is manually extracted using basic tools.

Key Features

- **Structure**: The mines are narrow and resemble a rat's burrow, hence the name.
- **Methodology**:
    - Vertical pits are dug into the ground.

- Horizontal tunnels branch off where coal seams are located.

- **Scale**: Usually small-scale and labor-intensive, conducted by local communities or private individuals.
- **Labor**: Often relies on unskilled labor, including women and children.

Advantages

- **Economic Livelihood**: Provides income for local communities, especially in remote areas.
- **Ease of Extraction**: Effective for extracting coal from thin seams.
- **Minimal Initial Investment**: Involves low costs as it does not require advanced machinery.

Disadvantages

- **Environmental Hazards**:
  - **Deforestation**: Large-scale cutting of forests for mining.
  - **Water Pollution**: Acid mine drainage contaminates rivers and groundwater.
  - **Soil Erosion**: Weakens land stability.
- **Health and Safety Risks**:
  - Poor working conditions often lead to accidents.
  - Risk of inhaling coal dust causes respiratory diseases.
- **Child Labor**: The practice often involves exploiting children for mining.
- **Unscientific and Unregulated**: Leads to wastage of resources and inefficient extraction.

Legal and Policy Perspective

- **Supreme Court Intervention**:
  - In 2014, the National Green Tribunal (NGT) banned rat-hole mining in Meghalaya due to its environmental impact and safety concerns.
  - In 2019, the Supreme Court allowed conditional coal mining, emphasizing environmental safeguards.
- **Environment Laws Violated**:
  - Mines and Minerals (Development and Regulation) Act, 1957.
  - Environment Protection Act, 1986.
  - Child Labour (Prohibition and Regulation) Act, 1986.

Challenges in Banning Rat-Hole Mining

- **Socio-Economic Dependence**: Local communities rely heavily on this practice for income.
- **Political Influence**: Mining interests often involve powerful local stakeholders.
- **Implementation Issues**: Weak enforcement of bans and regulations.

Way Forward

- **Regulated Mining**: Implement sustainable mining practices with advanced technology.
- **Livelihood Alternatives**: Provide alternative employment opportunities for affected communities.
- **Strict Enforcement**: Strengthen the implementation of environmental and labor laws.
- **Rehabilitation Programs**: Restore mined areas and ensure ecological balance.
- **Awareness Campaigns**: Educate communities about the hazards of rat-hole mining.

Rupee depreciation

Syllabus: GS-3; Economy

Context

The crash of the Indian rupee against the US dollar, an all-time low of 86.71 is in news.

About

- Rupee depreciation refers to the decline in the value of the Indian rupee in comparison to other currencies, particularly the US dollar. It is an important topic for the UPSC exam, as it has significant implications for India's economy and international trade.

Key Factors Influencing Rupee Depreciation:

- **Global Economic Factors**:
  - **Dollar Strength**: The value of the rupee often depreciates when the US dollar strengthens because the dollar is the world's primary reserve currency and many international transactions are priced in it.

  - **Global Oil Prices**: India is a major importer of oil. Higher oil prices lead to more demand for foreign currencies, putting pressure on the rupee.
  - **Interest Rate Policies**: Central bank policies in other economies, such as the US Federal Reserve's interest rate hikes, can impact capital flows and the value of the rupee.
- **Domestic Economic Factors**:
  - **Inflation**: Higher inflation in India relative to its trading partners decreases the purchasing power of the rupee, causing depreciation.
  - **Trade Deficits**: A large trade deficit (where imports exceed exports) requires more foreign currency to pay for imports, putting downward pressure on the rupee.
  - **Foreign Direct Investment (FDI) & Portfolio Investment**: Lower foreign investment can lead to a shortage of foreign exchange, affecting the rupee's value.
- **Monetary and Fiscal Policies**:
  - **Monetary Policy**: Decisions by the Reserve Bank of India (RBI) regarding interest rates and interventions in the foreign exchange market can influence the rupee's value.
  - **Government Fiscal Deficit**: A higher fiscal deficit can lead to a higher demand for foreign borrowing, increasing the outflow of capital and causing depreciation.

- **Market Sentiment and Speculation**: Perceptions of political instability, economic growth concerns, or external shocks (such as the COVID-19 pandemic or geopolitical tensions) can cause speculators to sell the rupee, leading to depreciation.
- **Foreign Exchange Reserves**: The RBI's foreign exchange reserves can be used to intervene in the market and stabilize the rupee by buying or selling currencies to manage supply and demand.

Effects of Rupee Depreciation:

- **Impact on Imports**: Depreciation makes imports more expensive, leading to inflationary pressures, especially for essential goods like oil, machinery, and chemicals.
- **Impact on Exports**: A weaker rupee can make Indian exports cheaper and more competitive in global markets, potentially boosting export growth.
- **Foreign Debt**: Indian companies with foreign-denominated debt face higher costs when repaying loans in foreign currencies, affecting their profitability and increasing financial stress.

- **Foreign Investment**: While export-driven sectors benefit, depreciation may deter foreign investors due to concerns over currency risk, impacting capital inflows.
- **Inflation**: A depreciating rupee often results in higher import prices, contributing to overall inflation, which can reduce consumer purchasing power.

Policy Measures to Address Rupee Depreciation:

- **Foreign Exchange Reserves Management**: The RBI can utilize its foreign reserves to stabilize the currency.
- **Monetary Policy Adjustments**: Raising interest rates can help attract foreign capital, strengthening the rupee.
- **Capital Controls**: In extreme cases, the government may impose controls to limit capital outflows and stabilize the currency.
- **Export Promotion**: The government can incentivize exports, which could help balance the trade deficit and support the rupee.

Related Concepts:

- **Real Exchange Rate**: This adjusts the nominal exchange rate for inflation differences between two countries. A depreciating nominal exchange rate may not always mean real depreciation if inflation rates are comparable.

- **Purchasing Power Parity (PPP)**: A theory that suggests that exchange rates should adjust so that the same basket of goods costs the same across countries. PPP is often used to assess whether a currency is overvalued or undervalued.

Blood Money

Syllabus: GS-3: Indian Economy – Economic Terms.

Context:

- Nimisha Priya, a nurse from Kerala, was sentenced to death by a Yemen court for murdering her business partner.

- Efforts for her acquittal involve paying 'blood money' to the victim's family, bringing the concept of diya into focus.

What is Blood Money (Diya)?

- **Definition**: Monetary compensation paid by the perpetrator of a crime to the victim or their family under Islamic Sharia law.

- **Application**:
  - Predominantly in cases of unintentional murder and culpable homicide.
  - Can be used in murder cases where the victim's kin opts for reconciliation over retribution (qisas).
- **Objective**:
  - Alleviate the suffering and economic loss of the victim's family.
  - Not meant to place a monetary value on human life.
- **State Oversight**: Even with reconciliation, the state/community retains the right to impose penalties or deterrent punishments.

Contemporary Applications of Diya

- **Saudi Arabia**:
  - Payment mandated for victims of road accidents.
  - Fixed by Sharia courts; liability may also include imprisonment.
  - Workplace accidents have diya rates set by special committees.
  - Discussions on equalizing payments across gender, religion, and nationality remain ongoing.
- **Iran**:
  - Compensation varies by religion and gender (e.g., women receive half of what men do).
  - The Supreme Court upheld a law for equal diya, but implementation remains limited.
- **Pakistan**:
  - Mainstreamed through the Criminal Laws (Amendment) Ordinance, 1991.
  - Diya and qisas are legally recognized.
- **Yemen**:
  - Parties can agree on compensation with judicial oversight ensuring fairness.

India's Stand on Blood Money

- **No Formal Provision**:
  - Indian law does not recognize blood money under its legal framework.
- **Plea Bargaining**:
  - Similar but not equivalent to diya.

- Allows the accused to negotiate with the prosecution in exchange for a reduced sentence or charge.
- Introduced via the Criminal Law (Amendment) Act, 2005.
- **Limitations**:
  - Applicable only for offences with imprisonment under seven years.
  - Not allowed for heinous crimes, crimes against women or children, or socio-economic offences.
  - Requires voluntary agreement from the accused.
- **Compensation**: Section 265E allows victims to receive compensation under certain circumstances.

Historical Practices Similar to Blood Money

- **Ireland**:
  - *Éraic*: Compensation based on the severity of the offence.
  - *Log nEnech*: Compensation varied by the victim's social status.
- **Wales**:
  - *Galanas*: Compensation was based on the victim's status; mandatory in murder cases except under justified circumstances.
- **Germany**:
  - *Wergeld*: Formalized in early medieval Germany, similar to diya.
- **Medieval States**:
  - Standards for compensatory payments to victims' kin were widely established.

Notable Cases of Indians Pardoned via Blood Money

- **2019**:
  - Arjunan Athimuthu (Kuwait): Death sentence commuted to life after ₹30 lakh blood money was paid.
- **2006**:
  - Abdul Rahim (Saudi Arabia): Death sentence commuted after ₹34 crore was paid, though he remains imprisoned.
- **2017**:
  - 10 Indians in UAE: Pardoned after paying 200,000 dirhams in blood money.

- **2009**:
    - 17 Indians in UAE: Released from death row after paying ₹4 crore equivalent in blood money.

Key Takeaways

- Blood money (diya) serves as a reconciliation mechanism under Sharia law, emphasizing restorative justice.
- Its application varies widely across Islamic nations, with ongoing debates on inclusivity and fairness.
- In India, plea bargaining serves as a partial analogue but has stricter limitations and is not universally applicable.
- Historical precedents worldwide reflect a broader cultural acceptance of compensation-based justice systems.

Bhargavastra Micro-Missile System

Syllabus: GS-3; Science & Tech

Context

- The Bhargavastra is an indigenously developed micro-missile system designed to counter the emerging threat of swarm drone attacks.
- It was successfully tested at the Gopalpur Seaward firing range on January 12th and 13th, 2025, in the presence of senior Army officers.

Developer

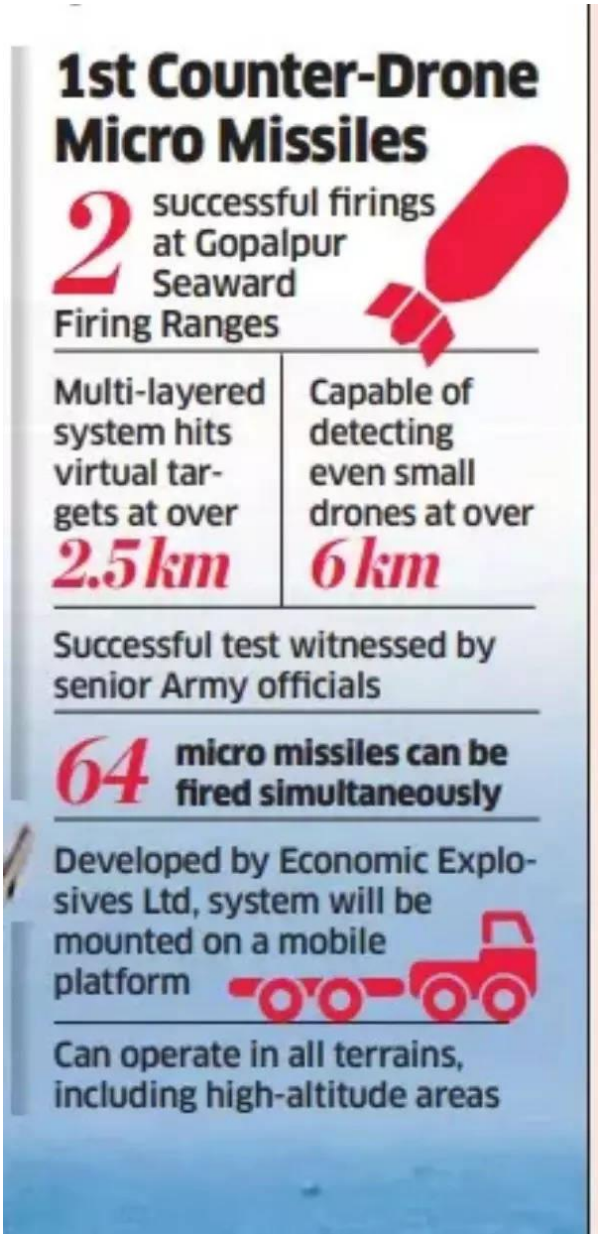
- The Bhargavastra weapon system has been developed by Economic Explosives Ltd (EEL), a subsidiary of the Solar Group based in Nagpur.
- The system is designed as a low-cost, effective solution against swarm drone attacks.

What is Swarm Drone Attack?

- Swarm drones are multiple **unmanned aerial vehicles (UAVs)** controlled by a single operator to execute coordinated attacks.
- These drones confuse enemy radars due to their large numbers, and traditional defense systems struggle to handle such threats.

- The swarm drone attack concept was notably used by Iran to breach Israel's Iron Dome system and is also employed by Ukraine and Russia.

Features of Bhargavastra



- **Range:** 5-6 kilometers.
- **Target Engagement:** Neutralizes multiple drones with micro munitions.
- **Deployment:** Mountable on mobile platforms for rapid deployment across varied terrains, including deserts and high-altitude areas.

- **C4I Technology:** Equipped with advanced Command-and-Control technology, which includes communications, computing, and intelligence support.
- **Radar:** Detects UAVs beyond 5 km and can identify targets as small as 0.01 square meters.
- **Efficiency:** Tracks, engages, and destroys up to 64 targets within 16 seconds of detection.
- **Micro-Missile Kill Capabilities:** Missiles have lock-on capabilities and can fire at intervals of one second.

Current Status and Future Prospects

- While the Bhargavastra system has successfully passed its tests, it is not yet inducted into the Indian Army.
- Further tests are required, and after receiving approval from the Army, the Government of India will decide whether to induct it into active service.

Spotted dear

Syllabus: GS-3; Biodiversity

Context

- 28 spotted deer dot every sq. km of Nagarahole Tiger Reserve
- The increasing deer population is a sign of healthy prey-predator numbers, says Deputy Conservator of Forests and Director of Nagarahole Tiger Reserve

Taxonomy and Distribution

- **Scientific Name**: *Axis axis*
- **Common Name**: Spotted Deer or Chital
- **Family**: Cervidae
- **Order**: Artiodactyla
- The spotted deer is native to the Indian subcontinent, particularly found in India, Nepal, Bhutan, Bangladesh, and Sri Lanka.
- It is widely distributed in forests, grasslands, and protected reserves across India.

Habitat and Ecology

- Spotted deer are typically found in forested areas, including tropical and subtropical forests, grasslands, and areas with dense vegetation.
- They prefer areas with a mix of open spaces and dense undergrowth, where they can graze and take shelter.
- They are herbivores and primarily feed on grass, fruits, leaves, and other vegetation.

Behavior and Social Structure

- **Social Structure**: Spotted deer are usually seen in herds, with groups of 6-20 individuals, but the size of the herd can vary depending on food availability and habitat.
- **Communication**: They use vocalizations, body language, and scent-marking to communicate within the herd.
- **Activity Pattern**: They are diurnal, meaning they are active during the day, especially in the early morning and late evening when the weather is cooler.

Reproduction

- **Breeding Season**: The mating season occurs during the monsoon period (July to September), with males competing for dominance.
- **Gestation**: The female typically gives birth to a single fawn after a gestation period of about 230 days.
- **Offspring**: Fawns are born spotted but lose their spots as they mature.

Conservation Status

- **IUCN Status**: Least Concern (LC) – Though widely distributed, the spotted deer's population is affected by habitat loss, poaching, and hunting.

- **Threats**: Habitat fragmentation, deforestation, and human-wildlife conflict are significant threats to their survival. They are often hunted for their antlers and skin.

Conservation Efforts

- **Protected Areas**: Spotted deer are found in several national parks and wildlife sanctuaries in India, including Ranthambore National Park, Jim Corbett National Park, and Bandipur National Park.
- **Project Tiger**: The species is also a part of the Project Tiger conservation initiative to protect the natural habitats of tigers and their prey species like the spotted deer.
- **Anti-poaching Measures**: Increased patrolling and anti-poaching laws have been established in various wildlife reserves.

Role in Ecosystem

- Spotted deer are a vital part of the food chain in the forest ecosystem. They serve as prey for larger carnivores, such as tigers and leopards. Their grazing habits also help maintain vegetation dynamics.