Topics -

- **The Impact of Large Language Models (LLMs) on Energy Consumption. (sci tech)**
- **Environmental Challenges and UN Conferences (Env)**
- **Summit Of The Future 2024 (sci tech and IR)**
- **Centre-State Relations and Emergency Provisions in Manipur (POLITY)**
- **The Cheetah Action Plan (CAP) (Environment)**
- **Glacial Melting in Kyrgyzstan (Geography & Env)**
- **Mains**

6- Course on society , women related issues , regionalism , communalism , urbanization etc .

Topic - The Impact of Large Language Models (LLMs) on Energy Consumption 🌍⚡ (sci & tech)

Overview of LLMs in AI

Transformation in AI: Rise of powerful LLMs (OpenAI, Google, Microsoft).

Large language models (LLMs) are artificial intelligence (AI) programs that can generate and interpret text, and perform other natural language processing (NLP) tasks.

Generative AI: Ability to generate data based on inputs, enhancing user experience.

Human-Computer Interaction: More intuitive and human-like understanding.

Implications of LLMs

Industry Attention: Stakeholders and governments are focusing on implications.

Environmental Impact: High energy consumption of LLMs is concerning.

Impact on Human-Computer Interaction

- Revolutionized Interactions 🤖
  - Experiences akin to human understanding
- Widespread Availability 🌍
  - Attention from individuals, industry, and governments

Problems with Current LLMs

- Energy Consumption:
  - Larger models require significant computational power.
  - Example: GPT-3 has 175 billion parameters, consuming ~1,287 MWh for training.
- Carbon Emissions:
  - Training a 1.75 billion parameter model emits up to 284 tonnes of CO2.
  - More than running a data center with 5,000 servers for a year.

Future Considerations

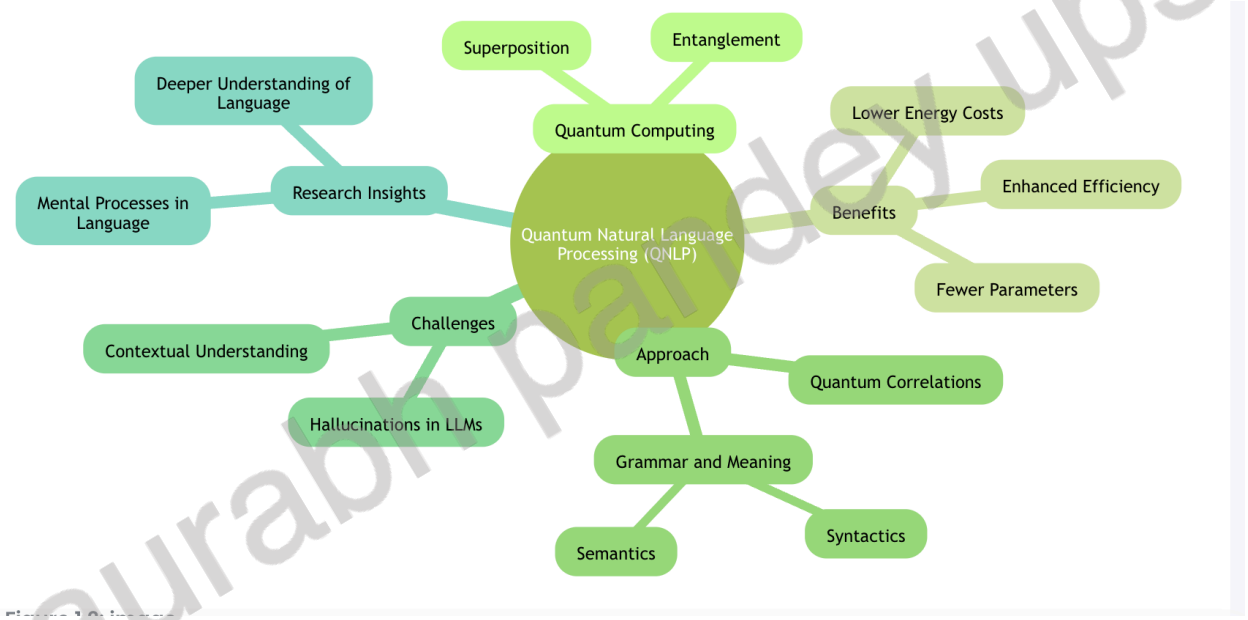
🌱 Sustainability: Need for greener solutions in AI model training and deployment.

->Lowering LLMs' Carbon Footprint and Enhancing Efficiency 🌱

Key Concepts

- Sustainability
  - Lower carbon footprint
  - Cost-effective solutions

- Control Limitations
  - Pre-trained nature
  - User control over functioning
- Accuracy Issues
  - Hallucinations in output
  - Divergence from reality
- Syntactic Understanding
  - Challenges in syntax (the system of rules for the structure of a sentence in a language) processing
  - Importance of syntactic cues



→Time-Series Forecasting with Quantum Generative Models

Overview of Quantum Generative Models

- Quantum Mechanics Basics: Understanding quantum states and their evolution.

Generative Model Definition: Mathematical models generating data based on user input.

Quantum Generative Model (QGen)

Functionality:
- Utilizes quantum computing to analyze complex time-series data.
- Addresses challenges faced by conventional computers.

Time-Series Data:
- Data recorded at fixed intervals.
- Can be stationary (constant) or nonstationary (variable).

Applications

Pattern Recognition:
- Teaching quantum algorithms to identify data patterns.

Forecasting:
- Solving complex problems such as stock market trends.

Anomaly Detection:
- Identifying unusual patterns in time-series data.

Research Findings

QGen AI Model:
- Successful with both stationary and nonstationary data.

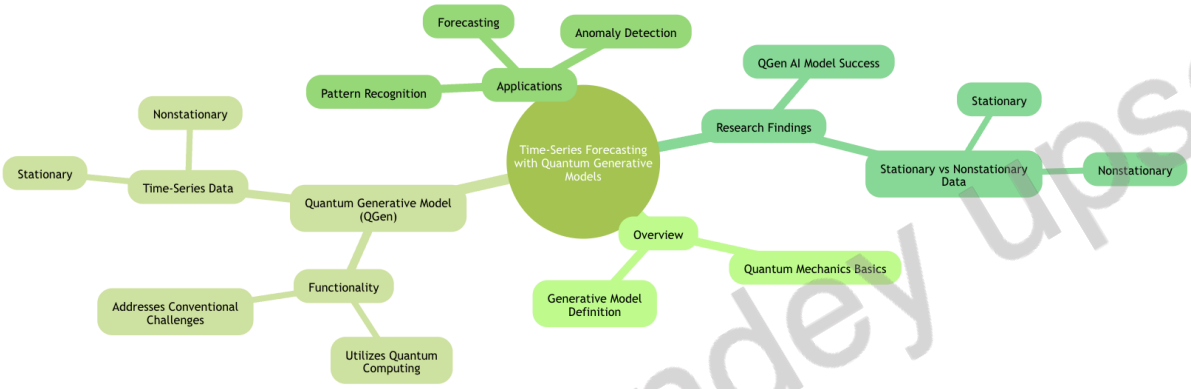
Stationary vs Nonstationary Data

Stationary Data:

Minimal changes over time (e.g., gold prices, population).

Nonstationary Data:

Fluctuates frequently (e.g., stock prices, temperature).



→ Time-Series QGen AI Model in Financial Applications

Overview

Understanding Quantum Generation AI (QGen AI)
Applications in Financial Problems
Comparison with Classical Methods
Benefits of Quantum Computing in AI

Key Points:

QGen AI Model: A specialized AI model for generating time-series data.

Financial Problems: Evaluating the model's performance on financial datasets.
Classical Methods: Comparison with LSTM and VAR techniques.
Efficiency: Fewer parameters needed than classical methods.
Resource Management: Reduced computational resources required.

Topic-2 Environmental Challenges and UN Conferences

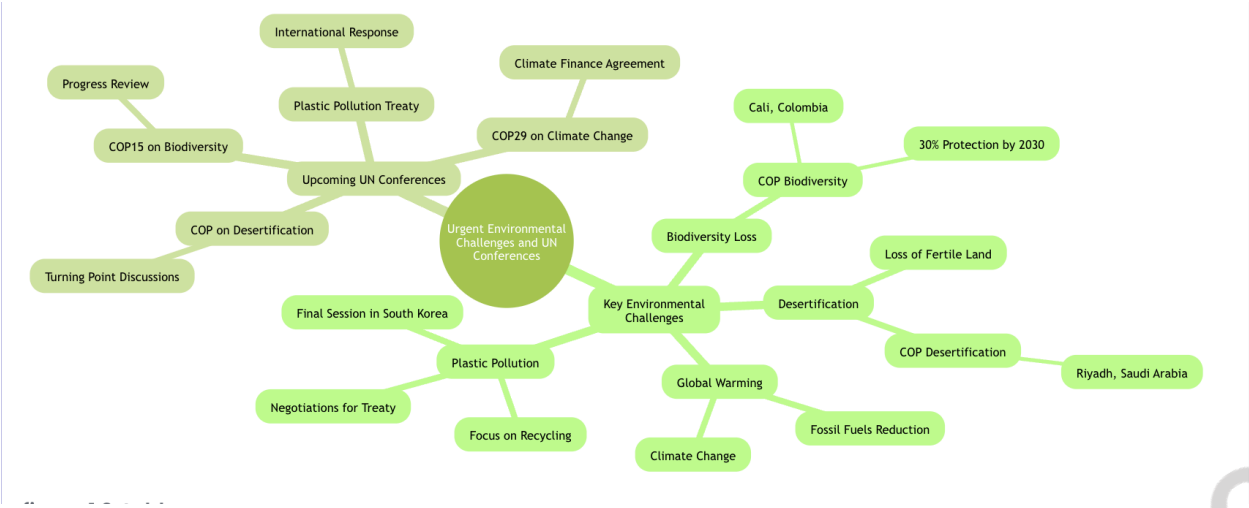
Overview

Focus on urgent environmental challenges:

- 🌡️ Global Warming
- 🐾 Biodiversity Loss
- 🌵 Desertification
- 🌊 Plastic Pollution

Key Events

COP for Biodiversity (Cali, Colombia, Oct 21 - Nov 1)
COP29 on Climate Change (Azerbaijan, Nov 11 - 22)
COP on Desertification (Riyadh, Dec 2 - 13)
Treaty on Plastic Pollution (South Korea, Nov 25)



Topic - Summit Of The Future 2024

Overview

Event: Summit Of The Future
Date: September 22-23, 2024
Location: United Nations, New York
Goal: Address major global challenges threatening humanity's future, such as:

- Conflict
- Climate Change 🌍
- Pandemics
- Pollution
- Income Inequalities 💰
- Discrimination

Vision

A thriving world with protection against these threats.

Theme

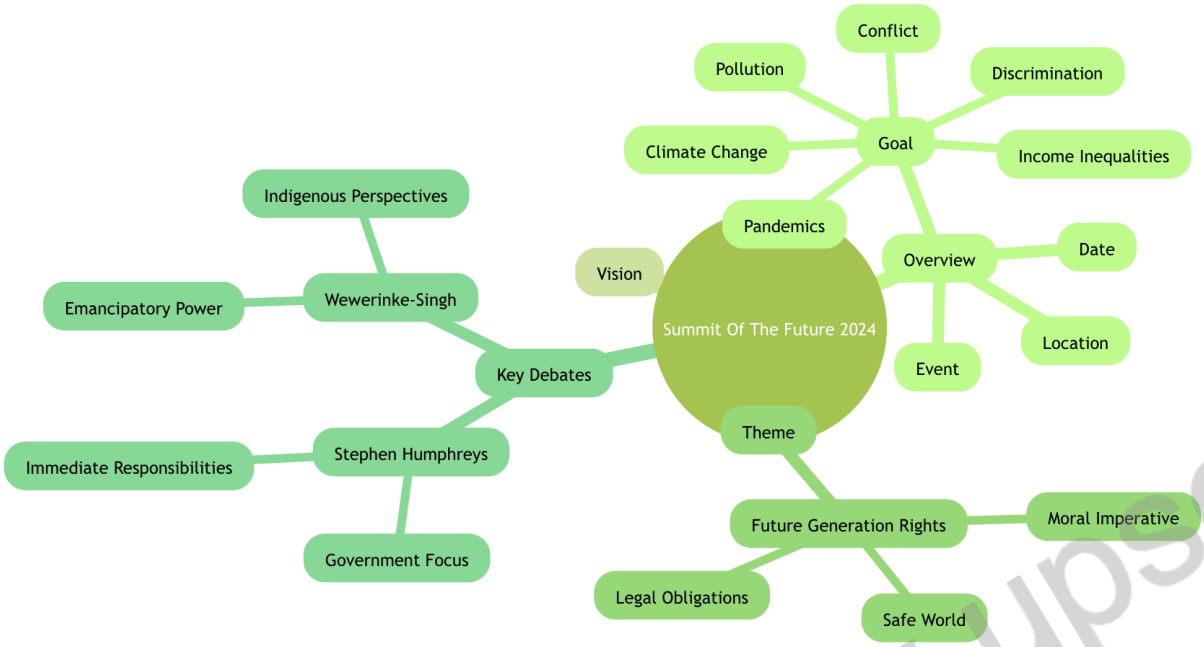
Future Generation Rights:
- Safe & secure world for future generations
- Legal and moral obligations for current generations

Future generation rights are critical in discussions of climate justice, emphasizing the need for a liveable planet for future inhabitants.

Key Debates

Stephen Humphreys:
- Argument: Protecting future generations is abstract and detracts from immediate responsibilities.
- Governments focus on present needs over future obligations.

Wewerinke-Singh & Co-authors:
- Counter-argument: Emphasizes the emancipatory power of future generations discourse.
- Advocates for reshaping international law based on justice and solidarity.
- Importance of indigenous perspectives on generational responsibilities.



→ Judgments on Environmental Matters 🌍

Overview

Intergenerational Solidarity: Importance of considering future generations in environmental decisions.
Climate Justice: Legal frameworks supporting sustainable development and protection of rights.
Global Perspectives: Insights from various countries on environmental judgments.

Key Judgments

Colombia: Inter-generational pact for the Amazon.
Pakistan: Bar on cement plants to protect fragile environments.
India: Upholding intergenerational equity in environmental rights.

Kenya: Legal obligations to enhance natural resources for future generations.
South Africa: Evaluating long-term pollution impacts.

Principles and Frameworks

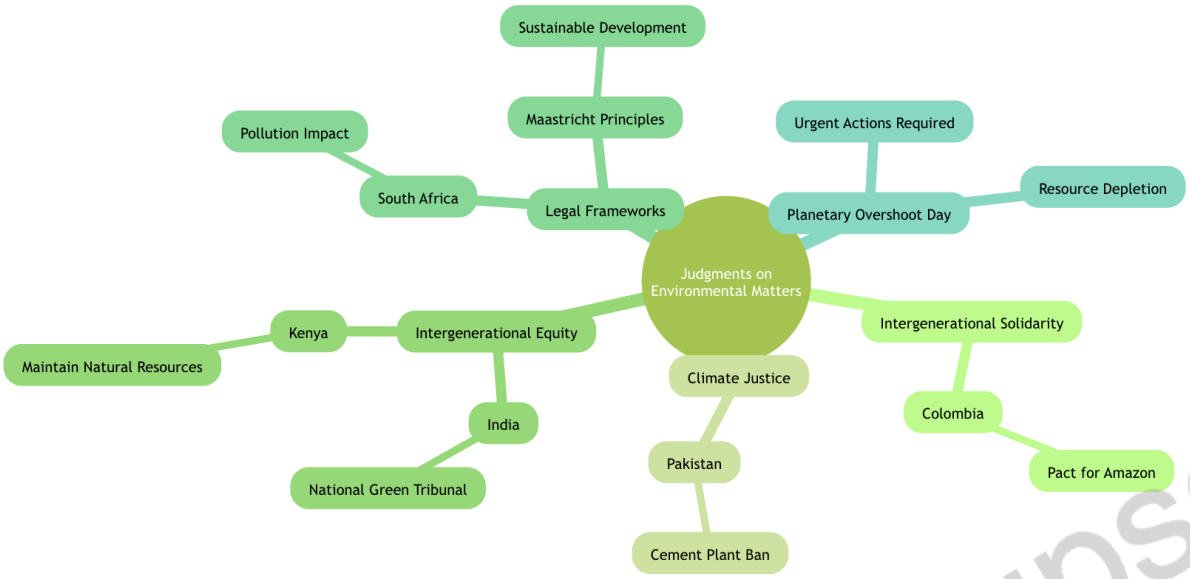
Maastricht Principles: Linking climate justice to human rights.
Rights of Future Generations: Extending human rights to future members of humanity.
Legal Obligations: Protecting rights against risks posed by public and private actions.

Challenges and Considerations

Planetary Overshoot Day: Highlighting the urgent need for sustainable practices.
Youth Involvement: Engaging young generations in decision-making processes.
Legal Trends: Rising youth climate lawsuits and their implications.

Emphasis on Future Generations

The rights of future generations are essential in shaping climate justice and sustainable development actions globally.



Topic-Centre-State Relations and Emergency Provisions in Manipur

Overview of Federal Setup

Federal Structure: India as a federation with distinct Centre and State governments.
Seventh Schedule: Distribution of powers between Union and States.
Law and Order: Primary responsibility of State governments.

Key Points:

Centre-State dynamics.

Importance of maintaining law and order.

Emergency Provisions

Part XVIII of the Constitution: Outlines emergency protocols.
Article 355: Duty of the Centre to protect States from external aggression and internal disturbances.
Article 356: Allows imposition of President’s rule when States cannot function constitutionally.

Key Points:

Emergency provisions' impact on State governance.
Comparison with federal systems in U.S. and Australia.

Historical Context and Judicial Rulings

B.R. Ambedkar's Explanation: Purpose of Articles 355 and 356 in a federal context.
Misuse of Article 356: Historical instances of removing elected governments.
S.R. Bommai Case (1994): Restricted misuse of Article 356.

Key Points:

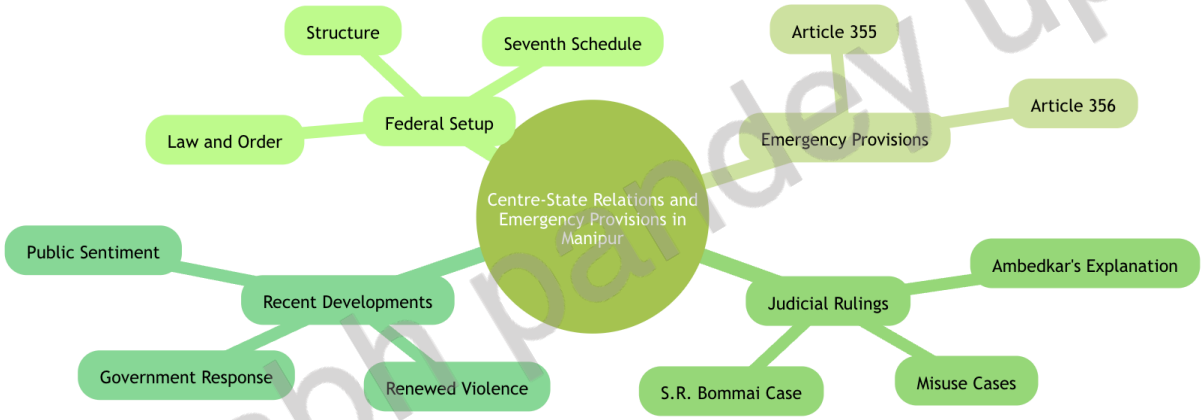
Importance of judicial review.
Evolution of Article 355's interpretation over time.

Recent Developments in Manipur

Renewed Violence: Recent incidents triggering discussions on emergency measures.
Government Response: Curfews and cabinet meetings amid escalating tensions.
Public Sentiment: Protests and demands for accountability from leadership.

Key Points:

Current state of unrest in Manipur.
Role of government in addressing violence.



Centre-State Relations and Article Applications

Context and Key Suggestions

Sarkaria Commission (1987):
    Focus on Centre-State autonomy.
    Recommendations on maintaining balance of power.
National Commission (2002):
    Emphasizes constitutional duties of the Union.
    Article 355's role in ensuring effective governance.

Punchhi Commission (2010):
- Stresses that Article 356 should be a last resort.
- Urgent situations require immediate action.

Current Situation in Manipur:
- Large-scale violence against civilians.
- Urgency in restoring law and order.
- Political expediency affecting the invocation of Article 356.

Recommendations:
- Utilize Article 355 to take necessary actions.
- Ensure swift response to restore normalcy.
- Avoid political bias in implementing constitutional provisions.

Footnote: Detailed discussion about Article 355 and 356 can be found in the respective commission reports.

Topic--The Cheetah Action Plan (CAP)

Overview of CAP

Objective: Introduce African cheetahs into Indian ecosystems.

Focus:
- 🐾 Conservation of cheetah species.
- 🌱 Restoration of savanna habitats.

Challenges Faced

Extended Captivity: Many cheetahs currently in captivity.
Fatalities: Occurrences raising concerns about sustainability.
Long-term Prospects: Questions about the viability of the project.

Project Goals

Translocation Strategy: Use of African cheetahs to conserve threatened species.
International Cooperation:
    Assist Iran with Asiatic cheetah conservation.
    Expand cheetah distribution in protected areas of India.
Flagship Species: Promote biodiversity in degraded ecosystems.

Expected Outcomes

Eco-tourism: Improve local community economies.
Population Growth:
    Estimated to reach carrying capacity of Kuno National Park in ~15 years.
    Wider Kuno landscape in 30-40 years.

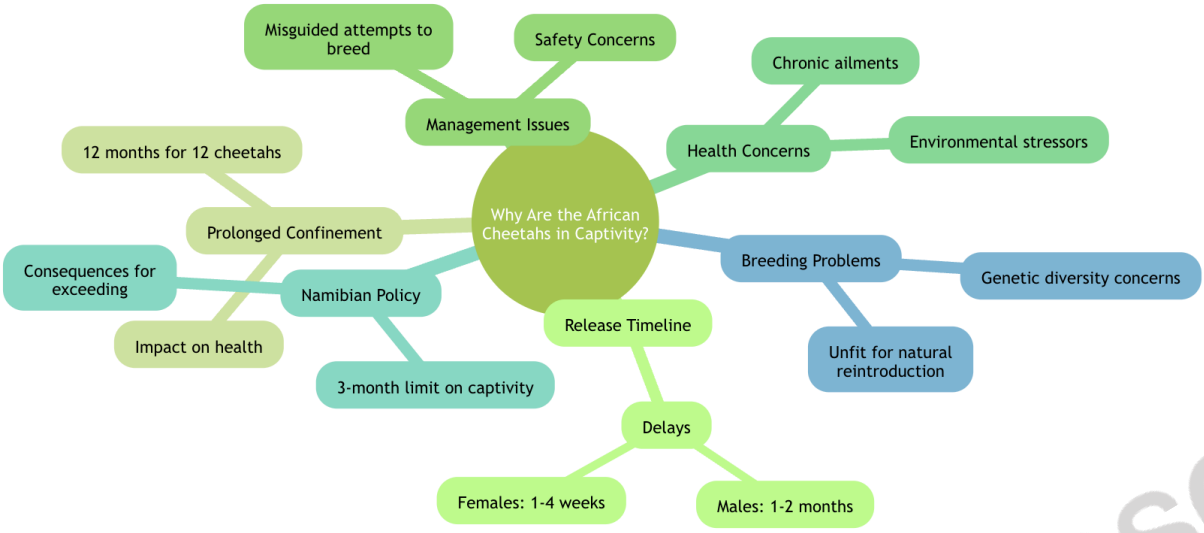
Long-term Commitments

Financial: At least 25 years of funding.
Technical Support: Collaboration with various organizations.
Key Organizations:
    Ministry of Environment, Forests and Climate Change (MoEFCC)
    National Tiger Conservation Authority (NTCA)
    Madhya Pradesh Forest Department
    Wildlife Institute of India

→ Why are the African Cheetahs in Captivity?

Key Observations

- Increased Captivity Duration:
  - Cheetahs have been held longer than specified quarantine periods.
  - 12 out of 20 cheetahs have spent nearly 12 months in captivity.
- Misguided Management:
  - Belief that captivity reduces mortality and simplifies breeding.
- Impact on Release:
  - Long-term captivity makes cheetahs unfit for release into the wild.
  - Namibian policy states wild carnivores should not be held longer than 3 months.



Why are the Cheetahs Located in Kuno?

Overview of Cheetah Introduction

Surveyed Sites: 10 sites in 5 central Indian States
Chosen Location: Kuno National Park, Madhya Pradesh
Reason: Suitable habitat and adequate prey base

Current Status

Captivity Issues:
Cheetahs largely held captive in Kuno
Fenced area in Gandhi Sagar Wildlife Sanctuary (80 sq. km)
Planned release date delayed to late 2024 or early 2025

Future Plans

Breeding Facility:
Being built in Banni grasslands, Gujarat

- Potential Sites:
  - Nauradehi Wildlife Sanctuary, Madhya Pradesh

Responsibility and Governance

- Expert Committee: Appointed by NTCA, led by Rajesh Gopal
- Decision-Making Bodies:
  - NTCA (National Tiger Conservation Authority)
  - MoEFCC (Ministry of Environment, Forest and Climate Change)
- Technical Inputs: Wildlife Institute of India and Madhya Pradesh Forest Department

Measurable Outcomes of Project Cheetah

- Short-term Goals:
  - 50% survival rate in the first year
  - Establishing home ranges
  - Successful reproduction in the wild
  - Revenue generation for local communities via eco-tourism
- Current Challenges: Goals not being met due to prolonged captivity
- Long-term Success Criteria:
  - Stable ecosystem integration
  - Establishing a viable metapopulation
  - Improving habitat quality and prey diversity
  - Sustainable conservation efforts benefiting local economies

Topic---> Glacial Melting in Kyrgyzstan

Overview

Location: Kyrgyz Mountains 🏔️
Scientist: Gulbara Omorova 🌍
Focus: Melting glaciers due to climate change ❄️➡️💧

Topic ---> Conservation Efforts at Persepolis Against Lichens

Overview of the Issue

Location: Persepolis, Iran 🇮🇷
Threat: Lichens eroding ancient monuments

Historical Significance: Built in 6th century BC by Darius I
UNESCO Status: World Heritage Site since 1979
Impact: Lichens dissolve minerals and penetrate stone surfaces, threatening intricate carvings
Quotes:
> Shahram Rahbar: “If we do nothing, these organisms could reduce these relics to dust within 50 to 100 years.”
> Mohammad Sohrabi: “Many of Persepolis’s intricate motifs have already been lost due to lichen activity.”

Causes of Lichen Growth

Environmental Factors:
- Industrialization: Increased pollution
- Acid Rain: Chemical weathering of stone
- Desert Climate: Harsh conditions favor lichen growth

Biodiversity:
- Iran has over 3,000 lichen species, with 500-700 on historical monuments

---

Conservation Strategies

Monitoring & Research:
- Continuous assessment of lichen impact
- Identification of vulnerable structures

Intervention Techniques:
- Application of biocides
- Physical removal of lichens
- Protective coatings for stone surfaces

Public Awareness:

Educational campaigns on cultural heritage preservation

Mains Q -- ‘’Asymmetrical federalism in india is responsible for both centralisation and decentralization in india polity ‘’ Discuss (250 words) 15marks

Connect with sir
9057921649 (ONLY MSG)

send your answer - Saurabh pandey upsc telegram channel

Link given in description box of video (or scan QR CODE FOR JOINING COURSE)

included .

5- course on cyber security and disaster managemnt

6- Course on society , women related issues , regionalism , communalism , urbanization etc .

Download - saurabh pandey cse app from google play store -or visit saurabhpandeyupsc.com and click on all courses → courses can be accessed on laptop

PDF DOWNLOAD -- Telegram channel -https://t.me/gesreporter

The hindu analysis by saurabh sir for upsc