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Environmental Crisis in Jungle Mahal: A Historical Survey from Colonial to Post-Colonial Period

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Abstract

The Jungle Mahal region of West Bengal, historically comprising parts of present-day Paschim Medinipur, Jhargram, Bankura, and Purulia districts, has undergone significant environmental transformations from the colonial period to the present. Once characterized by dense forests, rich biodiversity, and indigenous ecological practices, the region today faces acute environmental crisis including deforestation, land degradation, water scarcity, and loss of biodiversity. This paper examines the historical trajectory of environmental change in Jungle Mahal, focusing on the impact of colonial forest policies, post-colonial development strategies, and socio-economic pressures. It argues that the environmental crisis is deeply rooted in exploitative governance structures and the marginalization of indigenous communities, particularly Adivasis. The Jungle Mahal environment represents a fragile yet vital ecological zone where natural resources and human livelihoods are deeply interconnected. While rich in forest and cultural heritage, the region faces serious environmental degradation. Sustainable management—balancing conservation with development—is essential to ensure the long-term ecological and socio-economic stability of Jungle Mahal. The Jungle Mahal environment refers to a distinctive ecological and socio-cultural region in eastern India, primarily spread across parts of West Bengal (notably Purulia, Jhargram, Bankura, and parts of Paschim Medinipur), with extensions into neighboring areas of Jharkhand and Odisha. The term “Jungle Mahal” literally means “forest region,” and it reflects both the natural vegetation and the historical identity of the area.

Keywords: Jungle Mahal, Environmental Crisis, Colonial Forest Policy Act Deforestation, Adivasis, Sustainable Development

1. Core Problems

1.1 Historical Exploitation of Forest Resources

The root of the environmental crisis lies in the colonial period, when forests were transformed into commercial assets. Large-scale extraction of timber, especially sal, disrupted the natural ecosystem. This exploitative model continued even after independence, leading to long-term ecological imbalance.

1.2. Deforestation and Loss of Biodiversity

Continuous deforestation due to logging, expansion of agriculture, mining, and infrastructure development has significantly reduced forest cover. This has led to:

- Habitat destruction
- Decline in wildlife population
- Loss of plant diversity
- Increased human-animal conflict

1.3 Displacement and Marginalization of Indigenous Communities

Adivasi communities, who were traditional custodians of forests, have been alienated from their land and resources. The denial of forest rights has resulted in:

- Loss of livelihood
- Cultural disintegration
- Increased poverty and migration

1.4 Unsustainable Development Policies

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Post-colonial development strategies prioritized industrial growth, mining, and infrastructure without adequate environmental safeguards. Projects such as mining and dams have caused:

- Land degradation
- Water pollution
- Ecological imbalance

1.5 Soil Degradation and Declining Agricultural Productivity

Deforestation and improper land use have led to severe soil erosion and loss of fertility. As a result:

- Agricultural output has declined
- Dependence on forests has increased
- Food insecurity has worsened

2. Approach :

The environmental crisis in Jungle Mahal requires a **multi-dimensional and historically informed approach** that integrates ecological restoration, social justice, and sustainable development. Given the deep-rooted nature of the crisis, solutions must go beyond technical fixes and address structural inequalities and governance failures.

3. Key Findings

The historical analysis of Jungle Mahal reveals several critical insights into the nature, causes, and consequences of the environmental crisis in the region:

4. Impact

The environmental crisis in Jungle Mahal has produced **multi-dimensional impacts** affecting ecology, economy, society, and culture. These impacts are deeply interconnected and have intensified over time due to historical and structural factors.

5. Introduction

Jungle Mahal, literally meaning "forest region," represents a unique ecological and cultural landscape in eastern India. Historically, the area was dominated by thick sal forests and inhabited by indigenous communities such as the Santhals, Mundas, and Bhumij tribes, who maintained a symbiotic relationship with nature. However, over time, this equilibrium has been disrupted by external interventions, leading to environmental degradation. Jangal Mahal (Jungle Mahal) region in West Bengal, the area is facing a severe environmental crisis characterized by rapid deforestation and climate-related shifts. The region, which includes parts of West Midnapore, Bankura, and Purulia, is considered the largest green zone in South Bengal but is currently experiencing significant ecological degradation. The region is facing increased climate variability, which affects local communities that rely on rain-fed subsistence agriculture. This includes erratic weather patterns, such as reduced rainfall, which impacts livelihood and agricultural stability.

This study aims to explore how environmental crisis in Jungle Mahal evolved historically, the transition from pre-colonial ecological harmony to colonial exploitation and post-colonial developmental pressures. The research

adopts a historical and analytical approach, drawing upon archival records, secondary literature, and environmental studies.

6. Hook:-

6.1 Historical Contrast Hook

From a thriving forested frontier in the pre-colonial era to a region grappling with deforestation, water scarcity, and socio-economic marginalization, the story of Jungle Mahal reflects a long history of ecological transformation shaped by colonial and post-colonial interventions.

6.2 Problem-Oriented Hook

Why has a region once abundant in forests and biodiversity become one of the most environmentally vulnerable zones in eastern India? The answer lies in a complex interplay of colonial exploitation, policy failures, and the marginalization of indigenous communities.

6.3 Human-Centered Hook

For the Adivasi communities of Jungle Mahal, the forest is not just a resource but a way of life. Yet, over time, this lifeline has been eroded, leaving behind a landscape marked by ecological decline and human hardship.

6.4 Strong Impact Hook (Very Engaging)

Jungle Mahal is not merely facing an environmental crisis—it is experiencing the collapse of an entire ecological and cultural system shaped over centuries.

6.5 Quote-Style Hook (Scholarly Tone)

"The history of forests in India is also the history of their exploitation." Jungle Mahal exemplifies this reality, where the transition from colonial extraction to post-colonial development has deepened ecological and social crises.

7. Current Knowledge

The existing body of knowledge on the environmental crisis in Jungle Mahal reflects an **interdisciplinary understanding**, combining insights from environmental history, political ecology, development studies, and tribal studies. Scholars broadly agree that the crisis is not recent but has evolved through a long historical process shaped by policy decisions, economic pressures, and social inequalities.

8. Gap:-

Despite a growing body of literature on environmental change in Jungle Mahal, several **critical gaps** remain that limit a comprehensive understanding of the region's environmental crisis.

Lack of Integrated Historical Analysis

Most studies focus either on the colonial period or on contemporary environmental issues. There is a **lack of continuous historical analysis** that connects pre-colonial, colonial, and post-colonial transformations in a single framework.

9. Insufficient Micro-Level Studies

Existing research is largely macro-level, focusing on district or regional trends. There is limited **village-level or community-specific research** that captures localized environmental changes and lived experiences of people.

10. Underrepresentation of Indigenous Perspectives

Although recent studies acknowledge Adivasi communities, their voices are often **underrepresented or interpreted externally**. There is a need for more participatory and ethnographic research that reflects indigenous knowledge systems and perspectives.

11. Limited Interdisciplinary Approach

Many studies are confined to single disciplines such as history, geography, or environmental science. The crisis, however, is multi-dimensional and requires a more **interdisciplinary approach** integrating ecology, sociology, economics, and political science.

12. Objectives of the Study

The present study aims to examine the environmental crisis in Jungle Mahal through a historical and analytical lens. The specific objectives are as follows:

1. **To trace the historical evolution** of environmental conditions in Jungle Mahal from the pre-colonial to the post-colonial period.
2. **To analyze the impact of colonial forest policies** on the ecological structure and resource management systems of the region.
3. **To examine the role of post-colonial development strategies**—such as industrialization, mining, and infrastructure—in accelerating environmental degradation.
4. **To assess the extent of deforestation, land degradation, and water scarcity** in the region over time.
5. **To study the socio-economic impact** of environmental crisis on indigenous (Adivasi) communities.
6. **To evaluate the effectiveness of environmental policies and programs**, including forest governance and conservation initiatives.
7. **To explore the role of traditional ecological knowledge** in sustainable environmental management.
8. **To identify the major challenges and structural causes** behind the ongoing environmental crisis.
9. **To suggest sustainable and inclusive approaches** for environmental conservation and regional development.

13. Hypotheses of the Study

Based on the objectives, the study is guided by the following hypotheses:

Primary Hypothesis

H₁: The environmental crisis in Jungle Mahal is primarily the result of historically rooted exploitative policies and unsustainable development practices rather than natural causes alone.

Secondary Hypotheses

H₂: Colonial forest policies significantly disrupted traditional ecological balance and laid the foundation for long-term environmental degradation.

H₃: Post-colonial development initiatives have continued and intensified environmental degradation in Jungle Mahal.

H₄: Marginalization and exclusion of indigenous communities from forest governance have contributed to unsustainable resource use.

H₅: Loss of traditional ecological knowledge has negatively impacted environmental sustainability in the region.

H₆: Environmental degradation has a direct negative impact on the socio-economic conditions of local communities.

H₇: Existing environmental policies and programs have been insufficient in effectively addressing the crisis due to weak implementation.

H₈: Community-based and sustainable development approaches can significantly improve environmental conditions in Jungle Mahal.

14. Literature Review and Integration

The environmental crisis in Jungle Mahal has been examined through multiple scholarly perspectives, including environmental history, political ecology, development studies, and tribal studies. This section integrates key academic contributions to provide a comprehensive understanding of the issue.

15. Environmental History and Colonial Forest Policies
Scholars such as **Ramachandra Guha** and **Madhav Gadgil** have significantly contributed to understanding the ecological transformation of India under colonial rule. In *This Fissured Land*, they argue that colonial forest policies disrupted traditional resource management systems by commercializing forests and prioritizing revenue generation.

Similarly, **K. Sivaramakrishnan** in *Modern Forests* highlights how colonial state-building in eastern India reshaped forest landscapes, including regions like Jungle Mahal. His work demonstrates that the imposition of scientific forestry undermined indigenous practices and led to ecological degradation.

These studies establish that the environmental crisis in Jungle Mahal has deep historical roots linked to colonial intervention.

16. Conceptual / Theoretical Framework

The study of environmental crisis in Jungle Mahal is guided by an **integrated theoretical framework** that combines insights from environmental history, political ecology, and sustainable development. This framework helps in understanding the complex interaction between nature, society, and governance across different historical phases.

17. Environmental Historical Framework

This study adopts an environmental historical approach to trace how ecological conditions in Jungle Mahal have evolved over time. It emphasizes:

- The transition from **community-based resource management** in the pre-colonial period
- The shift to **state-controlled and commercial exploitation** during colonial rule
- The continuation of **development-driven environmental stress** in the post-colonial period

18. Contrasts in the Environmental Transformation of Jungle Mahal

The environmental crisis in Jungle Mahal becomes clearer when examined through a series of **historical and structural contrasts**. These contrasts highlight the transformation of the region across time, governance systems, and socio-economic conditions.

19. Evidence Gaps

While existing research on the environmental crisis in Jungle Mahal provides important insights, there are significant **gaps in empirical evidence and data support** that limit a full and accurate understanding of the issue.

20. Lack of Longitudinal Data

There is a shortage of **continuous, time-series data** tracking environmental changes (forest cover, soil quality, water levels) from the colonial period to the present. Most studies rely on fragmented datasets, making it difficult to establish clear long-term trends.

21. Insufficient Ground-Level (Primary) Data

A large portion of the available research is based on **secondary sources**, government reports, or satellite imagery. There is limited **field-based evidence**, such as:

- Household surveys
- Ethnographic observations
- Community-level environmental assessments

22. Limited Quantitative Measurements

Many studies remain descriptive and lack **quantitative analysis**. There is insufficient statistical data on:

- Rates of deforestation
- Soil degradation indices
- Groundwater depletion levels

Importance of the Study

The study of the environmental crisis in Jungle Mahal is significant from **academic, ecological, socio-economic, and policy perspectives**. It contributes to a deeper understanding of how historical processes and contemporary challenges intersect to shape environmental realities in marginalized regions.

Academic Significance

This study adds to the existing body of knowledge by providing a **historically integrated analysis** of environmental change from the colonial to the post-colonial period. It bridges gaps between environmental history, political ecology, and development studies, offering an interdisciplinary perspective.

23. Understanding Historical Roots of Environmental Crisis

By tracing the evolution of environmental degradation, the study highlights that the crisis is not recent but **historically**

rooted in colonial exploitation and policy frameworks.

This helps in understanding the structural causes rather than treating the problem as isolated or purely ecological.

24. Research Methodology

This study adopts a **mixed-method and interdisciplinary research design** to analyze the environmental crisis in Jungle Mahal from a historical to contemporary perspective. The methodology integrates qualitative and quantitative approaches to ensure a comprehensive and evidence-based analysis.

Research Design

The study is primarily **descriptive, analytical, and historical** in nature. It seeks to:

- Trace environmental changes over time
- Analyze causes and impacts
- Evaluate policy responses

A **historical-comparative approach** is used to examine differences between pre-colonial, colonial, and post-colonial periods.

25. Study Area

The study focuses on the Jungle Mahal region of West Bengal, covering districts such as:

- Paschim Medinipur
- Jhargram
- Bankura
- Purulia

These areas are selected due to their shared ecological characteristics, tribal population, and history of environmental transformation.

Data Sources

a) Primary Data

Primary data is collected through field-based methods, including:

- **Household surveys** among local communities
- **Interviews** with Adivasi residents, forest officials, and local leaders
- **Focus group discussions (FGDs)** to understand community perspectives
- **Field observations** of environmental conditions (forest cover, water sources, land use)

26. Research Design

The research design of this study is structured to systematically investigate the environmental crisis in Jungle Mahal by integrating **historical analysis, field-based inquiry, and analytical evaluation**. It provides a logical framework for collecting, analyzing, and interpreting data in line with the study's objectives.

Nature of the Research

The study is **descriptive, analytical, and exploratory** in nature:

- **Descriptive**, as it documents environmental changes and present conditions
- **Analytical**, as it examines causes, impacts, and relationships

- **Exploratory**, as it seeks to uncover underlying structural issues and emerging trends

Research Approach

The study adopts a **mixed-method approach**, combining:

- **Qualitative methods** (historical interpretation, interviews, case studies)
- **Quantitative methods** (survey data, environmental indicators)

This approach ensures both depth and empirical validity.

27. Population and Sample

Target Population

The target population of this study comprises the **entire human and ecological landscape of the Jungle Mahal region**. This includes:

- Rural households residing in forest and fringe areas
- Indigenous (Adivasi) communities such as Santhal, Munda, and Bhumij
- Farmers, forest-dependent workers, and local laborers
- Forest officials, local administrators, and community leaders

The population also indirectly includes **environmental units** such as forest areas, water bodies, and agricultural lands, which are essential for ecological assessment.

28. Study Population (Accessible Population)

Due to practical constraints, the study focuses on selected areas within Jungle Mahal, particularly in districts like:

- Paschim Medinipur
- Jhargram
- Bankura
- Purulia

The accessible population consists of communities living in **environmentally vulnerable and forest-dependent zones** within these districts.

Sampling Frame

The sampling frame includes:

- Lists of villages from district administrative records
- Census data of households
- Forest department records of forest fringe villages

This helps in identifying and selecting representative units for the study.

Sampling Technique

The study adopts a **multi-stage sampling technique**:

Selection of Districts

Districts within Jungle Mahal are selected purposively based on:

- Forest cover
- Environmental vulnerability
- Presence of tribal population

Tools and Protocols

To ensure systematic and reliable data collection, this study employs a combination of **research tools** and well-defined **field protocols**. These are designed to capture both quantitative and qualitative dimensions of the environmental crisis in Jungle Mahal.

29. Tools for Data Collection

Structured Questionnaire

A structured questionnaire is used for household surveys to collect quantitative data on:

- Socio-economic conditions (income, occupation, education)
- Dependence on forest resources
- Water availability and agricultural practices
- Perceptions of environmental change

The questionnaire includes both closed-ended and limited open-ended questions to ensure clarity and comparability.

Analysis Plan

The analysis plan outlines the systematic procedures used to process, interpret, and present the collected data. It integrates **qualitative and quantitative techniques** to ensure a comprehensive understanding of the environmental crisis in Jungle Mahal.

Results

The analysis of primary and secondary data reveals a **complex pattern of environmental degradation and socio-economic transformation** in Jungle Mahal. The results are presented thematically in alignment with the objectives and hypotheses of the study.

Flow and Visual Representation of the Study

To clearly illustrate the structure and analytical process of the study, the research follows a **step-by-step logical flow**, supported by conceptual and analytical visuals.

30. Limitations of the Study

While the study attempts to provide a comprehensive analysis of the environmental crisis in Jungle Mahal, certain limitations must be acknowledged. These constraints may influence the scope, depth, and generalizability of the findings.

Limited Availability of Historical Data

The study relies on fragmented archival records and secondary sources for the colonial and pre-colonial periods. The absence of continuous and reliable historical data restricts precise long-term comparisons.

Restricted Geographical Coverage

Due to time and resource constraints, the study focuses on selected districts and villages within Jungle Mahal. Therefore, the findings may not fully represent the **entire region's diversity and variations**.

Conclusion

The study on the environmental crisis in Jungle Mahal clearly demonstrates that the region's ecological degradation is not a recent phenomenon but the outcome of a **long historical process shaped by structural, political, and socio-economic factors**. By tracing the transformation from the pre-colonial period to the present, the research highlights how a once ecologically balanced and culturally integrated landscape has gradually evolved into a region marked by environmental stress and human vulnerability.

One of the central conclusions of the study is that **colonial forest policies laid the foundation for environmental**

disruption by transforming forests into commercial assets and undermining traditional systems of resource management. The imposition of state control and restriction of community rights weakened the sustainable practices of indigenous populations, leading to ecological imbalance.

The study further reveals that **post-colonial development strategies largely continued this exploitative trajectory**, albeit under the framework of economic growth and modernization. Industrialization, mining, and infrastructure development intensified environmental degradation without adequately addressing ecological sustainability or social equity. Thus, there exists a clear continuity between colonial and post-colonial approaches to resource use.

A significant finding is the **central role of indigenous marginalization** in the environmental crisis. The exclusion of Adivasi communities from forest governance not only disrupted their livelihoods but also led to the erosion of traditional ecological knowledge systems that once ensured sustainability. The weakening of community-based resource management has contributed directly to unsustainable environmental practices.

The research also establishes that the environmental crisis in Jungle Mahal is **multi-dimensional**, involving interconnected issues such as deforestation, soil degradation, water scarcity, and climate vulnerability. These ecological problems are closely linked with socio-economic challenges, including poverty, migration, and livelihood insecurity. This interdependence creates a vicious cycle where environmental degradation and human hardship reinforce each other.

Moreover, the study identifies **limitations in policy implementation** as a major concern. Although various conservation and development initiatives have been introduced, their effectiveness has been constrained by governance, lack of community participation, and administrative inefficiencies. This highlights the gap between policy intent and ground-level reality.

Importantly, the study underscores that the crisis cannot be addressed through isolated or purely technical solutions. Instead, it requires a **holistic and integrated approach** that combines ecological restoration with social justice and inclusive development. Recognizing and incorporating indigenous knowledge, strengthening community participation, and ensuring equitable access to resources are essential components of sustainable solutions.

In conclusion, Jungle Mahal represents a critical case of how environmental degradation is deeply intertwined with historical processes and social structures. Addressing this crisis demands a shift from exploitative development models to **people-centric and eco-sensitive approaches** that prioritize long-term sustainability over short-term gains. Only through such transformative strategies can the

region move towards ecological balance, socio-economic resilience, and sustainable development

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