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Environment, Development and Disaster: Challenges and Policy Responses in India

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Abstract: *Environment, development and disaster management are closely interconnected dimensions of sustainable development. Rapid economic growth, increasing population, urbanization, industrialization and excessive exploitation of natural resources have created serious environmental challenges across the globe. India, as a developing nation, faces the dual challenge of maintaining economic growth while ensuring environmental sustainability. Climate change, biodiversity loss, pollution, land degradation, water scarcity and increasing disaster risks have emerged as major concerns affecting both ecological balance and human well-being. This review examines the relationship between environment, development and disasters in the Indian context. It discusses major environmental issues, the implications of climate change, disaster risk management strategies, environmental governance mechanisms and policy interventions adopted by the Government of India. The study emphasizes the need for an integrated approach that combines environmental protection, economic development and disaster preparedness to achieve sustainable development goals..*

Keywords: Environment, Sustainable Development, Climate Change, Disaster Management, Biodiversity, Environmental Governance, Natural Resources, India

I. INTRODUCTION

Climate change is recognized as one of the greatest environmental challenges of the twenty-first century (IPCC, 2014). Sustainable development requires balancing economic growth, social equity and environmental protection (Brundtland, 1987).

India has experienced substantial economic growth during recent decades, but this growth has also intensified pressure on natural resources and ecosystems (MoEFCC, 2018).

II. ENVIRONMENT AND SUSTAINABLE DEVELOPMENT

The concept of sustainable development was formally defined by the World Commission on Environment and Development as development that meets present needs without compromising the ability of future generations to meet their own needs (Brundtland, 1987).

Environmental studies emphasize conservation of natural resources and pollution prevention for long-term sustainability (MoEFCC, 2018).

III. ENVIRONMENTAL ISSUES IN INDIA

3.1 Population Growth and Resource Depletion

Rapid population growth and increasing resource demand have accelerated deforestation, groundwater depletion and land degradation in India (MoEFCC, 2018).

3.2 Pollution

Industrialization and urbanization have significantly contributed to air and water pollution, necessitating stronger environmental regulations (Government of India, 1981; Government of India, 1974).

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3.3 Biodiversity Loss

India's rich biodiversity is under increasing pressure due to habitat destruction, climate change and overexploitation of resources (CBD, 1992; Government of India, 2002).

3.4 Land Degradation

Unsustainable agricultural practices and mining activities have contributed to severe land degradation and reduced ecosystem resilience (MoEFCC, 2018).

IV. CLIMATE CHANGE AND DEVELOPMENT

Climate change is expected to increase temperatures, alter precipitation patterns and increase the frequency of extreme weather events (IPCC, 2014).

4.1 Impacts on Agriculture

Agricultural productivity is highly sensitive to climatic variability and rising temperatures (IPCC, 2014).

4.2 Water Resources

According to the World Health Organization, increasing water scarcity poses a major challenge for food security and human health, particularly in developing countries (WHO, 2007).

4.3 Human Health

Climate-related changes may increase the prevalence of vector-borne and water-borne diseases, especially among vulnerable populations (WHO, 2007).

4.4 Economic Consequences

Climate-related disasters can significantly affect infrastructure, agriculture and economic productivity (IPCC, 2014; UNDP, 2018).

V. ENVIRONMENT AND DISASTER RISK

Environmental degradation often amplifies disaster vulnerability by weakening natural protective systems such as forests, wetlands and coastal ecosystems (UNDP, 2018).

The increasing frequency of floods, droughts and cyclones has highlighted the need for disaster risk reduction strategies (IPCC, 2014).

VI. COASTAL ZONE MANAGEMENT

Coastal ecosystems such as mangroves, estuaries and coral reefs provide important ecological and economic services but are increasingly threatened by development pressures and climate change (MoEFCC, 2018).

VII. ENVIRONMENTAL GOVERNANCE IN INDIA

Environmental governance in India is supported through legislative, institutional and regulatory mechanisms designed to protect environmental quality and natural resources (Government of India, 1986).

Environmental Impact Assessment (EIA) has become an important tool for integrating environmental concerns into developmental planning (MoEFCC, 2018).

VIII. DISASTER RISK MANAGEMENT AND PREPAREDNESS

The Disaster Management Act, 2005 marked a significant shift from a relief-oriented approach to a proactive disaster risk reduction framework (Government of India, 2005).

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The establishment of the National Disaster Management Authority (NDMA), National Institute of Disaster Management (NIDM) and National Disaster Response Force (NDRF) strengthened institutional preparedness in India (Government of India, 2005).

IX. ENVIRONMENTAL LEGISLATION IN INDIA

Water (Prevention and Control of Pollution) Act, 1974

The Act provides legal measures for preventing and controlling water pollution (Government of India, 1974).

Forest (Conservation) Act, 1980

The Act regulates diversion of forest land and promotes forest conservation (Government of India, 1980).

Air (Prevention and Control of Pollution) Act, 1981

The legislation focuses on prevention and control of air pollution (Government of India, 1981).

Environment (Protection) Act, 1986

This Act serves as the umbrella legislation for environmental protection in India (Government of India, 1986).

Wildlife (Protection) Act, 1972

The Act aims to protect wildlife species and their habitats (Government of India, 1972).

Biological Diversity Act, 2002

The Act was enacted to fulfill India's commitments under the Convention on Biological Diversity (CBD, 1992; Government of India, 2002).

X. CONCLUSION

The interrelationship between environment, development and disaster management has become increasingly evident in the context of climate change and sustainable development (Brundtland, 1987; IPCC, 2014). Effective environmental governance, conservation of natural resources and disaster preparedness are essential for achieving sustainable development goals and ensuring environmental security for future generations (UNDP, 2018; MoEFCC, 2018).

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