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Popular Article

Major Challenges in and Around Protected Areas in India - Addressing it through Forest Management

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Abstract

India is one of the richest biodiversity countries in the world due to its bio-geographical position and physical environmental condition. Biodiversity is conserved in the form of protected areas such as national parks and biosphere reserves. Due to anthropogenic activities, these protected areas are facing a wide number of challenges. There is a need to address the challenges through various strategies. Among many strategies forest management is one of the efficient strategies through which the challenges are addressed.

Keyword: Biodiversity, Forest Management, Protected areas

Introduction

India is unique in the richness of biodiversity due to the diversity of physiography and climatic conditions. India ranks sixth among the 12-mega biodiversity countries of the world. Moreover, out of 18 unique 'biodiversity hot spots' two are located in the India-North-Eastern Himalayas and Western Ghats. India's biodiversity is unique for the range of biological diversity, harboured under its bio-geographical positions and the array of physical environments. India has so far adopted Ex-situ and In-situ conservation measures to conserve biodiversity. Over time, there has been debate on the challenges and difficulties associated with forestry in terms of managing and conserving ecosystems. Protected areas such as biosphere reserves, national parks and wildlife sanctuaries are facing unpredictable pressure from global issues like environmental degradation, biodiversity loss, climate change and raw material supply. In this context, we will explore the major challenges and management strategies for conserving the protected areas.

Major Challenges

Conservation and management of protected areas in India are currently facing a myriad



of complex challenges that are both ecological and social in nature. Issues such as habitat loss/fragmentation, overuse of biomass resources in the context of biotic pressures, increasing human-wildlife conflicts, livelihood dependence on forests and wildlife resources, poaching and illegal trade in wildlife parts and products, need for maintaining a broad base of public support for wildlife conservation exemplify and characterize the contemporary wildlife conservation scenario in India. The government and the civil society are taking several measures to address these issues. Improved synergies and better coordination amongst the wide array of stakeholders are needed to meet the challenges of conserving India's diverse wilderness resources. Major anthropogenic activities combined with natural calamities and invasive species are a major threat to biodiversity these threats are discussed below:

1. Poor representation of habitats: Many habitats are not well represented in the current network of protected areas. For example, less than 4% of the ocean is protected.

2. Lack of connectivity between protected areas: The linking of protected areas to form networks or systems is very important for the survival of many species; however, such connectivity remains rare.

3. Lack of funds: Putting representative protected area networks in place and managing them effectively requires money.

4. Poor management: The declaration of a protected area is not an end result: a whole series of conditions must be in place for protected areas to be effective.

5. Human population: The geometric rise in human population levels during the twentieth century is the fundamental cause of the loss of biodiversity and it impacts all the other causes.

6. Habitat loss and fragmentation: Habitat loss and degradation are harmful not only to a single species, but to the whole population and community, and related ecosystems.

7. Human activities: Closely linked with poor management are threats from widespread and either poorly managed or illegal human activities occurring within protected areas in many parts of the world. Human activities in and outside of protected areas are a threat – such as described below

7.1 Forest clearance: It is estimated that 8000 years ago the forests covered on the earth were about 50% of the total land on the earth, and at present it remains to 30%. Deforestation in the form of forest clearance is the primary driver of biotic extinctions in the tropical region.

7.2. Jhum cultivation: Every year thousands of hectares of forest are destroyed as a result of the practice of shifting cultivation or "slash and burn", causing changes in forest ecosystems.

7.3. Mineral mining activities: Most of the protected areas in India, rich in large deposits of



minerals. Mining activities bring water and air pollution, which results in the loss of soil productivity and ground vegetation.

7.4. Rock quarrying and stone crushing: Quarrying activities cause significant impact on the environment. During extraction of materials for processing, rock blasting give rise to noise pollution, air pollution, damage to biodiversity and habitat destruction

7.5. Grazing and Browsing: Grazing and browsing of animals also plays an important role in reducing growth of the herbaceous plants and affecting the regeneration process. Grazing leads to removing vegetation and altering ecological processes within the remaining vegetation.

8. Over-exploitation of plant biodiversity: The over-exploitation of biological species by man-kind is the most significant cause of species disappearance from the earth. A certain quantity of plant species use is sustainable, as plants populations will grow to replenish the stock taken. List of different resources, over exploited from the forest is described below

8.1 Collection of Non-Timber Forest Products (NTFPs): There is excessive collection of NTFP from the forest areas causes depletion of local plant diversity in the area.

8.2. Extraction of Orchids: Orchids are known for their flowers, ornamental foliage and their medicinal values. Lots of orchids are illegally smuggled out of the biosphere reserve and sold in nearby markets. This is causing a threat and degradation of this species.

8.3. Bamboo cutting: Bamboo is a secondary form of vegetation and it grows naturally in some parts of the world and is also cultivated by the people for different uses. In many places, illegal cutting of bamboo species were reported.

8.4. Canes extraction: There is a great demand for cane from the local inhabitants for use as construction material, furniture, food, medicines etc. These species are extracted continuously from the buffer zone, and now local people approaching the core area for their collection.

8.5. Loss of agro-forestry resources: Many development activities have changed the land pattern, which is overburdened with materials causing most of the agro-forestry trees from the area to die.

9. Over-harvesting of wild fauna: The population of wild animals in nature can remain stable only when there is a balance in their rate of reproduction and the rate at which they are caught and killed. If the rate at which they are hunted exceeds the rate of their reproduction, the number of populations of this fauna is bound to be greatly reduced.

9.1. Birds: Large numbers of birds are illegally caught and traded every year despite national laws and international trade agreements. Unsustainable hunting for food or sport and trapping for the cage-bird trade has been implicated in the extinction of many bird species.



9.2. Fish: It is estimated that more than 70% of the world's fish species are exploited or depleted due to illegal and unregulated fishing worldwide.

9.3. Animals: The loss of diversity due to illegal hunting of wildlife.

10. Land degradation: Land degradation applied to the biotic and abiotic surroundings of an organism affected by human-induced processes and affecting the ecosystem.

11. Invasive species: A number of exotic and native weeds, insects and parasitic fungi are causing severe damage to some plants. Invasive species such as *Lantana camara*, *Eupatorium odoratum*, *Euphorbia hirta*, *Parthenium* sp., *Clerodendrum* sp.

Mitigating the challenges of Protected Areas through Forest Management in

The success of long-term conservation of any protected area is depends on the sustainable management. Assessing the challenges in the protected area should become a management priority. The agreement on what constitutes an effective and sustainable forest management is still a debatable issue. However, effective conservation of biodiversity in any PA is incomplete without proper management initiatives. The major component of management in biosphere reserves include empowering local indigenous people, creating livelihood opportunities for the forest resource-dependent people, ensuring representation and equity among the forest officials and local people, strengthening resource security, providing property rights and participation in decision making.

Proposed recommendation to Improve Forest Management

Stop illegal logging and deforestation:

- Prevent illegal takeovers of public lands, including protected areas of illegal timber removal
- Look up command-and-control systems to improve legality
- Put emphasis to increase public institutional presence in boundary areas;
- Promote efforts at forest product legality assurance and forest management certification
- Use internationally generated reduction of emissions from deforestation

Increase security of tenure and resource access for forest owners:

- Need to transfer rights to communities, especially those that depend on forest resources, often helps promote forest managements while also improves their local livelihoods
- put emphasis to secure long-term access for concessionaires to public forests as it may promote good forest management

Simplification of management rules and regulations:

- Needs procedures for developing and approving forest management plans



- Needs improved mechanisms for verification of compliance. This requires more feasible for full range of logging operations, especially for smallholders.
- Set of rules to be applied should vary with forest type, size of logging operation, and intensity of management. This will allow for flexibility in management practices that reflects differential forest user goals.

Develop incentives to improve forest management:

- Forest certification promote sound forest management practices
- Introduce bonds system in a government account at the beginning of concession period and gradually returned to the concessionaire if harvesting executed as per agreement

Others suggestions:

- Need to develop incentives to enhance Carbon Stocks in logged, burned and degraded forests
- Need to increase efficiency of Forest department through appropriate taxation
- Need to promote post-logging silvicultural treatments
- Forest workers need proper training regarding biodiversity management

Conclusions

It is found that the rich resource-full protected areas is under serious threat. Both the government policies and local village level institutions have failed in a large way to conserve biodiversity as well as promote local livelihoods. The protected areas of India support a wide range of economic sectors, and investment in this natural capital will lead to maintaining ecological security and food security, thereby leading to overall sustainable development. A balanced view on the country's development, the conservation of biodiversity, and the hardships faced by people living in and around protected areas is the need of the hour. Further research would be necessary to identify sector-specific constraints and management strategies.

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