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Preserving Biodiversity, Empowering Communities: Unveiling the Connection between Biological Hotspots and Underprivileged People

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Abstract

The locations with an exceptionally high concentration of uncommon plant and animal species are known as biodiversity hotspots. These locations are essential for maintaining ecological harmony and supplying critical ecosystem services, including clean air, water, and climate stability. However, these biodiverse landscapes are frequently located near locations where underprivileged communities are concentrated, creating a complicated web of interdependencies and difficulties. Unfortunately, human activities like deforestation, pollution, etc. endanger the delicate balance of these hotspots. The underprivileged populations are its immediate victims as it results in food insecurity, poor access to clean water, the loss of traditional knowledge, and economic challenges. Thus, recognising and resolving this profound link between biological hotspots and underprivileged people is critical for effective and sustainable conservation and underlining the necessity of protecting biodiversity to strengthen these communities.

Keywords: Biodiversity hotspots • Deforestation • Pollution • Clean air • Water • Climate stability

Introduction

Earth's biodiversity, which includes a staggering variety of species and habitats, is a beautiful tapestry of life. Because of their extremely high populations of endemic species unique to that locality, some areas are known as biodiversity hotspots. These hotspots, which are usually distinguished by lush rainforests, bright coral reefs, or distinctive wetlands, are essential for preserving the biological balance of the world and offering critical ecosystem services [1].

These bioregions are not far from populated areas, though. In fact, a lot of these locations are also situated within disadvantaged areas. These communities' residents, who are frequently underprivileged and lack access to amenities and opportunities, have relied on the natural resources in these areas to survive for a long time [2].

The complex relationship between ecological hotspots and underdeveloped areas suggests a dynamic that needs to be investigated. On the one hand, preserving the delicate balance in these areas requires protecting biodiversity. On the other hand, the disadvantaged groups that depend on natural resources face significant issues due to their deterioration and depletion. These communities' future is inextricably linked to the future of the ecological hotspots where they are located.

Recognizing the connections between biodiversity protection and community empowerment is critical for effective long-term solutions. By incorporating local community knowledge and experience into conservation efforts, it is feasible to establish solutions that maintain biodiversity while enhancing the well-being of underprivileged people. Education, skills building, and access to alternative livelihood options can help these communities lessen their reliance on unsustainable practices, alleviate poverty, and support sustainable development [3].

Literature Review

Biological hotspots: Status in India

India is well renowned for its distinct and dynamic biological hotspots, which are essential for maintaining the massive biodiversity of the nation. They occupy around 16.86% of the total area on Earth, recognised as a biodiversity hotspot, a sizeable percentage of the planet. The Western Ghats make up 64.95 per cent of India's biological hotspot, followed by the Indo-Burma region (5.13%), the Himalayas (44.37%), and Sundaland (1.28%). However, the protected

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areas inside these hotspots fall short of the 17% threshold proposed by the Aichi targets of the convention on biological diversity in 2010. This emphasises the importance of increasing efforts to expand and adequately administer protected areas to maintain the unique ecosystems present within these hotspots [4].

The aforementioned areas experience several issues that compromise their ecological integrity. Infrastructure growth, agricultural development, urbanisation, climate change, poaching, deforestation, logging, mining, unsustainable agriculture, sea-level rise, habitat degradation, and conflicts between people and wildlife are a few of the primary challenges.

The Indian government has created several measures in cooperation with neighbourhood residents and conservation groups to solve these issues. These initiatives include promoting environmentally friendly behaviours, raising awareness about conservation, and upholding laws that preserve animals. The objective is to lessen adverse effects while preserving the distinctive biodiversity found in these places [5].

Socioeconomic challenges for underprivileged communities in hotspot regions

Underprivileged populations in biodiversity hotspot locations suffer many socioeconomic issues threatening their well-being and growth. These issues are frequently interconnected and result from poverty, restricted access to resources, and environmental variables.

- **Poverty and restricted livelihood options:** Poverty and restricted income-generating options are expected in underprivileged groups in hotspot regions. According to the World Bank, 43% of the poor people in India are of scheduled tribes, and many of them live in biodiverse areas. Their economic disadvantage is exacerbated by limited access to education, healthcare, and infrastructure, sustaining a cycle of poverty.
- **Natural resource dependence:** They frequently rely extensively on natural resources for a living, such as agriculture, forestry, and fishing. On the other hand, unsustainable resource extraction practices, deforestation, and habitat degradation can lead to decreasing resource availability and financial insecurity.
- **Vulnerability to climate change:** Biodiversity hotspots are often quite vulnerable to the effects of climate change, with the poorest populations being most negatively impacted. Crop failures, animal deaths, and decreased agricultural output can all be caused by changes in rainfall patterns, increased frequency and severity of extreme weather events, and rising temperatures. According to the global climate risk index, India is one of the countries most affected by climate change, exacerbating the problems faced by poor populations in high-risk areas.

Thus, these reasons could be sufficient to substantiate that the underprivileged face the direct and maximum challenges of the biological hotspots. To protect them and nature simultaneously, there is a need to collaborate.

Hotspots conservation and community empowerment

Community empowerment and the preservation of biodiversity go hand in hand and benefit each other. Participating in conservation initiatives with the local population protects natural resources and has positive social and cultural effects. Communities that actively participate in conservation efforts have a sense of ownership and accountability, which produces more long-lasting outcomes [6].

The protection of traditional knowledge is a significant benefit of community involvement. Local people have unique perspectives on their ecosystems, including traditional ecological knowledge about the flora, animals, and natural processes. This knowledge is helpful for assessing biodiversity, identifying threatened species, and adopting suitable conservation measures.

Community involvement also improves socio-economic conditions and lowers dependency on environmentally destructive activities such as illicit logging and poaching. Community members increase their resilience by participating actively in conservation efforts and learning new skills through capacity-building programmes and cooperative models.

Successful community-led conservation programmes, such as India's Community Conserved Areas (CCAs), highlight the effectiveness of incorporating local communities in conservation management. CCAs enable communities to administer and protect their natural resources while also encouraging sustainability and biodiversity protection [7].

Discussion

Case study of Western Ghats

The Western Ghats are the easiest for disadvantaged people to access all the biological hotspots in India. These gentle, green hills and low mountains can be found along India's southwest coast for over 1,600 km in Maharashtra, Karnataka, Kerala, Tamil Nadu, and Goa. Several government programmes and non-profit organisations have helped to make the Western Ghats accessible to individuals from all socioeconomic situations. These initiatives include educational sessions, guided tours, and community involvement to engage and inform tribal groups about biodiversity protection. Furthermore, the Western Ghats' proximity to numerous towns and villages facilitates convenient mobility alternatives, including economical public transportation, making the region's biodiversity hotspots relatively accessible to underprivileged individuals. Some of the instances of their collaboration are as follows:

Malenadu landscape, Karnataka: Through the Joint Forest Management (JFM) strategy, the Malenadu landscape in Karnataka's Western Ghats exemplifies successful collaboration between biodiversity protection and community empowerment. Local people, especially tribal groups such as the Siddi, have been actively involved in rehabilitating and maintaining damaged forests. They have been given the authority and responsibility to safeguard the forests while pursuing ecotourism, bamboo farming, and other sustainable livelihood activities. The co-operation has increased the local population's authority while also assisting in preserving the region's biodiversity by granting them access to additional sources of income and including them in decision-making.

Nilgiri biosphere reserve, Tamil Nadu and Kerala: The active participation of the Irula and Kurumba tribes in forest restoration and traditional knowledge preservation shows the close collaboration between biodiversity protection and community empowerment. These communities have succeeded in sustainable farming, organic gardening, and the value addition of forest products through training programmes and projects like the Gudalur Adivasi Resource Centre. Their initiatives have resulted in significant forest restoration and improved livelihoods, emphasising the necessity of community involvement in environmental protection and sustainable resource management. This collaboration has not only protected wildlife but has also improved the socioeconomic conditions of residents.

In India's Western Ghats, this collaboration has proven to be highly beneficial to society. These projects have protected valuable ecosystems and empowered local inhabitants by actively incorporating poor communities in conservation efforts. The participation of underrepresented groups in decision-making processes and the provision of alternative livelihood options have resulted in favourable social and economic effects. As a result of the collaborative approach, communities now feel more ownership and accountability, which has increased sustainability and long-term success. Through this partnership, a prosperous, peaceful society that treasures and safeguards its natural heritage can be created.

Analysis and opinions

India's biodiversity hotspots are essential for both environmental and cultural reasons. Numerous endemic and threatened plant and animal species are supported by the varied ecosystems found inside these hotspots. Maintaining biodiversity is only one goal of protecting these hotspots; another is safeguarding the nation's natural heritage and guaranteeing a sustainable future for future generations.

However, the current condition of protected areas within these hotspots falls short of the benchmarks established by international accords. This is concerning because it indicates that conservation efforts are not given sufficient attention or financing. Finding a balance between growth and conservation is crucial to ensuring that advancing economies do not come at the expense of extinct ecosystems and species.

These underprivileged communities face severe socioeconomic challenges that cannot be ignored. Poverty, a lack of career options, and a reliance on natural resources for subsistence make these populations more vulnerable. Therefore, conservation programmes must include these marginalised individuals' economic well-being and protect biodiversity. This could be accomplished by promoting community-driven participatory decision-making processes, capacity-building programmes, and sustainable livelihood possibilities.

We may take advantage of their expertise, abilities, and commitment by involving them in managing and conserving natural resources. As a result, conservation activities are more effective, and residents feel more pride and responsibility. Long-term success requires cooperation between the government, conservation organisations, and locals. We can establish a sustainable future where the environment and communities thrive by developing a comprehensive strategy incorporating conservation, economic growth, and cultural preservation.

Conclusion

The unparalleled assets of India's biodiversity hotspots demand immediate attention and active preservation measures. Governments, societies, and people must recognise the importance of these hotspots and give interaction with the local population and their protection a top priority. Working together is the only way to guarantee the survival of these unique ecosystems, protect the livelihoods of poor populations, and advance a peaceful coexistence between people and the environment.

References

1. Fisher, Brendan, and Treg Christopher. "Poverty and biodiversity: Measuring the overlap of human poverty and the biodiversity hotspots." *Ecol Econ* 62 (2007): 93-101.
2. Chitale, Vishwas, and Mukund Dev Behera. "India's biodiversity hotspots face climate change challenges." *Nature India* (2014).
3. Facts and Details. "Tribes of the Nilgiri hills and Western Ghats." *Facts and Details, Hiroshima, Japan* (2023).
4. Murali, K. S., R. Jagannatha Rao, and N. H. Ravindranath. "Evaluation studies of Joint Forest Management in India: A review of analytical processes." *Int J Environ Sustain Dev* 1 (2002): 184-199.
5. Conservation. "Biodiversity Hotspots: Targeted investment in nature's most important places." *Conservation International* (2023).
6. IUCN. "Conservation through private initiative: A case study in the Western Ghats, India." *International Union for Conservation of Nature and Natural Resources* (2020).
7. Basavarajaiah, DM, B. Narasimhamurthy, M. Bharathi, and J. Naik. "Tribal livelihood status in Western Ghats." *Fores Res* 9 (2020): 234.

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