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Biodiversity Conservation-Role of Traditional Knowledge Systems in Various parts of the world

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ABSTRACT:

Indigenous people actively participate as partners in the conservation of biodiversity, and local places are home to biodiversity. They have extensive understanding of the behavior of complex natural systems in their own communities, where resource-use traditions have persisted historically. Traditional knowledge is the body of information that different societies throughout the world have accumulated over time. Such information has been used and passed down across numerous generations after amassing throughout time. It typically relates to the community's natural surroundings and includes agricultural knowledge, such as how to cultivate, environmental knowledge, and understanding of herbal remedies. Traditional knowledge incorporates the customary use of biological resources in conformity with traditional cultural practices in its definition of sustainable use of biodiversity. Traditional knowledge of animals, plants, soils, and landscapes for the sustainable use of resources; traditional resource management system with an appropriate set of tools, techniques, and practices; social institutions or organizations for coordination, co-operation, rule-making, and rule enforcement; and finally, environmental perception and gives meaning to social behavior are all considered as roles of traditional knowledge for biodiversity conservation.

Key Words: Traditional Knowledge, landscape, sustainable use, environmental perception & biodiversity.

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Introduction:

Biodiversity, the variety of life on Earth, is crucial for the functioning of ecosystems and the well-being of humans. However, the accelerating loss of biodiversity due to human activities has become a major concern worldwide. In the face of this crisis, traditional systems of biodiversity conservation offer valuable insights into sustainable practices that have been developed over centuries by indigenous and local communities. These systems are based on a deep understanding of the local environment and its dynamics, and they have proven to be effective in conserving biodiversity while ensuring the livelihoods of communities that depend on it. In this context, the role of traditional systems in biodiversity conservation has gained increasing attention from researchers, policymakers, and conservationists, as they provide a promising alternative to the dominant models of conservation that often fail to take into account the needs and perspectives of local communities. This article explores the role of traditional systems in biodiversity conservation and highlights the lessons that can be learned from them for the development of more sustainable and equitable conservation strategies.

Literature Survey:

[1]. World Scenario:

The variety of species on Earth, or biodiversity, is essential for ecosystem health and human welfare. Indigenous and local communities have been developing sustainable practices for centuries, and traditional systems of biodiversity conservation provide important insights into these practices. They have demonstrated efficacy in preserving biodiversity while defending the way of life of communities that depend on it. Since they offer a promising alternative to the prevalent conservation models, which frequently neglect the needs and perspectives of local communities, traditional systems have drawn increasing attention from researchers, policymakers, and conservationists in this context. This article examines the function of conventional systems in the preservation of biodiversity and highlights key takeaways.

The Convention on Biological Diversity (CBD) is the international legal instrument for "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources" that has been ratified by 196 nations. A legal framework for "the conservation of biological diversity, the

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sustainable use of its components and the fair and equitable sharing of the benefits arising from the utilization of genetic resources" has been ratified by 196 countries and is known as the Convention on Biological Diversity (CBD). Its overarching goal is to promote behaviors that will result in a sustainable future.

According to Article 8(j) of the CBD, Parties are required to respect, preserve, and promote the wider application and equitable sharing of benefits resulting from IPLCs' knowledge, innovations, and practices with their approval and involvement as far as is feasible and appropriate. This is subject to national laws. Over 50 indigenous and local authors and communities have contributed to LBO-2, a significant work of collaborative research and analysis.

The Local and Indigenous Knowledge Systems (LINKS) Programme of UNESCO encourages the integration of local and indigenous knowledge into global climate science and policy processes. In recent science-policy-society fora on topics like biodiversity assessment and management (CBD, IPBES), climate change assessment and adaptation (IPCC, UNFCCC), natural disaster preparedness (ISDR), and sustainable development (Rio+20, Future Earth), LINKS has played a significant role in ensuring that local and indigenous knowledge holders and their knowledge are included. At the local, national, and international levels, LINKS works to support local communities and indigenous peoples, promote cross-disciplinary interactions with researchers and decision-makers, and test out cutting-edge methodologies to better understand the effects, adaptation, and mitigation of climate change.

The Local and Indigenous Knowledge Systems programme (LINKS) of UNESCO works on various initiatives and projects involving indigenous and local knowledge and biodiversity, such as supporting the Convention on Biological Diversity (CBD) and the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES).

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Examples:

Traditional Forest Management in Indonesia:

Based on their understanding of regional ecosystems, many indigenous communities in Indonesia have created traditional forest management techniques. For instance, the Dayak people of West Kalimantan have a history of practicing agroforestry, which entails growing crops and trees simultaneously in the forest and selectively harvesting trees for fuel and building materials. By doing this, the community's needs have been met while also preserving the forest's biodiversity.

Traditional Fishing Practices in Pacific Islands:

On the foundation of their knowledge of regional fish populations and their breeding patterns, many Pacific Island communities have developed traditional fishing techniques. For instance, the Pohnpeian people of Micronesia have a history of preserving fish spawning grounds in the ocean known as "raihmw". As a result, fish populations and coral reef health have been sustained.

Traditional Agro Ecological Practices in Latin America:

In Latin America, a lot of indigenous and smallholder farmers have created traditional agro ecological practices, which include cultivating crops in various agroforestry systems and using conventional wisdom to control pests and diseases. For instance, the Mayan people of Mexico have a custom of cultivating corn, beans and squash all at once in a system known as "milpa," which has assisted in preserving crop diversity and upholding soil fertility.

Traditional Water Management Practices in Africa:

Based on their comprehension of the local hydrology, many indigenous communities in Africa have created traditional water management techniques. The Akamba community in Kenya, for instance, has a custom of creating terraces and planting trees to collect and store rainwater, which has aided in meeting their water needs and conserving water resources.

Indian Scenario:

India has a lot of TK that is related to biological resources. In texts of Indian medical systems like Ayurveda, Unani, and Siddha, as well as in oral, unrecorded traditions, this TK is

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both coded and uncoded. Ayurveda, Yoga, Naturopathy, Unani, Siddha, and Homoeopathy (collectively known as AYUSH) are officially recognized ancient holistic systems that have been significantly advancing public healthcare. To address this system, MoHFW has a separate department called AYUSH that was elevated to an independent Ministry in November 2014.

The Biodiversity Act of 2002 was passed by the Indian Parliament to protect the country's biological diversity. The law was passed on February 5, 2003, and it went into effect on October 1 and July 1 of that same year. The Biodiversity Act of 2002 represents India's initial effort to legislate biodiversity conservation. The Biodiversity Act 2002 was passed to comply with the demands of the United Nations Convention on Biological Diversity (CBD).

The following are the key components of the Biological Diversity Act 2022:

- Control over the nation's biological resources,
- Restrict or control the restoration, collection and
- Conservation of the threatened species.

The Biodiversity Act of 2002 safeguards local communities' knowledge of biodiversity. The National Biodiversity Authority was established under the Ministry of Environments and Forest by the Government of India in 2003 to carry out the provisions of the Biodiversity Act 2002.

Amendments Made in Biodiversity Bill 2021:

To boosting the Indian Medicine System, it enables local communities to use resources, especially those with medicinal value, like seeds. With this bill, farmers are urged to cultivate more medicinal plants. The preservation and management of species in their natural habitats is known as **in situ** conservation. Traditional knowledge systems frequently contain important knowledge about the neighborhood's environment, including the needs and behaviors of various plant and animal species. Native American and local communities frequently have a profound understanding of the ecological relationships that exist in their environment and have created management techniques that have sustained biodiversity for generations.

The Indian government launched the Traditional Knowledge Digital Library (TKDL) to safeguard traditional knowledge systems from infringement and patenting by outside parties. It is

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a joint project of the Department of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy (AYUSH) and the Council of Scientific and Industrial Research (CSIR).

In order to make traditional knowledge systems like Ayurveda, Unani, and Siddha easily searchable and accessible to patent examiners, the TKDL aims to digitize and document them. The library has resources on conventional drugs, herbal cures, and other conventional practices. The TKDL ensures that patent examiners have access to accurate and comprehensive information when evaluating patent applications and assists in preventing the misappropriation of traditional knowledge by making this information easily accessible. A number of conventional pharmaceutical formulations, including turmeric and neem, have been shielded from patenting by the TKDL. The TKDL plays a crucial role in preventing the improper use of traditional knowledge and is a useful tool for academics and professionals working in the fields of traditional medicine and biodiversity preservation.

Overall, the Traditional Knowledge Digital Library is a significant project that aids in the preservation and advancement of traditional knowledge systems while also making sure that the advantages of these systems are distributed fairly and in a way that upholds the rights of indigenous and local communities.

Examples:

Sacred Groves: Because of their cultural and spiritual significance, local communities guard sacred groves, which are small pockets of forest. Many rare and endangered species rely on these groves as important habitats. For instance, the sacred grove that encircles the Khecheopalri Lake in Sikkim is home to numerous rare and endemic species.

Traditional Agricultural Practices:

In India, conventional farming methods like agroforestry have been practiced for many years. Growing crops and trees simultaneously is known as agroforestry, and it has been found to be good for the environment and for farmers. In Rajasthan, for instance, the Bishnoi community has a custom of planting khejri trees in their fields, which has aided in restoring degraded soils and boosting biodiversity. About 775 plant species have been recorded belonging to 91 families

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and 385 genera have been recorded as well as about 200 species of medicinal plants in desert region.

Traditional Medicinal Knowledge:

India has a long history of using medicinal plants to treat a variety of illnesses. The medicinal qualities of various plants have been thoroughly understood by indigenous and local communities and passed down through the generations. The Kani tribe in Kerala, for instance, has a wealth of traditional knowledge about medicinal plants that has been used to create new medications for the treatment of various diseases.

Traditional Fishing Practices:

Indian fishing customs have historically relied on knowledge of regional fish populations and breeding cycles. The Mishing community in Assam, for instance, has created a distinctive fishing method known as the akou khelu, which entails constructing a fence across a river to trap fish during their breeding season. This method has aided in maintaining fish populations in the area.

Traditional Forest Management:

The traditional forest management techniques that many indigenous and local communities in India have developed include the selective harvesting of forest products and the preservation of significant habitats. For instance, the Karnataka-based Soliga tribe has a history of preserving the forests surrounding their villages, which has aided in the preservation of numerous rare and endangered species.

Traditional Beekeeping Practices:

In many regions of India, beekeeping is a significant activity, and traditional beekeeping techniques have been developed based on local ecological knowledge. For instance, the Walla community in Gujarat has been engaged in traditional beekeeping for centuries and has perfected a special method for luring and capturing wild bees using earthen pots.

Traditional Seed Preservation Practices:

Many indigenous and local communities in India have developed traditional seed preservation practices based on their knowledge of regional crop varieties. Seed preservation is a

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crucial practice in maintaining the diversity of crops. For instance, the Bonda tribe in Odisha has a history of preserving traditional crop varieties, like millets, which are highly nutritious and well-adapted to the local environment.

Traditional Forest Fire Management Practices:

In many regions of India, forest fires are a frequent occurrence. Based on their understanding of the local ecosystems, many indigenous and local communities have created traditional methods for managing forest fires. As an illustration, the Bishnoi community in Rajasthan has a custom of building firebreaks in the forest to stop fires from spreading.

Traditional Grazing Practices:

In many pastoral communities in India, grazing is a significant activity, and traditional grazing techniques have evolved based on local ecological knowledge. For instance, the seasonal migration of livestock by the Van Gujjar community in Uttarakhand helps to prevent overgrazing and preserve the health of the grasslands.

Findings and Discussion:

The paper emphasizes the value of national initiatives, plans, and programmes that offer a window into how Traditional Knowledge is documented and used across the nation. To improve national collaboration, interpret policies, and mediate interventions across borders, the activities and plans incorporate integration at the national and regional levels. The activities and plans described above shed light on India's extensive efforts to preserve traditional and folk knowledge. However, an amalgamation of the learned information and discoveries with socio-ecological systems is required in order to connect the environmental sustainability of traditional knowledge.

Conclusion:

Traditional knowledge systems have a vital role in biodiversity conservation efforts, providing valuable insights into sustainable resource management and conservation practices. It is important to recognize that traditional knowledge systems are not homogenous and must be grounded in respectful and collaborative partnerships with indigenous and local communities. By

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working together, we can create more equitable and sustainable conservation practices that benefit both the environment and those who depend on it.

Future Scope:

Future research can explore the contributions of indigenous knowledge to ecological and conservation science, develop methodologies for integrating traditional knowledge with scientific research, and develop policies and frameworks to recognize and support the role of traditional knowledge systems in biodiversity conservation.

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