

Tribes and their Strategies for Improving the Human-Environment Relationship: An Anthropological Analysis

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Abstract: The link between the environment and humans is fundamentally interconnected, with a symbiotic interaction that sustains both natural ecosystems and human societies. This complex relationship needs a collaborative approach to stewardship, emphasising the necessity of sustainability and conservation to ensure future generations' success. Recognising and honouring this link is critical to creating peaceful coexistence with the natural world. The complex interaction between human civilisations and their ecosystems needs a rethinking of established approaches to fostering long-term coexistence. Indigenous tribes, with their in-depth knowledge of local ecosystems, provide significant insights into sustainable practices that maintain environmental balance. Policymakers can build holistic approaches to biodiversity enhancement and climate change mitigation by integrating indigenous knowledge systems with contemporary environmental initiatives. Such collaborations not only recognise these tribes' traditional history but also lay the groundwork for more efficient stewardship of natural resources, ultimately strengthening both human and environmental resilience.

This study focuses on fostering collaboration between local tribes and environmental organisations to ensure sustainable resource management and conservation practices. **Cultural Education Programs:** Implement educational campaigns that highlight traditional ecological knowledge and its relevance to contemporary environmental challenges. **Inter-tribal Collaborations:** Facilitate partnerships among various tribes to share best practices, experiences, and strategies for addressing common environmental challenges and advocacy for environmental justice—work towards addressing the disproportionate environmental impacts faced by tribal communities, ensuring equity in resource distribution and environmental protection efforts, etc.

Keywords: *Community Engagement Initiatives, Cultural Education Programs, Indigenous Stewardship Programs, Inter-tribal Collaborations, Advocacy for Environmental Justice.*

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I. INTRODUCTION

The current situation of the world is becoming more and more characterised by environmental erosion and its shifting patterns of weather. This is what we know, which happened from Kerala's hilly area: The Wayanad landslip in July 2024 to the destruction brought on by weeks of wildfires in Los Angeles in the first month of 2025. This is the actual situation of how human society feels about the reality in the present scenario. Behind the natural changes, many reasons lead to the major reason, which is the activities of human beings. This constant degradation of the environment not only alters the climate and society at large but also provides an important perspective on the interconnectedness of indigenous communities in traditional practices and sustainable human-environment relationships. Anthropology, as the study of humans and their societies, reveals that many indigenous

societies have various complex knowledge and strategies that promote symbiotic interactions with their environments. Emphasising the importance of these types of environmental interactions, this study attempts to examine all of them. In any culture, its indigenous tribes are still trying to incorporate a holistic worldview that integrates their environmental knowledge with their cultural practices.

Environmental biases of any resource are often highlighted. It is the result of different strategies used by tribes. An examination of any indigenous communities will reveal that the earth is treated as a heritage that supports the environment and society, rather than as a product. The synchronic approach, which provides the interdependence between the ecology and human health, protects the environmental conditions of human beings and strengthens the cultural identity of the indigenous tribes, too.

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Promoting sustainable requirements of future generations and inter-tribal cooperation, cultural education initiatives, indigenous stewardship programmes, community engagement projects, environmental justice activism, etc., are interrelated aspects that ensure that natural resources and cultural heritage are preserved for future generations while also empowering communities and fostering a sense of shared environmental responsibility.

Environmental protection is not a journey towards sustainable tribal development or simply a need for them but

a vibrant revival of cultural identity and community. Often, environmental protection is combined with the rich heritage of tribal people to create a holistic approach that acknowledges their traditions and their interdependence. Rooted in community engagement and cultural education, both health and environmental, this multi-faceted strategy fosters local environmental stewardship and encourages collaborative efforts. Moreover, it empowers the tribes to confront shared challenges and emphasises the strength of unity.

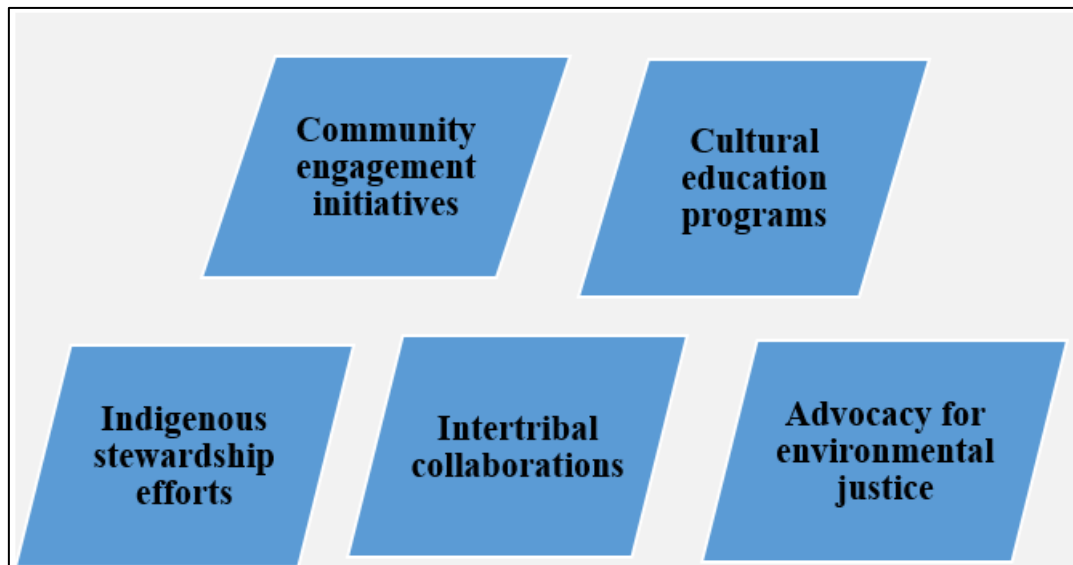


Fig.1 Strategies of Tribes - Emphasise the Ecological Oversight of Resources.

In addition, many tribes use Traditional Ecological Knowledge (TEK) to effectively manage their resources. Traditional ecological knowledge represents a composite knowledge of experiences and insights acquired through generations. All these are communicated and transmitted from generation to generation through empathic learning and accurate observation. It is these deep and multifaceted connections to nature that make each society capable of transmitting such knowledge. The strategies that indigenous tribes employ to improve the human-environment relationship provide a variety of lessons that are essential to contemporary society. By adopting practices that prioritise sustainability, community care, and traditional ecological knowledge, modern cultures seek to create a more harmonious relationship with the environment. This ethnographic analysis of the environmental knowledge and

ideas of tribal communities reveals not only the richness of tribal communities but also global environmental challenges. It also faces the question of whether they are practical in terms of coping. As the world grapples with environmental crises, the traditional environmental wisdom of indigenous peoples is more relevant than ever.

In any region, by fostering mutual cooperation among tribal peoples, especially indigenous groups, their efforts, resource mobilisation, dissemination of local knowledge, sharing of new projects and strategies for their implementation, and equitable distribution of environmental needs can be implemented. The implications of traditional ecological knowledge in addressing contemporary environmental challenges are enormous.

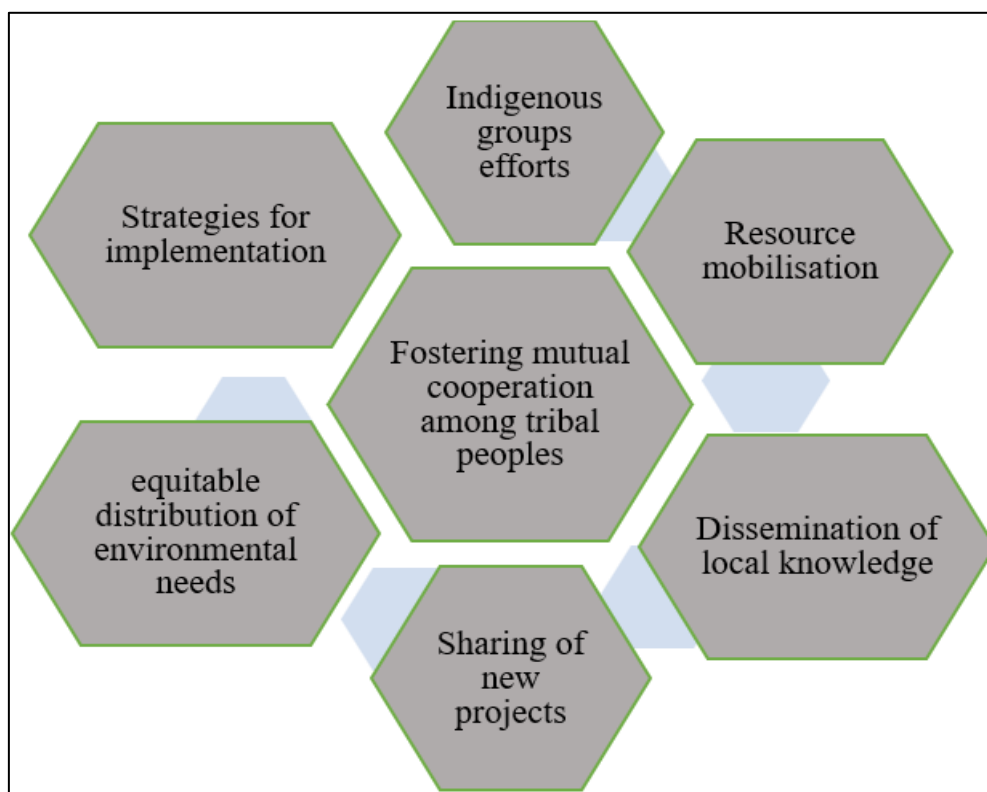


Fig 2. Fostering Cooperation Among Tribal Peoples

These local knowledge dissemination programs not only facilitate the preservation of indigenous customs but also enable communities to reclaim indigenous peoples' rights and responsibilities to the land. Advocacy for environmental justice is intertwined with these initiatives as it seeks to address systemic inequalities that disproportionately affect marginalised communities. Historically, the disadvantaged in environmental policy-making should be recognised and thereby their rights protected.

The integration of community engagements, cultural education, indigenous stewardship, intertribal collaborations, and environmental justice advocacy forms a comprehensive framework for fostering sustainability and resilience. These initiatives not only empower communities but also ensure the preservation of cultural and environmental heritage. The collaborative pursuit of social and environmental equity is not just an aspiration but a journey toward a community where everyone thrives.

II. OBJECTIVES OF THE STUDY

Humans and the environment are inextricably linked; a symbiotic relationship is always maintained to support ecosystems, human communities, and nature. These correlations are the subject of the current investigation.

- To learn how to promote cooperation between environmental organisations and nearby tribes to guarantee conservation and resource management that is sustainable.
- To improve cultural education initiatives by emphasising historic environmental knowledge and how it relates to contemporary environmental issues.

III. AREA OF STUDY

This research area was in the Wayanad district in Kerala state. the researcher has visited the whole area for data collection in various colonies of the Mananthavady block panchayat.

IV. METHODOLOGY

The study of field data is closely connected to anthropological methods, such as ethnographic research, which gives practical experience over theoretical background. An anthropologist gathers qualitative data that enlightens the microlevels of human experience through active participation and observation in the actual situations of the people's day-to-day lives. Qualitative interviews are used to extract subjective data and personal narratives when used in conjunction with participant observation. Primary and secondary data are used for this study. Field investigation and observation, etc., are the major roots of primary study, and daily newspapers, the internet, social media, magazines, etc., are the major secondary sources of this study.

V. INDIGENOUS TRIBAL COMMUNITIES AND THEIR STRATEGIES FOR IMPROVING HUMAN-ENVIRONMENT RELATIONS

All over the world the tribes use varieties of strategies to improve human-environment relationships deeply in their traditional knowledge and cultural practices. it prioritises sustainable resource management, such as rotational seasonal farming and management of their communal land. These groups strengthen the biodiversity and try to various

strategies to help regeneration within their ecosystems. moreover, it is jointly spiritual beliefs with environmental conservation and preservation that underlie a detailed understanding of the interdependence between man and nature. Through comprehensive enlightenment and education, tribes actively participate in connection with external authorities, which promotes policies and procedures that respect their indigenous rights and the conservation of biodiversity, thereby contributing to a more sustainable future for all.

➤ *Traditional Knowledge of Local Ecosystems and Indigenous Tribes*

The present scenario of Indigenous tribes all over the world is recognised for their thorough understanding of local ecosystems and their sustainable practices that contribute to the balance of the environment. This deep knowledge, mostly passed from generation to generation, is rooted in profound

connections to the spiritual aspects of the land and connected to centuries of participant observation and interaction with natural resources. The present society raises the challenges of environmental degradation and the changing conditions of climate; the interviews of Indigenous tribes offer invaluable teachings in connection with its sustainability. One of the most salient features of Indigenous knowledge is its holistic view of the management of the environment. Unlike following the conventional strategies that are always important to short-term economic achievements, Indigenous practices strengthen the interrelationship of different components of ecology. For example, local agricultural techniques and practices such as seasonal crop rotation, perma culture, and agroforestry foster biodiversity and the fertility of soil to help grow the ecosystem, etc. These methods not only improve the quality of food security but also contribute to carbon shielding and the overall sturdiness of the environment.

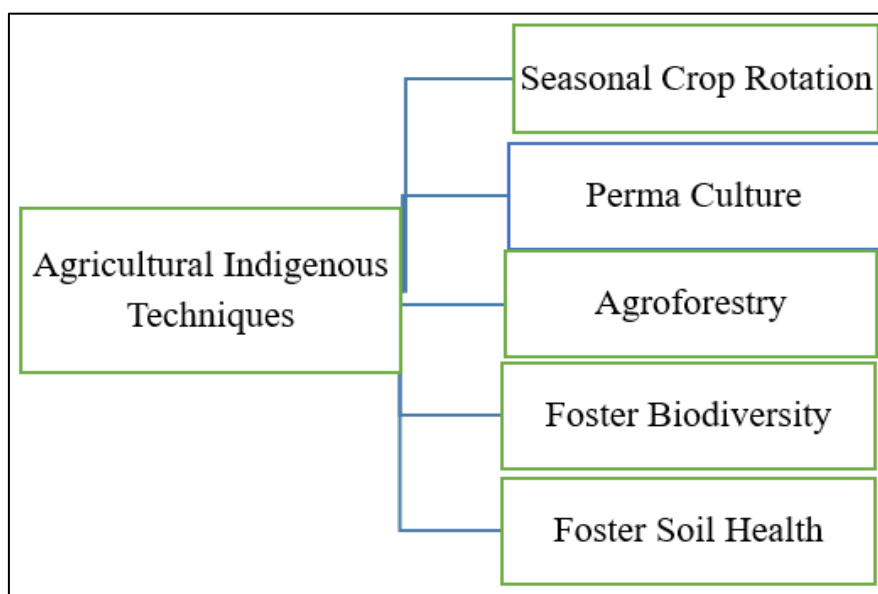


Fig 3. Indigenous Agricultural Techniques

In addition to this, Indigenous tribal communities typically attached minute aspects of deep knowledge about the local fauna and flora, recognising their roles within the ecosystem. Their traditional ecological knowledge connected to practices such as preventing larger wildfires and controlled burns, weeding and the sustainable harvesting of crops to ensure biodiversity remains for future generations. Such practices show a commitment to protection that aligns seamlessly with contemporary principles of conservation and sustainability.

The views from Indigenous tribes provide critical guidance on sustainable environmental practices that protect ecological balance. Their knowledge underscores the importance of viewing nature as a complex, interconnected web, where every element plays a vital role. As the world confronts pressing environmental challenges, embracing Indigenous wisdom is essential for fostering sustainable solutions that honour both people and the environment. According to an anthropological observation about the function of tribal societies in biodiversity conservation,

"traditional knowledge focusses on elements of significance for local livelihoods, security, and well-being and, as a result, is essential for climate change adaptation." (J., K., K., 2016).

Let us consider an example from the settlement (now Unnathi) of a tribal community, particularly the Paniya tribe of Wayanad district, where an old woman tries to convey her traditional knowledge to her granddaughter orally about how to collect and harvest a particular type of mushroom from the surroundings. The rendering of mushroom preparation points up the invaluable role of indigenous knowledge in nurturing sustainable practices. The relaying of such cultural techniques across generations underscores the importance of conserving traditional wisdom for future ecological operations. Additionally, it depicts a Paniya tribal mother sharing her traditional wisdom with the next generation while spending time with her young granddaughter growing a special fungus called *arikkoon*, also called *chippikkoon* (mushroom), which is found in nature. She tries to demonstrate to the next generation how skilfully they collect the ingredients for their ability to provide food for people from the surrounding

environment. Here, interactive observation is used to impart knowledge. She instructs her granddaughter in gathering nourishment from the natural world. Step by step, let's notice a lesson that includes how to collect mushrooms from the surroundings, what supplies are needed, and how to prepare mushroom food, which is expertly connected to future generations. Only a community that coexists calmly with nature can do this.

➤ *Local Tribes and Environmental Organisations: Sustainable Resource Management and Fostering Collaboration.*

An indigenous tribe has an ability to possess a thorough understanding of his land, transmitted by generations of tradition and cultural practices. Their local knowledge enriches sustainable harvesting methods, usages of medicinal plants, and conservation methods of wildlife, which are often

overlooked by external entities. However, various organizations for scientific expertise in environmental protection and tribal conservation and funding agencies for mentoring (such as NGOs) will strengthen tribal voices and enhance conservation activities related to them. By combining these different but complementary strengths, it is possible to develop a holistic approach to resource management – one that brings together existing environmental practices while requiring the kind of actions and approaches that respect indigenous or local knowledge.

In this way, fostering mutual cooperation enables mutual respect and understanding between tribal communities and environmental organisations. Any environmental organisation should give the highest priority to building the trust of local tribes.

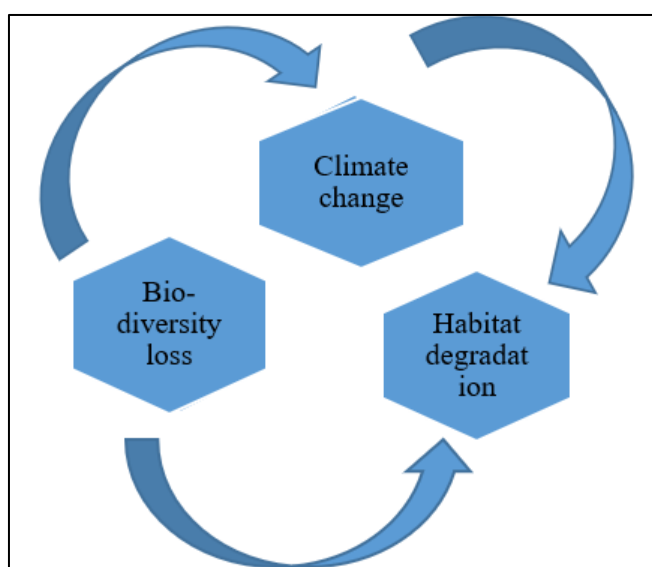


Fig .4 Fostering Collaboration -Challenges

Indigenous peoples must recognise their sovereignty over their environment, their cultural significance, and their inherent rights to the land. All this will be possible through regular contacts, interactions, and cooperation with the indigenous tribes to keep them active in making decisions related to the environment. Such participatory approaches can lead to the formation of management agreements that enable tribes and organisations to collaborate on conservation policies that incorporate scientific information and local practices.

The Adivasis are the ones who consistently coexist peacefully with the environment. A Paniya family's home in Wayanad is visible in a setting where the majority of the population is building large homes and living in luxurious amenities. These makeshift huts, which are constructed from only natural resources like bamboo and wild grass, are home to many Paniya households. A primitive hut rather than the new home that the government usually demands. Their cooperation with nature enables them to construct these kinds of traditional mud-pasted, bamboo-grazed homes. Such houses are always trying to convince the general society about how to use the raw materials that are easily available in

the surroundings and how to live without anyone's help. These experiments have shared great opportunities with the general society for learning lessons.

“Community like that of the Paniyar who had been deprived of possession of any land resources centuries ago but was dependent greatly on food gathering became totally dependent on agriculture labour. Initially the fear of the strangers forced them to be attached to their old masters under new systems of bonded labour that had emerged in the wake of British move to abolish slavery”. (Francis,2003). Consider the statement of Francis's, The Paniyars of Wayanad were once forced to work as bonded labourers for both indigenous and the migrants from Travancore and adjacent areas. They worked as bonded labourers for the landlords for many generations. The remaining newspapers persisted even after the state of Kerala was established. The reason their subservient mind-set has not altered is because of their unique surroundings. His sense of freedom has been somewhat maintained by his capacity to gather food from the surrounding natural environment.

➤ *Indigenous Knowledge Systems*

Indigenous knowledge systems are characterised by clear and concise understandings of the dynamics of any ecosystem, the ways in which organisms (species) interact, and how they manage resources. This knowledge, often transmitted orally and culturally, includes ethical considerations that create a holistic respect for nature. Integrating these perspectives with scientific research can yield innovative strategies for conservation and climate action. In addition, the integration of indigenous knowledge encourages participation, empowering local communities to be properly involved in decision-making. The grassroots nature of environmental regulation and governance not only increases the potential and legitimacy of environmental protection activities but also fosters a sense of environmental stewardship among indigenous peoples. As custodians of vast and diverse biological areas, local communities are often interested in protecting their environment and in keeping with the need to perpetuate their socio-cultural values. The integration of indigenous knowledge should be done with precision. It should ensure that the rights of indigenous peoples are recognised and their contributions are acknowledged, and fair compensation is provided to farmers and disaster victims in the event of environmental impacts and wildlife encroachment. Thus, a partnership approach based on mutual respect and understanding is essential to create effective policies for comprehensive conservation of local and scientific knowledge.

“In order to be effective, efforts on biodiversity conservation can learn from the context-specific local knowledge and institutional mechanisms such as cooperation and collective action; intergenerational transmission of knowledge, skills, and strategies; concern for the well-being of future generations; reliance on local resources; restraint in resource exploitation; an attitude of gratitude and respect for nature; management, conservation, and sustainable use of biodiversity outside formal protected areas; and the transfer of useful species among the households, villages, and larger landscape. These are some of the useful attributes of local knowledge systems (Pandey, 2002a). Traditional knowledge on biodiversity conservation in India is as diverse as 2753 communities (Joshi et al. 1993) and their geographical distribution, farming strategies, food habits, subsistence strategies, and cultural traditions.”

Integrating indigenous knowledge systems with contemporary environmental issues presents a transformative opportunity for biodiversity enhancement and climate change mitigation. By valuing and incorporating these traditional practices, policymakers can develop more robust and

adaptable strategies that address the intertwined challenges of environmental degradation and climate change, ultimately fostering a sustainable future for all.

VI. MAN-ANIMAL CONFLICT

➤ *Present Scenario*

What we can see in Wayanad? Now is a period of increasing conflict between humans and animals, especially tribes and farmers who face serious threats from leopards, elephants, and even tigers too. The ordinary people, especially a large number of crowds living near forest areas, with lots of fear. Personal stories of loss of properties and fear of life among local residents add up every day, including accounts of deaths caused by animal attacks. The causes of these conflicts are the indifference of the authorities. Inadequacy of proper interventions from authorities, protection measures from wild animals, and inability to humanely manage these have all seriously affected the relationship between man and nature. All these are interrelated—environmental changes affecting wildlife behaviour are now more prevalent in Wayanad.

However, the indigenous people believe that increasing forest-wildlife-human relations will be very effective for their appreciation of nature and the need for nature conservation. Indigenous peoples believe that forming such a spirit of coexistence will ultimately strengthen community ties and foster sustainable practices that benefit both humans and wildlife. These views highlight the greater potential in human-wildlife relationships and report that it can motivate the collective responsibility of the protection of the environment. This goes to co-existence, so we can understand that the natives can find ways to align their needs with the conservation of local ecosystems.

The human-wildlife relationship refers mainly to the life of the indigenous people of Wayanad, especially the tribals. In the years 2024-25, there has been a lot of wild animal violence in Wayanad. Many people were killed in elephant and tiger attacks. The list of individuals involved in these tragic events serves as a dark reminder of the complex relationship between human activities and wildlife conservation. The survival of the tribals is often not the responsibility of the general society. Occasionally their deaths go unreported. Large-scale changes in ecosystems, increasing human-wildlife conflict, and ineffective management strategies still pose many challenges. Subsequent sessions highlighted the importance of sensitisation, better awareness generation and action-orientated interventions to avoid such incidents.

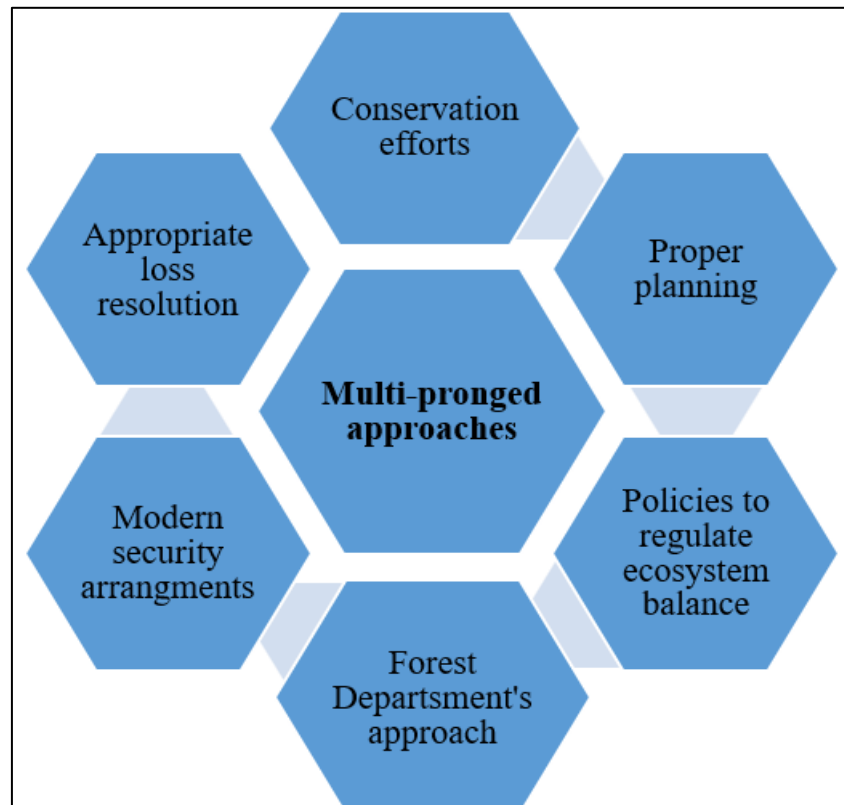


Fig 5.: Human-Wildlife Conflicts- Multi Pronged Approaches

Conflicts between humans and animals are currently a widespread and complicated issue in Kerala, especially in the hilly regions of the Wayanad district. Here the tribal communities dangerously share their living area with the wild area – always they face a critical situation. Their close connection towards the wildlife is creating more conflicts in that area. It needs a multi-faceted approach to solve their problems

- Proper planning,
- Policies to regulate ecosystem balance,
- Conservation efforts,²
- The Forest Department's approach to farmers³
- Modern security arrangements to prevent attacks from wild animals
- Appropriate loss resolution.

All of which can play a role in mitigating human-animal conflict.

These can be played very large to mitigate and to formational policies to mitigate the human and animal conflicts. We must adopt a clear perspective on acceptable

precautions to protect natural habitats and lifestyles. Let's create a future where humans and animals coexist harmoniously. By embracing sustainable practices and respecting wildlife, we can ensure future generations experience the beauty of nature. We can proceed with caution and engage in forest protection activities, fostering coexistence with fauna and their habitats.

The conflict between people and wildlife is a complex matter. It is currently a confluence of geography, politics, social and economic structures, human-wildlife behaviour, and the environment. This conflict between people and wildlife manifests itself at various natural levels. All of these hinder livelihoods and the safety and survival of life, and they have a major impact on the protection of vegetation and wildlife. Understanding the differences between people and wildlife requires taking into account a number of factors. The infrastructure, aggression of the infrastructure, dwelling, and livelihoods are the primary components of earliness. The destruction of crops, buildings, food insecurities, and injuries are all the results of human tensions.

² Conservation efforts are critical for the preservation of biodiversity and the sustainability of ecosystems. These initiatives aim to protect endangered species, restore natural habitats, and promote responsible resource management. Through collaboration among governments, non-governmental organizations, and local communities, effective strategies are developed to mitigate threats such as habitat destruction, pollution, and climate change. By prioritizing conservation, society can ensure

³ The Forest Department's approach to farmers is characterized by a collaborative framework aimed at sustainable land management and biodiversity conservation. By fostering open communication and providing technical assistance, the Department seeks to integrate agricultural practices with ecological preservation.

➤ Details of Human Deaths Due to Tiger Attack

In recent years, Kerala has experienced a concerning increase in human casualties resulting from tiger attacks. The presence of tigers, amid the diverse wildlife of the state, has led to confrontations between these apex predators and local communities. Reports indicate that numerous incidents have resulted in tragic outcomes, thereby necessitating a response from authorities regarding the need for comprehensive wildlife management and enhanced social security measures. The rising frequency of such attacks demands a systematic

approach to effectively balance protective efforts for both human safety and wildlife conservation.

In Kerala, 774 people were killed in the last eight years. Of these, 516 were due to snake bites. The tiger attacks killed 5 people in the last five years. The victims are the majority of tribes. Due to the wildlife attack in the state, the number of dead and injured is given as of 2010. In Kerala, 273 local self-governments in areas of wildlife have found the wild animal-conflicted areas.

Table 2: List of Wild Animal Attack (Source; Mathrubhumi Daily, 11/2/25)

Sl. No	Year	No. of dead	No. of injured
1.	2010-2011	64	77
2.	2011-2012	110	253
3.	2012-2013	125	355
4.	2013-2014	127	344
5.	2014-2015	126	544
6.	2015-2016	104	409
7.	2016-2017	145	796
8.	2017-2018	119	846
9.	2018-2019	146	765
10.	2019-2020	90	699
11.	2020-2021	88	968
12.	2021-2022	113	753
13.	2022-2023	89	1275
14.	2023-2024	76	1603
Total		1,522	9,687

Wild animal attacks pose significant challenges for indigenous tribes that inhabit proximity to natural habitats. These communities often rely on the land for sustenance and cultural practices, yet find themselves vulnerable to the predation of apex species. Such encounters not only threaten individual safety but also disrupt social structures and traditional ways of life.

Consequently, tribes are compelled to develop adaptive strategies that harmonize their relationship with both the ecosystem and its wildlife, balancing the preservation of their cultural identity with the need for security.

The grief that a farmer feels when he witnesses wild creatures destroying his crops is beyond words, Farmers especially the tribes are upset when their harvest is ruined, even though it is illegal to hurt any wild animal in self-defence. Nowadays, farmers' interests are thwarted by forest departments. The situation has devolved into one in which humanity is completely absent. The balance between man and nature is deteriorating here. It takes a multifaceted approach that incorporates community involvement and scientific research to promote a sustainable symbiosis that benefits both human populations and animal.

- See how using sustainable farming methods can boost food yields while preserving wildlife habitat.
- Talk about the ways that scientific research and cell cancellation can advance scientific research.

- Don't alter the way laws pertaining to environmental protection and farming are made.
- Take into account factors that help preserve habitat, such as soils, agricultural seeds, and necessary seed production.
- Make recommendations for collaborative projects including the forest department, scientists, and farmers.

Wayanad is now a tourist destination. All the hilly regions of Kerala have now adopted tourism as an income-generating sector. Countryside and wildlife are attractions for city dwellers. They see their holidays as opportunities to see and enjoy forests and wildlife, and they visit such areas. As more and more people travel to remote areas for tourism or adventure, there are often situations where they enter the interior forests without following safety instructions or following the instructions of guides and come into contact with animals that are unfamiliar with human presence. This can lead to dangerous situations where humans and animals collide. There is not a single area in Wayanad where there is no wild animal menace, and the constant attacks of wild animals are creating a bad balance in the relationship between man and nature.

Listen, what a Wayanad tribal farmer has to say about the mistreatment of animals.

VII. CASE STUDIES

➤ Chandu, Thirunelli, Mananthavady

“Wild animals trample and ruin crops instead of eating them that have been grown for years. Earlier, the animals would retreat to the forest if you made a loud noise or burst crackers. Now, if they hear a sound, they will come and attack people. Before, care was taken to prevent the destruction of agriculture. Right now, things are difficult. Dogs will bark and attempt to flee. Only the arrival of wild creatures can be anticipated. Elephants enter the country and wreck it even when the forest department installs electric fencing. Recently, the tiger descended and devoured two tribes entirely. It was just the face left.”

➤ Gopalan Vadakkanad, Sulthan Bathery, Wayanad

“Monkeys have descended from the jungle to eat and gather adaka (areca nuts) ever since they first started to appear. The monkeys will grab the ripening coffee beans, devour them, and then chase them away with their horns. It will be uprooted if cotton is grown. The bananas, Areca nuts, and coconuts will all be crushed and destroyed if the elephants descend. Coconut trees are presently quite scarce in this nation. The mountain squirrel will come and consume it as soon as there is fresh water in it. Farming is no longer feasible.”

VIII. HUMAN-WILDLIFE INTERACTION:

The interaction between humans and wild animals is also a matter of mutual habitat. There is a need for a balanced approach that includes scientific studies and community engagement in a way that is beneficial to humans and wildlife but also helps in ensuring a harmonious existence. These interactions result in the creation of a new vision that is conceptual and harmonious. This leads to ecotourism and collaborative efforts of conservation practices, habitat invasion scenarios, and penetration of congested urban development. Managing these interactions is essential for promoting biodiversity, ensuring sustainable ecosystems, and reducing human-wildlife conflicts.

➤ Strengthening Both Human and Environmental Resilience

Today, it is a situation where the interconnected concepts of environment and humanity have become increasingly crucial in the tribal areas. In an era of challenges such as climate change, biodiversity loss and socio-economic inequalities, strengthening sustainable development is possible by enhancing the capacity of tribal communities and indigenous peoples, especially their ecosystems, to adapt and thrive. Human resilience is important here. Human resilience refers to the ability of individuals and communities to withstand and survive adverse economic, social or environmental conditions, be they economic or social. It is

characterised by access to education, health care, social inclusion and economic opportunities.

There is a need to provide better educational and vocational training to empower the tribes by developing their human resilience. Ensure that they have the necessary skills to adapt to changing working conditions. Further, by nurturing social structures and community support systems, they can provide essential resources in times of crisis, thereby enhancing the collective capacity to respond to the challenges faced by the tribes.

In other words, environmental resilience is the ability of the system to survive and absorb any problems that occur in the ecosystem while maintaining the systems. Due to human activities such as deforestation; pollution (air, water, soil); classification and extraction of resources; and immunity changes, it becomes a constant threat. To strengthen the environmental resilience, it is essential to promote sustainable land use practices, restore degraded ecosystems, and implement vigorous conservation practices for them. Comprehensive afforestation not only protects our natural environment through renewable energy initiatives and mitigation of climate change to foster biodiversity but also ensures livelihood for future generations. It is very important that this becomes a means of survival for more people living in tribal areas.

➤ Resilience of the Environment and People.

The relationship between man and the environment is critical. Resilient people (tribal/non-tribal) are more likely to work towards and engage in sustainable conservation and management practices in such a way that they conserve natural resources. Strengthening human-environment resilience is critical to building a sustainable future. Ensuring that individuals and ecosystems can meet and cope with the environmental challenges of the 21st century together. Priority should be given to education, social harmony and environmental health. By building this dual resilience, we can pave the way for a more just and sustainable world, capable of dealing with the multifaceted crises to come. The indigenous people in particular will be able to withstand the numerous crises that may arise in the future and create a stable and just society by cultivating these two forms of resilience.

Contemporary ecological studies in Anthropology focuses a lot on the issues of ecological crisis, such as degradation of natural resources, climate change and its impacts, intensive agriculture, etc. We now understand that human activity plays a central role in this ecological crisis. But have human activities always been highly detrimental to the environment, or is it only a recent phenomenon? Let us try to understand this in detail from the perspective of Historical Ecology.

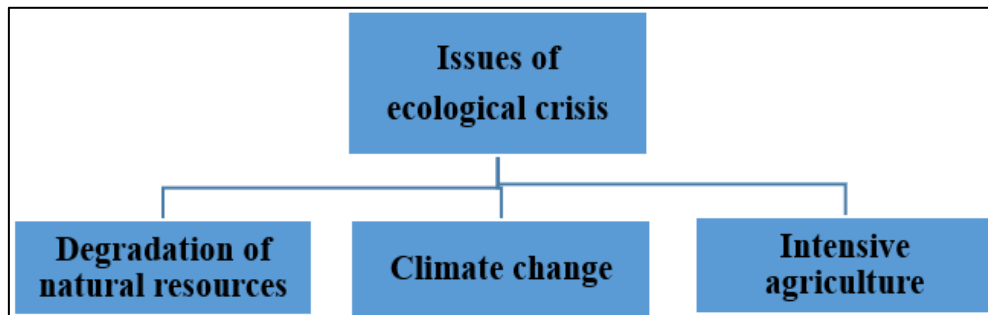


Fig: 6- Issues of Ecological Crisis

Resource usage history is of importance to historical ecologists. According to their argument, "people do not merely adapt to their surroundings; they create them over time" (Srivastava, 2000:19). Prehistoric cultures were not the first to use natural resources. Once written off as "primitives" or "savages," small-scale communities are now seen to have had a substantial effect on their surroundings.

According to Balee (1998), "(1) human activity has affected virtually all environments, (2) human activity does not necessarily degrade or improve environments, (3) different cultural systems have different impacts on their environments, and (4) human interaction with the environment can be understood as a total phenomenon" (Sutton and Anderson, 2004:27). Balee also highlights the importance of individual human action. The "dichotomy that many environmentalists created between 'nature' and 'culture, assuming that the former is in a state of virginity, a pristine condition, untouched'" is therefore essentially criticised by Historical Ecology (Srivastava, 2000: 19). When we try to understand the nature of resource-exploitation over historical phases, it becomes clear that human activities that transform

the environment have gradually intensified over the past two centuries, since the time of industrial revolution. The fundamental tenet of industrial society is the complete rejection of traditional cultures' conceptions of man as a steward of nature and a member of a community of beings. Rather, it is adamantly stated that man is distinct from nature and has the right to use natural resources for his own benefit (Gadgil and Guha, 1992:45). According to Anderson (1973:201-2), one of the most potent concepts that has had a significant impact is the western idea of "man against nature." According to this perspective, man is positioned above and apart from nature. Inevitably, man's exploitation of nature leads to unbounded advancement.

Human evolution is based on culture. There is a close relationship between people, their environment and their culture. Culture is what separates humans from other species. Our culture has enabled us to use natural resources and the environment wisely. Culture has given people the ability to know how to use nature. Human societies have existed since prehistoric times in areas with abundant natural resources such as fresh water, trees, minerals, and air.

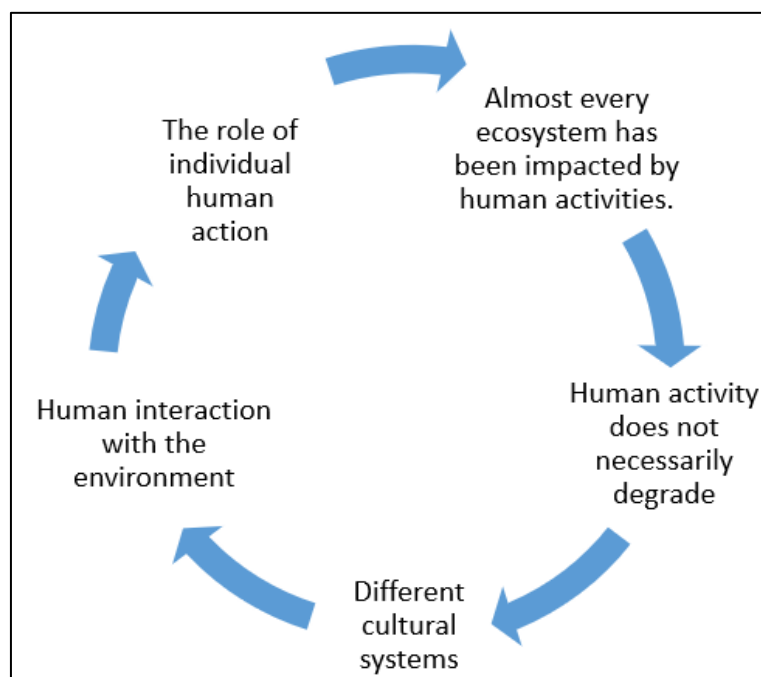


Fig:7 - The Role of Individual Human Action- Issues of Ecological Crisis (Balee,1998)

However, this man-nature dichotomy is not found in the worldview of traditional societies, and is probably the reason behind sustainable resource use in traditional societies. We shall discuss this with the help of two cases in the last section. we have seen that humans engage very closely with their environments. Human cultural, social and economic systems have always had an impact on the environment; however human activities have been instrumental in transforming the environment more intensely over the past two centuries.

As it is rightly quoted by Mahatma Gandhi that there is enough for the need but not for the greed of man, the greedy capitalism caused severe and irreparable damage to the environment. When the damage crossed all the tolerance levels i.e. by the end of 1980s then for the first time in the Brundtland Commission (1987) the concept of environmental sustainability emerged and defined more popularly the terminology of sustainable development.

Thus, since prehistoric period to present day industrial age we as a human being have our specific cultures and specific way to protect and conserve environments through different cultural practices and traditions. Many pre-industrial societies are still following their traditional cultural taboos, norms and values to protect and conserve their environment and thus using it in a well-defined sustainable term than many of the industrialized civilized societies. The most important question in this context is that can we afford to ignore the issue of 'culture' in understanding the past and present of human- environment relations, and in canvassing possible future developments. Therefore, the time has come to rethink and redefine sustainability for future generation which is actually based on the intelligent use of natural resource by human beings.

➤ *Indigenous Stewardship Programs:*

Local systems are of great importance in promoting biodiversity conservation and ecosystem resilience. These conservation systems, led by indigenous communities, play an important role in the sustainable management of natural resources. What we need is the understanding that the earth is not just a commodity but an organic form that is deeply intertwined with cultural identity and social well-being. This understanding is the core of local control systems. Centuries-old knowledge is local capital acquired through close observation, interaction and contact with nature. It is transmitted through the veins. Most of the tribal and tribal communities believe in it. It is this belief that makes them natural. This wealth of information enables them to cope with issues such as climate change, habitat loss and extinction of various species. Studies suggest that areas where tribal communities are engaged still exhibit greater biodiversity. Up-to-date local environmental regulations are made possible by fostering environmental health that is in sync with cultural values.

To achieve sustainable resource capacity control and to intervene with local organisations and their activities, efficient and effective organisations must exist within a community. This is an extremely critical matter. Because today we live in an environment filled with numerous social,

cultural, and physical challenges. Therefore, such a cooperative approach not only aims for sustainable development but also helps in adopting scientific approaches to address environmental challenges. The importance of integrating such traditional knowledge is emphasised to address the diverse needs of the community and to sustain it for a longer period, as it promotes equality among marginalised communities, especially among indigenous people.

In villages and rural areas that include indigenous people, farmers, and agricultural workers, there are now many non-governmental organisations. When their activities pose challenges to sustainable development processes, new areas of activity must emerge in environmental systems and human societies. As the world witness's rapid changes today, the Indigenous Stewardship Programmes state that many changes are occurring in society and the environment. Therefore, to effectively manage indigenous resources, programmes should be led by indigenous groups and active organisations that can support these efforts. As the world witnesses' rapid changes, the Intangible Stewardship Programs state that there are numerous changes occurring in society and the environment. Therefore, to effectively manage indigenous resources, programmes should be led by indigenous groups and active organisations that can support these efforts.

IX. TRIBES TO IMPROVE HUMAN AND ENVIRONMENTAL RELATIONSHIPS AND STRATEGIES

If we examine the history of the tribal or folk community, we can understand that indigenous tribes around the world have developed a profound connection with their environment. Let's examine what they are; traditional knowledge is a treasure. This treasure should be integrated with contemporary environmental management systems by indigenous communities.

The integration of such indigenous knowledge is crucial; it will help tribal communities face modern environmental challenges and ensure the preservation of biodiversity. For example, one of the major techniques used by tribes in agriculture in the past was rotational farming. Controlled harvesting in this type of farming. Rotational approaches have been adopted, such as making the habitat a favourable factor, revitalising the ecosystem, maintaining soil fertility and preventing depletion of resources through alternate use of farmland and shifting cultivation. This system would have not only protected its food sources but also nurtured the ecological balance. All tribes had knowledge of the interrelationship within these types of habitats; some tribes still maintain it. This can still be seen among tribal groups such as the Kurichiyar and Kurumars of Wayanad.

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Protect the environment for future generations. Through participatory stewardship, at least some tribal communities work to promote collective stewardship of nature, such as community resource management, to foster a sense of community ethics through the formation of sustainable use practices, such as responsibility and control, and a sense of connectedness to the land.

In addition, the implementation of the traditional ecological knowledge (TEK) of the tribes, which has been transferred over the centuries and includes observation of nature and constant interaction with the environment, is very beneficial. By combining traditional knowledge with contemporary scientific methods, tribes can increasingly advocate for effective conservation policies that they have passed on to their communities while also studying strategies for improving human-environment relationships. This holistic picture enables indigenous communities to have a more nuanced understanding of environmental dynamics. As a result, it increases its ability to cope with climate change and environmental degradation. That's why the methods used by tribes to enhance the relationship between humans and the environment show how important the value of indigenous knowledge is in environmental applications. Tribal sustainable development practices, community controls, and integration of traditional environmental knowledge are all ways to collaborate with the environment. It is of utmost importance that such systems are recognised and respected for the sake of advancing such sustainability efforts around the world and to ensure that diverse peoples are brought together and thrive.

X. CONCLUSION

To summarise the study of this topic based on the anthropological background, it shows that indigenous groups or tribes have always used complex, situation-specific strategies to promote a sustainable human-environment relationship. These strategies, which are implanted in their cultural norms and traditions and traditional ecological knowledge, usually place a high importance on persisting resource management and interaction for the natural world. In any indigenous system, the conservation measures of the tribal people towards their practices have to be given a lot of importance to understand the different sustainability models. The relationship between the environment and human beings, especially their inhabitants, must be given due importance in guiding and providing the necessary perspectives for the development of more just and efficient environmental regulations. According to the study, tribes have a unique plan to ensure their sustainability.

RECOMMENDATIONS

Conservation efforts necessitate proper planning and the implementation of policies aimed at regulating ecosystem balance. The Forest Department's approach to collaborating with farmers is pivotal in fostering sustainable practices that align agricultural activities with ecological preservation. Additionally, modern security arrangements are essential in mitigating threats from wild animals, thereby reducing the incidence of human-animal conflict. Moreover, establishing appropriate loss resolution mechanisms can further support communities, promoting harmony between human interests and wildlife conservation efforts. Collectively, these strategies contribute significantly to the long-term sustainability of both biodiversity and agricultural livelihoods.

Moreover, the government should consider the following as the comments and recommendations

- The government should be ready to declare that, regardless of the condition of the state government, it is not obligated to defend it to anyone unable to do so themselves.
- The human sensitive zone (HSZ) will be expanded to 100 meters along the forest borders in Kerala, and measures must be taken to eliminate any encroachment within this zone. Plans should focus on areas where fencing and vegetation have been impacted.
- Each case should be taken specially; to be killed in the attack of the wild animals (elephants, wild boars, deer, monkeys) and the loss of cultivation by the wild animals, the rise of the role of agriculture has to make reasonable compensation. The government should also be prepared to resolve the dispute in agricultural issues and set up a separate tribunal.

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