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Ecocriticism, Disaster Management & Environmental Consequences: A Cultural-Linguistic Study of India-Nepal Border Regions

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Abstract

This paper explores the intersection of ecocriticism, disaster management, and environmental consequences through the lens of Indo-Nepalese cultural and linguistic frameworks. Drawing from the literary traditions, indigenous knowledge systems, and shared Himalayan geography of India and Nepal, it highlights how language and cultural expression shape ecological awareness and response to environmental crises. Through an interdisciplinary approach combining literary analysis, oral traditions, and environmental discourse, the paper foregrounds the necessity of integrating cultural perspectives into disaster resilience strategies. It argues that indigenous languages like Maithili, Tharu, and Bhojpuri encode environmental knowledge crucial for sustainable adaptation. Moreover, the paper discusses how religious practices, folklore, and river-centric worship traditions offer a dual role in ecological reverence and degradation. By analyzing regional literary texts and eco-activism, including the Chipko and Bagmati movements, the paper demonstrates the importance of linguistic diversity and cultural memory in building a resilient ecological future across the India-Nepal border.

Introduction

In an era increasingly defined by ecological crises, environmental disasters, and climate-induced disruptions, the intersection of ecocriticism, disaster management, and environmental consequences has emerged as a critical domain of interdisciplinary inquiry. This paper seeks to explore this triad through the cultural and linguistic lens of India and Nepal, two South Asian nations intimately tied by geography, history, and ecological interdependence. Using ecocriticism as the theoretical framework, this study interrogates the literary, cultural, and linguistic narratives that shape environmental awareness and disaster responses, while also assessing how deeply ingrained cultural practices influence both the perception and management of environmental consequences.

Ecocriticism, a growing field within literary and cultural studies, offers a way of reading texts both literary and non-literary with an eye toward environmental representation and ecological values. In the context of India and Nepal, ecocriticism opens a window into a wealth of cultural knowledge, religious traditions, oral literature, and folklore that express ecological consciousness long before the rise of Western environmentalism. From the sacred rivers of the Ganges and Bagmati to the mythologies surrounding the Himalayas, the environmental imagination in these regions has been shaped by centuries of poetic, religious, and vernacular engagements with nature. These engagements are not merely symbolic; they inform everyday interactions with the environment and influence attitudes toward conservation, disaster, and sustainability.

Natural disasters such as floods, landslides, earthquakes, and glacial lake outburst floods (GLOFs) are frequent in both India and Nepal due to their location in the seismically active and climatically sensitive Himalayan region. While science and technology have advanced disaster management strategies, it is the cultural narratives and linguistic practices that often determine how communities understand risk, respond to disaster, and recover from trauma. For instance, the 2015 Nepal earthquake and the recurring floods in Bihar and eastern Nepal have not only exposed the vulnerabilities of infrastructure but have also laid bare the need for inclusive and culturally sensitive disaster communication strategies. In multilingual and diverse societies like those of India and Nepal, disaster messages must navigate a complex terrain of language, dialect, literacy levels, building on the indigenous knowledge systems.

Language plays a vital role in shaping environmental consciousness. The environmental lexicons in Hindi, Nepali, Maithili, Bhojpuri, and other regional languages carry unique ecological metaphors, idioms, and cultural references that mediate people's relationship with the land. These languages encode local knowledge of climate, agriculture, medicinal plants, and animal behavior, often passed down through songs, proverbs, and stories. Such linguistic resources, however, are often overlooked in state-led disaster management plans, which tend to prioritize official languages and technical discourse, creating a gap between policy and practice.

Moreover, colonial legacies have played a role in distancing people from their traditional ecological knowledge by privileging Western scientific paradigms over local wisdom. Ecocriticism, especially in its postcolonial and indigenous iterations, challenges this epistemological hierarchy and reclaims the value of native languages and cultural practices in addressing environmental degradation and disasters. In this regard, examining the literature, poetry, and oral traditions of India and Nepal becomes a powerful method for understanding how communities conceptualize environmental balance and disorder. For example, the poetry of Bhanu Bhakta Acharya in Nepal and the writings of Rabindranath Tagore in India reflect deep ecological sensibilities, which remain relevant in contemporary discourses of sustainability and resilience.

Another layer to this analysis is the spiritual ecology embedded within Indian and Nepali cultural systems. Religious rituals such as Chhath Puja in Bihar and the Bagmati clean-up campaigns in Kathmandu reflect a cultural logic where rivers are not merely water bodies but living deities. This sacralization of nature has ecological consequences both constructive and destructive. While it fosters reverence for natural elements, it can also lead to pollution when ritual offerings and mass gatherings are not ecologically managed. Thus, the relationship between culture and environment is not unidimensional; it is a dynamic interplay of reverence, exploitation, conservation, and neglect.

The role of gender and caste in disaster and environmental discourses also warrants attention. Women and marginalized communities in both countries are often disproportionately affected by environmental disasters due to socio-economic vulnerabilities and cultural roles. However, they are also key knowledge bearers and agents of ecological stewardship. Folktales sung by women in rural areas often encode environmental ethics and coping strategies for natural disasters, which are crucial yet undervalued resources in disaster preparedness programs. Ecocriticism expands to include these subaltern voices, advocating for a more inclusive environmental discourse that recognizes multiple ways of knowing.

Contemporary environmental movements in both countries, such as the Chipko movement in India and the Save Bagmati movement in Nepal, illustrate how cultural identity and linguistic solidarity can galvanize collective action. These movements often employ local languages and cultural symbols to mobilize people, creating a bottom-up approach to environmental governance that is more effective and

sustainable than top-down technocratic models. This demonstrates the potential of integrating cultural and linguistic resources into disaster management policies and environmental education.

The paper also delves into cross-border ecological issues, such as the damming of Himalayan rivers, deforestation, and air pollution, which require cooperative frameworks that respect linguistic and cultural sensitivities. Given that many ethnic groups, such as the Tharu, Maithil, and Sherpa, reside across the India-Nepal border, their shared linguistic and cultural heritage can serve as a foundation for collaborative environmental governance. Policies that are linguistically accessible and culturally resonant are more likely to gain local legitimacy and community participation.

Furthermore, the rise of digital and media ecologies has transformed how environmental issues are communicated and politicized in the region. Social media platforms now serve as sites of environmental activism, where hashtags in Hindi and Nepali proliferate alongside global environmental discourses. However, the dominance of English in scientific and policy narratives can alienate local populations, creating a communication gap that can hinder disaster response and environmental awareness. Ecocriticism, by emphasizing the importance of language and representation, can help bridge this divide by advocating for multilingual and culturally nuanced environmental communication.

This abstract ultimately argues for a transdisciplinary approach to environmental challenges that integrates ecocritical insights with disaster management strategies. It calls for a rethinking of environmental policy through the lens of cultural sustainability, where literature, language, and local traditions are not peripheral but central to ecological resilience. In doing so, it aligns with the goals of environmental justice, ensuring that the voices of indigenous peoples, rural communities, and linguistic minorities are heard and respected in climate adaptation and disaster risk reduction.

Bagmati

The river of gods and mortals alike,
A lifeline of the Kathmandu Valley
I cradled your civilization
Nurtured your dreams,
And purify your souls
Sacred, worshipped, and revered,
A goddess flowing endlessly through your lives.
Do you remember me, Kathmandu?

Plea for renewal

Three dips, they say, will break you free.
A cruel twist of fate, for I am the one who bears the weight of your sins, hopes, faith, and your very existence.
I am holy. I am scared. The purifier, as you call me. The eternal witness to the cycle of life and death.
They dip you into my waters, a final, desperate plea to break you free.

The Bagmati River, once revered as the spiritual and ecological lifeline of the Kathmandu Valley, now stands as a symbol of environmental degradation caused by unchecked urban expansion. Originating in the pristine Shivapuri Hills and flowing through sacred spaces like the Pashupatinath Temple, the Bagmati has long been intertwined with Nepalese religious and cultural life, central to rites of birth, death, and spiritual purification.

In recent decades, however, this sacred status has been overshadowed by severe ecological decline. Today, nearly 93 percent of wastewater entering the river comes from untreated domestic sources, with the remaining 7 percent from industrial waste. Rituals such as cremations, festivals, and religious offerings once expressions of reverence now paradoxically contribute to the pollution.

Despite efforts like the Bagmati River Clean-Up Mega Campaign launched in 2009 and large-scale projects including the Kathmandu Valley Wastewater Management Project, the river's health continues to deteriorate. Between 2023 and 2024, measures of turbidity and faecal coliform rose significantly, signalling ineffective waste control and infrastructure management.

Environmental specialists, including Sudha Shrestha of UN-Habitat Nepal, emphasize the urgency of community-based wastewater treatment, regulatory enforcement, and sustainable urban planning. Although millions in aid have been allocated from institutions like the Asian Development Bank and the Nepalese government, only 2.3 percent of wastewater is currently treated.

Today, the Bagmati River is both a reflection of Kathmandu's environmental crisis and a warning for the region. Its revival will require more than reverence it demands coordinated, culturally informed ecological action.

Bagmati & Thapathali Bridge:

The Bagmati promenade, nestled beneath the frenetic Thapathali Bridge in Kathmandu, presents a rare opportunity for a heritage walk. Yet, in doing so, it risks losing the quiet simplicity that defines its current character. In the 1950s, Swiss geologist Toni Hagen captured Bagmati in photographs as a wide, pristine river. Today, what remains is a drying basin bordered by neglected relics of the city's past.

Amid the urban chaos above, life unfolds differently below. A woman braids her daughter's hair outside the Udasi akhada, a sadhu rests under a banyan tree, and monkeys frolic among the trees. Once a haven for yogis, the akhadas now face the grim reality of Bagmati's polluted waters. Centuries-old cobbled structures meant for cremation and bathing lie buried beneath weeds, as squatters and black water tanks mark the riverside.

Despite efforts like the heritage walk titled "Transformation of the City's History through the River," organized by StoryCycle and the British Council, change is slow. Participants reflect on a past slipping away, noting how little of Bagmati's grandeur remains. Heritage sites like the Kalmochan Mandir, rebuilt after the 2015 earthquake, stand alongside dilapidated akhadas built by Jung Bahadur Rana.

Chess Park, with its tranquil shade and slumbering visitors, contrasts sharply with the city's bustle. The nearby Brahmanal stone bed, once a sacred deathbed, now neighbors the stench of Ikshumati. Yet, among chaityas and ghats, folklore still lives: stories of Pachali Bhairav and Nai Ajima survive in Teku.

Activists like Hiralal Tandukar express sorrow at the loss but insist on preserving what remains. The Bagmati promenade is not yet commercialized; it is a space of memory and stillness. Its quiet charm lies in birdsong, filtered light, and forgotten architecture a heritage too vital to be lost in the noise of the city.

Kosi

Kaushiki to Kosi: The Myth, Memory, and Majesty of a River

In Hindu mythology, the river Kosi traces its origins to a sacred tale woven with divine characters and destiny. Once known as Kaushiki, the river was personified as Satyavathi, the daughter of King Gadhi and granddaughter of Brahma. The sage Richika sought Satyavathi's hand in marriage, but Gadhi, reluctant to give away his beautiful daughter to the aged Brahmin, set an impossible dowry: one thousand white horses, each with a single black ear. With help from the god Varuna, Richika fulfilled the demand and married Satyavathi.

Later, Satyavathi and her mother both desired sons one a scholar, the other a warrior. Richika prepared two bowls of enchanted porridge for each woman. However, Satyavathi's mother, believing her daughter's porridge to be superior, convinced her to swap them. Richika was furious when he learned of the switch. He prophesied that Satyavathi would now bear a warrior instead of a sage, but upon her pleading, he amended the fate her son would be a sage, and her grandson a warrior.

Thus, Satyavathi gave birth to Jamadagni, father of the fierce warrior-sage Parashurama. Her mother birthed Vishwamitra, the warrior-king who became a revered sage. As Vishwamitra descended from the Kusha dynasty, he was called Kaushika, and so was his sister Satyavathi, who later became the river, Kaushiki. Over centuries, Kaushiki evolved linguistically into Kosika, and finally into Kosi.

Today, the Saptakosi a confluence of seven Himalayan rivers: Indravati, Sun Kosi, Tama Kosi, Likhu Kosi, Dudh Kosi, Arun Kosi, and Tamar Kosi forms what is simply known as the Kosi River. While the river brings nutrient-rich silt from the Himalayas, it is also infamous for its shifting course and devastating floods. The massive sediment it carries raises its riverbed over time, causing it to breach banks and alter paths, earning the mythical label of a "ten-armed monster" in reference to its numerous channels.

Another legend describes how a demon tried to marry the beautiful Kosi, on the condition that he contain her within the Himalayas by dawn. As he worked relentlessly, Kosi sought help from her divine father, Lord Shiva, who tricked the demon by crowing like a rooster before dawn, making the demon think he had failed. Thus, Kosi remained free to choose her path.

Despite her destructive potential, the people along her banks continue to revere Kosi. Her floods may bring devastation, but they also enrich the soil. Folklore describes rituals where villagers offer turmeric a symbol of marriage urging the river to retreat. Kosi, enjoying her independence, is said to leave hastily when these offerings are made.

The songs of Kosi reflect both awe and sorrow. In local folksongs, she is a mischievous maiden luring boatmen with golden promises or a motherly force feared for claiming lives. Some songs express grief of mothers losing sons, of spirits lamenting their sacrifice while others are celebratory, dressing Kosi in ornaments and invoking her grace.

Through myth, ritual, and song, Kosi remains not just a river but a living entity sacred, unpredictable, and deeply intertwined with the cultural memory of those who dwell along her shifting shores.

The Kosi River: The Sorrow and Lifeline of Bihar

The Kosi River, often referred to as the "Sorrow of Bihar," is one of India's most historically significant yet destructive rivers. Originating in the Tibetan Plateau near Mount Kailash, the Kosi flows through the rugged Himalayan foothills before descending into the fertile plains of Bihar. While it has long sustained agriculture and shaped civilizations, its recurring floods have brought untold suffering. To understand the complexity of the Kosi, one must consider its geographical origins, cultural significance, history of floods, flood control measures, and the impact on local communities.

Origin and Geographic Context

The Kosi River system is formed by the confluence of several tributaries primarily the Sun Kosi, Arun Kosi, and Tamur Kosi coming together to form a powerful and dynamic river. These tributaries traverse Nepal before joining in the Himalayan foothills and then entering India. Over its 505-kilometer course (approximately 314 miles), the Kosi meanders through steep terrains and alluvial plains, carrying immense volumes of water and sediment.

In ancient times, the river served as a vital artery for agriculture and trade. Historical records reference the Kosi's contributions to the prosperity of regional kingdoms and its importance in irrigation. Yet, its unpredictable behavior shifting courses and breaching banks has long made it a dual force of sustenance and devastation.

Cultural and Mythological Reverence

In Indian mythology, rivers are often deified and regarded as goddesses. While not as widely worshipped as the Ganges or Yamuna, the Kosi holds a sacred status in local folklore and religious tradition. Ancient texts such as the *Mahabharata* and *Puranas* reference the Kosi, attributing purifying qualities to its waters. Rituals and festivals often include offerings and prayers to the river, particularly during the flood season, when villagers seek protection from its wrath.

In many communities, ceremonies are performed along the riverbanks, where offerings like turmeric symbolizing marriage are made to encourage the river, considered an unmarried female spirit, to recede. The dynamic between reverence and fear encapsulates the intimate, enduring relationship between the Kosi and those who dwell along its banks.

Floods, Displacement, and Historical Calamities

The monsoon season, typically spanning June to September, brings intense rainfall to the region, swelling the Kosi to dangerous levels. Among the most catastrophic events in recent history was the

2008 Kosi flood. Triggered by a breach in the embankment in Nepal, this disaster displaced over three million people, destroyed villages, and wiped-out critical infrastructure such as roads, schools, and hospitals.

The humanitarian crisis that followed highlighted the longstanding vulnerabilities in flood management systems. Recovery efforts, though involving multiple agencies and NGOs, have often struggled to reach all affected families. Many victims remain displaced years later, grappling with food insecurity, loss of livelihood, and landlessness.

Flood Management and Its Discontents

Flood control on the Kosi began in earnest in the mid-20th century, culminating in the construction of the Kosi Barrage in 1963 and the establishment of an extensive embankment system. These structures were designed to channel the river and prevent flooding. While partially effective, they have introduced new complications:

1. Sedimentation: Embankments restrict the river's natural flow, causing sediment to accumulate and elevating the riverbed. This increases flood risk in the long term.
2. Structural Neglect: Maintenance has been sporadic. Embankments often fail under pressure during peak monsoons.
3. Community Displacement: The construction of flood control infrastructure has led to the eviction of riverside communities, many of whom have not received adequate compensation or rehabilitation.

Although intended to regulate the river, these interventions have also disrupted traditional irrigation patterns, affecting water availability and agricultural output.

Agriculture: Dependency and Vulnerability

Despite its destructive tendencies, the Kosi remains a crucial resource for Bihar's agrarian economy. The river enriches the alluvial plains with nutrient-laden silt, ideal for growing crops such as rice, wheat, and sugarcane. In areas with low rainfall, the Kosi serves as a lifeline for irrigation.

Yet, the same river poses serious risks. Flooding can strike without warning, uprooting crops and eroding fertile soil. These events destabilize rural economies, pushing farmers into cycles of debt and food insecurity. The uncertainty surrounding the Kosi's behavior makes it difficult to plan sowing and harvesting schedules, further aggravating agricultural hardship.

Adaptive Strategies and Community Resilience

Faced with these challenges, local communities have adopted various adaptation strategies:

- Crop Diversification: Farmers are planting a variety of crops to spread risk and reduce dependence on a single yield.
- Sustainable Agricultural Practices: Techniques aimed at soil conservation and flood resilience are gaining traction.
- Participatory Water Management: Initiatives involving community input in water governance aim to balance irrigation needs with flood mitigation.

These grassroots efforts, while still developing, offer hope for a more balanced coexistence with the river.

The Kosi River is both a destroyer and a nurturer. Its floods have shaped landscapes and lives, leaving behind stories of tragedy and resilience. While engineering solutions have tried to tame its fury, long-term sustainability lies in understanding the river's natural rhythms and integrating community-led

strategies. The "Sorrow of Bihar" continues to challenge those who live in its path but also binds them in a shared narrative of survival, reverence, and hope.

Sama-Chakeva in Maithili Literature: A Cultural and Ecological Summary

The *Sama-Chakeva* festival holds a cherished place in Maithili literature and folklore, symbolizing sibling love, cultural heritage, and ecological harmony. Celebrated in the Mithila region of India and Nepal during the Kartik month (October-November), this festival is rooted in a legend from the Puranic tradition. It narrates the story of *Sama*, daughter of Krishna, who is falsely accused of being a bird. Her brother *Chakeva* embarks on a journey of penance and prayer, eventually restoring her human form. This tale is retold through songs, ballads, and ritual dialogues, often performed by young girls during the festival.

In Maithili literature, Sama-Chakeva is more than a devotional tale it reflects the bond between humans and nature. The ritual of making clay idols of birds, decorating them with natural dyes, and offering them on riverbanks emphasizes a deep ecological sensitivity. The imagery of birds, rivers, and forests in festival songs symbolize freedom, renewal, and purity. The literature also subtly critiques social injustices, particularly those against women, through the story of Sama's wrongful punishment.

Moreover, Sama-Chakeva traditions contribute to seasonal ecological knowledge, aligning with migratory bird patterns and agricultural cycles. By observing and celebrating nature's transitions, the literature tied to Sama-Chakeva reinforces sustainable practices and cultural resilience. It serves as a vibrant example of how oral traditions preserve environmental ethics, bridging myth, language, and ecological awareness in the cultural fabric of Mithila.

Ecocriticism and Cultural Ecology

Language and culture are deeply embedded in the ecological consciousness of societies. In the context of India and Nepal two nations with intertwined cultural histories and shared ecological challenges the ways in which linguistic and cultural expressions contribute to environmental awareness are profound and multifaceted. Oral traditions, religious practices, folklore, and regional literature play significant roles in shaping community-based responses to environmental crises.

In both countries, indigenous and regional languages act as repositories of ecological wisdom. Languages such as Maithili, Tharu, Bhojpuri, and Tamang carry centuries-old knowledge systems embedded within proverbs, songs, and rituals. These forms of expression are not merely artistic or literary artifacts; they are practical systems of ecological understanding. For example, Tharu oral traditions in the Terai region reflect sophisticated flood management strategies, based on seasonal changes and animal behavior. Similarly, Maithili poetry often centers on agrarian cycles, river systems, and the sacredness of land.

In the Terai region, the Tharu community has preserved a rich oral tradition that reflects deep ecological awareness, especially regarding flood management. Living in flood-prone areas along the Himalayan foothills, the Tharus developed environmental coping mechanisms encoded in their stories, songs, and rituals. For instance, folk tales and seasonal chants recount the behavior of specific birds, such as the *Sarus crane* or the *Indian cuckoo*, whose early migration or call patterns are interpreted as signs of impending monsoon intensity. Oral proverbs warn villagers of rising river levels and guide them in relocating livestock and grain to elevated areas. These practices form an indigenous forecasting system rooted in lived experience and observation.

Similarly, Maithili literature and poetry, especially the works of poets like Vidyapati, portray a harmonious relationship with nature. His verses are replete with imagery of fertile fields, rain-bearing clouds, and sacred rivers like the Kosi and Ganga. Maithili wedding songs and folk dramas often align marital rituals with the agricultural calendar, symbolizing human-nature unity. For example, the bride's departure is likened to the sowing of seeds, and harvest festivals like Jitiya and Sama-Chakeva celebrate both familial and ecological bonds. These cultural forms not only reflect ecological sensitivity but also reinforce sustainable practices across generations.

Religious narratives are another crucial conduit for ecological awareness. The reverence of rivers like the Ganga in India and the Bagmati in Nepal has historically contributed to the cultural protection of water bodies. Festivals such as Chhath Puja, celebrated in both regions, emphasize the connection between nature and spirituality by offering prayers to the Sun and rivers. Although modernization has led to the pollution of these sacred spaces, these rituals still carry the potential to mobilize grassroots environmentalism by invoking spiritual responsibility.

The Chipko Movement in India and the Bagmati Clean-up Campaign in Nepal serve as modern examples where cultural ethos catalyzed environmental activism. The Chipko Movement, led by rural women in Uttarakhand, drew from Gandhian principles and the Bhotiya people's respect for forests. In Nepal, the Bagmati campaign emerged not just from civic concern but also from a cultural realization that a sacred river had turned into a sewer. In both cases, language be it protest slogans, poetry, or religious texts was used to stir public awareness and action.

Literature also plays a pivotal role. Writers like Mahasweta Devi and Indra Bahadur Rai have explored environmental injustices tied to marginalization, while modern Nepali eco-poets continue to raise awareness about glacial retreat and biodiversity loss in the Himalayas. These literary works provide ecological insights through a cultural lens, resonating with local readers in emotionally and socially powerful ways.

The Chipko Movement, originating in India in the 1970s, is one of the most iconic examples of grassroots environmental activism in South Asia. Its influence has extended beyond India's borders, particularly resonating with ecological consciousness and community-led environmental efforts in neighbouring Nepal. Below is an exploration of the movement's roots and its broader connection to ecological restoration efforts in the India-Nepal region.

Chipko Movement: An Overview

The Chipko Movement began in Uttarakhand (then part of Uttar Pradesh), India, in the early 1970s as a non-violent resistance to deforestation. The term *"Chipko"* means "to embrace," and the activists mostly women from local hill communities literally hugged trees to prevent them from being cut down by contractors.

Key Features:

- Led by villagers, especially women like Gaura Devi, who depended on forest resources.
- Rooted in Gandhian principles of non-violence and civil disobedience.
- Demanded community rights over natural resources, sustainable forestry, and ecological balance.

Ecological Legacy in India

The Chipko Movement:

- Sparked nationwide awareness about deforestation and environmental degradation.
- Influenced India's forest policy, including the Forest Conservation Act (1980).

- Inspired similar movements like Appiko in Karnataka and Save the Narmada.
- Highlighted the link between rural livelihoods and forest conservation.

Influence on Nepal's Environmental Awareness

Though Chipko was not replicated in the same form in Nepal, it greatly influenced community forestry programs, environmental policies, and public ecological awareness.

Key Connections:

1. **Community Forestry in Nepal**

- Nepal launched its community forestry program in the late 1970s, soon after Chipko gained prominence in India.
- Forest User Groups (FUGs) in Nepal empowered locals especially women to manage and protect forests.
- This decentralized model mirrors the ethos of Chipko in placing forest stewardship in the hands of communities.

2. **Cross-border Ecological Ethos**

- Shared Himalayan ecosystems make ecological restoration a regional necessity.
- Movements in India like Chipko reinforced the importance of indigenous knowledge, women's roles, and sustainable use, concepts that became central to Nepal's forestry practices.

3. **Cultural and Linguistic Linkages**

- In border regions like Uttarakhand and western Nepal, communities share languages (e.g., Kumaoni, Garhwali, Doteli) and traditions.
- Folk songs and oral traditions in both nations reflect reverence for forests and rivers, promoting a shared ecological consciousness.

Lessons for India-Nepal Ecological Restoration

1. Women-Centric Conservation: Both countries have recognized that women's involvement is key in managing forests and natural resources.
2. Community-Led Forestry: Successes in both India (post-Chipko) and Nepal show that decentralization leads to better ecological outcomes.
3. Transboundary Cooperation: As rivers and forests transcend political boundaries, India-Nepal cooperation in forest conservation, flood management, and watershed restoration is essential.
4. Revival of Traditional Practices: The Chipko legacy encourages revival of local ecological knowledge a principle being used in both countries' climate resilience programs.

Language, Literature, and Environmental Knowledge

The border regions of India and Nepal particularly the Terai plains and adjoining hill areas present a rich confluence of languages, oral traditions, and ecological wisdom. These culturally interconnected zones, home to communities speaking Maithili, Bhojpuri, Tharu, Awadhi, and Doteli, offer an ideal setting to study how language and literature become vessels for environmental knowledge, particularly in the framework of ecocriticism and disaster management.

Ecocriticism, as a literary and cultural theory, investigates the relationship between literature and the physical environment. In the India-Nepal border context, it becomes deeply intertwined with folk

narratives, oral traditions, seasonal songs, and proverbs, many of which encapsulate centuries-old knowledge systems for coping with floods, droughts, soil erosion, and other ecological phenomena.

For example, Tharu oral literature in the western Terai often encodes seasonal flood patterns. Through songs and myths, villagers recount how the behaviour of animals and shifts in wind patterns forecast monsoon floods. These stories, passed down orally, serve not just as entertainment but also as community-level early warning systems. Such narratives also foster a deep spiritual connection with rivers and forests, deterring exploitative behaviour and promoting ecological stewardship.

Similarly, Maithili literature in northern Bihar and eastern Nepal is heavily agrarian and riverine in its imagination. Seasonal cycles such as *Chatth Puja* and *Sama-Chakewa* are celebrated through songs and poetry that revolve around the sanctity of rivers like Kosi, Bagmati, and Gandak. This literature does more than ritualize; it codifies seasonal ecological rhythms, planting cycles, and even techniques of flood resilience. Ancient Maithili texts also describe soil types, water management systems, and climate cycles, which are still used in traditional agricultural planning.

Language acts not only as a repository but also as a transmission channel of this ecological knowledge. In multilingual communities across the borderlands, code-switching between Nepali, Maithili, Hindi, and Tharu during storytelling or song performances often reinforces inter-community environmental solidarity. Linguistic structures also reflect ecological consciousness many Indo-Aryan languages in this region have unique terms for different rain types, river moods, and flood stages, indicating the linguistic encoding of disaster anticipation.

From a disaster management perspective, recognizing and integrating this linguistically embedded ecological knowledge can vastly improve community-based resilience strategies. Government and NGO efforts in the region often falter due to top-down approaches that overlook local idioms, metaphors, and epistemologies. Linguistically sensitive disaster communication, incorporating local ecological metaphors, can improve response rates and comprehension during emergencies.

Moreover, linguistic analysis of oral disaster narratives from the 2008 Kosi floods or the 2015 Nepal earthquake reveals collective memory and trauma, while also outlining traditional recovery practices, such as communal rebuilding, seed sharing, and water filtration methods using organic materials techniques still valid in modern resilience planning.

Thus, the linguistic and literary traditions of the Indo-Nepal border are not peripheral but central to ecocritical thought and disaster preparedness. They offer sustainable, inclusive, and culturally rooted models for environmental management that bridge the artificial divide between science and storytelling.

Disaster Management in the Himalayan Context

The India–Nepal borderlands regions like Mithila, Bhojpura, and the Tharu belt are not only linguistically diverse but also culturally rich in oral and performative traditions. In these regions, language, folk songs, storytelling, street plays, and rituals are not merely aesthetic expressions but serve as cultural technologies of ecological awareness and informal disaster management. Through these mediums, communities have historically recorded, remembered, and responded to environmental shifts and crises.

One of the most potent expressions of ecological literacy is found in seasonal folk songs (*geet*) and ritual performances tied to agricultural cycles. In Maithili, Bhojpuri, and Tharu-speaking regions, songs sung during planting, harvesting, or festivals like *Chatth*, *Jitiya*, and *Sama-Chakewa* encode ecological values. For instance, the *Chatth geet*, performed on riverbanks, often references water purity, sun

worship, and the role of rivers in sustaining life. These songs serve as mnemonics for ecological behaviour, guiding communities to keep water sources clean and observe seasonal patterns.

The Sama-Chakewa festival in the Mithila region, celebrated by young girls through song, storytelling, and clay figurine theatre, retells a myth involving injustice and redemption through a brother-sister bond. While the central narrative focuses on social values, the festival aligns with the migratory cycle of birds and the post-harvest season, subtly reinforcing respect for biodiversity and ecological timing. These oral and performative traditions also build emotional resilience in the face of recurrent disasters such as floods, using myth as metaphor for recovery and endurance.

Tharu folklore in western Nepal and eastern Uttar Pradesh contains rich narratives that encode knowledge of monsoon behaviour, flood dynamics, and soil conservation techniques. The community's traditional street performances, often involving masks, songs, and local dialects, convey practical lessons about living in harmony with nature and recognizing environmental warning signs.

Moreover, folk street plays (nukkad natak) have emerged as contemporary adaptations of these oral traditions, particularly in response to climate change and disasters. Organizations and local artists have used these formats to raise awareness about deforestation, plastic pollution, dam-induced floods, and migration. In border villages of Bihar and Province No. 2 in Nepal, bilingual performances in Hindi and Maithili use humour, irony, and cultural references to engage both literate and non-literate populations in discussions about ecological degradation.

These cultural forms also serve as cathartic and pedagogical tools during disaster recovery. After the 2008 Kosi floods, several Maithili songs were composed and circulated that narrated the sorrow, loss, and displacement experienced by communities.

Similarly, in the aftermath of the 2015 Nepal earthquake, community theatre and spoken word poetry in Nepali and Tharu languages were used to process trauma and spread messages about earthquake preparedness.

Crucially, these expressions rely on local linguistic idioms, metaphors, and symbols that resonate with their audiences. Concepts such as *dharti maata* (Mother Earth), *nadi devi* (river goddess), and *prakriti ka prakop* (nature's wrath) reflect an intrinsic cultural personification of the environment. These linguistic devices foster a sense of spiritual and ethical accountability, thereby shaping individual and collective behavior toward nature.

In sum, language and cultural performance in the India–Nepal border region is not marginal to environmental discourse they are core to the way people interpret, adapt to, and prepare for ecological change. Recognizing and integrating these expressive forms into disaster management strategies offers a bottom-up, culturally rooted approach to environmental resilience. It underscores the idea that ecological knowledge is not always written it is sung, enacted, and remembered in the voices of the people.

Indigenous Narratives and Oral Ecologies

The Indo-Nepal borderlands are not only geographical thresholds but also cultural frontiers where indigenous ecological knowledge thrives through oral traditions and localized narratives. Among the Tharu, Rajbanshi, Santhal, and Majhi communities, the oral archive comprising myths, chants, proverbs, and ritual speech functions as a living ecosystem of knowledge, encoding critical insights into weather cycles, biodiversity, land use, and disaster response. These indigenous epistemologies form what can be understood as oral ecologies, where knowledge of nature is transmitted across generations through spoken word and performative storytelling, independent of written texts.

Among the Tharu people of the Terai, particularly in the western regions of Nepal and eastern Uttar Pradesh, narratives recounting the river deities (*nadi devi*) and forest spirits (*ban ke rakshak*) are integral to local water and land ethics. These stories, told through nightly gatherings or during community festivals like *Maghi* and *Jitiya*, emphasize reciprocity with natural elements. In one common myth, the flooding of the Karnali River is explained as a divine reaction to human greed and the overcutting of *simal* trees along its banks. Such stories not only mythologize disaster events but also impart environmental codes of conduct, acting as social deterrents to ecological degradation.

Similarly, in Rajbanshi traditions, often found in northern West Bengal and southeastern Nepal, oral ballads describe seasonal migration patterns of birds and fish, interpreted as natural indicators of flood and drought cycles. These ballads, when performed in communal spaces, serve as mnemonic devices, aligning agricultural activities and disaster readiness with natural signs. The fish songs (*maach geet*) in particular are sung during monsoon festivals and reference changes in river salinity, water temperature, and breeding patterns insights equivalent to hydrological observation in modern science.

Moreover, the Majhi community, riverine boatmen residing along the Koshi and Bagmati rivers, hold oral canons that detail the behavior of rivers during lunar phases. Phrases like *"Chand badla, nadi chhalka"* ("The moon shifts, and the river swells") convey centuries of hydrological wisdom in rhythmic couplets. These orally transmitted cues have historically guided navigation safety, seasonal fishing bans, and early flood warnings predating meteorological tools.

The pedagogical power of these indigenous oral ecologies is rooted in their community-centric modes of transmission. Children are introduced to them through riddles, elder storytelling, and participatory rituals, ensuring that ecological ethics are ingrained early. Ritualized performances such as the Tharu *barka naach* (great dance) or Santhal *sohrae* harvest songs create immersive experiences where ecological roles and responsibilities are theatrically enacted. These formats are especially potent in border areas where literacy may be low but cultural memory remains strong.

From a disaster management standpoint, the practical insights embedded in these oral forms have immense potential for community-based resilience strategies. Yet they remain underutilized in formal frameworks, partly due to institutional biases toward written documentation and scientific jargon. Bridging this gap requires recognizing indigenous languages and oral forms as legitimate carriers of environmental knowledge, worthy of integration into policy and planning, especially in climate-vulnerable zones like the Indo-Nepal plains.

In summary, indigenous narratives and oral ecologies in the India-Nepal borderlands provide more than cultural heritage they offer living repositories of ecological intelligence. These narratives are dynamic, context-sensitive, and deeply embedded in the cultural-linguistic practices of their communities. Honouring and engaging with them not only strengthens disaster preparedness but also affirms the epistemic sovereignty of indigenous peoples, whose voices have long been ignored in environmental discourse.

The India-Nepal Borderlands: Shared Environmental Heritage

The India–Nepal borderlands constitute a complex ecological and cultural corridor shaped by centuries of shared landscapes, hydrological systems, and sociolinguistic ties. Stretching from the western Terai to the eastern plains, this region encompasses rich riverine ecosystems (such as the Kosi, Bagmati, Gandak, and Karnali), wetlands, forests, and agricultural belts, all of which are vital for regional biodiversity and livelihoods. Despite being divided by modern national boundaries, the people inhabiting this frontier

Maithils, Tharus, Bhojpurs, Rajbanshis, and Santhals share an enduring environmental heritage rooted in interdependent cultural practices, linguistic expression, and ecological knowledge systems.

At the heart of this shared heritage is the river system that acts not only as a physical lifeline but also as a spiritual and cultural anchor. The Kosi and Bagmati rivers, for instance, are central to rituals, agrarian calendars, and environmental myths on both sides of the border. Festivals like Chhath in Bihar and Province No. 2 of Nepal revolve around worship of the sun and rivers, involving purification rituals and ecological ethics around water conservation. These religious practices reinforce the perception of rivers as living deities (*nadi devi*), promoting a cultural sense of stewardship that transcends political boundaries.

Language and oral traditions further bind these communities through ecological storytelling, agricultural songs, and ritual chants that encode environmental awareness. Maithili, Tharu, and Bhojpuri languages contain a rich lexicon of ecological metaphors. As explored in previous sections, Maithili folk songs reference river cycles, soil fertility, and seasonal shifts, while Tharu oral tales reflect knowledge of forest patterns, monsoonal behavior, and flood preparedness. Such traditions are not relics of the past but are active, performative tools for environmental adaptation and disaster memory.

Moreover, this region has developed indigenous strategies for disaster management, many of which are expressed through oral ecologies. As discussed earlier, Tharu narratives describe flood behavior through animal migration patterns, while Majhi boatmen's proverbs encode lunar-tide interactions, forming early warning systems for floods. These knowledge systems have proven remarkably adaptive in regions frequently affected by climate-related disasters. The shared vulnerability to monsoon floods, landslides, and earthquakes has resulted in cultural convergence around resilience, expressed in rituals, songs of mourning and hope, and folk plays that document disaster experiences and offer guidance for recovery.

The environmental crises in the region especially the 2008 Kosi floods and the 2015 Nepal earthquake have reinforced the need for transboundary environmental cooperation. Communities on both sides of the border experienced shared trauma, and in the aftermath, folk media such as nukkad natak (street plays) and Maithili and Tharu poems emerged to narrate losses, demand accountability, and spread ecological literacy. This further illustrates how language and culture operate as both documentation and resistance, providing emotional and pedagogical resources for survival.

Cultural movements like the Chipko Andolan in the Indian Himalayas and the Community Forest User Groups (CFUGs) in Nepal show parallel trajectories of grassroots ecological activism. While differing in scope, both movements highlight localized responses to ecological degradation, often spearheaded by women and marginalized communities. The languages of protest spoken in Garhwali, Nepali, Hindi, and Tharu employed poetry, song, and storytelling to articulate environmental justice. These movements demonstrate how cultural expression becomes a medium for ecological advocacy, and how shared environmental threats can galvanize shared linguistic responses.

Linguistically, the region functions as a continuum, not a boundary. Many dialects, including Maithili, Bhojpuri, and Tharu, are spoken on both sides of the border, facilitating the cross-pollination of ecological knowledge. Literature in these languages, both oral and written, reflects similar concerns about deforestation, river pollution, and climate variability. For instance, Maithili poems on the Kosi River speak of its changing course as both a natural phenomenon and a consequence of human interference. Meanwhile, Tharu songs recount the diminishing forest cover as a loss of ancestral space, making ecological degradation a theme of cultural displacement.

Despite these rich traditions, environmental policy in the region often fails to recognize or incorporate these indigenous, linguistic, and cultural dimensions. Cross-border environmental planning remains overly technocratic, sidelining the lived experiences and traditional knowledge of local communities. However, there is growing scholarly and activist momentum toward eco-cultural approaches that foreground language, folklore, and participatory storytelling in disaster education and environmental management.

In sum, the India–Nepal borderlands exemplify a shared environmental heritage shaped by rivers, rituals, language, and lived experiences. The region's ecocritical landscape is not only ecological but also cultural, mediated through linguistic forms and collective memory. Recognizing this interconnectedness offers not only a fuller understanding of environmental history but also a resilient model for biocultural disaster management rooted in indigenous ethics and transboundary solidarity.

Conclusion

This study has demonstrated that the India–Nepal borderlands are more than sites of geopolitical negotiation they are cultural ecotones where language, folklore, oral memory, and environmental knowledge are deeply intertwined. Drawing from Maithili, Bhojpuri, Tharu, and other regional languages, the research has shown how ecological understanding is encoded in songs, proverbs, myths, rituals, and street performances. These vernacular traditions are not only repositories of local knowledge but also active tools of environmental resilience and disaster response, particularly in a region vulnerable to recurrent floods, earthquakes, and climatic shifts.

At the heart of this inquiry is the recognition of language and cultural expression as ecological instruments. From Tharu flood chants that monitor animal behaviour to Maithili poems cantered around agrarian cycles and sacred rivers, oral ecologies convey a nuanced awareness of environmental change. This awareness is localized, intergenerational, and performative often overlooked by technocratic models of disaster management that prioritize top-down planning over grassroots experience. Yet, as shown, these oral forms contain pre-modern yet precise knowledge of seasonal variations, soil behaviour, water cycles, and forest management.

The paper also examined the significance of shared river systems, particularly the Kosi and Bagmati, in binding communities across the Indo-Nepal border. These rivers are sacred, feared, and revered; they inspire rituals like Chhath and inform community calendars and crop cycles. When disasters like the 2008 Kosi floods or the 2015 Nepal earthquake strike, they disrupt not only physical landscapes but also cultural continuity. In these moments, folk traditions such as nukkad nataks (street plays), mourning songs, and local oral histories become tools of survival, allowing communities to remember, mourn, and mobilize.

Another major contribution of this article is its exploration of indigenous narratives and performative ecologies. Groups like the Tharu and Majhi maintain ritual performances that double as environmental pedagogy. Their stories, songs, and dances encode knowledge systems rooted in observation, empathy with the environment, and sustainable practices. These traditions reflect a worldview in which humans are not separate from nature but embedded within it an idea central to modern ecocriticism.

Moreover, the article highlighted the epistemic value of linguistic diversity in environmental discourse. Regional languages are not just mediums of communication but containers of ecological intelligence. Unfortunately, state-level environmental planning rarely acknowledges these linguistic forms as valid

data sources. This oversight marginalizes local voices, depriving disaster management systems of context-sensitive, culturally relevant knowledge.

Ultimately, this article argues for a decolonized, pluralistic approach to ecology and disaster management one that integrates cultural memory, linguistic plurality, and indigenous ethics. The India–Nepal borderlands serve as a compelling model of such integration, where literature, language, and lived experience converge to offer sustainable alternatives to environmental degradation and climate vulnerability.

In reclaiming ecology through language and culture, we not only strengthen environmental policy but also affirm the dignity and wisdom of local communities. A future-oriented ecological vision must listen to these vernacular voices, for they offer not merely data but meaning, identity, and memory the true foundations of environmental justice.

In conclusion, the triadic focus on ecocriticism, disaster management, and environmental consequences, when viewed through the cultural and linguistic frameworks of India and Nepal, reveals a deeply intertwined relationship. It challenges conventional approaches that isolate the environment from culture, or disaster from literature, and instead promotes a holistic, culturally grounded paradigm of ecological engagement. The role of language is not merely functional but foundational is through language that people articulate their relationship with nature, respond to ecological crises, and envision sustainable futures. As environmental crises become more frequent and intense in the Himalayan region, integrating the rich cultural and linguistic heritage of India and Nepal into policy and practice is not just an academic imperative but a moral and ecological necessity.

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