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Pheri Culture based Ecological Adaptation Practices of Phree Community in Nepal in the Face of Climate Change

Krishna Bahadur Jogi
Central Department of Anthropology
Tribhuvan University, Kathmandu, Nepal
krishna.yogee@gmail.com
https://orcid.org/0009-0002-0599-9266

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Abstract

Background: In environmentally fragile hill regions, Indigenous peoples face accelerating climate variability, yet their locally based responses to climate remain largely understudied. The Phree, a historically marginalized Indigenous group in eastern Nepal, maintains a distinct Pheri tradition that structures their social organization, cosmology, and relationships with the natural world. This study examines culturally informed knowledge, and practices that frame local responses to environmental change.

Methods: The study adopted a qualitative ethnographic design grounded in cultural ecology and Indigenous Knowledge Systems. Fieldwork was conducted from May to October 2025 in two Phree-dominated villages in Tehrathum district. Participant observation, semi-structured interviews, focus group discussions, and life histories with elders, ritual specialists, farmers, women, and youth contributed to data generation and enabled intergenerational and gender-sensitive analysis.

Results: Ritual institutions, belief systems, and social practices emerged as adaptive mechanisms. Rituals centered on ancestral deities, land, forests, stones, and weather reinforce conservation ethics, regulate agricultural timing in harmony with the seasons, and sustain collective responsibility throughout society. Complementary material strategies include reciprocal labour systems, drought-sensitive cropping adjustments, localized irrigation innovations, and livelihood diversification. The symbolic and material dimensions of adaptation interrelate synergistically to strengthen resilience amid climatic stress.

Conclusion: The Phree people are active agents of environmental adaptation, integrating spiritual cosmologies with practical livelihood strategies. Adaptation is embedded in social

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relations, ritual obligations, and place-based knowledge, rather than being solely technical or reactive.

Novelty: This study provides the first in-depth ethnographic account of Phree adaptive strategies and advances a dual cognized-operational framework that reframes ritual life as a form of environmental governance.

Keywords: Cosmology; Ethnography; Indigenous knowledge; Resilience

1. Introduction

Climate change has posed significant challenges to the people, particularly those residing in ecologically fragile environments such as the hill regions of Nepal (MoFE, 2021). Ecological anthropology investigates the ways culture enables human adaptation to their surroundings and the subsequent use of cultural elements to maintain their environment (Moran, 2008; Kottak, 2011). Accordingly, anthropological research has highlighted how these strategies are shaped by socio-cultural, economic, and ecological factors, reflecting the interplay between culture, historical experiences, and environmental conditions. In this context, this study examines how the historically marginalized and understudied Phree community responds to climate-induced environmental changes by analyzing their local knowledge, perceptions, and lived experiences. More specifically, this study investigates how members of Phree community observe, interpret, and narrate the impacts of climatic variability on their immediate landscape and livelihoods through its Phre cultural values. Hence, this study intends to understand how the distinctive Pheri cultural practices interact with emerging climate change resulting in cultural-ecological adaptation strategies.

The Jogi community with Pheri culture is called Phree, which is one of the enlisted Indigenous Nationalities of Nepal and included in 142 caste/ethnic groups in 2021 census as a minority ethnic group in Nepal with a total population of only 921 , who reside in the hilly areas of eastern Nepal, primarily concentrated in Fedap Rural Municipality of Tehrathum district in Koshi Province of Nepal. The nomenclature "Phree" derives from the traditional practice of conducting the biannual ‘Pheri’ ritual, which involves ritualistic itinerancy across villages (Thapa, 2000; Pandeya, 2008). The Pheri culture, "Bhairung" (ancestral origin) based egalitarian social organization, animist/shamanist religious belief and ethno-spiritual faith healing traditions of this community constitute its distinct ethnicity and cultural identity (Jogi, 2012). The community’s identity is deeply rooted in the "Pheri" tradition, which serves both as a social mechanism for protection against malevolent spiritual forces and as a system of animistic rituals directed toward ecological stewardship and the management of natural resources. However, Phree community, despite its distinct cultural identity, has been underrepresented in scholarly research, as only three pieces of literature – Barman & Biswakarma (2024), Chakraborty, 2023) and Jogi (2012) – provide a brief introduction to the cultural identity of the Phree community in Nepal. However, no scholarly literature has been found with regard to the Phree community’s cultural-ecological adaptation practices in the face of increasing climate change. This context leaves a significant gap in cultural-ecological research that explores the dynamic interplay between cultural practices and climate adaptation

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strategies of Phree community. Hence, this study aims to documenting an understudied ethnic group and filling an ethnographic knowledge gap in Nepalese anthropology on cultural-ecological adaptation practices of Phree community.

1.1 Problem Statement

Indigenous/local communities serve as primary observers of climate change within their respective ecological and cultural landscapes (Wohlforth, 2004; Salick & Byg, 2007; Crate, 2008). Climate change is experienced in ways that are both place-specific and shaped by the socio-cultural distinctiveness of particular groups (Adger, Lorenzoni, & O'Brien, 2009; Crate, 2011). Drawing on Bourdieu's (1977) concepts of habitus and field, the knowledge systems and perceptions of environmental change among local populations are not homogeneous, as they emerge from individuals' embodied dispositions and their positions within specific social and ecological contexts. The environmental knowledge can be understood as embodied, practical competence, formed through everyday engagement with land, seasons, ritual calendars, and livelihood practices, rather than as abstract or formally articulated ecological information. For example, herders, hunters, and itinerant individuals who regularly traverse pastures and forests often possess more nuanced ecological knowledge than individuals with limited mobility, such as the elderly, teachers, or those engaged in sedentary labour. Women, whose daily routines are closely tied to farmland and kitchen gardens, tend to observe and report more detailed changes in agricultural patterns and crop behaviour than men. Experiences of and responses to climate variability differ across regions, societies, households, and individuals, necessitating place-specific adaptation analyses (Holling, 1997, cited in Berkes & Jolly, 2001).

Ethnographic studies are critical for understanding dynamic nature-society interactions, as climatic shifts may present opportunities for some while threatening others (Berkes & Jolly, 2001; Hassan, 2009). Anthropologists have argued about the intrinsic relationship between culture, community, and place (Basso, 1996a; Feld & Basso, 1996; Ingold, 2000; Escobar, 2001; Cruikshank, 2001; Carey, 2010, 2012; Rai, 2013), even as these relationships have been increasingly reconfigured through processes of globalization and transnational mobility (Escobar, 2001). In this context, the assertion that cultures and communities "sit in places" (Basso, 1996a; Escobar, 2001) highlights the importance of locality in shaping collective identities and socio-cultural systems. While archaeologists and physical anthropologists have examined historical and biological responses to climate fluctuations (Gladwin, 1947; Hubbard, 1976; Bogin, 1982; Orlove, 2005; Hassan, 2009), these studies consistently reveal that human communities are not passive recipients of environmental change. Rather, they are active agents who continuously adapt to various forms of environmental uncertainty and risk, including those posed by climate change (Adger et al., 2009). Despite this broader scholarly insight, the ways in which adaptation unfolds at the community level in Nepal remain insufficiently examined. Place-based empirical research is therefore critical for exposing and understanding the locally embedded coping and adaptation strategies practiced by communities in specific ecological and cultural contexts.

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Most climate-related studies in Nepal have adopted either a natural science approach (Vetaas, 2007; Baidya, Regmi & Shrestha, 2007; Baidya, Shrestha & Sheikh, 2008; Aubriot et al., 2012; Gurung & Bharati, 2012; ICIMOD, 2011 cited in Poudel, 2016) or a social science approach (Chapagain, Subedi & Paudel, 2009; Gurung & Bhandari, 2009; Rai, 2010; Khatri, 2012; Khosla & Masaud, 2010; Khatri, Bista & Gurung, 2013 cited in Poudel, 2016). Studies rooted in natural science have contributed important assessments of biophysical change, yet they often overlook the human dimensions that shape how climate impacts are perceived, experienced, interpreted, and negotiated at the community level (Crate & Nuttall, 2009b). Without accounting for these human dimensions, it becomes impossible to understand how communities make sense of and respond to the physical manifestations of climate change. On the other hand, the social science literature examining human dimensions tends to rely heavily on survey-based methods. While useful for generating broad trends, such methods rarely capture the deeper layers of cultural meaning, social practices, and everyday engagement with the environment (Roncoli, Crane & Orlove, 2009). Survey approaches, by design, cannot fully discover how climate perceptions are embedded in cultural narratives, ritual life, livelihood systems, and local ecological knowledge.

Anthropological inquiry into Nepali societies began in the 1950s, with scholars paying particular attention to the continuity and transformation of adaptive strategies across diverse cultural groups. During the 1970s, the Theory of Himalayan Environmental Degradation became the dominant paradigm for interpreting the relationship between humans and their environment in the Himalayan region (Metz, 2010). Alongside this, many anthropologists examined human–nature interactions through frameworks of adaptation and utilitarianism, focusing on themes such as economic strategies (Messerschmidt, 1976; Molnar, 1981 cited in Poudel, 2016), demographic and domestic processes (Fricke, 1993; Chhetri, 2008a), pastoralism and livestock management (March, 1977; Brower, 1991; Bishop, 1998), and the broader dynamics of mountain populations adapting to environmental change (Stevens, 1996; Bauer, 2004).

1.2 Research Questions

Many indigenous communities understand glaciers, mountains, seas, animals, and other natural elements as sentient beings endowed with human-like qualities, emotions, and intentionality (Ingold, 2000; Cruikshank, 2005; Nadasdy, 2007), as the environment is not merely a physical landscape that can be mapped or visually observed; it is also a cognitive and cultural construct, shaped by meanings held in the minds of those who inhabit it (Bateson, 1973; Cohen, 1985). Building on these perspectives, this study seeks to answers these research questions:

1. What is the understanding and perception of climate change among the Phree community through traditional/indigenous ecological knowledge?
2. How have the culturally embedded practices emerged as ecological adaptive responses among Phree community?

2. Research Objective

The research objective is to explore and understand the interplay between cultural practices and climate change adaptation practices among Phree people, by examining persistence and

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change in human-nature relationship concerning the role of the state, international political changes, economic forces and wider global climate change.

The specific objectives are:

1. To explore how the Phree community understands and interprets climate change by documenting their traditional ecological knowledge, local environmental observations, and lived experiences.
2. To examine the culturally embedded practices of the Phree community and analyze how these practices function as adaptive ecological strategies in response to changing climatic conditions.

3. Review of Literature

This study engages with three closely related fields of anthropological thought: (1) anthropological views of climate change; (2) climate change, indigenous knowledge and cultural-ecological adaptation; and (3) ecosystem-based adaptation and resilience in practice.

3.1 Anthropological Perspectives on Climate Change

Anthropology has historically investigated human-environment relations through divergent theoretical lenses without a single, deterministic explanation of environmental change. This investigation is grounded largely in cultural ecology, interpretive anthropology, and critical (political ecological) perspectives, which combined establish a plural and relational approach. Cultural ecology; started with Julian Steward (1955) - this perspective views culture as an adaptive system within a system of ecological constraints and ecologies. Follow-up academic writers will stress on the fact that 'cultures adapt to changing, rather than static, ecological systems,' also actively control the direction of ecological paths (Moran, 1979; Berkes, 2012; Bear & Singer, 2018). Empirical studies show how subsistence, social organization as well as belief systems adapt to variable climate, ranging from Arctic Indigenous lives (Nuttall et al., 2004) to historical examples (Orlove, 2005). Bennett (1976) introduces the concept of ecological transition which conceptualizes adaptation as a persistent activity that is historically shaped rather than an irreversible state of affairs. Meaning, perception, and symbolism are at the forefront of the interpretive or cultural aspect of climate change. Culture (the culture of rituals, narratives, values and knowledge) is an intermediary medium through which climatic risks are made sense and responded to (Adger et al., 2013; Roncoli, 2006). Environmental changes are destabilizing to identity, place and cultural continuity while producing new cultural practices and knowledge (Oliver-Smith, 2009; Goldman & Turner, 2011). Adaptation, from this vantage point, is as much about moral economies and worldviews as it is about material changes.

Expanding on this, interpretive anthropology views the environment as a “cognized,” or culturally constructed space (Ingold, 2000; Milton, 2008). Interactions through local epistemologies, myths and lived accounts shape perceptions of climate change (Roncoli et al., 2009). Crate (2008)’s work among the Sakha is perhaps the clearest example of how climate change disrupts intimate inter-human-environmental relations, shattering meteorological knowledge, mythic symbols, and cultural identity.

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The critical perspective points out the shortfalls of previous paradigms that can be confronted only by considering power, inequality, and political economy as key. The authors contend that climate change will be difficult to disentangle from the capitalist world order and world inequalities (Bear & Singer, 2018). Therefore, adaptation is influenced by not only local cultural practices, but also state policy, market forces and historic marginalization (Sheridan, 2016). This point of view emphasises that rainfall, resources and risk are political as well as ecological entities.

3.2 Indigenous Knowledge Systems and Cultural-Ecological Adaptation

An increasing number of anthropological studies have illustrated that Traditional Ecological Knowledge (TEK) emerges from chronic connection to specific environments and takes the form of oral histories, rituals and everyday activity (Berkes, 2012; Cruikshank, 2001). Indigenous weather forecast methods (e.g. observing stars or animal movements as well as plant characteristics) are advanced, localised forms of climate knowledge (Roncoli et al., 2006; Orlove, 2003; Poudel, 2012b).

In ethnoclimatology we see that Indigenous knowledge and scientifically accurate models of climate converge and divide. Although locally observable weather patterns are also consistent with long term climate patterns, the potential for rapid climate change can threaten the reliability of historically based indicators, as was the case for the Sakha people (Crate, 2008). This does not invalidate TEK, but emphasizes the necessity for dialogue, not replacement, between the systems of knowledge.

Crucially, Indigenous knowledge is not fixed nor isolated. Ellen, Parkes, and Bicker (2005) and Lozny (2013) elaborate on the process of ongoing transformation of this kind of knowledge interacting with colonialism, modernization, globalization, and climate change. But whereas these works explore continuity and transformation, they neglect internal power relations - the gendered dynamics of power, the intergenerational transmission of knowledge, the social hierarchies shaping who retains, transmits or loses knowledge.

3.3 Ecosystem-Based Adaptation and Resilience in Practice

Recent anthropological and interdisciplinary work has promoted ecosystem-based adaptation (EbA) and ecosystem-based disaster risk reduction (Eco-DRR) as natural integrative responses to climate-related threat (Renaud et al., 2016). These approaches place emphasis on ecosystem restoration to minimize vulnerability, whilst supporting livelihoods. Schubert's (2016) coevolutionary perspective builds on this by viewing society and nature as inherently constitutive and co-evolved through eco-cultural habitats.

Though EbA receives a boost in policy and practice, critics point to deep limitations. The literature tends to be poorly standardized with regard to methodology, not addressing the social inequalities, limitations in governance and power asymmetries impacting implementation (Renaud et al., 2016). Furthermore, coevolutionary models run the risk of overlooking the role of human agency and of intersectionality; more specifically, the differing experiences of marginalised groups with environmental change (Schubert, 2016).

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3.4 Research Gaps

Despite rich literature contributions both theoretically and empirically several critical gaps remain. For one, community-based and cultural-ecological climate research in Nepal is limited, in particular studies with long-term ethnographic designs that track the transference of knowledge among generations. Second, adaptation is frequently mentioned but is predominantly viewed as a strictly linear or technical process and neglects the power dynamics, governance regimes and political economy that influence local choices (Crate & Nuttall, 2016). Third, gender, social inequality, youth, and intersectionality are rarely considered (despite being key drivers of vulnerability and adaptive capacity).

Furthermore, the existing literature often records Indigenous knowledge rather than critically interrogating intra-community dynamics, including whose knowledge matters, how it is challenged, and how it accommodates scientific intervention. Lastly, there is scant empirical work connecting ecosystem-based adaptation to the lived cultural practices, decision-making processes, and power hierarchies of specific Indigenous communities in areas that are similar.

3.5 Theoretical Framework:

This study analyzes human -environment relations in a manner that rejects singular analysis in order to highlight them. Drawing upon Rappaport (1984), Harris (1979), and Biersack (1999), it takes an integrated approach, bridging cognized (emic) and operational (etic) perspectives. The cognized model reflects the symbolic, spiritual, and moral meanings through which the Phree people perceive their environment, while the operational model examines material engagements with nature, especially livelihood practices in accordance with Firey's (1945) rationalist perspective of space. The rationalist perspective of space conceptualizes the environment as a functional and utilitarian domain, where land and resources are managed according to practical needs, efficiency, and economic rationality, rather than being interpreted primarily through symbolic, sacred, or moral meanings. In the cognized or symbolic perspective, where space is understood through ritual, cosmology, and cultural meaning. The central theory of the research is the cultural ecology of Julian Steward (Steward, 1955), through which subsistence systems of farming, animal husbandry and related technologies are examined as adapting to and shaping the physical landscape. To support its anthropological grounding, this study also uses insight from Indigenous Knowledge Systems theory. This approach stresses the importance of place-based, nature-integrated knowledge systems not merely based on dominant Western scientific ideas (Berkes, 2012). As Clifford Geertz (1973) argues, people are bound to their environments through symbolic systems that mediate their understanding of the world. Hence, the study also draws on Clifford Geertz's symbolic and interpretive theory (Geertz, 1973) to interpret cultural significances that fuel practices of adaptation, and Marcel Mauss's theory of reciprocity (Mauss, 1950) that reflects social responsibilities and exchange relations that structure human-environment interactions.

4. Methods

This research primarily adopts a qualitative ethnographic research design to explore how Phree community adapts to the challenges posed by climate change. Accordingly, the ethnographic

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research approach of this study has enabled immersive engagement with community members to understand their lived experiences, documentation of cultural practices and narratives and contextual analysis of social, cultural, and environmental dynamics that are not easily captured through quantitative methods. The ethnographic study was conducted in two villages – Majuwa and Ahale of ward no-2, Oyakjung of Fedap Rural Municipality of Tehrathum district in Koshi Province, which have a concentration of Phree. The research participants included 4 elders and knowledge keepers (custodians of traditional knowledge), 31 farmers and pastoralists (directly affected by climatic changes), 9 ritual leaders (keepers of cultural practices) and 18 women and 10 youths (to capture intergenerational and gendered perspectives). The Phree community served as the primary analytical unit for this study. This study employed multiple qualitative methods such as participant observation, focus group discussions, semi-structured key informant interviews, and life history study. The fieldwork was conducted from May to October 2025.

Verbal informed consent was obtained from all participants prior to interviews and participant observation, and the study was conducted for my academic purpose at Tribhuvan University. The knowledge generated in this research emerged through sustained immersion, interaction, and interpretation rather than detached observation or numerical measurement. Accordingly, the study does not claim epistemic neutrality; instead, it adopts an ethnographic stance that recognizes the researcher as an active participant in meaning-making, interpreting how community members experience, understand, and respond to climate change within their own cultural frameworks. The findings are therefore grounded in contextual, narrative, and experiential knowledge produced through participant observation, semi-structured interviews, and engagement with ritual and everyday practices. Thus, my ontological position is relativist/constructivist, and my epistemological position is interpretivist/subjectivist, both of which align with the ethnographic methodology chosen for this study. As a researcher with genealogical ties to the Phree community, I occupied a position of partial insiderhood. This facilitated trust, access, and nuanced understanding of ritual and ecological practices, while simultaneously requiring continuous reflexivity to recognize and mitigate assumptions, positional bias, and insider privilege. All data have been anonymized, pseudonyms are used where appropriate, and anonymized qualitative data are available upon reasonable request.

The findings may not be entirely generalizable to all ethnic communities in other regions of the country as this study was conducted only in two villages. I used cultural ecology as the main theoretical perspective and Indigenous Knowledge Systems theory, symbolic and gift theory as supporting theories for data interpretation, analyses and presentation. Hence, data interpretation using other anthropological theories can be done differently. I used ethnographic methods of data collection, and it was only qualitative research; hence, no quantitative data and analyses have been included.

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5. Results

5.1 Pheri cultural identity of Phree community

Phree community is one of the socially excluded and ethnically marginalized minority groups in Nepal. This community occupies a position of profound socio-political exclusion, economic marginalization, and demographic underrepresentation, compounded by an absence of a clearly defined ethnic identity (Jogi, 2012). The respondents stated that despite these realities, mainstream society often conflates the terms Jogi, Sanyasi, and Sadhu Santa due to their perceived semantic equivalence (meaning of the words - Jogi, Sanyasi, Sadhu, and Santa - is having nothing - no property, no family, no home, no permanent habitation etc) in daily use. As a result, the Phree/Jogi is frequently assimilated into the broader Sanyasi tradition or sampradaya, thereby obscuring their distinct socio-cultural identity. One of the members of Phree Sewa Samaj, an ethnic organization of Phree community, Bhanubhakta Jogi (39) mentioned that the traditional practices of Phree people - alcohol consumption (Matwali), non-adherence to the sacred thread (non-Tagadhari), and animist rituals, distinguish the Phree Jogi from ascetic (Sanyasi) and Jogi castes historically classified under Tagadhari in Nepal's 1854 civil code; however, there is a widespread misrecognition conflating the Phree/Jogi with Nath-Yogi, Sanyasi, and Jogi clans of Dhimal, Tharu, Newar and Gandharba due to identical terminological meaning, despite their unique cultural and historical identity, and this has led to the erroneous categorization of the Phree/Jogi within the broader Sanyasi tradition through national census and other official records of the government which resulted in its enduring ethnic identity crisis and precipitated entrenched structural exclusion.

Phree/Jogi has a unique Pheri culture, an animistic and shamanistic practice focused on spiritual safeguarding and ecological stewardship, due to which Jogi community is called Phree as well as the title of ethnicity – "Phree" is believed to originate from Pheri culture. Accordingly, Phree was officially enlisted as an Indigenous Nationality of Nepal as per National Foundation for Development of Indigenous Nationalities (NFDIN) Act 2002. It was found that many Phree people were unaware about this fact. In this context, the Phree people noted that:

> "Members of the Phree community commonly use one of five surnames - Jogi, Yogi, Kambar, Kawar, or Kamar and do not identify "Phree" as their family name. As a result, both community members and outsiders were largely unaware that the state refers to them collectively as "Phree" as a communal ethnic category, and that they are legally recognized as the Phree Indigenous Nationality. Limited access to education, information, and research opportunities, combined with the absence of scholarly work on the culture, indigeneity, and ethnogenesis of the Phree people, has hindered the community's ability to fully articulate and internalize their officially designated ethnic identity".

The National Committee for Development of Nationalities (NCDN) undertook detailed ethnographic studies of the 61 groups identified as Janajati in the official schedule between

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1998 and 2000, which also included an in-depth research of the Phree Indigenous Nationality. Researcher Rudra Thapa conducted the comprehensive study of the Phree community and in the fieldwork across villages in Kavrepalanchok, Makawanpur, and Lalitpur - areas identified as the historical ancestral territory of the Phree in documents prepared by NCDN, Thapa (2000) encountered only the individuals from Jogi community who were actively engaged in Pheri cultural rituals. These individuals were commonly known by various local names, including Kambar Jogi, Kawar Jogi, Kamar Jogi, and Pheriwala. According to the Pheriwala Jogi practitioners and other local residents, it was likely that the Pheriwala or Kambar/Kawar Jogi groups were in fact the people historically referred to as Phree. They suggested that the ethnonym "Phree" may have evolved linguistically from terms associated with Pheri ritual practice - such as Pheriwala, Pheri, Phiri, and eventually Phree. Thapa also highlighted the social stratification experienced by the Jogi/Phree community, noting that they are often regarded as low status by dominant caste groups, whereas Janajati communities tend to treat them as equals. This pattern of social stratification, combined with the community's distinct ritual practices and cultural continuity, reinforces the argument that those identifying as Jogi in official documents - and who continue to perform the Pheri ritual tradition - should be recognized as belonging to the Phree Indigenous Nationality. The term Phree is thought to have been given its name by the traditional cultural practice of performing the Pheri ritual (Pandeya, 2008; Shrestha 2014; Adhikari, 2016).

Scholars such as Sharma (1982) and Briggs (1973) have offered anthropological and historical interpretations of the origins of the Phree community in Nepal. Sharma (1982) notes the significant influence of the *Kanphata* Yogis of the Nath Sampradaya, particularly in the Karnali region during ancient times. These Nath-Yogis, disciples of *Gorakhnath*, practiced *Hath Yoga* and adhered to the *Panchamakar* - a set of five ritual elements comprising alcohol, meat, fish, symbolic gestures (*mudra*), and sexual union (*maithuna*). Women were often offered to male ascetics as part of their spiritual discipline, under the guise of *mudra* or *sadhya*. The Nath tradition experienced its most significant expansion in Nepal between the 8th and 12th centuries CE, particularly in the Karnali and mid-western regions. During this period, large gatherings of Nath-Yogis engaged in *sadhana* through *Hath Yoga*. Prior to the abolition of slavery in Nepal in 1934, many affluent households kept male and female slaves, from different caste and ethnic groups, according to the caste hierarchy defined by Nepal's civil code 1854. Many men and women joined the Nath Sampradaya in an effort to elevate their social status. Some women were also offered as *sadhya* or *mudra* to Nath ascetics in pursuit of spiritual power (*siddhi*). This resulted in the presence of numerous women in Nath camps, often regarded as *rakhautis* (unofficial wives). Children born from these unions were considered ineligible to become Nath, necessitating a distinct social arrangement for their integration.

According to Sharma (1982), *Gorakhnath* addressed this issue by designating these descendants as Kambar or Kanwar Jogis, who were excluded from the core Nath practices, such as the ritual ear-splitting rite (*kanphata - Karma chalaune*), a prerequisite for full initiation into Nath-Yogi practices. These individuals were barred from collecting alms during the day and practicing Shaivism, a privilege reserved for the initiated *Kanphata* Nath (Bouillier, 1993). However, they

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were entrusted with a sacred duty: to protect humanity from evil spirits and ghosts while maintaining reverence for nature and the earth, as tantrik disciples of Gorakhnath, not Shaiva disciples. These karma nachalne (non-initiated) Jogis were sent to eastern Nepal to fulfil this duty. In the Tarai region, Tharu women and their children were often reintegrated into Tharu society, retaining the Jogi surname but not practicing the *Pheri* ritual. As a result, clan names such as *Kanphata*, Jogi, Mahanta, and Bhagat persist among Tharu communities, who continue to venerate *Gorakhnath* and Ratannath (Sharma, 1982). The remaining *karma nachaleka* descendants accepted *Gorakhnath*'s teachings, which were imbued with tantric and spiritual power. *Gorakhnath* is said to have bestowed upon them the *Pheri* - a horn made from the blackbuck (*barah* or *krishnasar*) - along with sacred mantras and the Bhairung. These elements endowed them with divine authority to ward off evil spirits. Consequently, the ancestral lineage (kul) of the Phree Jogi is identified as Bhairung. The Phree elders mentioned the myth that the Kambar/Kawar Jogi – disciples of Gorakhnath - who adopts the Pheri ritual/culture were predominantly from Magar ethnic group. According to this history, the *Pheriwala* Jogis migrated eastward from the 8th to 12th centuries AD, settling in hill districts east of the Kathmandu Valley, as well as in Darjeeling, West Bengal, and Sikkim.

5.2 Local observations and narratives of climatic variability

Community members consistently described climate change as an experiential and observable process rather than an abstract or scientific concept. When asked the FGDs participants regarding their perception and observation on changes in temperature for last 20-30 years, a total of 84% and 87% of FGDs respondents indicated that the average and summer temperature has risen in recent years compared to the previous 30-year period respectively. Community perceptions suggest that summer temperatures have increased more markedly than winter temperatures. Interestingly, a substantial proportion of respondents - one-third- did not observe any decline or increase in winter temperatures. This aligns with the temperature data recorded by the Department of Hydrology and Meteorology. Tanka Maya Kamar (Phree) – 63 years - remarked: "In earlier times, cold weather persisted until Chaitra (mid-April), whereas this year, warmer conditions began as early as Magh (mid-January)."

Similarly, 80% of FGD participants reported a decline in rainfall in recent years compared to the preceding 25-year period. A considerable proportion of respondents noted that winter precipitation has decreased more noticeably than summer rainfall. Local accounts indicate prolonged dry spells, with no rainfall recorded for the past six months, resulting in severe dryness. In addition, two-thirds of respondents reported a decline in hailstorms and dewfall, while nearly half observed an increase in fog occurrence in their locality. Informal conversations with elderly residents revealed that hailstorms were once a regular phenomenon in the village but have virtually disappeared over the last 25 years. The local people shared that the increasing climate induced disasters, increased temperature, decreased precipitation, drought etc compounded livelihood vulnerabilities by disrupting water sources, with many springs drying up permanently. Kalimaya Jogi (aged 68) noted: Mehele water spring dried up three years ago. It was our drinking water source. Now, I pay NPR 500 per month for Siddhakali water supply system, which was free before, and the supply is still insufficient."

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Farmers also described changes in agricultural calendars, including earlier planting of millet, reduced paddy cultivation, and increased reliance on drought-tolerant crops. These observed climatic shifts were widely understood as contributing to declining crop yields, food insecurity, and livelihood uncertainty. Such local indicators provide the experiential context within which ritualized, and material adaptation practices have emerged and intensified.

5.3 Local Interpretations of Environment and Cultural-Ecological Adaptation Practices among Phree community:

5.3.1 Environment as a System of Symbols and Cultural Interpretation:

As one elder, Bhakta Bahadur Jogi Phree (aged 76), expressed:

> "Our gods and goddesses are the big trees, rocks, cliffs, springs, and mountains - not imaginatively constructed statues."

This statement underscores the inseparability of Phree people from their geographical territory. The stories, myths, and oral traditions of Phree are intimately tied to natural features such as trees, rocks, cliffs, springs, and mountains. Understanding their worldview requires recognizing how these elements are perceived through symbols, myths, beliefs, knowledge, and practices. This is aligned with the scholars' argument - the physical environment is not merely a material reality or a scientific construct; it is a cosmologically charged, meaning-saturated domain (Rappaport, 1979; Basso, 1996a; Biersack, 1999; Cruikshank, 2005; Rhoades, Rios & Ochoa, 2008). Landscapes are not simply instrumental objects visible to the naked eye - they carry layered interpretations and cultural significance, making them complex and dynamic (Cruikshank, 2005).

The biophysical features such as rocky cliffs, springs, forests, ponds, trees, and mountains are woven into belief systems, myths, symbols, oral histories, rites of passage, and value structures of Phree people. As Rappaport (1979, p. 98) notes, the existence of such symbolic systems cannot be empirically demonstrated, yet their presumed reality profoundly shapes behaviour. In study area, these symbolic associations animate the landscape, making it a living entity within the community's cosmology and cultural life.

5.3.2 Interpreting Trees as Embodied Life and as Sources of Ritual Animation within Bhairung Worship:

Phree people of Majuwa-Ahale perceive trees not merely as physical entities but as sacred habitats of deities. For instance, residents of Majuwa and Ahale believe that Bhairung, regarded as the Phree's ancestral deity, resides within forest located at the top of the settlement. Traditionally, villagers have offered the heart and blood of a cock/chicken to Bhairung to ensure the well-being of their health, livestock, crops, and the surrounding environment. Bhairung is regarded as the ancestral deity (*Kul*) of Phree community. Worship of Bhairung occurs at least once annually during *Chandipurnima*, forming the central ritual of the community's religious life. Members who share the same ancestral lineage gather at the home of the eldest family member to collectively perform the Bhairung or *Kul* puja. This ritual is considered a household shrine practice, involving the participation of all family members. Its primary purpose is to ensure household protection and prosperity. The ceremony includes the sacrifice of a cock and a hen, alongside offerings of *jand* (locally brewed wine), rice, ginger,

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plant leaves, and *rot* (traditional bread). These acts of devotion are intended to honour the ancestors, seeking their blessings for protection against climatic adversities, misfortunes, and accidents in the coming year. For this worship, a sacred space (*Than*) is prepared by erecting three plants - typically Paiu plant - symbolizing Bhairung, Laure Bhairung (the companion of the principal deity), and Deuti (the sister of Bhairung). The representation of the main Bhairung is positioned on the right, Laure Bhairung on the left, and Deuti slightly apart from Laure Bhairung, also on the left side. The Pheri is placed adjacent to the plant representing the principal Bhairung. For the Phree people, this practice is perceived as an ordinary, inherited tradition, transmitted across generations. Yet, as anthropologists such as Young and Goulet (1994) and Nadasdy (2007) contend, these seemingly routine acts offer profound insights into the symbolic relationship between human societies and the natural world.

In my conversations with Phree people of Majuwa and Ahalae villages, they described Bhairung puja as both animate - possessing life - and animating - bestowing life. Pheriwala Jogis also worship the air (bayu) during the Bhairung Puja. They sacrifice one cock for male bayu (bhale bayu) and one hen for female bayu (Pothi bayu). They vow that they would respect nature all the time, worship the land believing that in return the ancestor and the nature would protect them from enemies, sufferings, accidents, climatic changes and adverse weather events. Nature and the ancestors would also enable them to be always active and effective to protect human beings from evil spirits through Pheri ritual. Reflecting this understanding, Khagendra Jogi (aged 54) mentioned that when a family member becomes seriously ill, the household elder immediately performs a Bhairung/Kul and Pheri worship, seeking divine intervention to relieve the afflicted person from illness. This ritual involves expressing remorse for any known or unknown transgressions or neglect towards Bhairung and Pheri. The emergency puja requires only uncooked rice, plant leaves, and incense (*dhup*). Alongside this, traditional healers recite *tantra* and *mantra*, administering consecrated water, *bibhuti* (ritual ash), and *jantra* (amulets) to the patient. It is widely believed that following these rites, the individual recovers swiftly and regains good health.

Representing the cultural and social meanings embedded in the spatial positioning of Bhairung deities within the physical landscape, Phree people dispose the Than of Bhairung on the next morning (the day after Chandipurnima) in a sacred forest nearby village, where the Puja performer blows Pheri with incantation of special mantra. The forest is believed to be sacred land and hence has a lot more meaning than just individual trees appearing as a religious entity. They participate in the care and protection of these sacred fields. They also intentionally refrain from logging or gathering firewood in the Bhairung puja disposal forest, thereby upholding its spiritual integrity. When these resources are needed, they pursue them outside of the immediate vicinity of such sacred sites. This does not act solely as a response to other environmental dangers (landslides, for example) but in its own way demonstrates that it is a conscious effort to maintain or enhance existing cultural values and practices as well as align with the assertion of scholar that cultural practices shape their worldview and relations between themselves and the external world (Nadasdy, 2005, p. 3). The protection of deity trees and their surroundings serve as a means of sustaining oral histories through which they interpret their environment. In

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essence, this is a way of reconstructing the past - a venerable approach to doing human history - and simultaneously a process of constructing social identity through place-making (Basso, 1996a). Through this, Phree people culturally construct symbolic boundaries that demarcate their settlement from others. In this sense, these locations represent metaphorical territorial markers. However, Phree respondents pointed out that many sacred forest sites have been incorporated into government-established community forests. Although these areas are not formally designated as sacred by the government or community forest user groups, the majority of forest users are Phree, and other caste/ethnic groups also continue to respect the Pheri cultural and ritual significance; as a result, the continuity and protection of these sacred sites have not been adversely affected.

5.3.3 Sansari Puja – Worshiping Weather and Nature

Phree community traditionally performs Sansari Puja collectively on Saturdays. This ritual is grounded in the spiritual belief that invoking Sansari Mai (mother goddess) through the puja ensures protection against epidemics, famine, and natural and climate-induced shocks, while also warranting timely rainfall and safeguarding the entire village. To conduct this communal ceremony, each Phree household contributes an equal monetary amount to purchase a *Pathi* (female goat) for sacrifice. In recent years, the practice has evolved to include participation from other villagers. Jamuna Kanwar (Phree) – aged 65 – mentioned that each Phree household brings offerings such as uncooked rice (*achheta*), incense (*dhup*), flowers, and a monetary contribution. The puja is held on a pre-defined elevated ridge – Sansari Puja site - within the village, where participants prepare rice and the meat of the sacrificed goat, which is then shared as *prasad* at the ritual site. Prior to attending the ceremony, households undertake thorough cleaning of their homes and the Puja site, signifying ritual purity. The central ritual of the Sansari deity ceremony involved the offering of a *Pathi* (female goat)'s heart and blood to the deity. The ritual is officiated by the Phree ritual performer *(Jhakri)*, while other attendees sit in a circle observing the proceedings.

From an etic perspective, the practice may appear to contravene principles of animal rights and could be interpreted as an act of cruelty towards an innocent creature. Western scientific thought often dismisses the local belief - such as Phree people's assertion that the female goat voluntarily offers itself - as irrational or nonsensical. However, the act of offering its heart and blood to the deity, as narrated through Phrees' oral traditions, is deeply embedded within their socio-cultural fabric. This ritual is intertwined with aspects of agrarian life, including the planting of winter and summer crops, mechanisms of social cohesion, and responses to illness, drought, and the geological fragility of their environment. Simultaneously, it conveys specific cultural meanings that shape how the community interprets and engages with their world. This narrative is not merely mythical; rather, it embodies a complex interplay of meanings that connect the physical, social, and cultural worlds of Phree people. It reflects the Phree community's interpretation of their actual environment illustrating that Phree people do not perceive nature and culture as separate domains. Instead, it reveals an intricate web of relationships between social and cultural spaces and the physical environment. For instance, the story shared by Phree people alludes to recurrent challenges such as landslides, disease,

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and famine, which may have historically affected the region, and suggests that the ritual of offering a female goat's heart and blood to nature emerged as a strategy to mitigate these threats. The act of offering the female goat's heart and blood can be understood as a reciprocal obligation - a form of recompense to the deity and nature for safeguarding the village and its inhabitants. As Nadasdy (2007, p. 28) argues, gifts are rarely given without expectation; those seeking a gift often employ strategies - whether physical, social, or symbolic - to compel the giver to relinquish the desired benefit. In this context, the ritual signifies an exchange rooted in cosmological and ecological understandings, where sacrifice becomes a medium for negotiating protection and continuity of life.

5.3.4 Bhume Puja: Agrarian Cosmology and Ritual Reciprocity

Bhume Puja, observed by the Phree community during the month of Mangsir, represents a profound intersection of agricultural practice and cosmological belief. The ritual involves setting aside one *pathi* of paddy - designated as *Bhumepathi* - from each heap of newly harvested paddy grain as an offering to Bhume Devta (earth deity). This is not mere symbolism; it speaks of an ethic of reciprocity between humans and the land, giving recognition of the earth's role in the sustenance of life. Durga Kumari Jogi (aged 45) confirmed that the Bhumepathi is traditionally received by sisters, strengthening connections of kinship and gendered aspects of ritual exchange. Any portion of food prepared from here - whether jand (fermented drink), bread, or rice - must first be offered to Bhume Devta before being eaten to understand the principle that human consumption and survival must pass to divinity, and that Phree people can be preserved from the effects of disasters and adverse weather to the earth/land. The Bhume Puja, especially its ceremonial practices, can be discussed from the anthropological point of view of a ritual ecology as one that makes sense in the relationship of rituals on their ceremonial aspect. These rites are instruments of ecological stewardship, integrating conservation ethic into culture rules.

The offering of grain to Bhume Devta symbolizes a cyclical exchange: the earth provides fertility, and humans reciprocate through ritualized gifts, thereby sustaining a moral economy of nature. This practice also resonates with Mauss's theory of gift exchange, which posits that gifts are never free but entail obligations of giving, receiving, and reciprocating. As Nadasdy (2007) observes, gifts often require strategies - whether physical, social, or symbolic - to elicit reciprocity from the giver. Here, ritual acts function as such strategies, compelling the deity to continue bestowing fertility and protection upon the community.

Beyond Bhume Puja, the Phree people perform a series of other ceremonies - such as *Gothpuja*, *Aitabare* and *Aitabareni* pujas, *Shikaripuja*, and worship of *Budho Deuta*, the goddess of Water, and the Sun - each reinforcing the interconnectedness of cosmology, ecology, and social organization. Collectively, these rituals articulate a worldview in which natural and cultural domains are inseparable, and survival depends upon maintaining harmonious relations with both human and non-human actors.

5.3.5 Stones as Manifest Deities: Sacred Geographies and Cosmological Reciprocity

Similar to land/soil and trees, large stones and rocky cliffs are regarded as sacred by Phree people. This reverence permeates their beliefs, myths, rituals, funerary practices, and everyday

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life. Although Majuwa/Ahale villages are ethnically homogenous – with concentration of Phree community, each village maintains its own distinct sacred sites such as Ratmate stone for Majuwa village and Jaubari stone for Ahale village. Phree people continue the practice of offering holy blood of black cock (chicken) to the spiritual deity in the form of a large stone - twice annually - once after harvesting summer crops and planting winter crops in Kartik/Mangsir (November to December), and again before planting spring crops in Chaitra/Baisakh (April to May) and this is also aligned with the timing of Pheri ritual – twice a year. After the worship of stones, the Pheri ritual is performed. Despite cultural transformations following the expansion of the Hindu state, this ritual persists as a continuity of prior cosmological meanings and practices, shaping how people interpret and act upon their world (Nadasdy, 2005). Ramchandra Kawar (Jogi), aged 69, clarified that these ceremonies are believed to ensure agricultural abundance and livestock productivity while protecting the community from natural calamities, particularly landslides and disease. Such practices exemplify what Mauss (1990) describes as the principle of reciprocity - "the present made to humans and the present made to the gods" - where offerings function as a moral and cosmological exchange to secure divine favour.

Phree people also noted that serpent deities (*nag*) inhabit these stones and rocky outcrops, reinforcing their sacred status. Consequently, taboos prohibit activities such as mining, grass collection, pollution, or cooking impure items near these sites. Such prohibitions reflect an ethics of care and a type of ethic (in) ritual ecology where culture determines how humans interact with fragile terrains. These practices demonstrate the inter-dependence of nature and culture, thus questioning Western oppositions and providing a glimpse into indigenous methods for survival in delicate habitats.

5.3.6 Praying to Deities as a Response to Drought

In Phree villages, drought is perceived not merely as a natural phenomenon but also as a manifestation of divine displeasure - a belief deeply rooted in South Asian cultural traditions (Seneviratna, 1983; Poudel et al., 2022). Consequently, appeasing the gods is considered essential to ensure rainfall. Phree people believe that when the gods are pleased, rain will follow; when angered, drought persists. In Majuwa and Ahale villages, rituals and prayers are performed to invoke rain, particularly directed toward Lord Mahadev through Sansari Puja and Bhume Puja. During prolonged dry spells, community members gather at the Sansari Mai Puja site, offering flowers, Akshta (coloured rice), Dhup (incense sticks), and Paati (sacred leaves) to honour ancestral and local deities. These rituals are accompanied by drumbeats and chants such as "Har Har Mahadev, hamilai paani deu" ("Oh Lord Mahadev, grant us rain"). Does this ritual practice work? When asked about the connection between Phree prayer and rainfall, they expressed mixed views. A local Phree person working as primary school teacher – Hem Prasad Jogi (aged 53) shared his experience:

> "In the early 1993s, the village faced a prolonged drought. The community decided to perform rituals, but I was sceptical. I believed drought was a natural phenomenon, not divine anger. For me, praying to gods was meaningless. Yet, as a member of the village, I could not ignore social expectations, so I

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participated reluctantly. Villagers visited the Sansari worship place and carried out sansari puja and Bhume puja. After the rituals, everyone returned home. About an hour and a half later, torrential rain began to fall."

5.3.7 Adaptation in Agriculture and The Parma System: A Traditional Social Institution Contributing to Adaptation

Discussions with Phree farmers revealed that erratic and unpredictable rainfall patterns have posed severe challenges to agricultural activities. Farmers repeatedly emphasized that precipitation no longer follows the seasonal rhythms they once relied upon. They categorized the key impact of climate change as rising temperatures, altered precipitation patterns, and increased climate extremes leading to reduced productivity, nutrient loss, shifts in cropping zones, pest infestations, and degradation of agricultural land and water resources. As operational adaptation strategies, the Phree people have adopted a range of adaptive strategies, including altering crop planting schedules, introducing improved farming techniques, utilizing drought-resistant seed varieties, seeking alternative water sources, and reviving traditional methods alongside the reintroduction of indigenous crop species better suited to dry conditions. Farmers have also devised innovative, low-cost solutions to address increasing dryness and drought. For instance, they collect kitchen wastewater in pits and repurpose old plastic bottles into drip irrigation devices by puncturing small holes to allow gradual water release. Similarly, protective shades for seedlings are constructed using locally available materials such as green leaves, straw, and plastic sheets.

The Parma system operates on the principle of balanced reciprocity - an exchange of labour grounded in trust within a closed network, where obligations and expectations are clearly defined and equitably shared among community members. This system is primarily applied to subsistence crops such as paddy, wheat, maize, and millet. In contrast, commercial plots producing vegetables or spices for market sales do not rely on *Parma* labour. Thus, the practice is embedded within a subsistence-oriented logic, signifying that individuals who specialize in market-based production effectively step outside the social domain sustained by *Parma* networks.

The *Parma* system facilitates collective labour mobilization for tasks such as terrace construction, irrigation management, and soil conservation - activities critical for climate change adaptation (Gurung et al., 2012, p. 34). Drawing on Pierre Bourdieu's concept of social capital, which underscores the role of social networks in achieving shared objectives (Bourdieu, 1977, p. 248), *Parma* strengthens community cohesion and enhances resilience, in Phree community. Phree people mentioned that economically, *Parma* reduces vulnerability by minimizing reliance on cash transactions for labour exchange - a critical advantage in disaster-prone regions where households often lack financial resources to hire labour or purchase recovery materials. Bista (1991) notes, "the Parma system provides a safety net for vulnerable households, ensuring that they have access to labour and resources even in times of crisis" (p. 67). Respondents noted that rising youth out-migration has intensified shortages of agricultural labour; in response, the Parma reciprocal labour system has become increasingly important in enabling women and older household members to pool labour and sustain farming activities.

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These practices align with Marcel Mauss's theory of reciprocity, which emphasizes the social obligations embedded in reciprocal exchanges (Mauss, 1950). *Parma* exemplifies this principle by fostering mutual dependence and reducing economic vulnerability, thereby functioning as both a cultural institution and an adaptive strategy in the face of environmental uncertainty.

5.4 Gender and intergenerational dynamics

Gender- and generation-specific adaptive knowledge and responsibilities within the Phree community are differentiated. In this context, women highlighted climate impacts, such as greater water scarcity, increased time spent gathering fodder and firewood and increasing worry about household food security. Men tended to frame adaptation in terms of crop failure, land management, and ritual accountability toward ancestral deities. Elders emerged as key custodians of ritual calendars, environmental memory, and ecological indicators, while younger generations - particularly those engaged in migration - demonstrated declining familiarity with rituals and traditional adaptation practices.

Traditionally, intergenerational transmission of Pheri knowledge occurred through direct participation, as boys accompanied fathers and elder kin during the ritual months of Kartik and Chaitra, learning mantras and procedures through practice rather than formal instruction. This ensured continuity of ritual authority and cultural knowledge across generations. In recent decades, however, socio-economic marginalization has altered this pathway. Economic hardship has compelled some Phree to perform Pheri rituals outside prescribed periods as a means of livelihood, while non-Phree individuals have adopted the practice for financial gain. These shifts have weakened ritual legitimacy and eroded public trust. As a result, younger generations increasingly distance themselves from Pheri traditions, often viewing them as outdated or socially stigmatized. This generational disengagement signals a significant rupture in knowledge transmission and poses a serious challenge to the continuity of Phree cultural identity and ritual-based adaptation practices (Jogi, 2012). Declining agricultural productivity, environmental degradation, and climate-induced disasters have contributed to youth migration. This trend threatens traditional subsistence knowledge, as younger generations prioritize modern skills for better economic opportunities. The labour migration appears to be widespread, as over 80% of FGD respondents reported that nearly every household has at least one member residing abroad for employment purposes. These divergences illustrate that adaptation is not homogenous but negotiated through gendered labour, generational transition, and shifting aspirations.

6. Discussion

6.1 Phree Community's Pheri Culture and Cultural Ecology: Reframing Ritual as Adaptive Mechanism, and Maussian Reciprocity Theory

Beliefs, values, customs, and material artifacts transmitted across generations constitute cultural frameworks that guide adaptive behaviour (Macnaghten & Jacobs, 1997). Pheri culture functions as symbolic text as it gives expression to Phree cosmology, moral duties, and social order - a model of an inflected world of dangerous spirits and a model for vigilant guardianship, reciprocity, and ancestral solidarity which corresponds with Clifford Geertz's Symbolic and

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Interpretive Theory, because Pheri is not only an economic exchange but is a symbolic act representing trust, solidarity and moral obligation; each exchange, however, has meaning that is beyond its value as material (symbolic value signifies respect) and continuity (meaning means maintenance of social ties), ritualized aspects (e.g. verbal expressions, timing, ceremonial sharing) embed Pheri into the "web of meaning" that defines life togetherness in the community and by participating in these symbolic acts individuals "interpretive and affirming" their cultural identity as cooperative and interrelated. Moreover, the continuity of Phree identity in boundary work is different from cultural essences (Barth, 1969). Pheri culture is an institution that maintains their own particular groupings: their ritual exclusivity, kinship rules and embodied practices ensure that despite ambiguous external conflation their group identity and its forms are never changed; this fits in very well with Barth's Ethnicity and Boundary Theory. By collecting Navadan the people of Phree take their part in this spiritual negotiation, bringing the planetary forces into harmony and bringing cosmic and ecological imbalance into balance. This goes beyond mere commerce as such. It is also a symbolic transaction deeply rooted in religious cosmology, and forms of ritual reciprocity are essential to the practice. Seen as an essential part of the cycle of rituals, it upholds the sacred interdependence of the spiritual custodian (Phree) and the beneficiary (the household).

Ethnographic evidence indicates that the Phree community negotiates climate stress through two intertwined modes of engagement: symbolic/ritual mediation (a "cognized model") and material/livelihood adjustments (an "operational model"). Pheri, Bhairung/Kul worship, and Sansari/Bhume rites encode cosmological relations with land, water, trees, and stones, producing conservation taboos (such as the protection of sacred forests and stones) and calendrical coordination with cropping cycles. In parallel, households recalibrate agrarian schedules, experiment with drought-tolerant seed varieties, improvise low-cost irrigation (e.g., bottle drips, wastewater pits), mobilize Parma reciprocity, and diversify through migration and non-farm earnings. The coupling of meaning and materiality here is textbook cultural ecology: a local socio-technical system configured to a mountain environment and dynamically refracted through ritualized understandings of the agency of deities, ancestors, and place. Cultural identity, in turn, shapes adaptive capacity: the Pheri practice does not only "protect crops" in spiritual terms; it sustains social cohesion, seasonal coordination, and moral obligations to the landscape - each contributing to resilience under climate volatility.

Existing anthropological literature on Nepal has documented a wide range of culturally grounded, yet often internally homogeneous adaptation practices among Indigenous communities. These include the ritualized seasonal cycles of Udhauli and Ubhauli among Kirat groups (Dahal, 2021), the interlinkage between seasonality and social life among Gurung communities in the Nhāson Valley (Poudel, 2020), the migratory livelihood strategies of the Dhimal of eastern Terai (Rai, 2015), climate change adaptation and sustainable livelihoods among Indigenous Sherpa communities in the high mountains (Joshi & Djalante, 2021), the role of Indigenous institutions in environmental adaptation among the Loba of Upper Mustang (Khattri & Pandey, 2023), the conceptualization of rain as a singular phenomenon with multiple ontologies among Gurung communities (Poudel, 2024), the Bheja system of the Magars as a

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collective convention for resource management and ecological adaptation (Dhakal, 1996), and the entanglement of adaptation and ethnic identity among the Yolmo (Pokharel, 2003). Phree adaptation practices share certain features with other Indigenous communities in Nepal, such as reverence for sacred landscapes among Gurung, Sherpa, Dhimal, Rai, Magar, Yolmo, and Kirat groups. However, the Phree case is distinct in its reliance on hereditary ritual guardianship and its emphasis on cosmological reciprocity linking households, ancestors, and the living landscape for all caste/ethnic groups including Phree community. Unlike many groups where ritual authority is situational or community-based, Phree ritual specialists inherit both obligation and territory, positioning ritual practice as an enduring institution of environmental governance rather than symbolic observance alone. This distinctive institutionalization of ritual roles positions Phree adaptation practices as a unique contribution to Nepalese anthropology.

Julian Steward's cultural ecology posits that cultural systems evolve to maintain equilibrium with environmental constraints. Aligned with this, Pheri ritual and Bhairung Puja are timed with agricultural cycles (Chaitra and Kartik), aligning spiritual obligations with ecological needs - pre-planting and pre-harvest phases. These rituals coordinate labour and resource use, ensuring crop protection and soil fertility through sacrificial offerings. Hence, these ritual calendars function as culturally mediated mechanisms through which ecological regulation is perceived, negotiated, and enacted in everyday practice that shape environmental behaviour and conservation ethics. The Phree worldview sees nature as spiritually animated, inhabited by malevolent forces and Pheri ritual is perceived as essential for safeguarding crops and household well-being. These rituals have functional outcomes - enforcing taboos on sacred forests and signalling agricultural readiness. This suggests that symbolic systems indirectly sustain ecological resilience by governing behaviour and resource management (aligned with cognized and operational model of Rappaport, 1979, 1984). Geertz's interpretive approach helps explain how rituals transform ecological uncertainty into culturally intelligible action. Drought or crop failure is interpreted as spiritual imbalance, prompting corrective rituals that restore morale and collective efficacy. Ritual spaces (e.g., Bhairung shrines) embed soft law through taboos, protecting micro-ecosystems and regulating resource use (Geertz, 1973; Basso, 1996).

Marcel Mauss (1950) famously argued that gifts are "total social facts" because they are shaped by three obligations: giving, receiving, and returning the gift. This idea helps explain the moral logic behind *Navadan*, the offerings made after the Phree community's Pheri ritual. However, the Phree's Pheri ritual and its cosmological belief shows that reciprocity is not only directed toward other people; it can also be directed toward ancestors and the wider natural world. In this sense, the *Pheri* ritual appears Maussian in structure yet cosmological in emphasis. It expands the idea of the gift by including exchanges with non-human beings and with the sacred landscape itself. However, I present my divergent arguments and critiques on Mauss's theory. Whereas Mauss primarily analyzed exchanges among social equals (e.g., kula partners, potlatch rivals), Pheri ritual establishes a guardian–recipient relation mediated by the ritual specialist and oriented "upward" toward ancestral and planetary entities. In Mauss's

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interpretation, the "hau" indexes the donor's personal essence embedded in the thing; in the Phree case, the moral force is construed as ancestral elemental (Bhairung, stones, trees, air, water) rather than personal. The return (Navadan) is therefore directed to cosmological equilibrium rather than to the ritualist's person. Mauss notes competitive and status-producing dimensions in some gift complexes; Pheri is hereditary and obligatory, oriented toward protection and seasonal continuity, not competitive largesse. While Maussian theory often entails substantial redistribution, Navadan's material quantum is modest; its surplus is primarily symbolic and regulatory - maintaining cosmological order and authorizing ecological restraint through sacral prohibitions. The return does not primarily bind a household to a particular ritualist; rather, it binds the village to a rule-governed environment, including the timing of agricultural activities, constraints on extraction, and the stewardship of sacred sites. Reciprocity here governs relations with place as much as relations among people.

My argument also aligns with the position taken by Raheja (1988). Raheja's ethnography from Uttar Pradesh shows that *dan* (ritual gift or donation) does not fit this model. In many ritual settings, *dan* is not meant to be reciprocated at all - in fact, returning it would be inappropriate. Its social force does not come from a moralized "spirit of the gift" but from the transfer of inauspiciousness and risk to the recipient, who accepts these dangers within specific ritual frameworks. Raheja argues that the meaning of the gift is not universal or stable; instead, it changes depending on the ritual context, the social position of the giver and receiver, and local symbolic distinctions - such as auspicious versus inauspicious. Hence, my research findings and arguments extend Mauss's theory of the gift along two main lines: first, by shifting attention from reciprocity between people to reciprocity that includes ancestral and cosmological forces; and second, by showing how ritual exchange contributes not only to social cohesion but also to forms of environmental governance. The Phree ritual and the Navadan tradition affirm Mauss's basic insight that gifts bind worlds - but it also asks us to widen the circle of "worlds" to include ancestors, elements, and places. In the Pheri ritual, what is returned is not given back to the original donor; instead, it is directed toward the larger spiritual world that makes giving and living possible. This is the central theoretical pivot this article offers: from the social gift to the cosmological gift, and from reciprocity among humans to reciprocity with a living landscape.

While this study demonstrates how ritual institutions shape environmental behaviour and conservation ethics, it does not directly measure ecological outcomes such as biodiversity, forest cover, or soil retention. The analysis therefore treats ritual-based regulation as a culturally perceived and socially operational form of environmental governance rather than a statistically verified ecological intervention. Nevertheless, repeated ethnographic observation - such as visibly denser undergrowth in Bhairung puja disposal forests and sustained taboos against logging - suggests plausible ecological effects that warrant future interdisciplinary verification.

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7. Conclusion and Recommendation

The study demonstrates that the Phree community is not a passive recipient of climate change impacts but actively adapts through a continuous synthesis of cultural practices and ecological knowledge. Their adaptation strategies are intrinsically tied to their Pheri culture, reflecting a worldview where spiritual veneration (cognized model) informs material practices (operational model). Their resilience is derived from a dynamic system that synthesizes Indigenous Knowledge Systems and socio-cultural institutions. The Pheri culture, which forms the basis of their identity, provides the spiritual and moral framework that informs their material decisions and livelihood practices. For example, the community's environmental veneration, such as avoiding resource extraction from sacred forest disposal sites following the Bhairung Puja, reflects a culturally constructed conservation ethic.

The findings underscore that the local challenges faced by the Phree require a variety of adaptation strategies in order to improve agriculture's resilience. This requires the fusion of traditional, culturally rooted practices (such as the Parma labour system and ritual spiritual practices) with contemporary agricultural technologies (such as drought-tolerant seeds and irrigation breakthroughs). The study emphasizes that adaptation is a multifaceted phenomenon determined by social contexts (kinship, culture, caste hierarchy, gender, power relation, state relations etc) and is rooted in culture, politics, economy, and history. The study offers an ethnographic perspective on the marginal, and under-researched Indigenous community, contributing to fill a major gap in Nepalese anthropology in providing context for cultural-ecological adaptation strategies. Using as its base an ethnographic dual analytic approach (cognized and operational models), and Cultural Ecology, it contributes significantly to anthropological investigations of climate change by placing the lived experiences of the local population at the centre of discussion. It helps untangle climate change from the intricate web of cultural, social, and material ties that shape human-environment relations.

This study demonstrates that neither the operational model nor the cognized model alone is sufficient to explain the intricate relationships between human populations and their environment. This underscores that focusing exclusively on local-level descriptions and interpretations of adaptation is inadequate. A holistic understanding requires examining the processes and dynamics of local-global articulations, as emphasized in political ecology (Nadasdy, 2005; Biersack, 2006; Goldman, Nadasdy & Turner, 2011), alongside the roles of actors and agencies as highlighted in Bourdieu's practice theory (1977). The findings advance a nuanced understanding of how global and national structures (such as state intervention and economic forces) intersect with local ecologies, offering insights critical for designing equitable and context-sensitive adaptation policies. Contrary to prevailing assumptions among some scientists and policymakers that local communities cannot detect climate change (Salick & Byg, 2007; Crate & Nuttall, 2009b), this study demonstrates that Phree people experience and interpret environmental changes firsthand. Hence, this research contributes to both academic and policy debates, advocating for the integration of indigenous knowledge into scientific research and offering alternative frameworks for understanding climate change.

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Accordingly, it is recommended that climate change should be understood as a multidimensional phenomenon encompassing cultural, political, social, and ecological dimensions, and acknowledge the indigenous interpretations which offers essential insights for developing equitable and context-specific adaptation policies and research frameworks.
Drawing on the findings of this study, below policy-relevant measures are suggested:

- Climate and agricultural policies should formally integrate Indigenous Knowledge Systems, recognizing local observations, ritual calendars, and experiential climate indicators as valid inputs for planning and decision-making.
- Local climate adaptation initiatives should support co-production of seasonal forecasts that integrate Phree phenological indicators with meteorological data.
- Adaptation programmes should promote hybrid models that combine culturally embedded institutions such as the Parma labour system with modern climate-resilient farming technologies.
- Sacred forests, ritual sites, and culturally protected landscapes should be formally recognized as community-managed micro-conservation zones under Nepal's community forestry programme and within national and local governance frameworks
- Phree ritual specialists and elders should be engaged in local disaster risk reduction planning to ensure culturally grounded early warning and response mechanisms.
- Climate adaptation policies must adopt context-sensitive and inclusive approaches that address cultural values, power relations, and historical marginalization of Indigenous communities.

Author Contribution

The author independently designed the study, conducted data collection and analysis, and prepared the manuscript.

Conflict of interest

The author declares that there are no financial or nonfinancial competing interests. This research did not receive any specific grant from funding agencies.

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About the Author

Krishna Bahadur Jogi is scholar at Central Department of Anthropology, Tribhuvan University, Nepal. He has completed MPhil in Anthropology and is preparing for the PhD in Anthropology. His research interests include climate change, culture, identity, social exclusion, and social inequality.

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