



Taboos and Resource Management among the Nyishi of Kurung Kumey, Arunachal Pradesh, India.

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ABSTRACT

Taboos are codes of behaviour which direct resource use and extraction process among the indigenous communities across the world. Taboos are part of the informal system of resource management systems and are based on the beliefs and worldview of a community. This paper highlights the interrelationship between taboos and resource management among the Nyishi of Kurung Kumey district of Arunachal Pradesh using 2001 Resource Habitat Taboos (RHT) categories of Colding and Folke to provide a comprehensive understanding of taboos practiced by the Nyishi.

Key words- Taboos, Resource Management, Nyishi, Kurung Kumey, Arunachal Pradesh

Introduction

Traditional sociological and anthropological views on taboos associate terms such as prohibition, restrictions or ban indicating its meaning and practice (Rappaport & Rapaport, 1974; Ellen, 2012). Theoretical traditions such as the functional perspective view it as part of the collective action and focuses on its role in bringing cohesion and order in society. To Durkheim taboo functioned as a "prohibition" that separates the sacred from the profane and acted as a "kind of law" that influences individuals (Durkheim, 1995/1912). Radcliffe Brown argued that taboos are a "kind of customary action defined by its function, which is to create in the individual a habit of dependence on society," according to Radcliffe Brown, who also saw them as "ritual prohibition" or "ritual sanction" (Valeri, 2000). Early views of taboos highlighted the utilitarian aspects of taboos following the functional and structural paradigms.

The term "taboo" originates from the Polynesian word "tapu" indicating "prohibition" or "ban" on specific behaviours in accordance with norms and beliefs of a society and became part of the wider parlance through colonial legacy (Colding & Folke, 2001; Sharma et al., 2021). Significantly, 'prohibition' or 'ban' on specific action and behaviour are backed by social sanctions. Sanctions can be imposed by the community or

group itself or believed to be imposed by the super natural. Such beliefs of sanctions lead to a feeling of fear and respect (Valeri, 2000). Thus, taboos indicate a combination of 'fear' and 'respect' which acts as motivating factors for the members of the society to follow (Reichel-Dolmatoff, 1976; Anderson, 1996; Valeri, 2000).

Taboos are part of every society and guide individual and collective behaviour of the society. North (1996) points out that informal means of resource management such as taboos are much more impervious than formal policies in directing resource management practices. Angsongna et al., (2016) note that it is especially the case for indigenous cultures across Asia and Africa. Informal social institutions are voluntary, accepted by the members of the community and affordable means of resource management as compared to formal resource management (Ostrom, 1990; North, 1990; Aggarwal, 2008). Aggarwal (2008) argues that traits such as social embeddedness, flexibility, cost effectiveness, inclusivity and holistic nature of informal resource management as positive traits which make it more enduring as compared to formal resource management practices.

Among the Nyishi, taboos form a crucial part of resource management practices (Aisher, 2013; Janaki et al., 2021). Resource use and extraction are guided by taboos and rituals based on the beliefs and worldview. Guided by fear and retribution of non-human beings called *Uyu*, it echoes what Reichel-Dolmatoff (1976) calls as 'theory of disease'. He argued that among the Tukano, the theory of disease is interpreted as the revenge of hunted animals, the ill will of other peoples or the malevolence of supernatural beings or other spirit beings. Illness in such a worldview is 'Always interpreted as a natural consequence of a person's breach or neglect of cultural norms' (Reichel-Dolmatoff, 1976). The Nyishi consider that the failure to follow and observe taboos results in illness or death, a consequence of breach or neglect of the established cosmological order. In this sense, a person's misfortune results because they made themselves vulnerable to it. Taboos thus indicate informal social institutions of social control guiding various activities including resource use and management and are common to all cultures (Colding & Folke, 2001; Sharma et al., 2021; Janaki et al., 2021). This paper thus highlights the interrelationship between the taboos and beliefs of the Nyishi of with resource management practices.

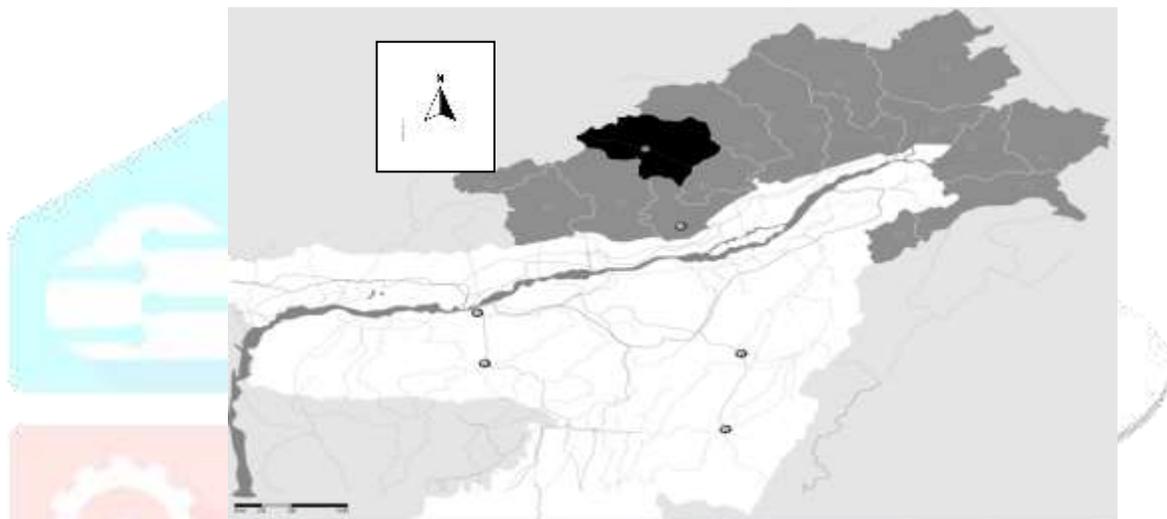
Methodology

This work has been taken from my PhD fieldwork conducted between 2018-20. The study was conducted in multiple stages for selection of respondents. In the first stage, 4 administrative units known as 'circles' were chosen viz. Koloriang, Sangram, Nyapin and Sarli. In the second stage, a total of 58 villages were selected, out of which 16 were from Koloriang, 15 from Sangram, 10 from Nyapin and 7 from Sarli. In the third stage, a total of 104 households were selected of which 35 were from Koloriang, 30 from Sangram, 22 from Nyapin and 17 from Sarli. Thus, a total of 104 households were selected for the study.

However, for this paper the responses of 104 individuals from the selected households have been considered. The methodological approach was anthropological and involved in-depth semi-structured interview and observation schedule. Apart from that, Focus Group Discussions with shamans and hunters of the community further informed the study. It was also found during the study that informal conversations provided more details and nuances to the topic under consideration and gain an overall understanding of the perceptions of nature and wider Nyishi worldview. Informal conversations with the shamans and hunters were especially fruitful in overall understanding of the taboos and gather a comprehensive view of the practices.

Study area

The present study was carried out in Kurung Kumey district of Arunachal Pradesh. The study was conducted in Nyapin, Sangram, Koloriang and Sarli administrative circles of the district. The name Kurung Kumey derives from the two main rivers that flow in the district: Kurung and Kumey. Situated in the northern parts of Arunachal Pradesh, the district lies at 91.20' to 55.40' East longitude and 28.30' to 38.04' North latitude. The district shares international boundary with China in the north, East Kameng district in the west, Upper Subansiri district and Kra Daadi in the south and finally enclosed by Papumpare in the east. The region experiences heavy rainfall and falls under a 15' to 20' temperature zone. The region also experiences cold winter and hot summer.



Map (Not to scale) - Indicating Arunachal Pradesh and area highlighted in black indicating the study area Kurung Kumey district adapted from (Haros, 2008).

According to the 2011 census, the district has a total population of 45,372 after the bifurcation of the Kra Daadi district in 2015. The population density per sq. km is 15 and the district has the highest female-sex ratio of 1029 females per thousand males, which is higher than the national sex ratio. The average literacy rate of the district is 48.75 percent, and the male literacy rate accounts for 55.12 percent, while the female literacy rate accounts for 42.64 percent (Census, 2011). The district comprises three linguistic groups: Nyishi, Bangru and Puroik. Nyishi is the dominant language spoken in the district.

Taboos and resource management among the Nyishi

The traditional resource management of the Nyishi is based on the traditional rules of ownership which are patrilineal and agnatic (Aisher, 2013; Pereira et al., 2017). In terms of formal mechanisms of resource management, a large part of forest land in Kurung Kumey falls under Un-classed State forest (USF) which falls under community control exercised through customary rights and traditional ownership patterns. However, though USF forest lands are formally recognized under the category of forests under State control, in reality it is largely managed by the community. Due to such lack of clarity in terms of tenurial rights, absence of land survey, mapping, demarcation and land registration, the state of formal resource management is unclear. Such ambiguity often leads to issues between the state and the people (Melkania & Bisht, 2000; Poffenberger, et al.,

2006) (SFRI, n.d.). Thus, among the Nyishi in the lack of clear-cut formal mechanisms of resource management, self-imposed management practices of the community remain the core of resource management practices (Janaki et al., 2021).

The Nyishi term '*Arrh*' can be associated with the 'taboo' in the traditional sociological and anthropological sense. *Arrh* is an important part of Nyishi life and is associated with important events such as birth, death, marriage, agricultural activities, hunting and construction of the new house. Stemming from traditional beliefs, *Arrh* emphasize on the interrelationship of human (*Nya*) and spirit beings (*Uyu*) in terms of interdependence, exchange, reciprocity, feedback and mutual respect. In Nyishi worldview, the world is with *Uyu* not without and all the natural resources available are divided between them.

The division of resources are understood and constructed based on spatial categories. Location and distance thus become central to demarcation of resources between the *Uyu* and *Nya*. Resources located at a distance from the place of human habitation such as deep forests, mountains and water bodies are considered to be the domain of *Uyu*. Thus, resources purported as 'wild' in western understanding fall within the realm of *Uyu* and subject to their ownership. Similarly, the 'domestic' resources fall within the realm of *Nya* and are subject to their ownership. Extraction and use of resources from the wild are hence subject to usufructory rules. Nyishi *Arrh* exemplifies these usufructory rules (Aisher, 2013).

The observance of *Arrh* among the Nyishi is a social affair, and thus successful observation of *Arrh* involves participation of the community. Typically *Arrh* are observed by the family and clan members. The number of days *Arrh* is observed varies depending on the event, sacrificial offerings in the ritual propitiations and the kind of relation to whom the event has happened. Thus, on events such as death or birth members of the clan may observe taboos for a short period of 5-6 days, however, the family where birth or death has taken place will observe it for the longer duration of several weeks or months depending on the type of death. During such period those observing the taboos do not go out of the household, do not engage in any activities related to soil, cut any fresh foliage, go out to the river or water source such as stream or rivers or the forest.

For the Nyishi failure to observe taboos properly or non observation can cause the displeasure of the *Uyu* with cosmic consequences for the person and his descendants. The Nyishi consider that displeasure of the *Uyu* and the resultant cosmic consequences are result of the person's action and thus caused by the person themselves. This is similar to Dalmatoff's observation that for the Tukano 'it is the person who causes the disease by making themselves vulnerable to it' (Reichel-Dolmatoff, 1976). Thus, the responsibility to be knowledgeable about the taboos befell on the person themselves.

Hunting Taboos among the Nyishi

Hunting is not just a subsistence activity and goes beyond 'extraction of animals from the environment' (Bennett & Robinson, 1999). It is closely tied to the social, cultural, economical and political milieu of the community (Wenzel, 1991; Bennett & Robinson, 1999; Kendrick & Manseau, 2008). Wenzel points out that the hunting cultures present most 'straightforward setting for human-environment relations' (Wenzel, 1991).

Hunting for the Nyishi is an act of resource extraction from the realm or domain of *Uyu* and hence subject to usufructory rules. Aisher (2016) points out that for the Nyishi of Kurung Kumei, 'Hunting represents an exchange of wealth between human villagers and wealthy land spirits' (p.323). Nijhawan (2017) notes that hunting among the Idu Mishmi of Dibang Valley entails 'taking away a material that is not under man's dominion and must therefore involve careful negotiation so that complete and safe possession can be taken'. Nijhawan (2017) adds that hunting taboos are 'the means through which such negotiations are performed and a ritual price is paid'. Reichel-Dolmatoff (1976) and Berkes (2012) note that usufructory rules indicate that the success of the hunt does not thus depend on the skills of the person alone but his ability to fulfill his obligations

in terms of observation of culturally determined taboos. Hence, for Nyishi a successful hunt indicates cooperation of the *Uyu*.

I use Colding and Folke's Resources and Habitat Taboos (RHT) model to further classify the information collected (Colding & Folke, 2001). Colding and Folke's RHT model is based on extensive review of literature from diverse fields such as Marine Biology, Physical Geography, Ethno-botany, Ecology and Anthropology. Further, the model also uses examples from diverse indigenous communities across South America, Africa, South East Asia, Asia and Oceania. Thus, the RHT model presents an integrative amalgamation of nature related taboos. The RHT model is categorized into 6 typologies outlining potential conservation and resource management objectives.

Table 1- Colding and Folke's typology of resource and habitat taboos

	Category	Function
1	Segment Taboos	Regulate resources withdrawal
2	Temporal Taboos	Regulate access to resources in time
3	Method Taboos	Regulate methods of resource withdrawal
4	Life History	Regulate withdrawal of vulnerable life history stages of species
5	Specific species	Total protection to species in time and space
6	Habitat taboos	Restrict access and use of resources in time and space

Source- Colding, J. & Folke, C. (2001), Social Taboos: "Invisible" Systems of Local Resource Management and Biological Conservation. *Ecological Applications*, 11(2), 584. <https://doi.org/10.2307/3060911>.

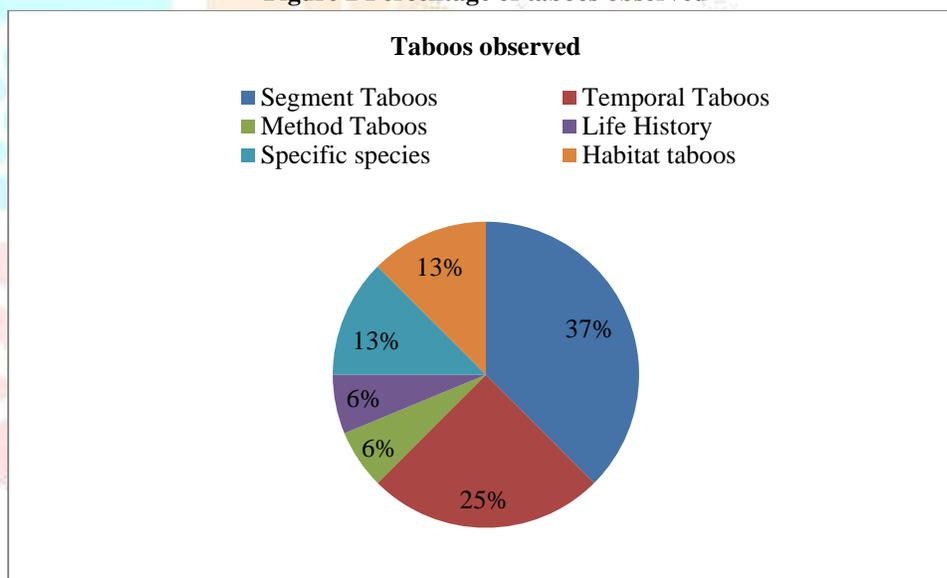
Taboos associated with hunting are followed before, during and after hunting. A total of 16 taboos have been identified as being associated with hunting. Out of a total of 16 taboos, 6 taboos have been categorized as pre-hunting, 7 taboos have been identified as taboos observed during hunting and 3 taboos have been identified as taboos observed after hunting. Taboos associated with hunting are codes of behaviour that acts to regulate individual behaviour in the wilderness (Aiyadurai, 2016; Nijhawan, 2017; Janaki et al., 2021). Taboos associated with hunting are carried out in continuum in terms of significance, meaning and act. Thus, there is a cyclical aspect to taboos as they are interconnected in terms of meaning and significance and in continuum as one follows the other.

Table 2- Classification of hunting taboos into RHT type and explanation

Taboos	Time line	Type	Explanation
Food taboos	Pre hunt	Temporal	Avoid pungent food
Menstrual taboos	Pre hunt	Segment	Women maintain distance from hunter
Sexual Abstinence	Pre hunt	Segment	Hunter (s) to maintain complete sexual abstinence
Avoid visiting places of death and birth	Pre hunt	Segment	Hunter and members of the household avoid places of death and birth
No weaving	Pre hunt	Segment	No weaving inside household
Codes of behaviour	Pre hunt	Temporal	Maintain peace and tranquil within the household, avoid taking names of animals and <i>Uyu(s)</i> , avoid talking about hunting, avoid washing hair, combing and washing clothes, avoid visiting other households and receiving guests
Codes of behaviour	During hunting	Method	Avoid malevolent, angry or sexual thoughts, Avoid talking loudly, jeering, shouting, quarreling and poking fun at the animals or <i>uyus</i> , Use pseudo names of animals and <i>uyu(s)</i> , Avoid washing soiled clothes or drying them by fire,
No trespassing	During hunting	Habitat	No trespassing other's hunting grounds (<i>Nyotum</i>)
Avoid high altitude lakes	Through out	Habitat	No visiting high altitude lakes (<i>Sanyak</i>)

Avoid killing specific animals species	During hunting	Specific species	Avoid killing members of cat family (Tigers and leopards) Ban on killing Linsang sp. (Asiatic Linsang)
Specific clan groups avoid killing certain species of animals	Through out	Segment	Certain clan groups banned from killing Himalayan Serow (<i>Sebih</i>)
Avoid killing and hunting young and pregnant animals	During hunting	Life history	Avoid killing young and pregnant animals
Food taboos	During hunting	Temporal	Avoid pungent food
Avoid wastage of meat	Post hunt	Temporal	Avoid meat wastage and the bones of the first hunt from the hunting ground to be discarded carefully into the fire
Taboos associated with specific species of animals	Post hunt	Specific species	Put the marks of hooves on the ground on the opposite side Serow (<i>Sebih</i>) and taboos associated with wild boar (<i>Serey</i>)
Food taboos	Post hunt	Segment	Women do not consume certain parts of the animals (intestines, hooves, head), complete ban on consumption of certain species (members of cat family, eagles, snakes) on women and shamans.

Figure 2 Percentage of taboos observed



Based on the above figure of the total number of hunting related taboos observed by the Nyishi, 37 percent of the taboos observed are segment taboos which place ban of use and consumption of certain species on individuals based on sex, age or social status. These bans are time-based as they could relate to a particular phase of a person's life, such as pregnancy, menstruation, childbirth or death. It also relates to aspects such as age and sex of a person (Colding & Folke, 2001). Nyishi hunting taboos related to menstruation, sex, death and birth and weaving fall into this category. Anthropologists have categorized taboos related to menstruation, sex, death and birth as taboos related to blood (Valeri, 2000; Lewis, 2008; Nijhawan, 2017).

Further, 25 percent of the taboos fall within the category of temporal taboos. These types indicate prohibition on access to resources during specific periods. These taboos are placed sporadically, daily, weekly or seasonal basis (Colding & Folke, 2001). Among the Nyishi, food taboos and codes of behaviour observed before and during hunting falls within this category. 13 percent of the taboos fall within Habitat taboos and Species specific taboos. Habitat taboos are taboos related to access and use of resources from particular habitats. Such taboos can be temporary or permanent in nature. Species specific taboos account for taboos related to restrictions or ban placed on killing and using specific species in the time and space (Colding & Folke, 1997; Colding &

Folke, 2001). Finally, 6 percent of the taboos fall within the category of method and life history taboos. Method taboos are taboos related to use and construction of different hunting techniques while life history taboos comprises of taboos which places ban on killing of certain animals during different life history such as young or pregnant animals (Colding & Folke, 1997; Janaki et al., 2021).

The taboos observed by the Nyishi have been categorized into RHT model of Colding and Folke for conceptual understanding; however, for the Nyishi there are no strict categories of taboos. Taboos in this sense are codes of behaviour to be followed in a holistic sense and guide resource use and extraction. For the purpose of the study, I have further elaborated on three categories of taboos i.e. Species specific, habitat and method taboos due to their potential role in conservation and resource management.

a) Species-specific taboos-

This category involves restrictions or ban placed on killing and using specific species in the time and space (Colding & Folke, 1997; Colding & Folke, 2001). Two taboos have been classified into this category. First accounts for taboos related to avoidance of killing of species of cat family, Linsang, Snakes and River Otter and Serow. Secondly, animals such as Serow (*Sebih*) and Wild boar (*Serey*) are tabooed to be brought into the village or household without conducting certain rituals.

As highlighted earlier, in the Nyishi worldview resources are divided between the *Uyu* and *Nya*. While these divisions indicate categorization in terms of ownership there are similarities in terms of nature of resources. Thus, just as domesticated animals such as *Mithun* (*Bos frontalis*), poultry, pigs, dogs and others make up for humans resources. Wild animals such as Serow, Wild boar, Wild dogs, Wild birds and others make up for domesticated resources of *Uyu(s)*. Aisher(2007; 2016) notes that in this sense, the spirits are responsible for rearing and protecting their animals. Serows (*Sebih*) in particular are regarded as the *Mithun* of the *Uyu* and are believed to be valuable livestock just as *Mithun* is for the Nyishi. Similarly, Wild boars (*Serey*) are considered as pigs of the *Uyu* and hence considered to be valuable. As a result, harvest of these animals which are particularly valuable to the spirits can invite direct ire if not followed with proper rituals. Hence, after a Serow is hunted and is brought to village the prints of its hooves are placed on the ground indicating that the Serow has taken a different path than the one leading to the village. Ritual involving Serow is performed based on the spirits' perceived value of it; hence it is thought that the absence of Serow will be apparent and lead to it being pursued. Thus, the ritual is in essence a way to mislead the *Uyu*. The Wild Boar on the other hand is brought with jubilant cry (*Gu-ray*) accompanied by pouring of '*Opo*' on its head and chants. Such rituals associated with the Wild Boar indicate a sense of gratitude to the *Uyu(s)*. Central to both the rituals is notion of maintenance of relationship with the spirits and avoid 'flipping' the relationship with the master-spirits (Aisher, 2016). While exact quantification of species specific taboos in terms of conservation and protection of species may be difficult, Colding and Folke (1997) note that such taboos provide '*temporal and spatial refugia* to threatened and ecologically viable species in different ways' (p.11).

b) Habitat taboos-

These refer to taboo on access and use of resources from particular habitats. Two taboos have been categorized in this category. Firstly, access and use of high altitude lakes called *Sanyak*. Among the Nyishi high-altitude lakes (*Sanyak*) are considered to be the abode of *Uyu* and remain permanently tabooed. Religious beliefs associated with *Sanyak* make its use and access completely banned. Even access to area around *Sanyak* is believed to bring bad luck, death and diseases.

Taboos associated with construction of traps such as dead fall and snare traps includes rules regarding trespassing. Thus, it is a taboo to see another construct or place a trap or meddle with another's traps. Such traps are believed to be destined for failure. Therefore, discretion has to be maintained while constructing the traps and setting them up. Large traps are typically placed in traditional hunting grounds and trespassing is not taken kindly and could invite heavy fines or compensations. This taboo also highlights practical considerations as

construction and placement of a trap is hard work requiring knowledge, time, materials and labour. Both the taboos classified in this category provide a degree of ban on access to resources. Traditional beliefs related to *Sanyak* discourage use and access of it while property rights and associated with *Nyotum* regulate its use and access. Taboos in this category provide valuable ecological services such as restoration, refuge and preservation (Colding & Folke, 2001).

c) Method taboos-

Method taboos entail a ban or restrictions placed on specific methods and techniques. The taboos observed by a hunter during hunting include strict codes of behaviour and taboos. Taboos observed during hunting extend to entire period of hunt which varies based on individual preferences, availability and rate of success. Once a hunter goes hunting, he avoids sexual, angry or malevolent thoughts. Apart from these, behavioral taboos include, avoid talking loudly, jeering, shouting or quarrelling and poking fun at the animals or *Uyu*. Names of all things including animal are done through use of pseudo names similar to hunting taboos of the Idu Mishmi (Aiyadurai, 2016; Nijhawan, 2017).

Table no. 3- Pseudo Nyishi names used during hunting

Sl. no	Name of the objects, animals	Common Nyishi names	Pseudo Nyishi names
1	Bear	Sutum	Massang
2	Wild Boar	Sarey	Mori
3	Mountain goat	Sebih	Sungney Takam
4	Water	Iss	Abik
5	Sun	Donyi	Ane
6	Fire	Amey	Yamar
7	Bow and Arrow	Upuk/ Eri	Chaga

Source- Author's field data (2020, Koloriang)

Usage of pseudo-names according to the Nyishi is done in order to avoid drawing attention of the animals or *Uyu(s)* who may become aware and evade efforts to be caught. Other behavioural taboos include, not washing clothes or drying them by the fire during camping as it is believed that the smell could alert the animals. The codes of behaviour observed during hunting have been categorized under method taboos as they regulate attitudes and behaviour associated with resource withdrawal. Additionally, it has been observed that 55 out of a total of 58 villages had in place bans on use of guns for hunting. The bans extended to use of other methods such as dynamite, electro fishing and use of poison. Ban on use of guns for hunting around forests and rivers around the villages do not fall under traditional taboos, however, indicates ban on specific method.

Discussion

Interrelationship between taboos and natural resource management

Historically indigenous communities across the world have managed resources based on informal practices such as taboos based on beliefs (Colding & Folke, 1997; Colding & Folke, 2001; Sharma et al., 2021; Janaki et al., 2021; Angsongna, et al., 2016). The taboos and rituals of the Nyishi are also based on their beliefs and emphasize the role of human within wider system. In this sense, the role of human exceeds beyond the social role and includes responsibilities towards other beings they share their world with. For the Nyishi, this world is cohabitated by spirits, who are agentic supernatural beings capable to alter and influence their life (Aisher, 2007; 2013; 2017). The Nyishi understand that their agency is limited and resources required for their survival does not depend on the skills and knowledge alone but approval and cooperation of the master-spirits (*Uyu*).

Within the species-specific taboos, the Nyishi restrict killing of species such as Linsang, Tiger and Otter. Linsang (*Sanang Kiori*) has particular importance in Nyishi belief system and thus, killing or sighting of it is considered to invite the wrath of the *Uyu*. Interrelationship between tiger (*Patey*) and the different groups of Arunachal Pradesh have been documented (Aisher, 2013; Aiyadurai, 2016; Nijhawan, 2017; Janaki et al., 2021). Otter (*Saram*) for Nyishi also signifies an important creature which is close of *Uyu* of water and thus killing or sighting of it is considered to be a bad omen.

Western scholars and conservationists have widely understood the role of keystone species such as Tigers in ecosystem maintenance (Aiyadurai et al., 2010; Aiyadurai, 2011, 2016). Many environmental projects in India and abroad have been directed towards the conservation, protection and rehabilitation of keystone species. The Nyishi beliefs and taboos associated with Tiger indicate the importance of such conservation principles (Aiyadurai, 2016). Species such as Otter have a significant ecological role in controlling and maintaining the river ecosystem of an area. The presence of Otters in a river ecosystem is an essential indicator of the health and quality of the river (Siegal, 2020). Scientifically belonging to the Prionodon genus, the Linsang species (*Sanang Kiori*) resembles the cat family. Perhaps because of this, the Nyishi consider Linsang to be the youngest member of the cat family and recount it in the genealogy of the cat family. Recent studies suggest that the Prionodon genus comprising Asian Linsang is the sister taxon of the cat family (Barycka, 2007; Jennings & Veron, 2015). Cases of indigenous knowledge aiding scientific knowledge in the classification and correct identification of species are plenty (Bennett & Robinson, 1999; Lantz & Turner, 2003; Pierotti, 2011) and enable better resource management practices.

In the case of habitat taboos, the case of high-altitude lakes (*Sanyak*) bears ecological significance. The taboos related to such areas turn high-altitude lakes and surrounding areas into an area protected from human intervention (Poffenberger, et al., 2006). These high-altitude lakes become crucial in providing refuge to aquatic and non-aquatic species, such as mammals and birds. Other ecological services, such as regulation of local hydrological cycles, prevention of soil erosion and pollination of crops, are also provided by the protected marine areas (Colding & Folke, 2001).

Thus, the Nyishi taboos and rituals have a significant role in implementing and exercising resource management practices. Janaki et al. (2021) contend that taboos, rituals and beliefs are similar to modern conservation methods in 'form but not in content'. For example, the taboos and beliefs that ban the withdrawal of resources mirror 'preservation' principles, and taboos and beliefs those focus on control of resources in terms of use and extraction mirror 'conservation' principles of modern conservation. However, taboos and rituals lack the specificity of modern conservation; they do not emerge from carefully collected, calculated stock quota and risk analysis estimates but are self-imposed by the community themselves based on traditional knowledge and experiences based on constant engagement with the environment (Aggarwal, 2008; Angsongna et al., 2016)). The resource management of the Nyishi thus fulfils many critical aspects of modern conservation principles such as conservation, preservation and protection. It also signifies consideration of the role of humans in the management system; as for the Nyishi, the world is a composite whole of humans and non-humans.

Despite implications of hunting related taboos and beliefs in resource management, not all aspects of indigenous hunting are sustainable in nature. Alvard (1994) points out that conservation may just have be a side effect of the low population and limited technology rather than direct intent of indigenous resource management practices. Additionally, rapidly growing population, infrastructural developments and road connectivity have made connection to the cross continental commodity chains of illegal wildlife trade linking poachers, traders and consumers easier (Aiyadurai et al., 2010; Aiyadurai, 2011; Aisher, 2016). Changing economic situation, inflow of cash, social and cultural changes have changed the perception and practice of hunting itself (Aisher, 2016). Aiyadurai (2011) notes that taboos and beliefs associated with hunting itself has not changed but has been replaced by other religious beliefs. Thus, traditional beliefs and taboos are no longer considered relevant or even outdated. Socio-cultural changes such as conversion to Christianity also possess serious threat to the traditional belief system (Aiyadurai et al., 2010; Aiyadurai, 2011; Angsongna, et al., 2016; Janaki et al., 2021).

Conclusion

Negative consequences of hunting for wildlife have led to depletion of resources and hunting carried out by indigenous tribes across the world has increasingly come under scrutiny (Aiyadurai et al., 2010; Janaki et al., 2021). The role of indigenous communities in conservation and effective resource management has also been questioned by conservationists and ecologists (see 'ecologically noble savage' by Redford (1991) and debates

around it (Hames, 2007)). However, despite these considerations, the role of indigenous communities in effective and inclusive resource management practice have been accepted by conservationists, ecologists, policy makers and researchers (Colding & Folke, 2001; Berkes, 2004; Aggarwal, 2008; Alves et al., 2012; Angsongna et al., 2016).

Indigenous communities have historically managed resources based on traditional knowledge and belief systems (Berkes, 2012). For resource management systems to become robust and sustainable inclusion of indigenous communities in resource management regimes is needed (Angsongna, et al., 2016). Further, in today's globalised world the impacts of climate change, resource crisis and resource depletion possesses increasing threats for the indigenous communities (Angsongna et al., 2016; Varah & Varah, 2022; Janaki et al., 2021) point out that in the case of Arunachal Pradesh where state and local communities such as the Nyishi are embroiled in low but simmering conflict over resources due to unclear nature of state and community ownership over resources. Additionally, lack of clear cut resource management systems has the potential to add to the problems of sustainability. While such considerations remain, this study highlights the role of hunting related taboos in resource management among the Nyishi of Arunachal Pradesh.

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