



## India: Community conservation at a crossroads<sup>1</sup>

*Neema Pathak Broome and Nandita Hazarika*

### Summary

Over the last decade Khonoma, a village in northeastern India inhabited by the Angami, one of the indigenous or tribal people of the state of Nagaland, has demonstrated a resolute will to conserve biodiversity and wildlife. By establishing and strengthening systems of natural resource management and conflict resolution, including through the development of the Khonoma Nature Conservation and Tragopan Sanctuary, the village is exemplifying a search for appropriate and sustainable development. All this is embedded in the traditional ethos of the village, coupled with an openness to experiment with new technologies and ideas from outside the village. The results are impressive enough to warrant more attention for this historically well-known warrior village, this time in the annals of India's environmental movement. However, despite many successes the village today stands at crossroads as it struggles to find incentives that will sustain conservation in the long run whilst maintaining its relevance for the local population.

### Description and history of the protected landscape

Khonoma village, located about 20 km from the state capital, Kohima, in the northeastern state of Nagaland in India, is home to the Angami tribe. The village, referred to as Khwunoria (named after the Angami term for a local plant, *Glouthera fragrantissima*), is estimated to be around 700 years old and is spread over an area of 123 km<sup>2</sup>. The total population of the village is about 3,000, comprising 630 households.

Khonoma is famous for its forests and a unique form of agriculture, including some of the oldest terraced cultivation in the region (Cairns and Brookfield, 2011). The terrain of the village is hilly, ranging from gentle slopes to the steep and rugged hills of the Barail mountain range. The hills are covered with lush forestland (sub tropical and temperate broadleaf forest), rich in various species of flora and fauna.



Flower of the aconitum genus

The area includes the broadleaf and bamboo forests of Dzuku valley which borders the states of Manipur and Nagaland. There is no official survey of land use, but a rough estimate by residents is that between 20 to 30 per cent of the village is under agriculture and settlement, the rest under forest. The state bird of Nagaland, Blyth's tragopan (*Tragopan blythii*), is found and protected in the forests of Khonoma (Zafar-il Islam and Rahmani, 2004). This pheasant is nationally and globally endangered with very small populations restricted to some North Eastern states in India such as Arunachal Pradesh, Nagaland and Sikkim and some small populations recorded from Myanmar and China. The bird faces serious threats from deforestation and hunting<sup>2</sup>.

Nearly two hundred years ago, advancing British troops found themselves facing a determined warrior tribe in the highlands of Nagaland. The Angami men of Khonoma, famed for their martial prowess and strategic skills, fought a resolute battle to safeguard their territory, inflicting heavy casualties

<sup>1</sup> This study is based the case study on Khonoma by Neema Pathak (Pathak, 2009); which in turn was based on information sent by Tsilie Sakhrie, a social worker from Khonoma village, and information collected during a field trip to Khonoma village by Ashish Kothari, Neema Pathak and Shantha Bhushan of Kalpavriksh in February 2005 (Kothari, 2005; KTDB, 2004). The information presented here was updated after a visit to the village by Nandita Hazarika and Goutam Narayan in February 2011 and by Ashish Kothari in November 2011.

<sup>2</sup> For more details see: [www.birdlife.org/datazone/speciesfactsheet.php?id=239](http://www.birdlife.org/datazone/speciesfactsheet.php?id=239)

on the foreign soldiers. The village is recorded to have resisted British rule in the region from 1830s to 1880. Finally a truce between the two forces stopped further bloodshed, but Khonoma village had etched its name into the history of Indian resistance to the colonial invasion. The area was once again the scene of violent clashes in 1956 when the Indian army tried to end a movement, based initially at Khonoma, for Naga independence. Nagaland became a state within the Indian union in 1963, with one distinctive condition that the land, and the forests in particular, remain under local control. The result being that today some 88 per cent of the forest is in local control in contrast to only about 10 per cent in India as a whole (Cairns and Brookfield, 2011). The struggle for independence continued throughout most of the twentieth century with a more or less permanent peace being agreed only in the 1990s.

Christianity was introduced in the village in 1890. Today most of the villagers are of this faith; as a result a number of animistic rituals and beliefs have now been given up.

### **Governance, conservation and legal status**

The governance structure in Nagaland is a combination of customary decision-making processes combined with the statutory system set up by the state and central governments. The village is divided into three hamlets (*khels*), each with several clans, each clan comprising several families. The clan is itself a decision-making unit, and selects members to represent it in larger village-level bodies. These include the village council (which has overall responsibility for all affairs), the Village Development Board (recipient of government funds for developmental purposes) and the *ruffono* (a recent innovation to bring all village institutions under a common umbrella). Traditional institutions such as decision-making by the *gaon buras* (village elders) have been integrated into the village council's decision-making processes. The youth are part of either a student union or a youth association; the women are members of the Khonoma Women's Organisation. In addition, all villagers are part of an 'age group'. Such groups are formed by boys and girls in the age group 12-15 (born within specified dates), who carry out social activities like construction of rest-houses and village paths, and the formation of singing and dancing groups. Each age group is assigned a guardian, who is considered a spiritual parent. The bond lasts a lifetime and members stay together until they are into their 60s and 70s. Citizens of the village who move out in search of employment always remain connected to the village in some form and contribute to its well-being whenever possible.

Wildlife hunting is a way of life for the Naga tribes (including the Angamis and the 14 other tribal groups in the region), and a large number of birds and other animals are killed every year, including the endangered Tragopans. In 1993, 300 Tragopans were reported to be killed for their meat in the village.

Even today it is estimated that there are more than 1,000 guns in the village, used both for ceremonial as well as hunting purposes. But in the 1990s, this magnitude of killing motivated the more ecologically minded people of the village (both resident and formerly resident) to launch a crusade against hunting and began the conservation movement in Khonoma.

In 1998, the Khonoma village council declared its intention to protect about 2,000 ha (20 km<sup>2</sup>) of forest as the Khonoma Nature Conservation and Tragopan Sanctuary (KNCTS). This act was motivated by some of the village elders, notably Tsilie Sakhrie. Tsilie had been a contractor for the Forest Department in the 1980s where he had been introduced to the idea of dedicating a part of the village forests to wildlife conservation. In the 1980s, Tsilie proposed that the village do something to this effect, but he could not achieve a consensus. In 1995, he became a member of the village council. Concerned by the high number of birds being killed every year, Tsilie again broached the subject. A number of villagers were opposed to the idea, since hunting was so much a part of their culture. However, over the next three years, through extensive discussions in the village, the majority were convinced and the sanctuary's foundation stone was laid in December 1998.

The KNCTS has not been legally notified by the state Forest Department. However, the Village Council Act of Nagaland gives the Village Council authority to devise mechanism for management of forest resources, under which this sanctuary has been declared. Therefore the Village Council and the entire community under the prevalent customary law recognise KNCTS as a legal entity. In 2005, the state forest department initiated a proposal for this area to be declared a Community Reserve under the Indian Wildlife (Protection) Act as amended in 2001. The proposal, however, was rejected by the village community citing various limitations of this category.

### **Conservation initiatives**

The development of the Sanctuary has influenced the management of the entire village area; it was for example decided to ban hunting in the entire village territory extending to 125km<sup>2</sup>, and not just in the sanctuary area. Although not formally recognized as a protected area, Khonoma has all the characteristics which distinguish a category V protected area according to the IUCN definition and guidelines which recognizes the values the importance of landscapes of distinct scenic quality with significant associated habitats, flora and fauna and associated cultural features (Dudley, 2008). There is both an actual and perceived interdependence amongst the various land uses in the landscape, and between these and the cultural practices of the villagers. The forest is seen to be intimately connected to the sustenance of farming, providing both water security and nutrients. Farming has remained organic and diverse, with an explicit understanding that this is good for local people and soils, and that outside consumers would also prefer this. This in turn helps sustain wildlife



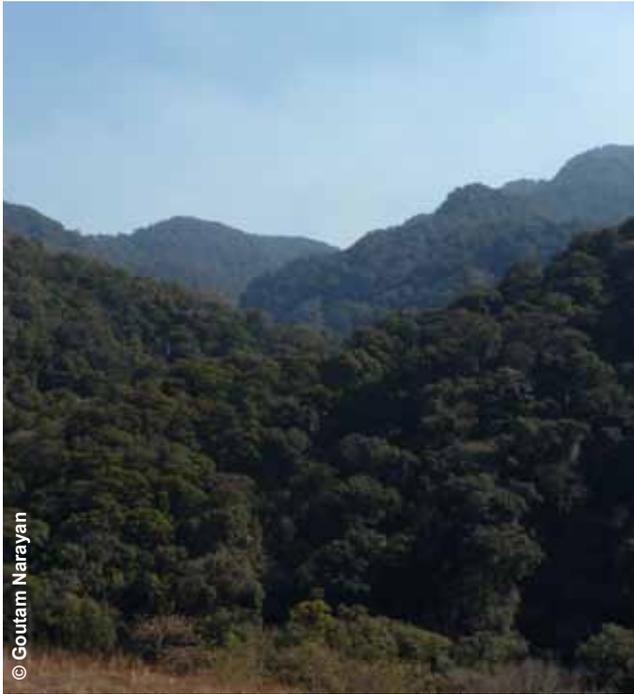
**Khonoma village landscape**

dependent on the diversity of crops and farming practices, and aquatic wildlife that could be negatively impacted by chemicals. A number of cultural practices and institutional structures relate to the sustainable management of the landscape, including traditional ones like the *khel* decision-making processes, and new ones like the Sanctuary Trust (see below). There is however inadequate documentation on this aspect and villagers may not explicitly think of the village landscape in terms of a conserved or protected one.

As well as the declaration of the Sanctuary, the village set up the KNCTS Trust, with a formal set of rules and regulations for the management of the area. Office bearers were chosen from amongst the villagers; with Tsilie chosen as the chief managing director. Rules were laid down for the management of the sanctuary, including penalties for violations, ranging from Rs300-3,000, depending on the seriousness of the violation. The village youth were requested to monitor the implementation of rules and to levy fines, which they could then use for their own village-based activities. Villagers also selected some youth members to be wardens for the sanctuary, to periodically check on the sanctuary to ensure there are no violations.

As the concept of a sanctuary was new to the villagers, they decided to seek help from the government, NGOs and other institutions in order to seek technical and academic support. NGOs such as the Centre for Environment Education (CEE), North-east Regional Cell, assisted in spreading

awareness about the conservation of Tragopans. A six-member team of KNCTS was given an orientation about the sanctuary. A number of environmental awareness expeditions were organised for village members and the importance of having a village map, land records and a survey of flora and fauna were emphasized. Community members visited Chakrashila Wildlife Sanctuary in Assam (a government designated protected area on community land with the consent of the local villagers) to share experiences with other similar efforts and visited Kaziranga National Park to understand the issues related to protected area management. NGOs such as EQUATIONS (based in Bangalore) have helped the local Khonoma Tourism Development Board to carry out an Environment Impact Assessment (EIA) of tourism (KTDB, 2004), in case the village decided to further promote tourism. Another NGO, Aaranyak (based in Guwahati), has helped the villagers conduct a survey of fauna and flora in KNCTS (see below). In 2005, Kalpavriksh (based in Pune and Delhi), conducted a state level survey of community conserved areas (CCAs) in Nagaland followed by a state level workshop with CCA representatives, government and non government agencies to assess the constraints faced by CCAs in the state and opportunities available to deal with those. This helped CCAs, such as Khonoma, to link with each other and learn from each other's experiences. As a follow up to this, Salim Ali Center for Ornithology and Natural History or SACON (based on Coimbatore) in association with Nagaland



**Khonoma forest**

Empowerment of People Through Economic Development or NEPED (based in Kohima) initiated a project for strengthening Community Conservation in Nagaland in the year 2007, which had Khonoma as one of its sites (Kalpavriksh, 2005; SACON, 2011). The project came to an end in 2010 and currently a follow up is being discussed and considered by a number of agencies.

Conservation is only one of the elements of social empowerment at Khonoma. Visitors to the village are confronted with a bewildering number of activities and processes that its residents seem to be engaged in. Some of these are new, some age-old. Khonoma may well be the only village in India that has a global citizenry with an active self-identity; every year the 1st September is celebrated as the village's 'birthday'. Khonomaians come from far and wide to the village to celebrate, or hold celebrations wherever they may be. There are even Khonoma student unions in Kolkata, Mumbai and Delhi.

### **Agriculture in Khonoma**

Khonoma is well-known in agricultural circles for its sophisticated cultivation techniques. The first British observers to see Khonoma in the nineteenth century were struck by the shortage of agricultural land; a shortage which meant that the Angamis have had to develop systems to prioritise returns from the land as opposed to labour inputs (Cairns and Brookfield, 2011).

Farmers use a form of shifting cultivation (jhum), based on the use of Nepal alder (*Alnus nepalensis*) trees interspersed with the crops. These trees return nitrogen to the soil, helping the land to rapidly regain fertility when farmers abandon it to move on to the next plot. Cairns and Brookfield (2011) report

that a fallow period under managed alder of only two years' duration is sufficient to restore soil fertility for a further two years of cropping. The village also overlooks a wide valley that has been converted into terraced fields, primarily for rice cultivation, made with such precision that their productivity has apparently remained stable over centuries. According to the villagers, Khonoma is home to over sixty varieties of rice, and a diversity of millets, maize, Job's tears (a tall grain-bearing tropical plant), citrus fruits and other crops (grown without using chemical pesticides or fertilizers).

All this has made the village a model for emulation in many other parts of Nagaland through the efforts of the unique inter-departmental NEPED programme. This is especially useful where shifting cultivation has become unsustainable due to shorter cycles of leaving the land fallow after cultivation. Factors that make the system work include clear ownership of land and natural resources within the village boundaries. This provides a strong impetus for working out sustainable modes of land management. But this would not be enough in itself (for such ownership could also result in individuals destroying their lands), were it not coupled with very strong social and political organisations. In the recent times because of changing socio-economic needs there are some changing trends. For example many farmers are now switching to the cultivation of fruits such as peach, plum, apples, kiwi and pears commercially. While the local varieties are still available the stress is on hybrid varieties for better market returns.

Although these changes are comparable with other parts of the southeast Asian region, the circumstances are not identical. Partial transformation of the system into cash-crop farming is based on exploitation of regional market opportunities and is thus economically, and hopefully environmentally, less vulnerable than transformations that rely on specialisation for international markets (Cairns and Brookfield, 2011).

### **Biodiversity importance**

Khonoma, and in particular the KNCTS and the terrace fields where traditional agriculture with a diversity of crops and varieties within crops is practiced using organic supplements, is of outstanding value from a biodiversity, water security and aesthetics point of view. KNCTS is, for example, recognised as one of the 465 Important Bird Areas in India (Zafar-il Islam and Rahmani, 2004).

Preliminary ecological studies by the local population have recorded the use of about 250 plant species, including over 70 for medicinal purposes, 84 kinds of wild fruits, 116 kinds of wild vegetables, nine varieties of mushrooms, and five kinds of natural dyes from the surrounding forests in the village. Local people have recorded about 204 species of trees, nearly 45 varieties of orchids, including the endemic Dzuku lily (*Lilium chitrangadae*), 11 varieties of cane, and 19 varieties of bamboo. Villagers also record 25 types of snakes, six lizards, 14 amphibians and 196 birds - of which English names for 87 have been identified. 72

wild mammals have also been reported by the local people; however English and scientific names for all have not been recorded yet.

There has been limited formal research in the area. No detailed research has been carried out on the mammalian fauna, but the following species have been noted: Clouded leopard (*Neofelis nebulosa*), Leopard (*Panthera pardus*), Serow (*Nemorhaedus sumatraensis*), Barking Deer (*Muntiacus muntjak*), Wild Boar (*Sus scrofa*), Stump-tailed macaque (*Macaca arctoides*), Slow Loris (*Nycticebus coucang*) and Hoolock Gibbon (*Hylobates hoolock*) (Zafar-il Islam and Rahmani, 2004). New bird species to the area are recorded with every survey (see for example: Ahmed et al, 2003 and Choudhury, 2005) and the highest known altitude record for King Cobra (*Ophiophagus hannah*) in the entire northeastern India was recorded at 1700m in Khonoma (Das et al, 2008). Biologist Firoz Ahmed of Aaranyak, in association with some of the village youth, has started to survey the biodiversity and has reportedly marvelled at the level of traditional knowledge; he has reported 20 species of frogs and toads, 14 of which were already reported by villagers.

What makes the area particularly significant is that the cultural tradition of hunting throughout Nagaland has had a major impact on biodiversity. Bikram Grewal, author of the best selling *Birds of India*, eloquently describes the problem: “Nagaland today, in many ways, is a world without life – miles and miles of countryside are enveloped in eerie silence with all life forms having found their way into the cooking pot over the years.” A view supported by Choudhury (2001) who recorded many restricted range bird species being sold for meat in the market of the state capital. The conservation efforts in Khonoma have however resulted in a quite different experience; as Grewal goes on to state, after three days in KNTCS: “...we were rewarded with sightings of such rarities like the Rusty-capped Fulvetta (*Alcippe dubia*), Large Niltava (*Niltava grandis*), Red-faced Liocichla (*Liocichla phoenicea*), Mountain Bamboo Partridge (*Bambusicola fytchii*), Long-tailed Wren Babbler (*Spelaornis chocolatinus*), White-browed Piculet (*Sasia ochracea*) and the Crested Finchbill (*Spizixox canifrons*). Bird life was abundant and many species exhibited interesting plumage variations leading to localized sub-species distributions. Of particular interest were Black-throated Tits (*Aegithalos cocinnus manipurensis*), Red-whiskered Bulbul (*Pycnonotus jocosus monticola*) and Red-vented Bulbul (*Pycnonotus cafer stanfordi*). Khonoma is also the best place to see the endangered Blyth’s Tragopan ...” (Grewal, undated).

Agrobiodiversity is also rich although documentation again poor. However, as noted above, the increasing tendency to plant cash crops in the *jhum* (shifting cultivation) and terraced fields may be leading to loss of agricultural biodiversity. Job’s tears, for instance, are less favoured. Some other millets may be declining due to, ironically, the conservation-related increase in bird populations that feed on them; farmers tend to favour such millets less.



Gateway to Khonoma

## Developments, threats and responses

Given its historic past, Khonoma also plays host to many tourists. Some years ago the Government of India recognised the potential of the village to organise itself, and granted it a substantial Green Village fund through the Tourism Department of the state government. The money was used to start a tourism initiative in 2000, to provide basic civic amenities and hygiene measures, reinforce community infrastructure and prepare the village to receive and showcase to visitors its past and its present. However, after the Green Fund was exhausted no effort was made to strengthen the tourism potential. Tourism numbers remain low, with an annual inflow of about 300 visitors, with less than 100 opting for overnight stays. No mechanisms exist for benefit sharing, and currently only five or six households which host home-stays gain from the tourism industry. According to Charles Chasie, a village member who resides in Kohima: “There are differences of opinion among the community members about sharing of tourism benefits as returns are seasonal and limited to a few households only. An effective intervention from outside can play an important role in realising the benefits of tourism in Khonoma and ensuring equitable distribution of benefits.” There is however, concern amongst villagers that a large-scale tourist influx could be counter-productive: hence the importance of the tourism EIA mentioned above (KTDB, 2004).

Other developments are also threatening to impact the area. In the mid-1990s, in an incident reminiscent of the British invasion, the villagers had to physically resist timber merchants who came with several dozen elephants to carry out logging in the area, unfortunately aided by some insiders.

The Dzuku valley, was immortalised by Vikram Seth in his poem 'The Elephant and the Tragopan' (Seth, 1991). The poem is about how the wild animals try to stop a proposed dam that would drown out their valley, reflecting an actual movement by NGOs in Nagaland against such a proposal in the 1990s. The idea of the dam has been replaced by a pipeline proposal, to take water from the valley to Kohima, a project that would hopefully have little ecological impact.

### Management challenges

All residents of Khonoma are members of KNCTS by default. There is a board comprising four (three men and one woman) office bearers who are nominated for a period of five years to oversee the activities related to the sanctuary. The latest board was constituted in January 2011.

Khonoma is probably the only place in Nagaland where hunting was banned in the entire village throughout the year. There were occasional incidents when villagers went to other areas to hunt, but the realisation grew that this was unfair. The ban was completely enforced by the village, and seems to have been highly effective with less than 10 violations reported. Maintaining the ban has however proved a challenge and disagreements between the Village council and the KNCTS have developed. Contentious issues are resolved through amicable negotiation; but this does mean that some of the initial management aims have been reviewed. The ban on hunting, for example, created a problem of crop damage by wild pigs and other wildlife, as a response the village first allowed the hunting of the pests that were causing the damage and then in 2009 and 2011 further relaxed hunting ban, as described below.

The Khonoma Youth Organisation (KYO), a powerful village level institution, plays an important role in matters related to hunting. Following the decision to deal with problem animals noted above, the KYO was given the discretion to give permits for killing vermin/pests that damaged crops or preyed on livestock. Following reported increase in damage to local livestock, particularly the mithun (*bos frontalis*), a species of gaur the largest species of wild cattle, by wild dogs (*Cuon alpinus*), the KYO gave permits to hunt wild dogs attacking the mithuns. In 2010, 10 wild dogs were killed with hunting permits. The KNCTS also gave sanction to KYO to penalize individuals if they hunted any other animal than those declared as vermin/pests.

Immense pressure from the community, particularly the youth, continues and KNCTS lifted the ban on hunting for five days in 2009, and for 10 days in January 2011. Though the elders termed these exceptions as a mutiny, they felt that had to give in to the demand amidst great resistance. There was no monitoring of the hunting activities during these days, however the hunters were expressly asked not to kill Tragopans. During this period outsiders were not allowed to participate in the communal hunting and no fee was charged from the villagers. Though deer

and small carnivores were the favourite among the hunters, young boys with catapults happily searched for birds to kill. Searchlights combined with shotguns proved popular with the hunters, who camped inside the sanctuary for easy prey. The Angami Youth Organisation passed a resolution in 2010 to ban the use of airguns completely in the next three years.

Some residents are concerned that this relaxation of the hunting ban will have negative consequences on the local wildlife population. Hunting is a very important aspect of the local culture and banning it for a long period of time may not be feasible. Instead it is clear that the village youth need to arrive at a method of selective hunting, within certain parameters and engage the hunters and others in the village with wildlife population monitoring studies. It would be useful for the village to learn from other experiences, such as the flare-horned Markhor (*Capra falconeri*) project where a successful community-based trophy hunting programme has help restore Markhor populations in Pakistan<sup>3</sup>, to understand how selective hunting could benefit the community in the long run. The youth group and other members could also be benefitted from the introduction of regular wildlife population monitoring techniques, the results of which could feed back into the management of the KNCTS.

### Conservation connectivity

Khonoma's efforts are an exemplar of dozens of similar initiatives across Nagaland. Many settlements in Phek and Kohima districts have displayed notice boards warning would-be hunters of severe penalties, declaring community forest reserves with stringent restrictions on resource use, and so on. Slowly but surely, wild animals are making a comeback, a phenomenon that even a decade back seemed virtually impossible (see other case studies on Nagaland in Pathak, 2009).

Tsilie and other community members have for some time been attempting to propose an extension of the sanctuary to neighbouring forests as a 'buffer zone' to KNCTS. If accepted by the council, the area would increase to over 3,000 ha (30 km<sup>2</sup>). KNCTS is also adjacent to another community conserved area, Pulie Badze Wildlife Sanctuary (923 ha), which as Zafar-il Islam and Rahmani (2004) discuss in the volume on important bird areas forms a single continuous area of more than 20,000 ha, making the whole area very important for avifauna conservation in southern Nagaland.

Tsilie in his capacity as the president of the Western Angami Public Organisation (an institution that contains the entire western Angami tribal population) has also been discussing with the Southern Angami Public Organisation to declare their areas as protected. Work could also be done to convince Naga tribes in adjoining Manipur, since the Khonoma citizens have relations extending into those villages. If successful, the entire Dzuku and Japfu area could be declared

<sup>3</sup> See: <http://www.cfc.unt.edu/nwfp/Markhor.html>



Foundation stone of Khonoma Trust with founder member Tsilie Sakhrie

a community protected area, extending to perhaps several hundred square kilometres. The plans however have not yet come to fruition and much will depend on the changing socio-economic aspirations and their fulfilment.

### Lessons learned, future needs and long-term predictions

Khonoma's conservation initiative is all the more noteworthy if one looks at the enormous decline of wildlife across Nagaland in the last few decades. Hunting has been rampant, according to one resident perhaps fuelled by the jump in firearms availability since a truce was declared between the Naga insurgents and the Indian army in 1997. The tribes here eat virtually everything that moves, and though this may not have damaged wildlife populations in the past due to limited hunting technologies, it has of late assumed severely destructive proportions. Around 300,000 animals and birds were killed in Nagaland in year 2008, according to a survey carried out as part of a programme on strengthening community conservation efforts in Nagaland under the Nagaland Empowerment of People through Economic Development (NEPED) (Morung Express 2011). The programme was in collaboration with SACON.

The most important factor for future success is solving the increasingly difficult relationship between the youth groups and KNCTS. There is a need to find a way to manage the sanctuary and follow the principles of regulated hunting

in way accepted by all the villagers, as there is a substantial number of people in the village who feel that there is no direct benefit to the village and the villagers from the sanctuary. There is a fear that people will become indifferent to KNCTS if there are no long term benefits or incentives to safeguard it.

There is an urgent need to help the Village Council work out a sustainable and long term mechanism which will generate income sources for local youth, help share benefits equitably and are linked directly with the conservation of the sanctuary.

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## About the authors

**Neema Pathak Broome**, is a member of Kalpavriksh, a non-profit organisation working on environmental and social issues based in India. Neema works primarily on the governance of biological diversity. She has coordinated and conducted research in various projects related to participatory conservation and indigenous community conserved areas in India and South Asia. She has been analyzing Indian laws and policies to help them move towards facilitating conservation while ensuring social justice. She is a member of IUCN Strategic Direction on Governance of Protected Areas; World Commission on Protected Areas, and the International Consortium on Community Conserved Areas. She has compiled and edited a Directory on Community Conserved Areas in India. Neema is currently facilitating participatory conservation and livelihoods compatible with conservation in and around a few villages in Bheemashankar Wildlife Sanctuary in Maharashtra, India. She is also coordinating a process of writing a training manual and training course on “Governance of Protected Areas” being supported by the IUCN Theme on Indigenous and Local Communities Equity and Protected Areas, Convention on Biological Diversity and GIZ.

**Nandita Hazarika** is associated with EcoSystems-India, a non-profit trust for biodiversity conservation based in Assam, India. Her primary interests are sustainable and equitable management of natural resources and conservation of endangered species. She currently manages the Assam Haathi Project<sup>1</sup> on mitigation of human-elephant conflict in collaboration with Chester Zoo, UK. She also assists with implementation of community based social activities of Pygmy Hog Conservation Programme, Eaglenest Ecotourism Initiative and other projects of EcoSystems-India. In the past she had worked for The Energy and Resources Institute (TERI), New Delhi, on rural energy issues. She has co-authored a children’s book on grasslands animals, and a handbook on human-elephant conflict mitigation techniques, besides writing feature and journal articles. Nandita has a Masters in Geography and was a Humphrey Fellow at University of Washington at Seattle in 2001-2002 under the Fulbright Programme.