MEETING REPORT

Community-based sustainable natural resources management and development in Northeast India*

In Northeast India, the biological diversity and variability of the ecosystems are used and conserved by traditional communities through various informal institutions and using traditional ecological knowledge systems. These communities have diverse food habits, culture and linguistic variations complemented by community knowledge and informal rural social institutions, which determine the access and conservation of natural resources. To explore, document, validate, conserve and commercialize these knowledge systems and simultaneously reward and assure the intellectual property rights of tribal communities who have been using such knowledge for their sustainable survival, is the prime need of the hour. Looking at the importance of biological diversity and the role of community members of Northeast India, a national seminar was organized, where the role of community knowledge and informal rural social institutions in sustainable management of biodiversity, mobilization of the community for sustainable use and conservation of natural resources, equitable benefit share arising from indigenous natural resources, validation and value addition, and IPR and conservation of indigenous biodiversity of Northeast India were covered.

The uniqueness of this seminar was the interaction and learning with the community people and 'Gaon Burhas' (village customary chief of traditional communities), grassroots conservators and traditional knowledge holders, who are the real custodians of sustaining the natural resources.

Bosiram, Honorable Member of the Legislative Assembly, Pasighat in his inaugural address, emphasized that Northeast India in general and Arunachal Pradesh in particular, is famous for the diverse species and varieties of flora and fauna. This region is also blessed by the diverse culture and communities that make the NE region unique in India. Over the years, people of the NE region have been surviving with nature and have developed location-specific traditional ecological knowledge systems tuned to culture and nature. The survival strategies of these communities were of subsistence in mode, without greed of destroying biodiversity and other resources. However, now the acculturation, commercialization and modern technology-led developmental processes have weakened the dynamics of sustainable conservation of biodiversity and other natural resources. The work on community mobilization through indigenous institutions, is the need of the hour to change the attitude of the people and involve them in conserving biodiversity of the region. Programmes like biodiversity contest and quiz among villagers and school children, indigenous plant-based traditional food competition among rural women along with integrated approach of exploring biocultural knowledge systems may be started on a wider scale, to make people realize the value and potential of such natural resources.

In his keynote address, T. K. Mukherjee (NISCAIR, CSIR) emphasized that we can explore community and traditional knowledge of the northeastern region for wealth creation and also to ensure benefit shares to the knowledge holders. He also emphasized that collecting information on biocultural resources using local language could help in wider applicability and diffusion of the message. In this way, the knowledge of traditional communities relating to bioresources may be protected from permanent loss.

R. Mili (GBPIHED, Itanagar) discussed the role and value of traditional institutions of the Adi community in conserving natural resources of Arunachal Pradesh, and mentioned that most of literature reported from South East Asia regarding the destruction of natural resources is not primarily due to the shifting cultivation, but due to modern constructions and developmental works. Jhum cultivators manage more than 30 indigenous crops and other biodiversity. The indigenous institutions found in the Adi community help significantly in managing natural resources and biodiversity. The role of indigenous institutions in conserving the 'Mithun' in some parts of Arunachal Pradesh like Rumgong, Boleng, etc. attracted the attention of participants. The role of such institutions is pertinent in the changing socio-political system of the region. G. Lego (Pasighat) who is a conservator of the dekang tree, reciprocated the information on Kebang. He mentioned that socio-political indigenous institution of the Adi community is divided into various levels, namely Dolung Kebang (village level), Banggo Kebang (inter village) and Bogum Bokang Kebang. He further added that lurang system (maintenance of traditional land and related resources) is maintained more in Pasighat socio-ecological systems during the winter. The Gam (member of Kebang) is nominated by the villagers. Every person has the right to say before the Kebang. In every village there are more than 4–5 Gams (members of Kebang) and there is no hereditary system. Dolung Kebang depends upon a number of houses in a village and the heads of all families are members of the Kebang system. If the population of a village is large, then more number of Gam Burha can be selected. Bango Kebang consists of more than one village. In this, all heads of village-level Gams meet together to solve any problem relating to land and other natural resources, including forests. Bogum Bokang Kebang consists of many heads of all Banggo Kebangs of the entire state. In the changing socio-political scenario of the state, now women can also be a Gam Bura. Dotum Koyu (a political interpreter and local resource person) further added that in their area of Koyu too (dominated by Galo community), in case of any dispute on natural resources like land and forest, the cases are placed before the Kebang to solve the problem. In case the Kebang is unable to settle the dispute, then the case is referred to the district civil judiciary.

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A field visit was organized for field observations and interaction with villages and grassroots biodiversity conservators. During this meeting various issues like community biodiversity garden and promotion of ecotourism were discussed with the villagers.

The technical session on the second day of the seminar began with the lead lecture of R. C. Srivastava (Botanical Survey of India, Itanagar) providing a detailed report on RET species of Arunachal and the strategies of their conservation through public awareness. He mentioned that only 52 algae collections are reported so far from Arunachal Pradesh and that working on the algae of Arunachal Pradesh has ample scope. The question from a participant on the livelihood dimension of biocultural knowledge was one of the major issues for discussion. For example, the importance of toko-patta (*Livistona jenkinsiana* Griff.) for commercial cultivation and livelihood promotion of the concerned community was the core subject in this session. Srivastava proposed that toko-patta should be chosen as the state tree.

Hui Tag (Rajiv Gandhi University, Itanagar) threw light on various prospects of studies on the documentation of ethnobotanical and traditional knowledge in Arunachal Pradesh. He added that different agroclimatic zones of the state along with cultural landscape consisting of Kameng, Subansiri, Siang, Dibang, Lohit, etc. contribute much to the conservation of biocultural diversity. The role of sacred grooves and Tawang Monastery to demonstrate the cultural landscape of Arunachal Pradesh, biodiversity of alpine ecosystems; wild edible/medicinal plants resources of Arunachal Pradesh, threatened Rhododendrons of Tawang ecosystems, etc. were discussed during this session. The session concluded with a slogan 'preserve biodiversity to preserve cultural and traditional knowledge'.

K. M. Singh discussed the insecticidal properties of *Trichilia connaroides*, an indigenous plant species, to protect against the harmful effects of chemical pesticides and promote organic farming system in the Northeast region of India. He also threw light on various ongoing experiments in controlling pests by the use of locally available plant resources. The participants in the seminar argued about the competition of chemical insecticides and biopesticides.

The Environmental Economists from (Indian Institute of Forest Management, Bhopal) discussed forest resources accounting for sustainable forest development, and presented various case studies on economic aspects of biodiversity and natural resources management. They also gave a presentation on the contribution of forestry in GDP in the Indian economy. Systems of incorporation of forestry in National Account were also made known to the participant and various aspects of sustainable forest management (SFM) by the local community were illustrated. The criteria indicators, paradigm of SFM, world processes on SFM, national-level technical consultation and maintenances were useful information for the participants. The questions related to maintenance of forest were discussed. It was also pointed out that the market interventions in SFM activities can help people to convert those plants into wealth.

H. B. Singh (CSIR, Manipur Centre) presented a paper on edible plants from the wetlands of Manipur and the importance of conservation of such resources at community level. Y. J. Lego (Pasighat) presented a paper on the use of indigenous plants in healing various ailments and diseases. She discussed various plants, their habitats, uses, methodologies of extraction and methods of herbal drug preparation. Her ethics of continuing ethnomedicinal practices of curing patients of various common diseases was a point of discussion amongst the participants.

Dorjee Khandu Lama presented a paper on the conservation and promotion of dekang tree species in the East Siang District. The entire Adi community of Yagrung and Sibut villages mobilized through their Bane Kebang to make them aware of critically endangered status of deknag tree. The Bane Kebang has made possible to pass a law by the members of Bane Kebang. The Bane Kebang decided in the meeting that anyone cutting a dekang tree will be imposed a fine of Rs 5000.

Local people participating in the seminar expressed their concerns on the cultural values of Kebung (Malayan giant squirrel). They emphasized that the population of kebung was reduced dramatically and needs immediate attention for conservation. The cooperation of the wildlife experts would be required for breeding and management of Kebang by the local community as highlighted by the resource persons and participants.

All the participants agreed that the local community should be made aware about its rights and responsibilities on biodiversity. In this regard, prior informed consent may help generate awareness among local people about its rights and responsibility. The various schemes relating to environment and biodiversity conservation where benefit and reward to local people are concerned, should properly reach the common man. Schemes such as Hariyali, Paryavaran Wahini, etc. should be initiated in major areas like Pasighat, Along or Basar to mobilize the community towards biodiversity conservation.

In the last session of the seminar, members of the house sat in various groups (consisting scientists, academicians, villagers, people, hunters and traditional biodiversity conservators) and discussed various issues of biodiversity conservation, use pattern and livelihood development. The members were of the opinion that value addition to the flora of Arunachal Pradesh is the need of the hour to promote conservation and livelihood. It was the perception of grassroots biodiversity conservators that, the programmes and schemes launched by the State and Central Governments must follow bottom-to-top approach and people should be given detailed information in local languages, so that the benefits could be understood properly. Scientists working on natural resources and biodiversity should give high priority in documenting and compiling all the RET species of the flora and fauna. The compilation of RET species in the form of a manual in English and regional languages can be circulated to various agencies and local people to create awareness and promote conservation of bioresources. In this regard, hunters, herbal healers, aged people, and jhum cultivators can play a great role.

Establishment of a model plot named as community knowledge garden was demanded by the local people. Such a garden could be promoted and established by the community members, where RET and other valuable plant resources could be domesticated. This mechanism will promote people-to-people learning and will reduce the rate of knowledge erosion among the community members. This model of community-based biodiversity conservation

could be linked with the State Department of Tourism.

Some of the Adi participants showed interest in planting trees/plants. During this discussion, many villagers and grassroots conservators of Pasighat region have shown interest in planting dekang species (fruits are used as shampoo and soap as well as curing dermatological disorders), but rewards and incentives would be required to sustain interest. It would also be needed to link this programme with livelihood promotion of people.

Such a model has already been successful (implemented by NIF, DST) in various parts of Gujarat.

Kebang institution can play a pivotal role in conserving biodiversity and planning the conservation of natural resources of the region. The changing cropping pattern of the region should be interlinked with integrated farming systems to minimize pressure on forest and natural resources. Making use of diversified food systems, people can further enhance conservation of bioresources.

Nandini Paliwal (Deputy Commissioner of East Siang District, Pasighat) emphasized the role of local communities in forest and biodiversity conservation. She advocated that participatory team of scientists, NGOs, local people and the district administration can implement biodiversity conservation plans in a better way. Oshong Ering emphasized that unemployed youth may be engaged in forest protection through training and forest brigades.

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