



Biodiversity: The Role of Women in North East India

Dr. Tanusree Sarker

Corresponding author: *Dr. Tanusree Sarker

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ABSTRACT: *The term 'biodiversity' generally refers to the variety and variability of life on Earth. The food security of different communities is based on biodiversity in field and forests. It has a great economic value for plant breeding. Women in many societies play a significant role in managing the diversity of eco system since they are responsible for sustaining the livelihood of the family. They used to develop multiple strategies for their farming system and most of these are based on a sophisticated management of genetic diversity. This paper makes an attempt to identify the contribution of women in different states of North East India to manage the diversity of ecosystem. To write this paper, historical-analytical method has been applied with the help of secondary source of materials collected from various journals, magazines, books and related literatures.*

Keywords: Biodiversity, Eco system, , Food security, Genetic diversity, Plant breeding.

I. INTRODUCTION

“God has given us everything and if we use our knowledge, respect and preserve our forest it will sustain us forever” Biodiversity is the foundation of the life on Earth. Biodiversity has great economic value for plant breeding and new industrial uses. Besides, the economic importance, the richness of biodiversity ensures the present and future stability of the food supply. But the population explosion, habitat destruction, over harvesting, pollution, and limited resources has led to a serious loss of biodiversity. In most of the societies women play an important role in managing the diversity of ecosystem, since they are responsible for sustaining the livelihood of their families. They develop a number of strategies for their farming system. Women are the real experts on biodiversity. Women, in rural areas and tribal societies gather firewood and other forest products for food, medicine, paint and house building. Women also perform many agricultural activities. They sow, weed, hoe and bind the stalks. They also grow a wide variety of vegetables, relish and condiments in their kitchen gardens. They also collect medicinal plants to cure various ailments. The knowledge of women about forest and forest products is tremendous and preservation of this knowledge is crucial for biodiversity. Their knowledge in biodiversity contains unique insights into local species and ecosystem gained from centuries of practical experiences. In most of the rural societies it is a common fact that women are invisible managers of local resources that include land, water, forest and wild life. Most of them are poor and uneducated but they are the great sustainers of rural micro economic activities. Their traditional knowledge brings them in direct contact with the natural resources. For them, nature sustains society because they use the natural resources to feed their families. But the rural women and their knowledge are being ignored by the policy makers to advocate policies for environment protection and conservation. This paper is a modest attempt to highlight the role of indigenous/ tribal women in conservation of biodiversity.

The Northeastern India is slightly sliced region between eastern region in India and Purvanchal Range - an eastward extension of the Himalayas in the northern belt of India that primarily consists of all the regions that have been carved out of the original province of Assam of British India that consists the present day Assam, Arunachal Pradesh, Nagaland, Mizoram, Meghalaya, Manipur and Tripura. Apart from these, more recently as a part of greater Northeast India, state of Sikkim and parts of North Bengal (districts of Darjeeling, Jalpaiguri, and Koch Bihar) can also be collectively referred as Northeast India. Sikkim was recognized as a part of North-East states in the 1990's. These states are officially recognized under North Eastern Council. The Ministry of development of North Eastern Region was set up in September, 2001(India's Look East Policy and North Eastern Region; an article written by Dr. Tanusree Sarker). Most of the states of this region are hilly states inhabited by tribal people.

II. ROLE OF ETHNIC/TRIBAL WOMEN IN CONSERVATION OF BIODIVERSITY

Ethnic and indigenous people in different parts of the world live in the most hostile environmental condition but the locality where they live are quite rich in biodiversity. It has been estimated that nearly 150 million indigenous people are living in Asia. Their traditional knowledge helps them to conserve the biodiversity of their locality. They also know how to live with harmony in nature. In India, about 68 million people belonging to 227 ethnic group and comprising of 573 tribal communities derived from six racial stocks namely Negroid, Proto-Australoid, Mongoloid, Mediterranean or Dravidian, West Breachy and Nordic Aryans live in different parts of India (Ethnobiology in India: A status report, Ministry of Environment and forest, GOI, New Delhi, 1994). These ethnic and indigenous tribal people have managed and conserved biodiversity of their locality. They take shelter in forest and utilize the edible plants both raw and cooked. Tribals need forest to make their huts and leaves and seeds to cook for foods. Most of them have created a sense of affinity with the forests.

India is a country with large ethnic societies and has immense wealth due to which it is rich in biodiversity. There are nearly 45,000 species of wild plants out of which 9,500 species are quite important. Of these 7,500 are in medicinal use for indigenous health practices. About 3,900 plant species are used by tribals as food, 525 species are used for fibres, 400 use as fodders, 300 are used in preparation and extraction of chemicals which are used as insecticides and pesticides. 300 hundred species are used for extraction of gum, resins and dyes and perfumes. Besides, a number of plants are used for various cultural, religious and social points of view. According to Botanical survey of India, about 46,214 plant species are found in India of Global flora, 17,500 represents flowering plants. 37,000 of these are endemic and found in north eastern part of India.

III. PLANTS ARE CONSERVED AS SOURCE OF FOOD

Most of the indigenous group in North East, Orissa, Madhya Pradesh, Bihar, Chhattisgarh and Jharkhand used to conserve a wide variety of crops for their food. These crops include rice, maize. Grains, fruits and vegetables etc. It has been found in rice research institute that the variety of rice crop consumed by the tribal people is far better quality than the existing cultivated rice variety.

IV. PLANTS CONSERVED BY THE TRIBALS TO WORSHIP AS GOD AND GODDESS

The magico-religious belief of the tribal women makes them to conserve a large number of plants and worship them as God and Goddess. Table I below is a list of few such plants and the names of God/ Goddess reside in these plants:

Table- I

Name of the plant	Name of God/Goddess residing in plants
Arjun	Lord Brahma
Nibu	Lord Brihaspati
Bel	Lord Shiva
Tulsi	Goddess Lakshmi
Agasti	Lord Narayan
Kerabi	Lord Ganesh
Kamal	Goddess Ambika
Madar	Lord Shiva

Source: www.indianforester.co.in

Tribal women in India harvest a number of edible plants following environmental conservation rules that establish ecological prudence. Table II is the list of plants that conserve by the tribal women for edible fruits and vegetables.

Table- II

Name of the plant	Scientific Name	Fruit/ Vegetable
Bel	Aegle Marmelos	Fruit
Jambu	Xylia Xylocarpa	Seeds as vegetable
Sehar	Bahhnia Vahlia	Leaves as vegetable
Keolar Bhaji	Bauhinia Purpuea	Leave, flowers, seeds as vegetable
Kali Musli	Curculigo Orchioides	Roots and tuber as vegetable
Chirchita	Achyranthus Asper	Tender shoots as vegetable
Suran	Amorphosphallus Panenflodium	Bulb as vegetable

Source: www.indianforester.co.in

Tribal women conserve a number of plants in the forest that use for healing wounds and other herbal treatment. Many plant species are of great economic importance. The leaves stem and roots of some plants are powdered and make paste to apply on wounds or broken bone portions. In this way the indigenous people of our country are helping to conserve the environment and protect it from degradation.

V. BIODIVERSITY AND THE WOMEN OF NORTH EAST INDIA

A large part of North East India is covered with flora and fauna. The women of different states of NE India prepare varieties of ethnic foods from local soybean, bamboo shoots, lai patta etc which are of nutritious and healthy too. This region that lies under eastern Himalayas eco system, is not only rich in plant diversity but also have a great treasure of cultural, social and linguistic variability conserved by tribal people. This region is a storage of indigenous knowledge system pertaining to agriculture, food, medicine and natural resources management.

In Mizoram, the Mizo women prepared a soya bean based fermented food called 'Bekang' and they market this product. Tribal women of all the states of this region prepare fermented food with soybean along with leafy vegetables. The process of preparation of food is almost same for all the tribals but they but they name it differently, as Bekang in Mizoram, Aagya in Meghalaya, Peron Namsing by adi tribes in Arunachal Pradesh, Yanri Perung by Apatani in Arunachal Pradesh and Kinnema by Bhuti'a in Sikkim, Hawaizaar by Maitai in Manipur, Akhuni by Moa and Sema tribe in Nagaland. The Apatani tribe of Arunachal Pradesh also prepare a varieties of fermented food from bamboo like Hikku and Herring. The tribal women of most of the states in NE India prepare delicious and nutritious food from bamboo shoot and plants available in the forest.

In Assam also the tribal women belonging to Bodo, Rabha, Karbi, Dimasa and many other communities contribute a lot to conserve biodiversity of their own areas. Bodo women have traditional beliefs and knowledge about plants and forests. They are influenced by the plants in their socio, cultural and religious life. They have also the knowledge of herbal medicines out of wild plants for healing and caring of ailments. The socio-cultural and religious activity of Bodos has served the purpose of conserving their traditional heritage with plants from long back. From a study conducted by the teachers of biotechnology department, Bodoland University, Assam, it was found that the Bodo women conserve about 48 different plants to use (leaves, stems and tubers) for socio-cultural and religious purposes in the BTC area. They also use some plants for healing wounds/pains and other diseases. They use Bel leaves to worship lord Shiva. *Erianthus spp*(poaceae engkur) plant is used to construct their kuchha house. Thus, the conservation and using of different plants and their leaves in the name of socio-cultural and religion have significance in today's crisis of 'biodiversity conservation'. In each society, it is observed that the women's contribution to production is centred to biodiversity based on women's indigenous knowledge. They gather these knowledge from generation to generation from grandmother to mother and from mother to daughter and so on.

VI. CONCLUSION

Women's understanding of biodiversity tends to be broad containing much unique knowledge into local species and ecosystem gained from centuries of practical experiences. Kitchen garden becomes small laboratories where women try out diverse wild plants and indigenous species. Despite its values the local knowledge of women is regarded as insignificant. There are several possibilities from enhancing women's position in biodiversity conversation including through policy making, research projects and women's organisation and networks. The convention on biological diversity (1992) recognises women's role that they play "in the conservation and sustainable use of biological diversity". It is true that a number of experiences have highlighted the sustainable manner in which women use biodiversity. But women do so without equitable participation in the access and control of such resources. Women's contribution used to be ignored and under value their production. Hence, it is necessary to recognise their contribution and reward them for encouragement. The government and non-government organisation should try to develop an appropriate mechanism for promoting the full and effective participation of women in all elements of the programme of work it is necessary

- To promote gender specific ways to document and preserve women's knowledge of biodiversity
- To promote the exchange of experience and knowledge
- To enhance access of women farmers to land and water resources
- To train the tribal and indigenous women the scientific way of conservation
- To recognise their knowledge they should be given adequate value
- To encourage academicians to conduct more and more survey/research and to collect the indigenous knowledge of conservation

The women organisation in different parts of the world make their voice heard and to promote biodiversity conservation and sustainable management at local, regional and global level. In 1998, 'the international network diverse women for diversity' was launched and it is striving to mobilise a global campaign of women on biological diversity, cultural diversity and food security.

The convention on biological diversity in its preamble recognises "the vital role that women play in the conservation and sustainable use of biological diversity" and affirms "the need for the full participation of women at all levels of policymaking and implementation for biological diversity conservation" (Rio Earth Summit, 1992). The convention was signed by 150 governments but not yet implemented fully neither the indigenous women of our societies get their due recognition.

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