Nagaland is one of India’s smallest states. There are sixteen tribes in Nagaland and each tribe having its own tradition of land management and conservation practices. These are the tribes who retain their traditional customs and way of life shrouded in mystery of little known myths and folklore. Over the ages, Naga tribals have dwelled in areas of relative isolation while living in harmony with nature. Their agricultural, cultural and economic practices have evolved sustainably utilise and manage the rich surrounding biodiversity. The Naga tribes possess a spectacular wealth of Indigenous Knowledge (IK). Furthermore, systematic researching and thorough documenting of IK found among the Naga communities will ensure that such a rich and locally relevant pool of knowledge is not lost but passed on to the younger generation.

Investigating what local communities know and have, improves understanding of local conditions and provides problem solving strategies to the communities. Indigenous knowledge is proved to be a (i) Critical Element of Global Knowledge, (ii) Foundation for Human and Social Capital, (iii) Gateway to Empowerment and (iv) Key to Sustainable Development.

In recognition of the need to document the fast disappearing indigenous knowledge system and wisdom, this research study is undertaken to explore and document the “Indigenous knowledge appraisal of selected Naga tribes for sustainable management of biodiversity in Nagaland, India”

Importance of the Project

Tribal communities are the repository of accumulated experience and knowledge of flora and fauna. Living close to the nature, tribal communities are familiar with the wild plants and animals of their surroundings. By reasoning and also by trial and error, these communities have screened and developed a highly complex and very specific knowledge of local flora and fauna. The Tribal communities have keen practical understanding of the ecological relationship and have developed their own methods of conserving many species of plants. Therefore, the study of the indigenous knowledge may lead to new information on unexplored natural resources and new uses of existing sources of food, medicine, fibre, fodder and so on.

The process of understanding how the tribes have been in total harmony with nature by ensuring ecological sustainability and social equity will be explored. Study of IK among the communities will achieve higher degree of capacity building to get better
participation in conservation and community development. Utilisation of IK, innovations and practices of indigenous communities and documenting community-based conservation of natural resources will determine the role of IK in natural resource management and community development. The contribution of IK may lead to the discovery of new applications or product with integration of modern science and technology.

Nagaland, the Sixteenth State of the Union of India is characterised by diverse ethnic groups. They are fully dependant for their basic need on natural resources available in the area for their day-to-day life, and based on long-standing relationships with bio-resources of nature have evolved their own unique indigenous knowledge, creating cultural identity, spirituality, and subsistence practices that sustain communities and which also contribute to the conservation of biodiversity. This Indigenous knowledge, tested over centuries has been dynamic and it fine-tunes the needs of indigenous culture, social systems, and transforms the indigenous communities to adapt to social and ecological change, and play important roles in enhancing the sustainable development.

Aims and objectives

There are many folklores and tales about plant, their origin, blessings and their importance. Tribal communities have developed indigenous knowledge about health care by trial and error method. This rich knowledge system if subjected to scientific scrutiny would benefit humankind in many ways. The habitats and the environment in which the folklore evolved are fast disappearing due to rapid process of development. Unfortunately, neither standard literature is available on this aspect nor any attempts have been made to document these indigenous knowledge. Unless effective measures are taken to study and document this invaluable knowledge bank, the Indigenous Knowledge will soon be lost forever. Hence, there is a need to document the fast disappearing knowledge system and wisdom. In pursuance of the urgent need to document the fast disappearing indigenous knowledge, this research study was taken up with the following aims and objectives:

i. To study the resource access, utilization pattern and biodiversity management by tribal groups of Nagaland using their indigenous knowledge.

ii. To enumerate and inventorise the plant resources used by tribes of the State.

iii. To collect and document the plant resource based indigenous knowledge practiced by some tribal groups of Nagaland.
iv. To assess and identify the factors affecting biodiversity and indigenous knowledge for conservation and rational utilization of natural resources.

v. To suggest means and ways for promotion, dissemination, exchange and application of indigenous knowledge in efficient resource management and development planning.

In 1993, the Government of India (GoI) estimated that between 60-80% of India’s population rely on medicinal plants for health care. Medicinal plants are particularly important to rural poor, who harvest these from the wild to meet their primary health care needs. Tribal communities survived for thousands of years by depending on the health care from the nature. In the state of Nagaland, the tribal communities and traditional herbal medicine practitioners grow a number of endemic medicinal plants in home yards and use them in various ways for treating various types of ailments. The tribal communities possess vast traditional knowledge about medicinal uses of native plants. Medicinal plants are getting depleted from their natural ecosystems because of disturbances to their habitats, excessive exploitation and lack of extension mechanism for regeneration of such economically important plants; moreover, the local traditional medicine practitioners are also becoming rare. As the indigenous knowledge have not been documented suitably so far, it is proper to attempt a medico-floristic evaluation and documentation of related indigenous knowledge of the State become inevitable.

Moreover, although recognition of the values of medicinal plants remained confined to the developing countries for long but recently its popularity has been spread so widely that in some cases it is preferred to chemical control of diseases, equally in developed countries. WHO (1989) identifies four main reasons for its widespread acceptance. They are:

i. Medicinal plants have been in use for untold centuries and have proved reliable and effective in treating and preventing disease.

ii. Most species of medicinal plants are not toxic and therefore give rise to few, if any, side effects even when some adverse effects do occur, they are much less serious than those caused by chemically synthesised medicine.

iii. People living in rural, tribal and mountainous areas have easy access to local medicinal plants, so that their use in preventing and controlling disease costs much less than if a western medicine are used and is thus economically beneficial to developing countries.

iv. Medicinal plants are an important source of practical and inexpensive new drugs
for people throughout the world.

The World Health Organisation (WHO) has estimated that 80% of the population of the developing countries relies on traditional medicine mostly derived from plants, for their primary health care needs.

The Indigenous knowledge of the agricultural practices, resource/forest management and medicinal plants used by various ethnic groups of Nagaland have been surveyed and inventorised, and that will be useful for furtherance of modern research in pharmaceutical preparation for preventive and curative drugs. Ex-situ conservation of selected economically important plants has been encouraged in all study sites for conservation of these species. Ethno-medicinal cultivation, if developed, could conserve the knowledge and promising flora and it may act as an education centre for people, scientists, students, pharmaceutical persons etc.

The fundamental concept in launching this research project is to develop a comprehensive understanding and appreciation of the multi-dimensional perspective of life, culture, customs, traditions, knowledge systems, behavioural dimensions and unique needs of certain Naga tribes of Nagaland. The indigenous practices of various Naga tribes have been studied based on the following headings:

i. Indigenous practices vis a vis Natural Resource Management

ii. Indigenous practices vis a vis agricultural system

iii. Indigenous practices pertaining to Medicinal and aromatic plants

iv. Indigenous practices pertaining to biodiversity conservation

The research findings present an overview of IK practices that portray active role of Naga tribals have played in:

i. Raising awareness of the importance of IK practices and generating knowledge based on a sophisticated understanding of their environment,

ii. Promoting instruments for the capture, dissemination, and application of these practices in devising mechanisms to conserve and sustain their natural resources for development work,

iii. Contribute to the knowledge base to enable local communities to share and exchange these practices,

Four Agro Ecological Zones in Nagaland have been selected indicating important growing zones. In this mode of research study, Multi Stage Stratified Random Sampling with sampling intensity in the range 3 – 5% of the total villages of the selected tribe.
covering 5% population of each village is adopted. There are several examples in the State, which indicate that natural resources can be managed in better way by using IK with modern knowledge. The practice of IK in i) land use, ii) soil and water conservation iii) agricultural production systems and iv) resource management practices used by Naga tribals have been surveyed and inventorised.

**IK and Land-use**

The mechanism for sustainable management of the rich biodiversity of the region may be found in the unique land holding system of the Naga tribes, the management of which is closely linked with their an indigenous system of land holding and ownership. In this system, land is divided into four categories: i) Individual holding, ii) Clan holding iii) Village holding and iv) Region holding. In each of these four categories, land is classified into two types: (i) Forest lands and (ii) Cultivable lands.

Landscape management practice of Naga tribes is an inevitable requirement to promote various watershed management programmes. Landscaping involves mechanical measures such as bunding, leveling and terracing of sloppy lands by dividing long slopes into several short ones so as to reduce velocity of runoff for conserving resource conservation.

Traditionally, all the communities in Nagaland practice shifting cultivation locally known as “jhum”, which is practiced in high altitude mountain terrain ranging from 500-1000 metre above mean sea level (msl). The vegetation is slashed, burned, tilled and seed sown.

During the time of migration, the first settlers of Tenyimi ancestors of Nagaland brought the technology of Terraced Rice Cultivation (TRC), a system of irrigated agriculture for growing varieties of paddy. The Tenyimi tribes have developed a sophisticated IKS of Terraced Rice Cultivation, which they practice alongside jhum cultivation. TRC in Tenyimi areas, is a unique land use, is not restricted by topography and spreads over valleys and slopes.

**IK and Soil conservation**

It is found that IK plays vital role in soil conservation and is briefly mentioned as:

i. **Mechanical measures:** The traditional practice of mechanical soil conservation involves creating measures such as i) Contour bunding, ii) Contour trenching, iii) Terracing, iv) Terrace stabilization, v) Check dams, vi. Soil compaction, vii.
Diversion bunds, diversion drains, grassed waterways etc. that prevent erosion, promote soil and moisture conservation of land and water resources in the area.


**IK and Water Conservation**

It is found that IK plays vital role in water conservation and is briefly mentioned as:

i. **Water conservation measures**: Most of the mechanical as well as agronomic measures under soil conservation are found to have gross favourable impact on water conservation are i) Rain Water Harvesting, ii) Vegetative barriers, iii) Soil compaction and iv) Mulching.


**IKS and Agriculture Production Systems**

The study is an in-depth investigation of indigenous knowledge on agricultural production systems in Nagaland. It identified four traditional systems; i) Shifting cultivation, ii) Terrace rice cultivation, iii) Firewood & timber forest and iv) Home gardens. Traditional agriculture exhibited a high level of ecological rationale expressed through intensive use of indigenous knowledge and natural resource, in management of agro-biodiversity in the form of diversified agricultural systems. Using innovative experiential knowledge, and locally available resources, traditional farmers have often developed farming systems with sustainable yields.

i. **Agro-biodiversity and IK**: It was observed that there were several crops such as green leafy vegetables, maize, soybeans, pulses, cereals, chili, spices and condiments cultivated in both jhum and home-gardens. There were perennial tree crops such as bananas, oranges, lemon, guava, plum and solanum. In terraced rice fields, an average seven rice varieties were cultivated. In different forms of
traditional farming system, it was observed that a single family was cultivating
even more or less 60 different crops.

ii. Agrodiversity in Nagaland

iii. Factors that induce Crop Intensity and Diversity in Traditional agriculture
   a) Adaptation to altitude, temperature, precipitation, soil, biotic and abiotic
      factors.
   b) Management of fields and crops’ physical characteristics,
   c) Crop duration

iv. Domestication of uncultivated vegetables

**Agriculture Production Systems:** a) Shifting Cultivation, Crop zoning, and Land
Improvement and Production.

**IKS on Indigenous pathways to intensifying production**

**(A) Effective Fallows**

IK on Soil Conservation Practices in Shifting Cultivation Fields

Physical Barriers: a) Barriers With Boulders/Stones, b) Bench Terracing, c) Contour
Trenching, d) Using Logs and Poles, e) Using Whole Bamboo, f) Using Split Bamboo, g)
Earthen Bunds, h) Soil Furrow, i) Live Barriers – Use of crops, Maize, Millet, Job's Tear
Barriers, Soybeans and Velvet Beans, Broom Grass, Hedgerows.

**(B) Productive fallows**

1. Shifting Cultivation
   i. IK on Nutrient Management: Land preparation – Slashing, Burning, Laying poles
      and raking of soil, Planting, Offset sowing, Crop mix, Trees, Maintenance,
      Harvest, Fallow
   ii. Weed control,
   iii. Fallow Management with Tithonia,
   iv. IKS on Alder tree based Jhum,
   v. Increasing the Carrying Capacity,
   vi. Jhum with annual leguminous cover crops,
   vii. Management of trees in Jhum fields,
   viii. Agroforestry in promoting productive pathways,
   ix. Biodiversity, selectivity and adaptability,
   x. Extending Cropping Period in Jhum Cycles

2. Terrace Rice Cultivation (TRC)
   i. IK Practices for raising Paddy Nursery,
ii. Tenyimi communities procedure of farming,

iii. Zabo farming system,

iv. Benefits from TRC,

v. Signs of Soil infertility and infertility

3. Home gardens

4. Firewood Forest

Combination of (A) and (B)

Significance of IK in the belief of tribals in conservation of biodiversity

i. Conservation through festivals (Calendar of festivals, tribe-wise in a year),

ii. Management of Nature Reserves,

iii. Harnessing Nature’s resources,

iv. Religious taboos,

v. The IK on religious Genna on biodiversity conservation,

vi. The IK on Conservation through totem,

vii. Conservation through spirit worship,

viii. Conservation through Sorcerers,

ix. The IK on Conservation through exchange of knowledge,

x. IK on unique practices of tribal communities,

xi. Using microenvironment and sustaining local forest,

xii. Community Knowledge, Indigenous Institution and Sustaining Natural Resources,

xiii. Livestock development,

xiv. Animals of Religious significance, xv. Women – their belief in Conservation,

xv. Men and Women’s affairs,

xvi. The status of a man’s wealth and title taking,

xvii. MORUNGS - customized training centre of IKS.

Community-based Conservation interfaced with IK enhance sustainable development

Community-based conservation is considered an emerging strategy which reconciles conservation goals and human needs. Therefore, looking to the importance of indigenous knowledge in biodiversity conservation and natural resources, a study is undertaken to examine how community-based conservation strategy interfaced with IK
responds to the development issues and to explore how this strategy contributes to sustainable development.

Profile of the cases

i. Replantation in the Shifting Cultivation fields in Nagaland
ii. Nature-based tourism of Dzükou Community Nature Reserve, Nagaland
iii. Angami strategies and practices for managing natural resources
iv. Community-based Village Biodiversity Management
v. Community Based Conservation of Biodiversity by Ao Naga tribe.

Community-based conservation interfaced with IK as examined through five case studies has been found to improve both livelihoods of people and environment. The interconnection between livelihoods and environment is clearly a complex issue. The results derived from community based conservation are improvements in food and nutritional security, employment and income generation, public infrastructure, reduced vulnerability and people’s empowerment. Environmental outcomes appear progressive but will have negative impacts on account of the activities of the people (i.e. agriculture, exploitation of forests, mining, and tourism) in the long run.

Indigenous knowledge of local traditions and decision making system evolved for natural resource management are not only of tremendous value to the culture from which they evolved, but also for scientists and planners to understand the prevailing conditions in order to take sound decision to develop and improve rural societies.

Medicinal and Aromatic Plants (MAPs) based IKS

Naga tribals have keen interest of learning about the knowledge of plant and animal diversity around them. Therefore, the present study was also undertaken to identify the medicinal flora having potential IK in local health care in Nagaland and documentation of IKS of medicinal plants, germplasm collection, conservation and propagation of selected medicinal plants and strength, weakness, opportunities and threat (SWOT) analysis in respect of conservation and propagation of selected medicinal plants have resulted into the following conclusions:

i. Medico-floristic evaluation revealed rich and diverse floristic compositions of medicinal plants at study sites in Nagaland.

ii. Maximum number of plants species have been found in sub-tropical and temperate regions.
iii. Tree density ranged between 30-120 trees per ha. Densities of most of the trees are of random distribution.

**Participatory Rural Appraisal (PRA)**

The transact through PRA indicated weak infrastructure developmental in the eastern side of Nagaland and deficiency in health care facilities, which makes a large section of local people dependent on their traditional system of medicine mainly based on endemic medicinal plants. In Nagaland, there are many IK medicine practitioners, having their own set of medicine and ways of treatment of various diseases like malaria, jaundice, stomach problems, pain, wounds, urinary problem, urino-genital problems, bronchitis, pneumonia, hypertension, asthma, gonorrhea, heart diseases, cancer, epilepsy, tuberculosis of the lungs, eye problems, diabetes, snake and scorpion bite etc.

**Documentation of Medicinal Plant & Indigenous Knowledge**

The habitats where the tribal communities live in and the environment in which their folklores evolved on their intimate knowledge on the uses of wild plants and animals is remarkable. The folklore and resource survey on the study sites could bring out useful materials. Though there is a huge scope, the present ethnobotanical research could only identify 240 plant species under 172 families possessing predominantly medicinal values for treatment of diseases like cancer, diabetes, hypertension, asthma, gonorrhea, epilepsy, heart problems etc. Many species are being used singly, while the combination of different parts of different plant species were found to be prescribed in the form of infusion, decoction, paste, raw and inhaler etc.

**Ethno-medicinal Record of Medicinal Plants for Specific Ailments - 26 Ailments**

Investigations of therapeutic applications of various medicinal plants have been undertaken in the present study. Indigenous knowledge based use of endemic plants in treatment is very much prevalent, beneficial and effective in treatment of twenty six diseases. Ailments such as constipation, Blood Dysentery, Amoebic dysentery, Toothache, Sinusitis, muscle injuries, Diarrhoea and vomiting, Kidney ailment, Treatment/Prevention of High Blood Pressure (BP), Treatment of Low BP and weakness, Fever, Gastritis, Bile and Liver ailments, of Tuberculosis, some types of Cancer, Eye problem, eye injuries, Syphilis (Sexually transmitted disease)and Gonorrhoea, Snake bite, Tetanus, Piles and also insect control, itching and Dhobi itch, Jaundice, burn by very hot water, urinary tract
ailment, diabetes and hyper tension are treated using remedies obtained from medicinal plants.

The present study provides exhaustive and updated information on the medicinal plants and their uses to treat twenty six ailments.

Conservation of Medicinal Plants

People of Nagaland generally cultivate or collect plants from their surrounding forests for preparation of herbal medicines. Local people have a tradition of maintaining home gardens where vegetables, fruit and especially medicinal value are grown since time immemorial.

PRA for Selection of Medicinal Plants for Conservation

In Tribal concept, every plant have medicinal properties, one way or other, however, during PRA exercise, some of the medicinal plants are found predominantly more vital in order of preference by the local communities. Based on the score points of medicinal and its market value some plants are identified for conservation through participatory approach. Such plants obtaining high ranking score points selected for conservation include: Adhatoda vasica Nees., Andrographis paniculata, Phlogacanthus thrysiflorus (Roxb.) Nees., Rhus seminalata Murr., Eryngium foetidum L., Acorus calamus L., Panax pseudo-ginseng Wall., Asparagus racemosus Willd., Blumea lacera L., Tithonia diversifolia (Hemsl.) A. Gray, Impatiens tripetala Roxb. Ex. DC., Basella alba L., Oroxylum indicum L. Benth Kurz., Carica papaya L., Drymaria cordata (L.) Willd. Ex Schult., Costus speciosus (J.Konig) Sm., Kalanchoe pinnata (Lam.) Pers., Equisetum arvense L., Rhododendron arboreum Sm., Swertia chirata (Wall.) C.B. Clarke., Elsholtzia stauntonii Benth., Perilla frutescens (L.) Britton, Cinnamomum aromaticum Nees., Hibiscus sabdariffa L., Tinospora cordifolia. (thunb.) Miers., Moringa oleifera Lam., Myrica esculenta, Paphiopedilum hirsutissimum (Lindl. Ex Hook) Stein, Punica granatum, Aconitum paniculatum Auct., Zanthxylum rhetsa (Roxb.) DC, Houttuynia cordata Thumb., Cyphomandra betacea (Can.) Sendt., Taxus bacata L., Paris polyphylla Sm., Valeriana wallichii, Hedychium spicatum Buch-Ham, Centella asiatica L. Urb., Mucuna pruriens (L.) D.C., Passiflora edulis Sims, etc.

Establishment of Conservation Plots and Survival Monitoring

Indigenous communities have been motivated to establish conservation plots at various places with the active participation of farmers. Awareness for cultivating the above
listed medicinal plants was encouraged and local people have started growing medicinal plants.

Strategies Evolved for Medicinal Plant Conservation.

Creation of conservation plots to preserve important medicinal plants, educate the people on cultivation, scientific management; harvesting and post harvest management of medicinal plants has been done in the present study. Based on the participatory approach, in could be concluded that transfer of cultivation technologies for medicinal plants, establishment of germplasm banks and growing potential medicinal plants under agroforestry, by involving traditional herbal medicine practitioners in cultivation and conservation activities alongwith administrative and financial support to the interested promoters/entrepreneurs may help in conservation of medicinal plants of the Nagaland.

Strength Weakness Opportunities and Limitations (SWOT)/ Strength Weakness Opportunities and Threat (SWOT) analysis

The result of analysis indicates that there is immense potential and opportunities for conservation and propagation of medicinal plants in Nagaland. Relevant strengths, weaknesses, opportunities and threats have been ascertained.

The cumulative helpful factor (Strength and Opportunity) is found to be higher in the score range than cumulative value of harmful factors. The analysis revealed that the sum of internal origin factor (Strength and Weakness) have more cumulative value than external origin factor (Opportunity and Threats). On the basis of the studies conducted and results analyzed, it is affirmed that Nagaland could be a suitable place for conservation and propagation of medicinal plants.

Concluding remarks

The wild plants are used for all kinds of requirements and there is enormous germplasm which can be profitably employed to improve the modern cultures and some wild plants can be adopted as future food, fibre, and oil plants to meet the increasing demand. In this context, it is not only essential to conserve this wealth of information but also to apply modern bio-chemical and agricultural techniques to determine the utility of adaptability of the most useful among them to meet modern requirements. Further, with the adaptation of wild indigenous germplasm and its improvement, the socio-economic and industrial development of the backward and tribal communities can be achieved without changing their food habits and their local cottage industries (Mithree & Vishnu
The aspect of conservation or balanced use of resources by early man, which existed in abundant measure, but was not adequately observed, understood and appreciated is now receiving attention and emphasis and as elucidated by Jain and Mitra (1990), steps to include tribal economy include organized collection of plant products, on the spot conversion into transportable products and small cottage industries which can ultimately bring about social and economic uplift of the people. The native folks have learnt to utilize indigenous plants in various ways and much of this wealth is preserved as unwritten Materia Medica. Megoneitsos and Rao (1983) and Rao and Jamir (1982) have carried out some ethno-botanical studies in Nagaland. Rao (1990) has enumerated 125 plant species used by the ‘Ao’ and ‘Angami’ tribes of Nagaland and the preliminary study revealed the uses of 28 medicinal plants, 57 wild edible plants and 36 plants of miscellaneous uses. In recent years this knowledge is slowly fading (Gupta 1986).

Some authors have emphasized the potential of ethnobotanical studies in northeast India. Any ethnobotanical inquiring into the traditional botanical knowledge (TBK) of extant people is dependent on the effective application of a number of key anthropological and botanical methodologies. Anthropological field techniques including participant observation and structured surveys permit the collection of both quantitative and qualitative data related to plant use and subsistence practices, while orthodox plant taxonomic methods are crucial to any accurate ethnobotanical investigation (Cotton 1996). The field work for ethno-medico-botanical survey is to be followed by laboratory work for phyto-chemical survey of the presence of alkaloids. Although plant alkaloids have been isolated and studied for over 150 years, only about two per cent of all recorded plant species has been tested for alkaloids and even fewer of the isolated compounds have been carried out to full elucidation of the structures (Maheswari, 1986). Maheswari (1983) has highlighted the importance of ethno-ecology and is of the view that indigenous knowledge and perceptions could usefully be incorporated into development planning and environmental management.

Sustainable development depend on economic viability, social acceptability and ecological sustainability; for example – where forest clearance proves, in short term to be more profitable than more sustainable activities, then forest clearance is likely to proceed (Godoy et. al., 1993); equally, where non-timber plant products (NTFPs) prove a commercial success, problems of over harvesting are likely to ensue (Cunningham, 1993). For the long run it is thus imperative that economic returns from sustainable activities are maximized and effective controls over rates of extractions are developed (Cotton, 1996).
Therefore, as a conclusion remarks it is recommended to engage in promoting Enablement for Empowerment in helping local practitioners and communities to: i) exchange knowledge of local practices, ii) build local knowledge networks, iii) engage authorities, researchers & experts, iv) dialogue with development partners and v) leverage local and global knowledge to herald Indigenous Knowledge for Development Programmes.
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<tr>
<td>AEZ</td>
<td>Agro-Ecological Zone</td>
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<tr>
<td>CABI</td>
<td>Commonwealth Agriculture Bureaux International</td>
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<td>CBD</td>
<td>Convention on Biodiversity Convention on Biodiversity</td>
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<td>CITES</td>
<td>Convention on International Trade in Endangered Species of Wild Fauna and Flora</td>
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<td>Indigenous Knowledge System</td>
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<td>International Union for Conservation of Nature</td>
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<td>MAB</td>
<td>Man and the Biosphere</td>
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<td>MAP</td>
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<td>Non-Pesticidal Pest Management</td>
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<td>Strength Weakness Opportunities and Limitations</td>
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