Annexes

Annex I
Ecological Evaluation of Indigenous Knowledge Systems

1. System to be evaluated: Homestead garden/(*jhum* field under cultivation/*jhum* fallow/ terrace cultivation/forest/any other)

2. General information about the system

a. Location details:

b. Ownership details:

c. Utilities:

d. Area:

e. Season of data collection:

f. Date:

3. Analysis of plant community structure

Tree

Species	No. of plants	Density / m^2	Total basal area (sq. mm^2)

Shrub

Species	No. of plants	Density / m^2	Total basal area (sq. mm^2)

Herb (based on average of 5-10 1 m x 1 m quadrants)

Species	No. of plants	Density / m^2	Total basal area (sq. mm^2)	Frequency

Creeper

Species	No. of plants	Density / m^2	Total basal area (sq. mm^2)

4. Socially important key species in terms of uses (listing in priority order)

Trees

Shrubs

Herbs

Creepers

5. Documentation of the habitats/micro-habitats encountered

Natural	Presence/absence	Species found
Marshy lands		
Rocky area Decomposed/semi-decomposed tree stumps		
Understorey		
Light gap		
Pits		
Mounds		
Man-made		

6. Regeneration potential

Species	Seedling population		Sapling population	
	No.	Density/m^2	No.	Density/m^2

7. Estimation of productivity

Tree species	Average height/tree (m)	Average diameter/ tree (m)	Volume/ tree (m^{-3})	Bole biomass/ tree (kg)	Leaf/fruit biomass/ tree (kg)	Total biomass/ tree (kg)
Shrub species (kg)				Total biomass/plant		
Herb species				Biomass/m^2 (kg)		

8. Product extraction

Product (kg/no.)	Species	Frequency of extraction Extraction period in (days /per year)	Ave. quantity/day

9. Population interactions

a. Species' associations

Socially key species Associate species in order of their density

b. List of species having allelopathic effect

c. Competition

i) Inter-specific Density/m^2
ii) Intra-specific Density/m^2

d. List of pollinators/predators/dispersers

e. Pests and traditional pest management systems

10. Traditional soil classes (list with salient features)

11. Indicator species identified under traditional systems

Species' indication

12. Details of soil and water conservation principles/methods traditionally used

13. Animal diversity

Species no.

14. Impact of the system on other adjoining land-use systems (qualitative description)

15. Any other specific aspect of the IKS having ecological implications (observations to be recorded)

16. Name of the informant/owner of the system being evaluated, village/tribe and age

Annex II
Information Needs Assessment

Information needs

Name of the village
General village information.

Agriculture

Change over time (years) in land use
Local names of the land units, crop systems
Management of farming systems
Knowledge about the local conditions of soil, plants, etc
Impact of agricultural extension services—mainly on choice of crops
Land ownership

Forestry

Changes within the forest cover
Resource areas, distribution, use patterns
Indicators of biodiversity, abundance of species
Potential for non-timber forest products (NTFPs)
Traditional user rights, community management, if any
Forest management units
Indicators of disturbance
Forest functions
Regeneration capacity
Local terminology for forest types, richness of forest, etc
Vegetation types, degree of biodiversity in each type
Level of awareness of local people

Home Garden

Multipurpose species planted
Parts used/habits
Functions of home garden
Variation in the planting material
Preservation of planting material
Storage of products
Waste recycling
Nursery
Production of manure, etc
Water storage/harvest/management
Species not cultivated but still protected
Management practices/role of gender
Magico/religious rituals, etc

Annex IIIa
Market Survey Economic Aspects

1. Origin

'A'

Item	Locality	Distance by transport (walking 0-10 km/11-20 km/21 km or more)

'B'

Item	Origin (H.,H.G.,W., *jhum*)	Time for collecting/harvesting/bringing to market

2. Quantity

Item	No./unit/bunch/weight (kg)	
a. Animal-based		
b. Plant-based		

3. Economic aspect

Item	Price buying at	Overheads	Price selling at	Price within last 30 days	
				Min.	Max.

4. Demand

a.	Animal-based	i)	ii)	iii)
b.	Plant-based	i)	ii)	iii)

5. Buyer

Item	Buyers: local/outsider

6. Profit/loss

i)	Turnover/day		Rs
ii)	Total dues	(less)	Rs
iii)	Taxes (if any)	(less)	Rs
iv)	Wastage (if any)	(less)	Rs
		Net profit/loss Rs	

Annex IIIb
Resource Availability/Patterns

resource available
- source (wild/home gardens)
- tribewise variation
- special items
- availability in wild

Vendor's name:
Tribe:
Village:

Item name local or botanical or English	Market availability (quantitative)				Source of collection				Place of collection/harvesting							Availability in wild at source			Tribe specificity	Periodicity
	V1	V2		V_n	C	Coll	Sec	Ter	J		T		HG	W	O	C	F	R		
									c	w	c	w								

C = cultivated
Coll = collected

Sec = secondary
Ter = tertiary

HG = Home Garden
T = Terrace
J = *Jhum*
W = Wild
O = Other

c = cultivated
w = wild

Annex IIIc
Biodiversity

Local name	Botanical name	Habit	Habitat	W/HG/C	Part	Purpose	Processing (if any)
Notes: W = wild; HG = homegarden; C = cultivated.							

Annex IV
Schedule of the Workshop

Wednesday 18 June 1997	08.00 to 09.00	Registration and distribution of resource material
	09.00 to 10.00	Opening and inauguration of the workshop by NEPED team leader Mr R. Kevichusha Introduction to People and Plants programme of workshop of UNESCO and overview of HKH ethnobotany programme by Ajay Rastogi
	10.00 to 10.30	Details of workshop programme and theme of the workshop: role of home gardens in maintaining useful biodiversity by Archana Godbole
	10.30 to 12.00	Introduction: participants' presentation 15-20 min each. (including discussions: 2-3 questions for each participant)
	13.00 to 14.00	Lunch
	14.00 to 14.30	Introduction to market survey exercise by Arvind Sakalani and Archana Godbole — Participants split into three groups to discuss the market survey and preparation of formats for data collection: 1. Inventorisation and biodiversity aspect; 2. Economic aspect; 3. Resource availability and use pattern of the commodities available for the sale in the local market at Kohima
	14.30 to 16.30	Group discussions and preparation of formats
	16.30 to 17.00	Presentation of each of three groups in form of slides and charts — Quantitative methodology and its use in applied ethnobotany work by Ajay Rastogi
Thursday 19 June 1997	08.00 to 08.30	Introduction to field work sessions by Ajay Rastogi
	08.30 to 10.00	Development of methodological framework for ecological studies as part of ethnobotanical studies by S.K. Barik, Asha Gupta, Dhrupad Choudhary
	12.00 to 13.00	Lunch
	13.00 to 15.30	Development of methodological framework for socioeconomic studies by V.T. Darlong, Archana Godbole and S.K. Barik
	15.30 to 17.00	Group-wise presentation of market survey

07.00 to 16.00	Field work and data collection from *Angami* home gardens in Khuzama village, 25 km from Kohima (Split into two groups and each group collected data on ecological aspects and socioeconomic aspects)	**Friday 20 June 1997**
08.30 to 16.00	Field visit to Khonoma village to study traditional fallow management practices of *Angami* Nagas	**Saturday 21 June 1997**
16.30 to 17.30	Introduction to computerised database programme developed by NEPED for plant identification	
09.00 to 11.00	Floristics of north-eastern India by Dr K. Haridasan.	**Sunday 22 June 1997**
11.00 to 13.00	Group-wise discussions and analysis work for home garden survey and Khonoma field visit	
13.00 to 14.00	Lunch	
14.00 to 15.30	NEPED presentation by Qutovi Wotsa and Vengota Nakro. Role of women in NEPED by Chosule Kiki	
15.30 to 17.30	*Jhum* cultivation in north-eastern India and tribals perspective of indigenous knowledge — Local village experts: S. Atong, Tenzamo Rukhaso — Discussion on general overview and particular fallow management strategies followed	
17.30 to 18.00	Problem of marketing of local products in north-eastern India by Mr. Arri, NEPED	
07.30 to 10.00	Visit to two NEPED test plots in two groups — One group to see Peducha test plot maintained by women	**Monday 23 June 1997**
12.00 to 13.00	Discussion on field work with presentations	
13.00 to 14.00	Lunch	
14.00 to 14.30	Traditional method of *Kabeye* tribe's fruit preservation by P.K. Singh	
14.30 to 15.30	Evaluation of workshop by Ajay Rastogi	
15.30 to 16.30	Concluding function, distribution of certificates by V.T. Darlong and Chosule Kiki — Vote of thanks by Ajay Rastogi	

Annex V
List of Participants

Participants at the Training Workshop - Ajay Rastogi

Mr S. Atong — Local expert from *Sema* community.

Mr Tenzamo — Local expert from *Lotha* community.

Mr Rakhosiünü — Local expert from *Chakhesang* community.

Mr Iachiinii — Local expert from *Angami* community.

Dr J.K. Pathak
Faculty Member, Disaster Management Cell, Uttar Pradesh Academy of Administration (UPAA), Nainital - 263 001, U.P.

Dr J.K. Pathak, is a research officer working in the Disaster Management Cell (DMC), U.P. Academy of Administration, Nainital. He has done a Ph. D. in the Hydrobiology of six major river systems of the Kumaun Himalayas. His activities at DMC include training programmes for state administrative officers on disaster management, field workshops for villagers, collection and compilation of data on disasters, and preparation and distribution of literature in simple languages to communities on disasters such as earthquakes and landslides.

Dr Asha Gupta
Asst. Professor, Dept. of Life Science, Manipur University, Kanchipur, Imphal - 795 003, Manipur

Asha Gupta is an Assistant Professor at Manipur University. Specialising in Ecology, she has completed post-doctoral research in Plant Ecology in the USSR. Her fields of interest are ecosystem modelling and analysis, conservation biology, and use of ecological methods in ethnobotanical studies. She is organizing a symposium on matrix models in ecology at the International Congress of Ecology in Florence, Italy, in July 1998.

Dr V.T. Darlong
Jt. Director, Govt. of India, Ministry of Environment and Forests, North-eastern Regional Office, Upland Road, Shillong

Vincent Darlong is a Joint Director in the North-eastern Regional Office of the Ministry of Environment and Forests. With Zoology as his background, he has done a Ph. D. on the effects of shifting cultivation. His special interests include biodiversity conservation and socioeconomic development using indigenous knowledge systems.

Dr Dhrupad Choudhary
Reader, Dept. of Life Sciences, Central University, Silchar

Dhrupad Choudhary, formerly scientist-in-charge of the North-eastern unit of GBPIHED, has recently joined Assam University at Silchar as Asst. Professor. He obtained a Ph. D. in Ecology from Oxford and he has worked in the field of ecology and conservation biology. Now in the University, he will be concentrating on animal-plant interactions and natural resource management along with conservation biology.

Mr Pranab Bhujarbaruah
Researcher, Indo-US Primate Project, North-eastern Centre, C - 4 Ashiyana Complex, Maligaon - 781 011, Assam

Pranab Bhujarbaruah is a research fellow of the Indo-US Primate Project. The only botanist in the North-eastern regional centre, he is carrying out research on food habits of primates, special importance of figs in primate food, and the role of primates in forest regeneration. The topics of research include ethnobotany, habitat ecology and medicinal plants.

Dr P. Phartiyal
Faculty member, Uttar Pradesh Academy of Administration (UPAA), Nainital - 263 001, U.P. India

Pushkin Phartiyal is the Project Manager for the Management Unit of Mountain Development at the Centre for Development Studies of UPAA. Responsibilities include organizing training workshops for administrative, forest and development department officials, networking with NGOs in the Uttarakhand region and planning collaborative action research projects. Interest areas are mass communication, sustainable mountain tourism and involvement of hill women in development.

Dr Deojit Baruah
AVARD North East, Club Road, Jorhat, Assam

Dr P.K. Singh
Dept. of Life Science, Manipur University, Manipur

Deojit Baruah is a lecturer of Botany at Majuli College, Assam. Holding a Ph. D. in plant ecology, his field of research covers water pollution and river islands. Currently he is working on medicinal plants used by the tribal inhabitants of Majuli Island. Also actively involved in action programmes, such as tree plantations to protect the soil erosion on the river banks of the Brahamputra in Majuli — which is the world's largest river island.

Dr P.B. Gurung
Curator, Herbarium, Dept. of Botany, NEHU, Shillong - 793 022

P.K. Singh is an assistant professor of Botany at Manipur University, Imphal. As a physiologist he has worked on food valves of wild relatives of cultivated plants such as rice. Currently working on two projects: bamboo and rattans of Manipur and toxicological studies of poisonous plants of Manipur. His main topics of interest include ethnobotany especially wild food plants and biochemistry.

Ms. Farzana Begum
Researcher, Indo-US Primate Project, North-eastern Centre, C - 4 Ashiyana Complex, Maligaon - 781 011, Assam

P.B. Gurung is a taxonomist and curator of the herbarium in the Dept. of Botany, North-eastern Hill University (NEHU), Shillong. He studied the flora of Mokakchung district, Nagaland, for his Ph. D. He has also studied the orchids of Nagaland. His fields of interest are ethnobotany, rare and tribal medicinal plants.

Dr Arvind Saklani
Dept. of Botany, NBRI, Rana Pratap Marg, Lucknow 226 001

Farzana Begum has a postgraduate degree in anthropology and is now working as a research fellow on the Indo-US Primate Project. Her studies related to the primate project include the role of human interventions on the primate habitats and the role of cultural beliefs, useful or otherwise, for primate protection. Due to close interactions with communities in primate habitats, she also developed an interest in ethnobiology and man-animal interactions.

Dr K. Haridasan
Senior Scientist, SFRI,

Arvind Saklani is a taxonomist working in the taxonomy and biodiversity division of the National Botanical Research Institute,

Vanvihar, P.O. Box. 159, Tanagar 791 111, Arunachal Pradesh

Lucknow. He did research for a Ph. D. in the north-eastern states of India. His work on cross-cultural ethnobotany of various tribes in the Himalayan region still continues.

Dr S.K. Barik
Dept. of Ecology, North-eastern Hill University, Shillong, Meghalaya, India

K. Haridasan is a forest botanist with the State Forest Research Institute, Arunachal Pradesh, Tanagar. He has studied on the flora of the north-eastern region for the last two decades and published two volumes of the *Forest Flora of Meghalaya*. He has contributed immensely to the understanding of rare and endemic flora. He is an authority on the flora of Arunachal Pradesh and has many new records to his credit.

Dr Anungla Aier
Lecturer, Dept. of Anthropology, Kohima Science College, Jotsoma, Nagaland

Saroj Barik works with the Centre for Ecodevelopment of the North-eastern Hill University, Shillong. His research work has focussed on regeneration aspects of forest ecology. He is an expert on rehabilitation of degraded forest areas.

Mr Vengota Nakro
NEPED POU member, NEPED, P.O. Box 339, Kohima 791001, Nagaland

Anungla Aier has been teaching anthropology at Kohima Science College, Jotsoma, Nagaland for the last 10 years. She completed her Ph. D. in the ethnohistory of development of the Naga tribes and is especially interested in socioeconomic aspects responsible for acculturation.

Mr Qutovi Wotsa
NEPED POU member, NEPED, P.O. Box 339, Kohima 791001, Nagaland

Originally from the Dept. of Agriculture, State Government of Nagaland. Working at the project's operating unit as a member of NEPED. Mainly interested in traditional agroecosystems of various Naga tribes.

Mr. Kenneth M. Pala
Centre for Environment Education North East Regional Cell (CEE North-East). Chenikuthi, K.K. Bhatta Road, guwahati – 781 003
India

Kenneth Morrison Pala is a Programme Officer with CEE. He is a post graduate in anthropology from NEHU, Shillong, and has been working with CEE for the past four years. He has experience in helping to organize CEE's 8-month long training in environmental education (TEE) programme. he coordinated the BAIDIK (Biodiversity Awareness through Identification and Documentation of Indigeneous Knowledge) programme of CEE in the north-east. He also looks after the National Environmental Education programme in schools (NEEPS).

Dr Archana Godbole
Applied Environmental Research Foundation, Ganga Tara Apts., 917/7 Ganeshwadi, Pune 411004, India

Archana Godbole has a Ph. D. in Ethnobotany from Pune University and has been working as a project coordinator in the Applied Environmental Research Foundation for the last four years. She is involved actively in AERF research work in north-eastern India, especially in Nagaland and Arunachal Pradesh. She is working on developing a model for protection of sacred groves with people's participation in the Western Ghats.

Mr Ajay Rastogi
HKH Ethnobotany Project, MNR Div. ICIMOD, P.O. Box 3226, Kathmandu, Nepal

Ajay Rastogi coordinates the Regional HKH Ethnobotany Project, supported by UNESCO and based at ICIMOD, Kathmandu. Through his work he assists and provides guidance to ethnobotanical projects in Bhutan, Bangladesh, China, India, Nepal and Pakistan. He is involved actively in organizing national and subregional training workshops on applied ethnobotany.

Invited Contributions

1. **Overview of Research in Home Garden System**
   M. Millat-e-Mustafa
   Institute of Forestry and Environmental Sciences
   University of Chittagong
   Chittagong, Bangladesh

2. **An Approach towards Analysis of Home Garden**
   M. Millat-e-Mustafa
   Institute of Forestry and Environmental Sciences
   University of Chittagong
   Chittagong, Bangladesh

Annex 6
Evaluation of the Training Workshop

Dasarath Moktan
Training Officer, DITS, ICIMOD

Documentation, Information and Training Services (DITS)

DITS provides conceptual and logistical support in organizing the training programmes of the thematic divisions. One of the important tasks of DITS is to devise and implement effective systems for evaluating the usefulness and impact of ICIMOD training programmes. Evaluation of programmes is a continuous process adopted at the Centre. The feedback collected through the evaluation is considered a strong mechanism to make the programme effective and useful in order to achieve the stated objectives. At the end of the training session, in consultation with the programme coordinator, a questionnaire is administered, and the completed questionnaire is then analysed by the Training Officer. The findings are passed on to the concerned professional staff as well as others. The National Training Workshop organized in Kohima, Nagaland, was also evaluated and a summary of the feedback is provided below.

Evaluation

The evaluation aimed to have participants' feedback on the management of the workshop, its contents, and fulfilment of its objectives. Sixteen participants out of twenty-two provided us with valuable suggestions on the overall training programme.

Findings

1. Participants' feedback

- According to the feedback of the participants, the programme was successful. It was participatory and very interactive in terms of sharing experiences.
- Ninety-four per cent (94%) of the participants were given enough information regarding this training.
- Eighty-two per cent (82%) of the participants agreed that they were informed well ahead of time.
- Forty-seven per cent (47%) of the participants agreed that the training was 'very useful' and forty-seven per cent (47%) said the training was 'useful'.

2. Other common feedback

- Encourage more representation from local education institutes, e.g. Nagaland University, Science College, local people, etc.
- Brief lecture about field visit may be organized at the site or during field visits as this will provide instant practical understanding of related issues/aspects of the field study.
- Experts from the Tropical Botanical Garden and Research Institute (Trivandrum), Guwahati University and some local medicine practitioners should be invited to this kind of workshop.
- Avoid too many aspects, include only relevant subjects and use simple methods of delivering the knowledge.

- Participants repeatedly said that there was a need for improving the arrangements at the conference hall. If arrangements for the hall and equipment are made prior to the commencement of the programme, it will help the smooth running of the programme. They also suggested that necessary reading material should be made available to the participants in future.

3. Do you feel that enough notification was given to you regarding this training? Please tick (✔) the appropriate answer.

Response

Yes = 94 % No = Nil No response = 6 %

4. Did you receive the formal invitation and/or nomination sufficiently ahead of time?

Response

Yes = 81 % No = 6 % No response = 13 %

5. Would you be interested in participating in similar types of training courses in the future?

Response

Yes = 88 % No = 6 % No response = 6 %

6. Ethnobotany applied to conservation and development here was:

Response

Additional knowledge = 40 %
Additional knowledge and refresher knowledge = 18 %
Additional knowledge and relevant to my work = 6 %
Partly additional knowledge = Nil
Additional knowledge, refresher knowledge and relevant to my work = 12 %
Refresher knowledge = 6 %
Refresher knowledge and partly additional knowledge = 6 %
Not relevant to my work = Nil
Too theoretical = Nil
Relevant to my work = 12 %

7. How will you use what you have learned in this training course?

Response

In teaching/training = Nil
In teaching/training and in applied work = 12 %
In teaching/training, in applied work and research work = 24 %
In teaching/training and research work = 6 %
In research work = 24 %
No response = 34 %

8. In general, how useful have you found this trainers' training course in relation to your work?

Response

Very useful = 47 %
Useful = 47 %
Of little use = Nil
Not useful = Nil
No response = 6 %

9. Which subject or topic do you think will be most beneficial and relevant to you in your job? Please tick (4) the appropriate column.

Aspect of the workshop	Most relevant/ useful (%)	Relevant but less useful (%)	Not relevant/ of little use (%)	No response (%)
Home garden as the theme for the workshop	65	24	6	5
Development of methodological framework for ecological data collection	75	19	-	6
Development of a methodological framework for socio-economic data collection	81	12	-	7
Market survey exercise	81	12	-	6
Fallow management practice of *Angami* Nagas	88	6	-	6

10. How do you feel about the distribution of time among the different aspects of the training programme? Please tick (✓) the appropriate column.

Aspect	Too much (%)	Just right (%)	Too little (%)	No response (%)
Lectures	12	76	12	-
Discussions	18	64	18	-
Field trip	12	88	-	-
Field project work	6	63	31	-
Practical exercises	6	69	19	6

11. To what extent were your expectations met?

Responses

20% = Nil
40% to 60% = 6%
60% = 31%
80% = 45%
100% = 6%
No response = 12%

12. How did you find the following arrangements during the training course? Please tick (✔) the appropriate column.

Items	Excellent (%)	Good (%)	Needs improvement (%)	No response (%)
Conference hall	19	31	50	-
Display	12	38	50	-
Reading materials	25	37	38	-
Overhead projector	6	50	25	19
Food	31	44	-	25
Tea/coffee break	19	56	6	19
Accommodation	38	31	12	19
Transportation	56	25	-	19

13. Considering the contents of the training course, what is your impression about the duration of the training course?

Response

Just O.K. = 69%
Too short = 6%
Too long = 19%
No response = 6%

If too short or too long, what, in your opinion, would be the appropriate length?

Response

10-15 days = 12%
3 days = 12%
No response = 76%

14. Now that you are at the end of the training course, how did you find the overall training course?

Response

As expected = 88%
Too heavy = 12%
Too light = Nil
Too many lectures = Nil