Discussions on the Methodological Framework

As one of the objectives of the workshop was to develop a methodological framework/ guideline for short- and long-term ethnobotanical studies, two sessions were devoted to the task of understanding various field methods and to developing a survey format to be used, particularly in the workshop field work.

Participatory methodologies help to increase the awareness and confidence of communities, but they also pose certain problems. Choosing the correct participatory methodology is dependent on the area, community and status of resources within that area. Participatory methodologies such as RRA (rapid rural appraisal) and PRA (participatory rural appraisal) have their own limitations. RRA is a quick method for brief analysis of the field situation; little or no time is available for rechecking and confirmation of the data collected. RRA is useful to many people from villagers and field workers to academicians and scientists. However, successful use of RRA and PRA requires many skills such as communication, facilitation and conflict negotiation. On occasion, rapid assessment can create confusion, especially if there is a time constraint. PRA is comparatively more time consuming both for researchers and communities. It can be difficult for communities to allow time for interviews, and continuous questioning may develop interview fatigue. These methods are training oriented also.

During the morning session (19 June 1997) S.K. Barik, Arvind Saklani and Dhrupad Choudhary discussed the use of ecological quantification methods in ethnobotanical studies. Dr Barik explained in detail methods such as estimation of seedling/sapling density, productivity competition assessment, allelopathic interactions, association analysis, etc. Some participants not trained in field ecology found it a little difficult, but later when simple formats for collecting data for such detailed analysis were developed, everyone understood the need for and use of such ecological methods in ethnobotanical studies. Survey formats for field data collection are given in Annex 1. Use of ecological quantification methods are helpful for checking the science behind traditional practices and the exact role of practices such as cropping pattern and fallow management in sustainable resource use. Participants accepted the fact that ecological data collection is time consuming and proper value estimations need continuous data collection and observations over a long period of time. For short-term research programmes, a few parameters such as productivity, spatial patterns, etc can be used effectively to enhance the understanding of indigenous knowledge systems.

In the afternoon session, Archana Godbole, Vincent Darlong, and K. Haridasan discussed the methodological framework necessary for socioeconomic studies in relation to ethnobotanical studies. The discussion focused on Home Gardens.

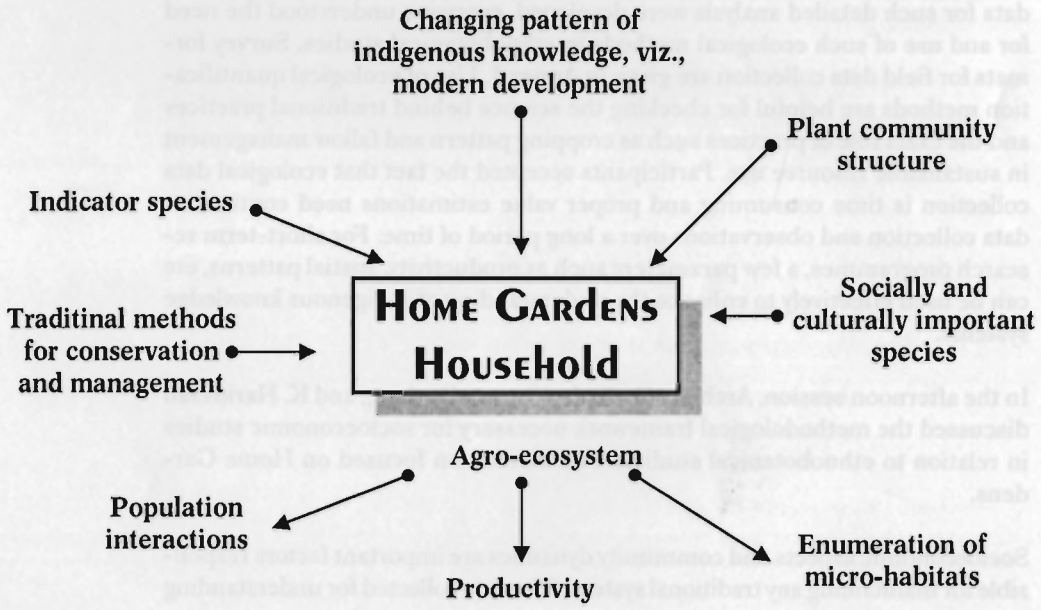
Socioeconomic aspects and community dynamics are important factors responsible for maintaining any traditional system. The data collected for understanding

these factors are normally qualitative data and need rechecking and confirmation from time to time. However, the more qualitative the data that are collected and interpreted, the easier it is to select particular criteria for quantification and to frame specific research questions. For the workshop field work, it was decided to concentrate on social, cultural, economic and management aspects of indigenous practices of maintaining Home Gardens (Figure 1). The ecological aspects were also discussed (Figure 2). The use of RRA and PRA techniques for such data collection is well understood, but to obtain specific and accurate information with a focus, survey guidelines/formats were prepared (Annex 2). Annex 3 provides the formats for various components of the market survey exercise.

Figure 1: Socioeconomic Aspects of Home Gardens

SOCIAL	ECONOMIC	CULTURAL	MANAGEMENT
Social Functions	Productivity	Attitudinal change	Specific practices
Role of Women	Utilisation	Cultural ethos	Calendar of activities
Social relationship	Provisions for adverse conditions	Social trends	Decision-making
		Social functions	Working pattern

Figure 2: Ecological Aspects of Home Gardens



Systematic data collection

There is a wide variety of methodologies available for data collection and analysis used by various related disciplines, depending on the choice of research topic. Therefore, as a starting point, it is essential to define a domain for the subject of interest that not only limits the scope of data collection but also helps to build the data systematically. Systematic data collection using an explicit methodology helps to ensure the arrival at logical conclusions. Since most ethnobotanical research rests on interviewing, the domain may be defined as an organized set of words, concepts or sentences, all on the same level of contrast and that jointly referring to a single conceptual sphere. For greater precision, the domain should be defined by the informants. There are many ways to compile the list of items to define the domain of study items and the most useful general technique is the free listing task.

Free listing

This technique helps us to understand if the domain is considered culturally important and easily recognisable by the people being interviewed. By framing the right question, free listing can provide a fairly complete set of native categories. When people are asked to recall things, they tend to list the most significant ones. In addition, prominent categories are cited by almost everybody, thus giving some idea of the things that are culturally more important. This information produces a ranking index. This index can be used to decide the size of the data set to be included in the domain. It also helps to decide on the number of respondents for the free listing task. However, for a medium-sized domain (less than 100 or so total categories), the inquiry should be made with approximately 20-30 people. Once it is observed that most of the responses given by new informants are being repeated from old lists, the sample is considered fairly complete. A composite list may be obtained by accumulating information from all the lists.

Identification task

The free listing can be followed by an identification task. A simple way to do this is by collecting specimens of items mentioned in the free lists and taking the specimens to the respondents for identification. It is important to have a proper sample to facilitate identification. The responses from each of the respondents should be recorded separately and later verified for the number of correct answers. This technique provides some idea of who are the more knowledgeable people in the community and also helps to resolve confusion on account of synonyms for the same item. It is useful then to carry out further study with the subject matter specialists after the initial identification task to remove anomalies associated with multiple local names.

Preference ranking

Preference ranking can either be accomplished from the positions in the free lists or obtained by asking the key group of informants again to arrange the items in the order of preference. Each person arranges the items according to personal preference, perceived importance in the community or any other cri-

terion. Each rank is given an integer value (1, 2, 3 and so on) with the most important or preferred item assigned the highest number. These numbers are summed for all respondents, giving an overall ranking for the item by the sample group of respondents. Efforts should be made to cross-check this order of preference with data obtained from interviews or other sources to see if there is consistency in the responses. A more complex version of preference ranking, useful for ranking based on multiple dimensions, is known as direct matrix ranking. Direct matrix ranking takes into consideration several attributes at a time to provide composite scores of the overall multiple use value of items.

Pairwise ranking

In a paired comparison task, items are presented two at a time and respondents are asked which is 'more' or which is 'less'. For 'n' items, a pair comparison design creates n(n-1)/2 pairs. For example, if we wanted someone to order ten items using this method, we would then create 45 pairs and order them at random both within and between pairs. For each pair, respondents are asked which is 'more'. A total order is obtained by summing the number of times each item was chosen. To tabulate the responses, simply sum together all the codes or ranks assigned to each item and present them as shown in Table 1.

Table 1: Scores and Ranks Assigned to each Item Using Pairwise Ranking Method

A	B	C	D	E	F	G	H	I		Score	Rank
									A		
									B		
									C		
									D		
									E		
									F		
									G		
									H		
									I		

In order to gain insight into people's reasoning, respondents can be asked to describe why one option is better or worse than the other. In addition, information can be gathered on whether the preferred item has any negative qualities or whether the item not chosen has any positive aspects. Some researchers ask for these comments after each choice, whereas others prefer the respondents to complete the entire task before giving their general observations on the overall pattern that emerges.

Pile sorting

Pile sorting is initiated after the study items have been selected for more detailed data collection. In pile sorting, informants are asked to sort either the items or cards bearing the name/figure of an item into piles so that all items in a pile are more similar to each other than they are to items in separate piles. In the unconstrained version of the pile sorting task, respondents can make as many or as few piles as they wish. In the constrained version, respondents are asked to create a specified number of piles. Respondents are generally asked to group items according to their similarity, without reference to specific criteria. The respondents rather than the researcher decides what criteria are more salient and determine similarity. Pile sorting is easy to administer and allows for the collection of data among a large number of items.

Pile sort tabulation

An item-by-item similarity matrix is created from each individual's sort by tabulating the co-occurrence of items in piles so that items that are together are counted as similar. For example, if data were collected on the similarity of seven items and a respondent put items A, B and C together in a pile, D and E in another pile, and left F and G by themselves (Table 2) then a 7 x 7 table would be created to tabulate similarity among the items. Since A, B and C are categorised together, A and B are similar, B and C are similar, and A and C are similar. Since D and E are also put together in a pile, D and E are similar. Thus each pair would get 'a point of similarity'. This is indicated in the table with a one. For this individual, all other pairs are 'dissimilar' and are recorded as zeros. Similarity matrices are tabulated for each individual and then combined across people. The similarity matrix can then be analysed with a descriptive method such as hierarchical clustering or multidimensional scaling.

Table 2: An Individual's Items Sorted into Piles

A			
B	D		
C	E	F	G
Pile 1	Pile 2	Pile 3	Pile 4

Since A, B, C were together in a pile

cell (A, B) = 1
cell (A, C) = 1
cell (B, C) = 1

Similarity matrix

	A	B	C	D	E	F
B	1					
C	1	1				
D	0	0	0			
E	0	0	0	1		
F	0	0	0	0	0	
G	0	0	0	0	0	0

Standardisation of methods

The standardisation of the methodological framework used for ethnobotanical research is dependent on many factors such as geographical location, systems being analysed, tribe/community, socioeconomic aspects, approachability, etc. It is therefore difficult to standardise methodology. However, it is possible to develop a conceptual framework and selection of particular methods available and tested at different field sites. A multimethod approach using RRA, PRA techniques and tools along with ecological quantification methods is suitable to carry out multi-objective ethnobotanical research within a short span of time, i.e., six months to one year. Quantification of cultural indicators is an added advantage to researchers if the criteria used are selected properly. In any case a multidisciplinary team is an important prerequisite for any applied ethnobotanical research. Effective data collection, using any particular methodology, is dependent on the manpower and funds available. In any action research the first two steps relate to the identification of issues and problems based on observations during the preliminary field visit; and the selection of issues/problems that could be resolved on the basis of research and data analysis.

Informal interactive sessions during the course of the workshop provided additional learning opportunities. In addition to various presentations, POU member, Mr Sancho, gave an illustrated presentation on *jhum* practices in Nagaland and NEPED work by Dr Arvind Saklani provided a short presentation with the help of slides on medicobotanical aspects of Flora of Western Himalayas, and Dr P.K. Singh shared interesting details of the traditional ways to store perishable fruits in Manipur hills.

Specific issues and problems that emerged through workshop discussions and field work.

Workshop field work and discussions focussed on the problems of the north-eastern region as a whole and Nagaland in particular. The main issues highlighted areas follows.

- Tribal communities have tremendous ethnobiological knowledge which they have been using for effective natural resource management since time immemorial. However, the lack of awareness about the value of indigenous knowledge is a critical problem and it is therefore difficult in present circumstances to design community development programmes for effective resource use and conservation.
- Projects such as NEPED are trying to help local communities. However, commodities produced as a result of such efforts are likely to face problems in terms of marketing and thus may adversely affect sustainable production in future. The main problem is that of developing a marketing network and policies for product pricing that protects the interest of the primary producer.
- In the case of Nagaland, the village development board, which is based on a traditional village organizational pattern, functions effectively. However, funds and continuous, effective guidance are sometimes lacking. The model is good and it is important to develop such village-level organization in other states of north-eastern India.

- Poor communication is another important issue in all these states and is directly related to marketing and networking facilities.

Achievements of the workshop

- A process of interaction amongst institutions and interested professionals has been initiated and has highlighted the need for applied ethnobotanical research beyond inventories for a culturally and biologically diverse region such as north-eastern India.
- The workshop provided an opportunity for experts and young researchers from various fields to view the application of ethnobotany in the form of NEPED. Workshop field work provided direct contact with local communities and allowed them to interact with NEPED.
- Workshop exercises helped to develop a methodological framework for short- and long-term applied ethnobotanical research, particularly in the context of Home Gardens. The survey formats prepared in an interactive way could be used further with modifications based on particular research needs in the region and outside.
- The workshop provided an opportunity to develop inter-institutional linkages and better networking of organizations doing similar research in north-eastern India.
- In order to strengthen the scientific understanding and make a comparative assessment of indigenous soil conservation and fertility improvement techniques used by various Naga communities, a field study has been undertaken by a multidisciplinary team comprising of an anthropologist, botanist and a forester. The study is being coordinated by a POU member of NEPED and is supported by the Hindu Kush-Himalayan Ethnobotany Programme of ICIMOD.