

VI. Field work report

Ethnobotany of *Marma* tribe : a case study

There were two field days during the workshop on December 20 & 21, 1997 for practical orientation of the participants, and to interact with local people. On December 20, 1977 the participants visited Headman Para in Paithong Mouja under Lama Thana of Bandarban district of CHTs. The Headman Para is about 600 years old village mainly inhabited by the *Marma* tribe. There are also few plain land Bangalee settlers. The participants conducted a brief ethnobotanical survey on *Marma* tribe, particularly on socio-economic conditions and indigenous knowledge on home gardens and *jhum*s (shifting cultivation).

Location and topography

Paithong Headman Para is about six hundred years old village under Paithong Mouja in Lama Thana under Bandarban district (one of the three districts of Chittagong Hill Tracts, Bangladesh). It is about 70 km south from Chittagong city and 4 km east from Chakaria of Chittagong-Cox's Bazar highway. The village consists of medium and small hills with gentle slopes. Most of the hills are suitable for tree plantation, and *jhum*s are practised in the area. The flat valley lands are suitable for rainfed paddy cultivation. Hill streams are main sources of water. Recently few tube wells have been sunk in homesteads.

Methodology

There were three groups among the participants to conduct the field study. Each group included some local people of both sexes. One group conducted socio-economic studies, one the home gardens and another the *jhum*s. Because of time constraints methodologies adopted were

PRA, RRA, group discussion and free listing of species. Socio-economic group collected information on the basis of checklist and structured questionnaire prepared on the spot. The team including an experienced botanist conducted the vegetation inventory in the homestead. Indigenous knowledge regarding propagation techniques, sources of propagules and special remarks for species were explored using an open ended interview. A paired-ranking exercise was conducted to find out farmers' preference of species for home garden.

The participants noted peoples perception and attitude through discussions with the local people, and sometimes cross checking in the field with statements. During the field trip the group members interacted with each other.

After the field survey one representative from each group debriefed about their findings to get feedback and to note the lapses. The lapses were tried to be fulfilled. Finally one representative from each group presented their findings, that are given under Results and Discussions.

Results and Discussions

The results of the study are given under following three major heads- socio-economic profile; home garden floristics and *jhum*.

Socio-economic profile

Population size: 400 - 500, male 50 per cent, female 50 per cent.

Ethnicity: *Marma*, closed society, patrilineal. *Marriage:* Early marriage, choose life partner. *Religion:* Buddhist. *House hold/family:* 90-95 nos. *Literacy rate:* Very low, only one graduate (Bachelor of Arts), one HSC level (12 years education level), one

SSC (10 years education level), high school going 15-20. *Occupation*: Mainly shifting cultivation, paddy cultivation in flat valley.

Off-farm activities: Daily labourers. Rock collection and sale. *Food habit*: Mainly rice, also maize. Protein source- bird, fish, frog, porcupine, snake, etc. by hunting. *Livestock*: Cattle, goat, pig, chicken and duck rearing. *Housing*: Mainly bamboo made houses on platforms with roof with sun-grass. Doors and windows sometimes with wooden frames. *Sanitation*: Drinking water from tube well. Other uses- stream water. No proper toilet, open habit.

Land tenure: Most of the lands are *khas* (under government control). For *jhum* cultivation farmers pay tax to *Bhomang King* @ Tk. 10/acre.

Labour and gender: Both men and women work in *jhums*. Working hours 6-12 noon. Females take care of house hold activities.

Health care: Traditional medicines (local healers are known as *Baiddyas*) and modern medicines are also used.

Cultural transition: *Language*: Marma-Bangla. *Use of utensils*: Traditional - modern. *Clothings*: Home made - industrial products. *Cosmetics*: Traditional - modern. *Community*: Closed - open. *Health care*: Traditional - modern.

Home garden floristics

A total of 24 species were recorded from the home garden (Table 1). Food and fruit producing species rank highest (58 per cent of the total species) in terms of species composition. Timber spp. ranks second (25 per cent) and ornamental species rank third (12.5 per cent).

Erythrina indica is the only fuel wood species found in the home garden. On the

basis of plant form, 75 per cent of the species are trees, 8 per cent are shrubs, 8 per cent are herbs and 8 per cent are epiphytes.

The farmers have sound understanding about different propagation techniques. Fifty per cent of the planting materials are of home garden origin. The farmers also purchase seedlings from market. Planting materials of all timber and bamboo species are of hill origin while most of the food and fruit producing species are of home garden origin.

The farmers consume foods, fruits and vegetables grown in the homesteads to the neighbours if any surplus remains. They all distribute surplus to the neighbours. But they sell fruit species like mango, and all timber species to the outside traders. Although most of the species have more than one uses, the farmers make special remarks only for few species.

Species preferences: A paired ranking exercise using 8 important species has been conducted to find out species, preferences by farmer for his home garden (Jackfruit is excluded at this stage since the farmer report that he has sufficient number of jackfruit trees in his home garden). The exercise is presented in Fig. 1. *Areca catechu* ranked highest (Score 6) followed by both the *Mangifera indica* (Score 5) and *Gmelina arborea* (Score 5) respectively. *Cocos nucifera* ranked or third (Score 4). Among the food and fruit producing species *Areca catechu* is the most preferable species according to the exercise followed by the *Mangifera indica* and *Cocos nucifera*. Among timber species *Gmelina arborea* ranked top followed by both the *Tectona grandis* and *Anthocephalus chinensis* respectively.

Table 1. Home garden floristics

Name of the Species	Frequency	Plant Form	Function	Propagation techniques	Source	Uses*	Remarks
<i>Areca catechu</i>	3	Tree	Fruit	Seedling	Market	1,7	
<i>Anthocephalus chinensis</i>	1	Tree	Timber	Seedling	Hill	4, 5	Very fast growing cash crop. Good demand for plywood
<i>Artocarpus heterophyllus</i>	5	Tree	Fruit	Seed	Home garden	1,2,3,4,5	Very good quality timbe, No. burnish required. Durable. No shrinking
<i>Artocarpus lacucha</i>	1	Tree	Fruit	Seed	Hill	1,2	
<i>Ata (Annonus)</i>	1	Tree	Fruit	Seedling	Market	1,5	
<i>Bambusa balcooa</i>	1 clump	Tree	Timber	Vegetative	Hill	10, 11	
<i>B. tulda</i>	2 clumps	Tree	Timber	Seed	Hill	10, 11	
<i>B. vulgaris</i>	1 clumps	Tree	Timber	Vegetative	Hill	10, 11	
Banana	6 clumps	Herb	Fruit	Vegetative	Home garden	1, 2, 3, 7, 9	
<i>Citrus maxima</i>	1	Shrub	Fruit	Seed	Home garden	1, 5	
<i>Cocos nucifera</i>	30	Tree	Fruit	Seed	Home garden & UNICEF	1, 2, 5, 6	Green coconut water good for health recovery after malaria & diarrhoea
<i>Dendrobium spp.</i>	2	Epiphyte	Fruit	Seedling	Hill	12	
<i>Erythrina indica</i>	1	Tree	Fuelwood	Vegetative	Home garden	5	
<i>Syzygium operculata</i>	1	Tree	Fruit	Seed	Hill	1, 4, 6	Bark boiled in water & extract if ringe reduce toothache
<i>Gardenia florida (Gandoraj)</i>	1	Shrub	Ornamental	Vegetative	Home garden	12	
<i>Gmelina arborea</i>	5	Tree	Timber	Seed	Hill	2, 3, 4, 5	Very fast growing. Cash Crop. Good demand to outside traders
<i>Mangifera indica</i>	2	Tree	Fruit	Seed	Home garden	1, 3, 5	Good demand for plywood. Outside traders come & buy it for plywood
<i>Moringa oleifera</i>	1	Tree	Fruit	Vegetative	Home garden	2, 5	
<i>Carica papaya</i>	1	Tree	Fruit	Seed	Home garden	1,2	Medicinal for dysentery if taken baked form
Pine apple	6	Herb	Fruit	Vegetative	Home garden	1	
<i>Tectona grandis</i>	3	Tree	Timber	Seedling	Hill	4, 5	
<i>Ziziphs mauritiana</i>	1	Tree	Fruit	Vegetative	Home garden	1, 3, 5, 8	Thorny branches if kept in water protect pond fishes from otter

Uses : 1 = Fruit, 2 = Vegetables, 3 = Fooder, 4 = Timber, 5 = Fuelwood, 6 = Medicinal, 7 = Fence, 8 = Fish protection, 9 = water purifier, 10 = Pole, 11 = Binding materials, 12 = Ornamental.

Fig. 1: Paired ranking exercise

Mango (M)	Coconut (C)	Gamar (G)	Teak (T)	Jam (J)	Guava (Gu)	Betelnut (B)	Kadam (K)		Score	Rank
	M	G	M	M	M	B	M	Mango	5	2nd
		C	T	C	C	B	C	Coconut	4	3rd
			G	G	G	B	G	Gamar	5	2nd
				T	T	B	K	Teak	3	4th
					Gu	B	J	Jam	1	5th
						B	K	Guava	1	5th
							K	Betelnut	6	1st
								Kadam	3	4th

After the exercise the farmer was asked to name his most preferable fruit and timber species. It was *Mangifera indica* and *Gmelina arborea* respectively. His personal preference is quite reflected in the paired ranking exercise.

Jhumming in hills

Jhumming (shifting cultivation) is the main farming system by the Marmas in the village. In Marma hill is called *Tong* and the *jhum* is called *Ya*. Average size of the *jhum* is about 1 ha. Average *jhumming* fallow cycle is for about 7 years.

December is the post harvest period. So the *jhums* were fallow during the field visit, still few bi-annual crops like *Maranta*, *Hibiscus sabderiffa* were found to grow along the fringe of the *jhum* farms. Aesthetic plants like *celosia* are also cultivated in the field for beautification.

The *Marmas* generally grow upland paddy, maize, sesame, cucurbits, taro, ginger, turmeric, yams, chillis, cassava. The farmers keep leguminous trees and trees of construction wood value in the *jhums*. The new recruits if come later on are also kept. During the field visit the

participants recorded the following trees from the fallow *jhums*-*Albizia procera*, *A. tamarindifolia*, *Ficus semicordata*, *Anogeissus acuminata*, *Gmelina arborea*, *Mitragyna parviflora*, *Proteium serratum*.

Crop management: Farmers provide support to yams. Sometimes they plant yams near the trees for their support.

Tree management: When the bole of a tree is crooked. The farmers cut the stem above the ground level. When new shoots sprouts; they only keep the straight shoot for a straight bole.

Attitude: Previously after harvesting crops, farmers used to keep the *jhum* abandon. Now the farmers are interested to keep the land. They are now growing banana and tree crops in fallow *jhums* farming system. The cause behind it is the land tenure, i.e. for permanent entitlement of the land.

Remarks

Deciding factors for jhumming: The *Marmas* follow 7 years cycle for *jhumming*, one year cropping and 6 years fallow. Fallow is not necessarily abandoned. Fallow period and land favour tree regeneration, harvest of other unconventional crops, sungrass, medicinal plants and non-wood timber crops.

For *jhum* preparation the farmer burn the land. Burning is not always detrimental. *Marmas* think that if the lands are nicely burnt and mother trees are kept the regeneration will be perfect. Ash from burning fertilizes soil. Fire also recedes weed, which is a good mode of phytosanitation.

A brief list of plants with uses

During the field visit to the *jhum* we recorded the indigenous uses of some plants by the *Marmas*. Along with the uses the *Marma* vernacular names were also recorded. Following is a list of species along with their indigenous uses. Species are arranged alphabetically with *Marma* names in parenthesis.

Aegle marmelos (Wa-rai-bopand) - a tree; leaf juice is given in insomnia for sound sleep. Leaves are also used in worship.

Blumea lacera (Fao-ma-bopang) - a herb of road side and waste places; tender leaves and shoots are cooked in vegetables; leaf juice is given in dysentery.

Cassia alata (pui-chi) - a shrub; squeezed leaves are rubbed into ringworm.

Crotalaria sp (po-wai-bopang) - a shrub; tender fruits are cooked as vegetables.

Hibiscus sabderifa (Poon) - a perennial shrub; leaves and fruits are cooked in curries, taste acidic.

Ficus hispida (Fah-shai-ba) - a shrub or small tree; green fruits are cooked as vegetables.

Ficus semicordata (Soo-doyai-pang) - a small tree; ripe fruits are edible.

Dillenia pentagyna (Jang-bring-bopang) - a tree; fruit as acidic; cooked in curries.

Gmelina arborea (Remeni-ba) - a tree; inner bark powder is used in scabies; flowers are cooked as vegetables; produces good quality timber.

Leucas zeylanica (Pai-thong-sang) - a herb; leaf paste bandage is given in cuts; it is reported to work as antiseptic.

Mitragyna parvifolia - a medium sized tree; timber is good and much esteemed for house posts.

Premna esculenta (Kamrah) - a shrub; leaves are cooked in curries.

Scoparia dulcis (Du-jhanga, tang-go-pong) - a herb, whole plant is used in menstrual troubles.

Sarcochlamys pulcherrima (Mashada) - a shrub; tender leaves are cooked as vegetables.

Side acuta (Wa-chi-panne) - an herb; pill made from whole plants is taken for uneasiness.

Spilanthes clava (Ha-foi) - an annual herb; tender leaves are cooked vegetables.

Xanthium strumarium (Pa-fi-bang) - an herb to under shrub; young leaves are cooked as vegetables.

Recommendations

From field visit, interaction with the people, and group discussions the following recommendations came out:

- * Motivation to restore the ethnic culture;
- * Patronisation to literacy rate and level;
- * Improvement of sanitation system;
- * Development of community facilities;
- * Promote extension activities towards soil conservation, crop diversification, nursery raising and tree management;
- * Promote participatory forestry activities and biodiversity management;
- * Development of sustainable perennial integrated hill farming system.

A field visit to the Herbal Medicinal Center, Rangamati

The second field day was on December 21 at Rangamati. In the morning a herbal medicinal centre located near Rangamati town was visited. The garden was established by a number of tribal medical persons (locally known as *Baiddhya*) on February 1994 with the financial support from the Chittagong Hill Tract

Development Board. The area of the garden is 40 decimal which is fenced by barbed wire. About 300 medicinal plants, mostly herbs have been planted in the garden. A tentative list of some important medicinal plant growing in the garden is given below.

Table 2. A list of some important plants available in the Herbal Medicinal Centre

Local name	Scientific name
Boch	<i>Acorus calamus</i>
Maankachu	<i>Alocasia indica</i>
Ghreeta kumari	<i>Aloe vera</i>
Thara	<i>Alpinia nigra</i>
Aungar	<i>Calotropis gigantea</i>
Dattalong gach	<i>Cassia alata</i>
Hanchani	<i>Centipeda minima</i>
Am Ada	<i>Curcuma amada</i>
Kala Halud	<i>Curcuma caesia</i>
Tarulata	<i>Cuscuta reflexa</i>
Madan mattan	<i>Dehaasia kurzi</i>
Dumur gula/bar jagana	<i>Ficus racemosa</i>
Regi	<i>Pandanus tectoriu</i>
Aurang pan/Bhuth pan	<i>Piper betle</i>
Cha ladi	<i>Piper chaba</i>
Sursun	<i>Rauvolfia serpentina</i>
Kala Magma	<i>Saraca asoca</i>
Dhup-Veral	<i>Sida sp.</i>
Bis kachu	<i>Steudnera virosa</i>
Tedui	<i>Tamarindus indica</i>
Man kada	<i>Xeromphis spinosa</i>
Ban Auda	<i>Zingiber sp.</i>
Mur auda	<i>Zingiber rubens</i>

BFRI has also similar conservation plots of medicinal plants and is in a position to extent technical support in improvement and expansion of the centre.

In the afternoon off-farm activities by tribal women were observed. The women were operating handloom for making clothes and also making handicrafts by bamboos and rattans. They sell the products in the market. The activities have been supported by Green Hill, a local NGO operated by tribal people. The Green Hill is an organization for socio-economic and cultural advancement of local people of CHT. The Green Hill lend money to the poor women with the 15 per cent interest to provide the financial support for the activities.