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Traditional forest utilization practice by the *Mro* tribe in the Bandarban region, Bangladesh

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Keywords: *Mro*; food; fruit; energy; timber; festivals; Bangladesh. FDK 166 : 26 : 835 : 89 : (54)

Abstract: The traditional utilization of forest products by the *Mro* tribe was explored in the Bandarban region, Bangladesh. The dependence of the tribe on foods, fruits, energy, and timber derived from the neighbouring forests was determined in this study, which also focused on their cultural festivals based on forest plants. The results reveal an extreme dependence of the *Mro* tribe on forest products.

Abstract: Zu den forstlichen Produkten und deren traditionellen Verwendung durch die *Mro*, eine ethnische Gruppe in der Region Bandarban, Bangladesh, wurde eine Studie durchgeführt. Festgestellt wurde eine Abhängigkeit der *Mro* von Nahrungspflanzen, Früchten, Brenn- und Nutzholz aus den umliegenden Wäldern. Untersucht wurden auch festliche Bräuche mit Bezügen zu forstlichen Pflanzen. Die Studie zeigt die extreme Abhängigkeit der *Mro* von den forstlichen Produkten.

1. Introduction

The socio-economic and cultural life of the tribes and forest dwellers is closely and widely associated with the forest (SHROFF 1997). The forest has always played a vital role in the economy of the tribes in Bangladesh, whose religious, cultural and economic activities depend on it. The Chittagong Hill Tracts (CHT) comprises three hill districts, i.e., the Bandarban, Khagrachari and Rangamati, with a total population of 1.1 million (KHISA 1998). Its historical development makes it a truly unique place (AHMED 2002). The CHT region makes up 10% of the total land area of Bangladesh (HAQUE 2000a) and 76% of the total hilly region of the country (KHISA 1998). The CHT is inhabited by a variety of tribes (BANIK 1998), of which 12 are recorded (KARIM 1994; BBS 1997). Tribal communities have lived in the region for centuries practising a slash-and-burn system (*Jhum* cultivation), augmented by fishing, hunting and harvesting of forest products (MUSTAFA *et al.* 2002).

The *Mro* or *Murung* are the most ancient of the ethnic minorities of the CHT region (ROY 1996) who represent different types of socio-cultural organizations compared to the *Chakma* and *Marma* (AHMED 2002), the two major tribal groups in Bangladesh. The *Mro*, live in groups in hamlets, small settlements typically comprising five to twenty households, which is considered to be the primary socio-economic unit of *Mro* life (BRAUNS & LOFFLER 1990).

Indigenous/ethnic communities worldwide are generally very knowledgeable about the natural resources in their surroundings, on which they depend intimately (KHISA 1998). They also inherit a system of knowledge regarding the appropriate type of exploitation system of forest produce (MOHIUDDIN *et al.* 2002). Today most of the wealth of indigenous knowledge of the tribal people in CHT is being threatened by the settlements of the non-tribal people in the region.

The *Mro* live in the hilltops in a pristine environment, protected by the high ranges of hills and dense forest, and almost invisible to the outside world. In their scantily-clad, isolated communities, the *Mro* are desperately trying to preserve their identity, their culture and their lifestyle (HAQUE 2000b). Over the past two decades, the importance of farmers' indigenous knowledge in managing their natural resources has gained increasing recognition from the scientific community (TEKLEHAIMANOT *et al.* 2001). The lifestyle and ethno-forestry perception of the *Mro*, together with the indigenous knowledge that governs their daily activities need to be thoroughly explored. Only such a procedure will guarantee their preserva-

tion and enable the conservation of forest resources by making use of traditional indigenous concepts. Many authors have hypothesized that the *Mro* community encompasses a particular type of forest dependence that is based, for the main part, on their collective, indigenous knowledge. Several studies have been carried out with various tribes regarding the exploration of ethno-forestry (SIDDIQI 1998; KHISA 1998; SATTAR 1998; BANIK 1998; ALAM & KHISA 2000; HAQUE 2000a, 2000b; MUSTAFA *et al.* 2002; ALAM 2002; MOHIUDDIN *et al.* 2002). However, due to the isolation and the relative inaccessibility of the *Mro*, no study has yet been carried out on their dependence on forests, which is why the present study was undertaken in the Bandarban region.

2. Materials and methods

The study was conducted at Bolipara Union of Thanchi Upazilla (sub-district) of the Bandarban district, over a period of five months from June 2002 to October 2002. The study site is indicated in figure 1.

Thanchi Upazilla covers an area of 1020.82 sq km including 680.55 sq km forest area. It lies between 21°15' and 21°57' north and between 92°20' and 92°41' east (BBS 1992). Thanchi, some 55 km south east of Bandarban is the remotest and perhaps, one of the most inaccessible Upazillas of Bangladesh (HAQUE 2000b). In the north, Thanchi Upazilla borders on Ruma Upazilla, in the east and south on Myanmar and in the west on the Alikadam and Lama Upazilla of the Bandarban district. The Upazilla lies in the Chittagong Hill Tracts region, of which 90% is hilly, 4% rivers and marshes and only 6% is suitable for intensive agriculture (KHISA 1998). The Upazilla consists of 4 unions, 12 mauzas and 82 villages. There are 2885 households, of which 2661 are tribal households. The average household size for the Upazilla is 5.6 persons, slightly higher in rural areas with 5.7. It has been ascertained that 98% of the main house of the dwellings is made of straw/bamboo, just 0.18% is cement and 1.82% is made of a combination of different types of materials (BBS 1992). The population comprises 10 000 men and 8000 women, which means the gender ratio of the Upazilla is 1.25. The *Mro* has a population of 22 178 (BBS 2002). 17.4% of the total population is literate (7 years and over), although there is a wide gap between men (27.1%) and women (4.6%) (BBS 1992).

Of the seven Upazillas of the Bandarban district, the *Mro* are concentrated in the hilly areas of Thanchi, Alikadam,

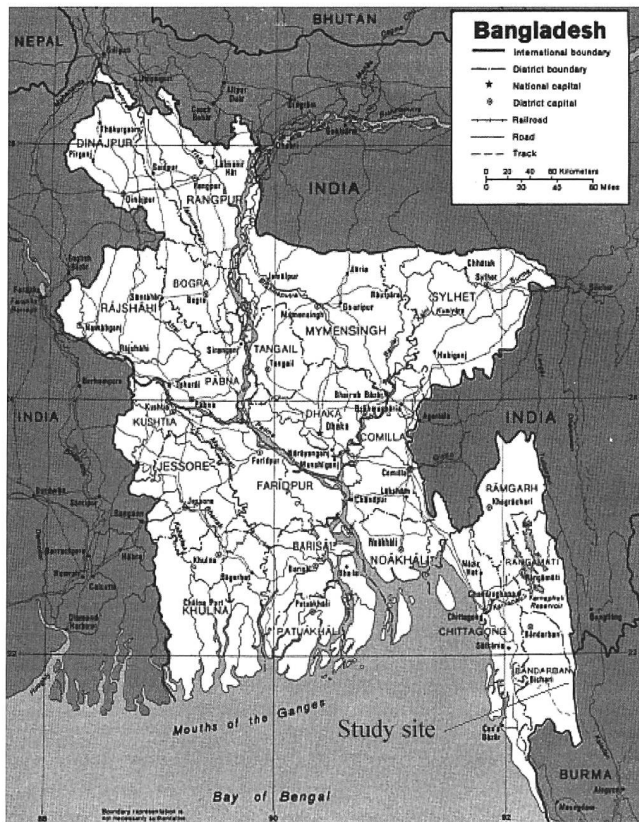


Figure 1: A map of Bangladesh indicating the study site.

Abbildung 1: Karte mit dem Untersuchungsgebiet Bandarban in Bangladesh.

Lama, Ruma and Naikhyangchari Upazilla (DRONG 2001). A list of five Upazillas of the Bandarban district was arranged alphabetically and Thanchi was selected randomly. A majority of the *Mro* lives in Bolipara Union of Thanchi Upazilla, so this union was deliberately included. Caritas Bangladesh, an NGO working locally for the improvement of the *Mro* tribe provided a list of the *Mro* hamlets. Three hamlets from this list selected at random to complete the basic data for the study.

A preliminary socio-economic survey was carried out to ascertain important socio-economic parameters of the study area to select respondents for detailed study. The hamlets were surveyed completely at that stage. A semi-structured questionnaire was used for the survey, worked out in advance and pre-tested for intelligibility. The survey was designed to gather information relating to: family size, household composition, educational status, total annual income, occupation of the respondents, total land holdings, different cultural activities, etc. Household heads (in this case all were male) were the respondents of the study and they were helped from other family members where it was deemed necessary.

12 households were selected randomly from each of the three hamlets, giving us a study sample of 36 households.

First of all, species used for food, fruit, energy, timber, basketry, utensils and festivals were collected under their local names. A field-visit was then arranged to the forest with the relevant respondents and other key persons to ascertain the Bengali and scientific name. Following this, a list of the species used for various purposes was prepared using PRAIN (1981) as the basis of reference. The various parts of the plant species used for food and fruit were ascertained with the several physical observations in the *Mro* house. The baskets and utensils made of forest products were checked to corroborate the interview and plants used for festivals also were crosschecked with several physical observations.

3. Results and discussion

3.1 Foods

Many plants, reported as being used for food, were exclusively collected from the surrounding forests. Most of the plant parts were said to be used as vegetables.

It was found that the roots of Yam (*Dioscorea sp.*), locally known as *Mo-o-Pome*, Taro (*Colocasia esculenta* (L.) Schott.), known as *Ro-o* and Shoti (*Curcuma zeodaria* Roxb.), known as *Suamarik* were used as vegetables.

Young shoots (*Raiom*) of different bamboo species, especially *Kaothao* (*Melucanna baccifera* (Roxb.) Kurz.), are cooked as vegetables. Those shoots have a bitter taste and are usually consumed in the rainy season. It is generally the new tender growth of the rhizome apex into a young culm consisting of compressed internodes protected by a number of leathery sheaths. After removing the sheaths the inner tender portion is thoroughly washed in water, cut into pieces, cooked and consumed as a vegetable. Sometimes they are sliced and dried for use in times of food scarcity.

The consumption of bamboo shoots by the tribal has a scientific basis, which was reported by BANIK (1997). Banik reports that the average nutritional values of various bamboo shoots, with 4.5% carbohydrates, 2.6% protein, 0.3% fat and 0.9% ash, makes them a valuable, nutrient-rich source of sustenance.

The *Mro* tribe was also found to consume the young shoots of cane (*Calamus sp.*), known locally as *Sho-on-om*. The young stem is peeled off and the inner soft and tender portion cooked and consumed as a vegetable.

The young leaves of Silkoroi (*Albizia procera* Benth.), Sajna (*Moringa oleifera* Lam.), wild Am (*Mangifera sylvatica* Roxb.) and Tentul (*Tamarindus indica* L.) are also used by the *Mro* as vegetables and pickles.

There are several varieties of bananas (*Dengoa*) in the *Jhum* lands and forest areas of the hill tracts. After peeling the soft, white core *Dengbong* is also eaten as a vegetable. The inflorescence of wild banana (*Musa paradisiaca* L.), Kanthal (*Artocarpus heterophyllus* Lam.), Chalta (*Dillenia indica* L.) and Hargoja (*Dillenia pentagyna* Roxb.), Turmeric (*Curcuma longa* L.) are also used as vegetables and pickles.

Forests provide food during lean and emergency periods (CHANDRA 2002). Approximately 150 species of wild plants consumed in India, Malaysia and Thailand have been identified as sources of emergency foods by the FAO (1984). Banana core cooked with rice is used in days of food scarcity and, chopped and mixed with bran it, makes excellent fodder for pigs and cattle (JALIL & CHOWDHURY 2000). The Mahua (*Madhuca indica* Gmel.) plant has also often been especially significant during years of scanty rainfall (KUMAR & GOEL 2000). Bamboo seeds, especially *Bambusa arundinacea* (Retz.) Willd., are collected when other food is scarce, and cooked like rice (CHANDRA 2002). During seeding time, the bamboo seeds are also crushed to make a powder from which cakes are prepared (BANIK 1998). BANIK (1997) states that the young shoots of several species of bamboos are important vegetable ingredients in daily diets in China, Japan, Taiwan and Thailand. Other tribal people of Bangladesh also collect bamboo shoots from the natural forests and have traditionally used them as a major food item during rainy seasons (BANIK 1997; BARUA 1995; JALIL & CHOWDHURY 2000).

3.2 Fruits

The survey reveals that fruits provide a seasonal food supply to the *Mro* tribe, especially to the children, who most fre-

Table 1: Fruit consumption of the Mro tribe.

Tabelle 1: Konsum von Früchten der Mro.

Bengali name	Local name	Scientific name	Parts used	Season	Sources (%)		
					Own	Forest	Neighbor
Assar	Uileeb	<i>Grewia microcos</i> L.	Inner flesh	Rainy	40 (absent in 60%)		
Am	Uifomching	<i>Mangifera indica</i> L.	Inner flesh	Summer	100		
Amloky	Uiciching	<i>Emblica officinalis</i> Gaertn.	Outer parts	Winter	100		
Anarash	Sapsha-a	<i>Ananas comosus</i> (L.) Merr.	Inner flesh	Rainy	70		30
Bandorlathi	Singklang-ui	<i>Cassia fistula</i> L.	Pulp & sap	Winter		100	
Bel	Chimkor-ui	<i>Aegle marmelos</i> (L.) Correa.	Inner flesh	Spring		100	
Beth	Sho-on-ui	<i>Calamus spp.</i>	Inner flesh	Winter		86.67 (absent in 13.33%)	
Boroi	Ciciching	<i>Ziziphus mauritiana</i> Lam.	Outer parts	Winter	66.67		33.33
Borta	Khoy-ui	<i>Artocarpus lakoocha</i> Wall. ex Roxb.	Whole parts	Rainy		100	
Chalta	Uipey ching	<i>Dillenia indica</i> L.	Whole parts			100	
Champa	Uikong-ui	<i>Artocarpus chaplasha</i> Roxb.	Inner flesh	Summer		36.67 (absent in 63.33%)	
Dumor	Lohotching	<i>Ficus spp.</i>	Whole parts	All		100	
Hargoza	Uipengching	<i>Dillenia pentagyna</i> Roxb.	Whole parts	Rainy		33.33 (absent in 66.67%)	
Jalpai	Oenching	<i>Elaeocarpus robustus</i> Roxb.	Outer parts	Winter		100	
Jam	Lang-ui	<i>Syzygium sp.</i>	Outer parts	Summer		100	
Jambura	Umkorching-ui	<i>Citrus grandis</i> (L.) Osbeck.	Inner flesh	Winter	16.67	10	13.33 (absent in 60%)
Kanthal	Langmaching	<i>Artocarpus heterophyllus</i> Lam.	Inner parts	Summer		100	
Kao phol	Kao-ui	<i>Garcinia cowa</i> Roxb.	Inner parts	Rainy		100	
Katbadam	Dangruk-ui	<i>Terminalia catappa</i> L.	Nuts	Winter		100	
Kolai	Dengoa	<i>Musa sp.</i>	Inner flesh	All		100	
Kola	Konglai	<i>Musa paradisiaca</i> L.	Inner flesh	All		100	
Komola	Prongding-ui	<i>Citrus aurantium</i> L.	Inner flesh	Winter	56.67		30 (absent in 13.33%)
Lebu	Khaojee	<i>Citrus aurantifolia</i> (Christm.) Swingle	Juice	All	53.33		26.67 (absent in 20%)
Lotkan	Lodkang	<i>Bixa orellana</i> L.	Inner flesh	Rainy		100	
Papay	Bettekka	<i>Carica papaya</i> L.	Inner flesh		100		
Payara	Koiar	<i>Psidium guajava</i> L.	Whole parts	Rainy	100		
Tentul	Mangpleng choor	<i>Tamarindus indica</i> L.	Inner pulp, seed	Winter		100	

Summer: April–June; Rainy: July–September; Winter: October–January; Spring: February–March.

quently collected wild fruits as snacks. Fruit is an excellent source of vitamins and minerals. Participants in our study reported that fruit is usually collected prematurely by children and the Mro generally considers fruit to be a food for children rather than for adults. KHISA (1998) reported that there are fifty or more species of trees in CHT with edible fruit and that many of these are exceedingly sweet. Moreover, the Mro were found to consume a total of 27 sorts of fruit, ranging from the smallest, Beth (*Calamus spp.*), to the gigantic Kanthal (*Artocarpus heterophyllus* Lam.) (cf. table 1). Kanthal was the only fruit tree species common to almost every hamlet of the Mro community. The study took various fruits consumed by the Mro tribe into account, along with information on which parts are used, season of availability and the sources. Most of these fruits grow in the forests where the Mro collect foodstuffs.

In times of need and scarcity, tribes mostly rely on forest produce for their subsistence and even in normal times their diet includes seeds together with other plants collected from forests (SHROFF 1997). SAMAL (1997) reveals that the Kandha tribe of Koraput, India, extracts tamarind seeds to eat. Mango stones and tamarind seeds are powdered and then made into a gruel with other food items. Jana & Chauhan (2000) agree in this regard. They say that roasted seeds of *Tamarindus indica* L. are edible and eaten by the Nepali tribe of Sikkim. Pulp, made of the pod of the plant *Cassia fistula* L., is eaten by local tribes in that area.

KUMAR & GOEL (2000) consider the fruits of Mahua (*Madhuca indica* Gmel.) as the most important minor forest product. They describe how the outer coat of the fruit is eaten raw

or cooked; the inner coat is dried and ground into flour, while greenish oil or butter is obtained from the kernel. MAIKHURI *et al.* (2000) provides evidence that the Bhotiya of India depend, to a large extent, on wild resources of plant and animal origin for food security. Edible wild fruits, seeds and leaves often provide food during the lean periods, when staple food item such as rice, buckwheat or barley are not available.

3.3 Species used for energy and timber

Fuel wood was observed to be the only source of energy for cooking in the study area. The Mro generally collect fallen trees or dried branches of different trees for cooking purposes. The cooking includes both human and animal (pig) foods. They were observed to use the branches and main stem wood for this purpose, and the sole source of this material is the forest. A total of 13 plant species are used to generate energy for domestic purposes (table 2). There is no evidence that dried leaves, litter or twigs are used as fuel among the Mro. According to them, trees are available and abundant in the forests. This is also the reason for cutting the easily available main stem wood, instead of taking top wood or branches from the upper reaches of a tree. Each family was found to collect an average amount of 835 kg fuel wood per month.

The bulk of fuel wood (*Chof*) was found to be collected in winter and spring by felling trees, which are then stacked in the large open space beneath the dwelling house, the *Kim-tam*, for use during the monsoon season (figure 2).

Table 2: Species used for energy by the Mro tribes.

Table 2: Arten, die von den Mro als Brennmaterial verwendet werden.

Bengali name	Local name	Scientific name
Assar	Uileeb	<i>Grewia microcos</i> L.
Bhadi	Klowching	<i>Bischofia javanica</i> Blume
Bormala	Ramgat ching	<i>Callicarpa arborea</i> Roxb.
Bura	Hapklaoching	<i>Macaranga denticulata</i> (Blume) Müll. Arg.
Dumur	Lohotching	<i>Ficus hispida</i> L.f.
Gutgutya	Uimiaching	<i>Bursera serrata</i> Wall. ex Colebr.
Hargoja	Uipeng ching	<i>Dillenia pentagyna</i> Roxb.
Jaigga dumur	Lohotching	<i>Ficus racemosa</i> L.
Kadam	Phongfarching	<i>Anthocephalus chinensis</i> (Lam.) Rich. ex Walp.
Kanak	Changmeching	<i>Schima wallichii</i> Choisy
Nishinda	Quihokching	<i>Vitex peduncularis</i> Wall. ex Schauer in A. DC.
Roinna	Jukkakching	<i>Aphanamixis polystachya</i> (Wall.) R. Parker
Silkoroi	Singchoa	<i>Albizia procera</i> Benth.

All of the houses in the Mro community in our study sample are made of bamboo, wooden posts and sun-dried grass. The trunks of certain timber species, from which the bark is stripped, serve as the main posts and major crossbeams of a Mro house. The two most common species used in construction are *Singchoa/Silkoroi* (*Albizia procera* Benth.) and *Oam-pangching/Gamar* (*Gmelina arborea* (Roxb.) DC.). A total of 12 species were reported to be used as timber (table 3).

Table 3: Species used for timber by the Mro tribes.

Table 3: Arten, die Nutzholz liefern.

Bengali name	Local name	Scientific name
Barmala	Ramgetching	<i>Callicarpa arborea</i> Roxb.
Champa	Chamcheng	<i>Michelia champaca</i> L.
Chapalish	Uikongching	<i>Artocarpus chaplasha</i> Roxb.
Gamar	Oompangching	<i>Gmelina arborea</i> (Roxb.) DC.
Garjan	Raimaching	<i>Dipterocarpus turbinatus</i> Gaertn.
Gutgutya	Uimiaching	<i>Bursera serrata</i> Wall. ex Colebr.
Harguja	Uipengching	<i>Dillenia pentagyna</i> Roxb.
Jarul	Tuiherching	<i>Lagerstroemia speciosa</i> (L.) Pers.
Kanak	Changmeching	<i>Schima wallichii</i> Choisy
Roinna	Jukkakching	<i>Aphanamixis polystachya</i> (Wall.) R. Parker
Rong kath	Hoormiching	<i>Adina cordifolia</i> (Roxb.) Hook. f.
Silkoroi	Singchoa	<i>Albizia procera</i> Benth.

SATTAR (1998) reported on the durability and resistance to bio-deterioration of the species used by the tribal people for timber; e.g., Gamar is dimensionally stable and shows no degradation after long periods of use. The tribes are unlikely to be aware of the scientific reason for this, but know that this is so from transmitted, traditional knowledge. Generally speaking, a Mro house has no furniture and there are no specific, purpose-built pieces of furniture in the Mro community. The *Kim-tam* has a floor made from bamboo and it is here that the family lives, sits, rests, receives visitors and accommodates guests. The only wooden furniture – for lack of a better term – we saw during the study in a Mro dwelling was a tree trunk «pillow», called *Loongmu*. It was a split tree trunk (usually of *Singchoa/Silkoroi*), which had been smoothed off on the rounded side and was used as a pillow.

3.4 Species for basketry and other utensils

It became clear during our survey that weaving baskets is an essential part in the lives of the Mro. Every male was reported to weave baskets and it was basically his job. Baskets vary in

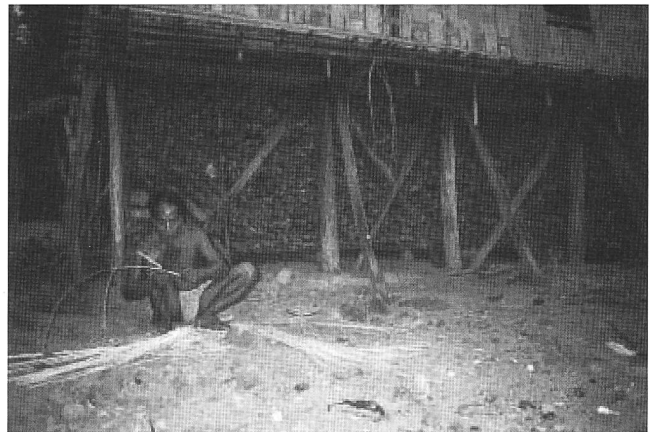


Figure 2: Fuel wood, stacked in the large open space beneath the *Kim-tam*.

Abbildung 2: Gestapeltes Brennholz auf dem weiten Platz neben dem Wohnhaus (*Kim-tam*).

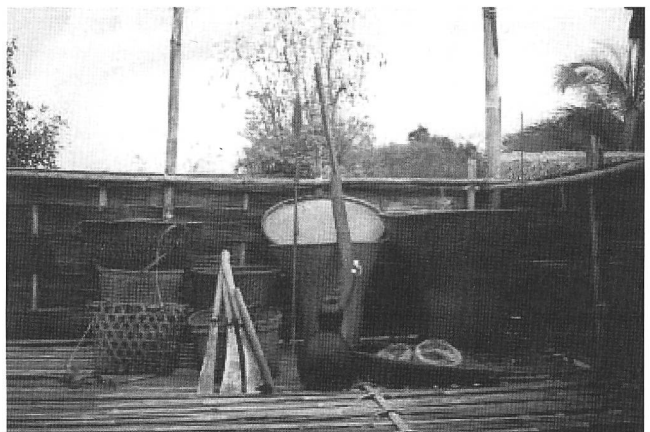


Figure 3: Different sorts of baskets used by the Mro tribe.

Abbildung 3: Verschiedene Arten von Körben, die von den Mro verwendet werden.



Figure 4: Members of the Mro tribe drinking directly from the gourd bottle.

Abbildung 4: Direkt aus Flaschenkürbissen trinkende Mro-Angehörige.

type, size and pattern according to their probable use for various purposes (figure 3). All of these baskets are made mainly of bamboo and canes. The carrying straps are made from the inner bark of *Udal* (*Sterculia villosa* Roxb.), which the population obtains by beating the trunks of these trees.

Among the everyday articles that the Mro uses the *Tuyia*, the storage pot for water, was found to be an interesting utensil. It is made from a kind of gourd, which grows wild in the forests in the vicinity and which the Mro collect. The soft insides of these thick-bellied gourds are left to rot and dry out

until only the hard shell remains, which are then converted into water containers. Water is fetched from the surrounding springs (*Ush*) with the *Tuyia* and the *Mro* drinks directly from them (figure 4).

We observed countless such gourd bottles filled with water in the *Mro* dwellings during our study. They are kept in a specific place, called the *Tuyi-Krak* and covered with the piece of banana leaf. The feeding trough for the domestic pigs and the gun used for hunting wildlife are two further everyday articles we observed, both of which are made from the trunk of *Albizia procera* Benth.

3.5 Festivals and plants

The survey recognized that the main and large festival of the *Mro* community was the «Cow Killing Ceremony» (*Chia-chot Plai*) arranged every year after finishing, or *Jhum*. This festival calls for the sacrifice of one head of cattle accompanied by a celebratory festive spirit. Each step of the festival is intimately associated with various plants, particularly with bamboos. The respondents recounted a myth among the *Mro* that lies at the origins of this ceremony. DRONG (2001) cites the myth, and it was also narrated by the headmen, the *Karbaris* of the *Mro* hamlets, during our study.

The decorative elements for such festivals revolve around plants. A long bamboo pole is decorated with tassels (artificial flowers), locally called *Seet* and some of which are produced by scraping and shaping the bark of the pole itself. Others are made from tasseled sticks, which are stuck into the pole. Two such poles (*Limpu*) flank the post in the middle of the ceremonial ground to which the sacrificial animal is tied. The area, fenced in with bamboo splits, is called a *Chek*. The hind legs of the cow are bound and supporting bamboo poles placed crosswise under its body.

The young men are assigned the special task of playing flutes or mouth organs (*Plung*) and drums (*Tomma*). The mouth organs have bamboo tubes, varying in size, that serve as bourdons when placed over the tops of the pipes. Every *Plung* consists of a gourd bottle. Two rows of bamboo pipes are inserted vertically into the round belly – the back row for the right hand and the front row for the left. The player blows air into the bottle and makes notes with the pipes, each of which is equipped with a finger hole. The young men dance around the *Chek* playing their instruments and the *Sra* (the religious leader) plunges his spear into the ribs of the cow from the right side. He is followed by other members of the tribe until the animal collapses and dies.

ALAM & KHISA (2000) describe how the hill people of the CHT, the majority of whom are Buddhists, believe that plants have lives and feelings. Banyan trees (*Ficus spp.*) are considered sacred and large trees are believed to have spirits. The Buddhist Monks put on ceremonial religious dress, dyed orange or yellow with dye extracted from the inner bark flakes of the *Artocarpus heterophyllus* Lam. It is common practice among Buddhists not to use the wood of this venerated species to make items of furniture. KHISA (1998) also reports that shoots and leaves of banyan and mango trees are used to disperse water in a blessing ceremony to human beings in surrounding homes and villages.

HUTCHINSON (1908) wrote that when the *Mro* leave their village to go on a journey, each member of the group will pluck a piece of sun grass and congregate at a nearby stream. The leader of the group then enters the water and invokes the aid of *Oreng* (the God of water) after which each traveller sticks his piece of grass into the earth or sand at the edge of the stream before setting forth.

4. Conclusion

The *Mro* community is very heavily dependent on the forest for all kinds of produce for which it finds multiple uses, the most important of which are food, energy and timber. The indigenous knowledge on the utilization of the forest resources also shows a very particular pattern of forest use. Traditional dietary practices, especially involving forest plants, may provide important and valuable information on the medicinal effects on humans. For a full understanding of the nutrition and medicinal values of the food materials, chemical analyses need to be carried out on the respective parts of plants. Forest plants are also used as a source of energy; timber shows a traditional pattern of usage. To understand the scientific basis of these usages, studies on calorific values of the species used for energy, traditional use of the cooking stoves, wood structures and small scale forest based industries in the study area should be undertaken. Socio-physical and socio-biological studies are also called for to investigate the effects of the use of forest in the study area.

Summary

An exploratory study was conducted on the utilization practice of the *Mro* tribe of Bandarban, Bangladesh, focusing on the tribe's dependence on the forest. Results show that the *Mro* are totally dependent on the forest and that the extent of their dependency is faithfully reflected in their ethno-botanical knowledge. Dependencies that the study addressed focused on various aspects of food, fruit, energy, timber and festivals on forest products. A total of 27 fruits, 13 energy-producing products and 12 timber species that the *Mro* collects in neighbouring forests were recorded. The overall quality of life of the *Mro* could be considerably upgraded if ethno-botanical issues and their own indigenous knowledge were complemented with scientific knowledge. The study shows that the extreme dependence of the *Mro* tribe on forests has compelled them to save forests from the degradation. The findings of the study conclude that the conservation of the indigenous knowledge of the *Mro* tribe can also be turned to good account in forest conservation and is an important tool in this tribal area of Bangladesh.

Zusammenfassung

Traditionelle Waldnutzungsweise der *Mro*, einer ethnischen Gruppe in der Region Bandarban, Bangladesh

Diese Vorstudie zeigt, dass die *Mro* vollständig vom Wald abhängig sind und dass ihre ethnobotanischen Kenntnisse das Ausmass der Abhängigkeit deutlich widerspiegeln. Die angesprochenen Abhängigkeiten wurden in verschiedenen Bereichen, Nahrung, Früchte, Energie, Nutzholz und festliche Bräuche mit Bezug auf forstliche Produkte genauer untersucht. Ermittelt wurden insgesamt 27 Arten von Früchten, 13 Arten von Brennmaterialien und 12 Nutzholz liefernde Arten, die alle von den *Mro* in den umliegenden Wäldern genutzt werden. Die Lebensbedingungen liessen sich verbessern, wenn ethnobotanische Resultate und tradiertes Wissen mit wissenschaftlichen Erkenntnissen ergänzt werden. Die extreme Abhängigkeit der *Mro* vom Wald hat sie genötigt, die Wälder vor der Abholzung zu schützen. Die Studie kommt zum Schluss, dass die Bewahrung des tradierten Wissens der *Mro* mit dem Schutz des Waldes einhergeht und einen Schlüssel zum Gebiet dieser ethnischen Gruppe in Bangladesh liefert.

Übersetzung: MARGRIT IRNIGER

Résumé

Usages traditionnels de la forêt chez les Mro, tribu de la région de Bandarban, Bangladesh

Cette étude préliminaire a montré que les Mro dépendent totalement de la forêt et que l'ampleur de cette dépendance reflète le niveau de leurs connaissances ethnobotaniques. L'étude a porté plus particulièrement sur la dépendance des produits de la forêt en ce qui concerne l'alimentation, les fruits, le bois d'énergie et le bois de service ainsi que les fêtes et cérémonies. Au total, 27 espèces fruitières, 13 espèces produisant du bois d'énergie et 12 espèces fournissant du bois de service ont été identifiées dans les forêts du voisinage comme faisant l'objet de prélèvements. Les conditions de vie de la tribu des Mro pourraient être améliorées en tenant compte des connaissances ethnobotaniques et en tirant parti convenablement du savoir indigène complémentaire. L'étude a montré que la dépendance extrême des Mro des ressources forestières les a incités à préserver la forêt de la dégradation. L'étude arrive à la conclusion que la préservation des connaissances des Mro concourt à protéger la forêt et représente par conséquent un outil de la conservation des forêts dans la zone tribale du Bangladesh.

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