CHAPTER - 8

TRADITIONAL KNOWLEDGE AND MANAGEMENT OF TREES IN HOMEGARDENS
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Introduction

Since time immemorial, conservation of natural resources has been an integral part of several indigenous communities (Khumbongmayum et.al., 2004). In many parts of Asia and Africa, care and respect for nature has been influenced for centuries by religious beliefs and traditions. All forms of vegetation are consumed including trees, shrubs, herbs and climber (Gadgil, 1994). Such systems are essentially man-made and reflect the wisdom of the traditional culture and ecological knowledge that have evolved over the years. Such valuable traditional ecological knowledge systems are based on strong socio-cultural and traditional beliefs, confounded by the economic status of the people. The traditional homegardens based largely on indigenous knowledge system harbouring a wide diversity of local crops of their social and traditional significance, can be the most promising and ecologically feasible option for the farming communities. The indigenous knowledge used by these communities after repeated trial and error is now being regarded as invaluable resources of agri-diversity (Collins & Qualset, 1998). It is believed that traditional homegarden practices depend on the type of human community, tradition, needs, beliefs etc. For centuries, human beings have been utilizing plant genetic resource for food, medicine and other cultural purposes. The knowledge of genetic resources used by earlier civilization has
descended down to the present day of indigenous and ethnic society, who has inherited that knowledge from their ancestors. This traditional knowledge developed over a period of time, has passed from one generation to another with observation, experimentation, trial and error and has become a valuable legacy in this nature, these people have acquired unique knowledge about the sustainable use of wild fauna and flora most of which are not known to the modern society.

The indigenous people have used, different plant parts as their food, therapeutical agents for remedial measures, shelter etc. They got the knowledge of the plant from their ancestors and their system of knowledge is by oral tradition, which is still in practice by the local people. The information of traditional believes were collected by oral means from the village elders. Majority of the people are still in habit and following the traditional superstition, botanical folklore of Meitei culture. Therefore, a significant approach is to investigate the indigenous cultural practices, which are still in practice by the major section of Meitei community. It can be said that people of Meitei community have their traditional system of conserving biodiversity through their ancestors by folklores (Singh & Singh, 1996).

The traditional daily routine of the domestic life of a Meitei family starts in the morning by offering water, flower, and burning incense (Tikkee-a plano convex and circular shaped prepared by the powdered charcoal, ash with sodium bicarbonate, cow dung and dried in sun) to the Almighty in front of house at the Tulshibong (Ocimum sanctum -religious zone). A mandatory morning bath and dressed in washed cloths by the housewife. In the morning at the entrance of every
house, which has been cleaned and swept once, will see flower on a plate of copper, a small copper container with full brim water and burning incense.

**Methodology**

Ninety households of Meitei community were surveyed for their traditional superstitious beliefs of botanical folklore which are still in practice by Meitei people. The informations were collected from the elders of the households. The local/ vernacular names were recorded and enlisted with the traditional beliefs and uses. Plant species in the homegarden were identified by consulting the regional flora (Kanjilal *et al.*, 1934–40) and other publications (Nayar *et al.*, 2003). Herbarium at the Botanical Survey of India, Shillong was consulted for confirmation of the identified species.

**Results and Discussion**

The Meitei homegarden traditionally represent complex systems with cultivated tree species. One of the striking features of homegarden of Meitei community is the conservation of Heirloom plants from generation to generation. Agriculture being the main profession in the rural area of the Barak valley, the Meitei people also depends on it. The economy of this community is mostly self-sustaining and depends on traditional cultivation practices. Therefore, the socioeconomic development as well as the standard of living of the Meitei here greatly depends on the development of the agricultural sector. The Meitei maintains agrobiodiversity in their homegarden locally called *Ingkhol*. Such systems are essentially man made and reflect the wisdom of the traditional culture and ecological knowledge that have evolved over the years. Such valuable traditional ecological knowledge systems are based on strong sociocultural and
traditional beliefs confounded by the economic status of the people. Various traditional approaches to conservation of nature required a belief system, which includes a number of prescription and proscriptions for restrained resource use (Gadgil & Berkes, 1991). It can be said that people of Meitei community have their traditional system of conserving biodiversity through their ancestor by folklores (Singh & Singh, 1996; Singh, 2011). Traditional homegardens of Meitei are rich in biological diversity harbouring many species. The local/ vernacular names were recorded and enlisted with the traditional beliefs and uses (Table 8.1).

*Aegle marmelos*: The whole tree is useful, fruit is used as medicine, leaves are offered to the God and Goddess during puja (Figure 8.1).

*Azadirachta indica*: Neem tree is a medicinal plant. The leaves are fried in oil till the leaves are charred generally. Very bitter in taste, it is a favorite among the elderly people and is compulsory during feasts and Meitei new year only and rarely cooked at home, locally called as ‘Suktani’ and is a side dish. It is used as pesticides also. The fruits and leaves are kept in the stored paddy as repellent against stored pests.

*Bamboos*: Bamboos are known for its multipurpose uses, locally known as waa. Among the bamboos, *Bambusa nutans* (utang) is used for religious and ritualistic purposes. During Swasthi puja for a new born child, bow and arrow made from *Bambusa nutans* (utang) is used. Maternal uncle of the child shot the arrow in four-direction sky, earth surface north and south so that evil sprits should not cause any harm to the child. On Thursday, Saturday and Sunday cutting down of bamboo is prohibited because people believe that the stand will not be able to grow properly and die and may enhance flowering (Figure 8.2).
Table 8.1 Traditional beliefs and uses of different tree species in homegardens of Bontarapur village.

<table>
<thead>
<tr>
<th>Sl.no.</th>
<th>Name of the species</th>
<th>Local name</th>
<th>Religious use/belief</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aegle marmelos</td>
<td>Heirikhagok</td>
<td>Religious importance</td>
</tr>
<tr>
<td>2</td>
<td>Areca catechu</td>
<td>Kwa</td>
<td>‘Kwa tingba’</td>
</tr>
<tr>
<td>3</td>
<td>Aphanamixis polystachya</td>
<td>Heirangoi</td>
<td>Religious purpose</td>
</tr>
<tr>
<td>4</td>
<td>Azadirachta indica</td>
<td>Neem</td>
<td>Medicine ‘Suktani’</td>
</tr>
<tr>
<td>5</td>
<td>Bamboo spp</td>
<td>Wa</td>
<td>Multi uses</td>
</tr>
<tr>
<td>6</td>
<td>Carica papaya</td>
<td>Awathabi</td>
<td>Women’s wear (Phanek) is wrap around the stem to bear fruit.</td>
</tr>
<tr>
<td>7</td>
<td>Citrus macrophera</td>
<td>Heiribob</td>
<td>Spice</td>
</tr>
<tr>
<td>8</td>
<td>Crataeva religiosa</td>
<td>Leiyomba lei</td>
<td>Religious purpose</td>
</tr>
<tr>
<td>9</td>
<td>Ficus hispida</td>
<td>Ashi heibong</td>
<td>Helps for better fermentation “hawai jar” food stuff of Meitei</td>
</tr>
<tr>
<td>10</td>
<td>Mangifera indica</td>
<td>Heinau</td>
<td>Religious importance</td>
</tr>
<tr>
<td>11</td>
<td>Meyna laxiflora</td>
<td>Heibi</td>
<td>Multi uses</td>
</tr>
<tr>
<td>12</td>
<td>Musa spp</td>
<td>Laphu</td>
<td>Multi uses</td>
</tr>
<tr>
<td>13</td>
<td>Ocimum sanctum</td>
<td>Tulsi</td>
<td>Religious importance</td>
</tr>
<tr>
<td>14</td>
<td>Parkia timoriana</td>
<td>Yongchak</td>
<td>Medicine/Vegetable</td>
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<td>15</td>
<td>Tamarindus indica</td>
<td>Mangge</td>
<td>Temple construction</td>
</tr>
<tr>
<td>16</td>
<td>Toona ciliata</td>
<td>Tairel</td>
<td>Religious importance</td>
</tr>
</tbody>
</table>
**Carica papaya:** The plant is not planted near the house with the belief that if the roots of the plants enter inside the foundation of the house the family will be in problem. It is a common practice that if plants do not bear fruit then people used to put a piece of old phanek (woman wear) on the trunk of the tree to induce the fruit production.

**Crateva religiosa:** The trunk and stem is used for making a traditional implement for crushing and grinding agri-materials during Durga puja.

**Citrus macroptera:** The fruit is used during religious ceremonies and only the white mesocarp is eaten as condiments.

**Mangifera indica:** It is prohibited to climb the tree during the fruiting season by women, as it is believed that the fruits will not be able to mature and fall down before maturation. The leaves are attached on the wall of the newly constructed house on the first day of the entry (Shanggaba) with a little cow dung. However, the modes of collection of leaves are different from other religions. For instance at the time of collection taking permission from the plant by praying, clapping of hands for 3 times, and control of respiration .The males only do the plucking of leaves. Odd no. of leaves is tied around the neck of pots (ghot chaphu) during religious ceremonies. The leaves also attached at the end of the arrow during Swasthi puja of newborn babies.

**Musa sps:** Musa is a multipurpose plant used in various ways. The banana leaves are inseparable item for varieties of worship and ceremonial functions of Manipuri’s. For ritualistic purpose, a priest also recommends the selection of the leaf pointing a particular direction. Only female priests (Maibis) are allowed to sit on the banana leaves as a mat. The whole leaf is not allowed to pluck during night
because there is a saying that evil spirits are staying around the plant and may cause harm to us. During Durga Puja the pseudostem is not eaten in the faith that it represents the mother of goddess Durga. It is not advisable to take twin banana fruit by girls or any woman who are in the fertility stage. People have the belief that those who take twin banana may give birth to a twin child. Curry or other item made of banana inflorescence is given to a person who went from one place to another. Cutting down of this plant on Sunday is prohibited because the clump of Banana will die on this belief people are conserving the species (Figure 8.3).

**Ocimum sanctum:** It is compulsory to have a plantation of this plant just in front of the house. Early in the morning, one will see flower on a plate of copper, a small copper container with full brim water and burning incense and in the evening time only light is offered, and the male / head of the family member used to hug the tulsi so that evil sprits should not cause any harm to the family (Figure 8.4).

**Tamarindus indica:** The wood is not used in the construction of the house, as it is believed that evil spirits sit on the tree. Only used in the construction of Gods temple.

**Toona ciliata:** It grows naturally in the homegarden and the owner conserve the plant because of its importance in the religious purposes of the Meitei community. The leaf of the plant is one of the components of the cultural plants used for sanctifying on ritualistic purposes by the Meiteis. The leaf of the plants has to pluck only in daytime. Leaf washed water with the combination of *Cynodon dactylon*, *Ocimum sanctum*, *Toona ciliata* should be spread in and outside the rooms on the first entry of the newly constructed house and in all religious
functions. This process is known as Tairen Punghphai haidocpa and the leaves of the *Toona ciliata* is also decorated in the doors (Figure 8.5).

**Areca catechu:** It is a multipurpose tree, the fresh nuts are plucked and kept in a ditch or big earthen pots filled with water for 5-6 months after that nut are taken out, this process is called locally as 'Kwa tingba' and the nuts are called as ‘Kom kwa’ or ‘Kwa atingba’ by the meitei community. The processed nut is used in combination with betel leaf and tobacco leaf and chewed. This processed nut and betel leaf are also offered by the Meiteis during religious ceremonies such as marriage, Shradha and in almost all ceremonial functions (Figure 8.6).

**Bamboo shoots are** consumed by the Meitei locally called as Washoi or usoi and from this soibum also prepared fermented bamboo shoot (Figure 8.7).

**Ficus hispida:** The fruit is edible; however, the mode of taking the fruit is a peculiar one. One has to eat half of the fruit and other half is thrown away. There is a saying that if we eat the whole fruit at a time then the life of that person will be in trouble. As literary “Ashi”-means death and heibong means fig fruits. (Figure 8.8). The naming of the plants may be due to these reasons. The leaves of this plant are also used as a packing material of soyabean seed a traditional and popular fermented food stuff of Meitei called “hawai jar” and helps in better fermentation. Again this fermented seeds are wrapped by the banana leaves to sell in the market (Figure 8.9).

**Meyna laxiflora:** The thorny twig of the plant is hanged in the entrance of the main door, so that spirits should not be able to enter the house. The leaves are used as an ingredient to prepare an edible mixture locally known as Singju. This singju is offered in a ritual ceremony performed at the border of each village on the first
Saturday of Lamta month (Feb-March) to ward off the evil spirits from the village. The ripe fruit is edible when dried in the sun. The leaves are also used in hair care (Chenghi phutpa). Elders applied the juice of the ripe fruit on the body during dry seasons as a moisturizer along with water (Figure 8.10).

**Utong nga:** Certain species of small sun dried fishes are smashed with the petiole of *Alocasia indica* (helps in preservation) and are kept in the culm of *Bambusa cacharensis* which can be preserved for about three months and are consumed (Figure 8.11).

**Utti chumba:** The dry plants of black gram would be burned and the ash is taken. The batter ash is sun dried and preserved for future used for the preparation of utti a local food stuff of Meitei. The ash is put in a container and water is poured over the top, then the water collected is used as an alternative solution instead of Sodium bi carbonate (Figure 8.12).

Different uses of Banana plant and Bamboos are shown in (Figure 8.13 and 8.14).

**Management practices of trees in homegarden**

*Areca catechu:* Meiteis made their own nursery by selecting the healthy seeds. From the nursery, they select the best quality seedlings and replanted in their homegarden. Planted in the row and the distance from one plant to another is one metre. Weeding, watering, and removal of the dry leaves from the tree were done during the early stages of the plant. Nut harvesting from the mature plant (>5yrs) was done depending on the need, and after maturation. They keep sufficient nuts for their consumption and remaining sold in the local market.

*Artocarpus heterophyllus:* Tree seedlings were planted and compost was put around the trees. Watering, weeding was done 2-3 times a week for better
Fig: 8.13. A-C. Traditional and religious uses of banana leaf, D. Banana used as fodder, E- Banana pseudostem used for protecting young plants in homegarden
Fig: 8.14. Uses of Bamboo- (A. Bamboo in homegarden is a nesting site for cattle egret, B. Bridge made of Bamboo, C&I. Traditional and religious uses of Bamboo, D. Traditional equipment (Yungkhum) made of Bamboo, E-H. Traditional bamboo products.)
growth and to decrease the competition for other plants. Pruning of branches were very common. The branches were cut and used as fuel and it helps in diameter growth of the tree. Fruit harvesting was done after ripening. Very few villagers harvested the unripe fruit for vegetable.

**Banana:** Banana plants were cut after the harvesting of the matured fruit, so that the young plants should get the enough space and disease should not spread to other healthy plants. The dry leaves are cut and small plants nearby were shifted for healthy and better growth which may produce large fruits.

**Cocos nucifera:** The farmers procure the coconut seedlings from the market to plant in the homegarden. After planting one has to take care of the tree. Compost was put around the plantations and watering of the plants was done regularly. The fallen leaves and fruit were removed regularly to keep the tree tidy after every three months.

**Mangifera indica:** Tree seedlings were planted and compost was put around the plantations. Watering, weeding was done 2-3 times a week for better growth and to decrease the competition for other plants. Pruning of branches and canopy of the trees were done if the plants did not have much sub branches. Young plants were fenced with bamboo. Fruit were harvested after maturation. In some homegardens mature fruit falls down and many new saplings come up near by the mother tree. The farmer managed the sapling.

**Parkia timoriana:** Tree seedlings were planted and compost was put around the plant. Watering, weeding was done 2-3 times a week for better growth and to decrease the competition for other plants. Pods were generally harvested after maturation. Sometimes, people also harvest the young pods for singju
Fig 8.15. Tree management in Bontarapur village- I,J- Canopy pruning, K- Protecting natural regeneration of *Toona ciliata*, L- Cutting of low branches, M,N,O- Newly planted saplings of *Spondias dulcis, Areca catechu* & *Citrus grandis*
(salads), a traditional food item of the Meitei. Farmers used to manage the nurseries for planting to other places (Figure 8.15).

**The Role of Women in Homegardens**

Women in Bontarapur village play an important role in the management of diversity in the homegardens as they are the main decision makers for the plantation. Women and children are the caretakers of seedlings and responsible for proper watering, manuring and protection. Women play a major role in the selling of the homegarden products like vegetable and fruits. Seed storage within the household is the responsibility of women but women or men may do seed selection and harvesting is done jointly. Rural women are in general the major actor in homegardening, from crop diversity management to labour, and to food preservation (FAO, 1998). The role of women in homegardening varies widely with the social and cultural context. In Africa, most homegardening tasks seem to be performed by women, in Sri Lanka women provide labour only at peak times, in Indonesia men prepare the land, and cultivate tree crops and markets homegarden production, while women and children cultivate annual crops (Hoogerbrugge and Fresco, 1993). In a preliminary study carried out in Nepal under IDRC (International Development Research Centre) programme on gender issues in biodiversity management, it was indicated that Wet Terraced fields were classified as a male domain while homegarden were considered as female domain by the three ethnic groups among the Lepchas, however, among the Nagas swidden areas are a female domain (FAO, 1998). Homegarden are cared primarily by women, they are more likely to be developed among matriarchal societies, typical of Central Java thirty years ago. In Tegal on the northern Coast, for example, a homegarden could not be
sold without the consent of the wife, similarly, well developed homegarde
are
found in the matriarchal society of West Sumatra and among the Acehnese of
Sumatra but not among the patriarchal Batak people, also of North Sumatra (Penny
& Ginting, 1984).

Plants are worshipped or given very high magico-religious value by the
Meiteis even outside the sacred groves. The plants reveal a very interesting cultural
intermingling, as some of the plants like Mangifera indica, wood apple, Bermuda
or 'durva' grass (Cynodon dactylon), and sacred basil (Ocimum sanctum) are either
worshipped or used in religious rituals by the Hindus all over India. It is, therefore,
obvious that these plants were included by the Meiteis under the Hindu
Vaishnavite influence. In contrast, tree species like Toona ciliata is a typical
Meitei inclusion, and is not considered a sacred or protected tree in other parts of
India. The same can be said about Chinese Sumac (Rhus chinensis), crowfoot grass
(Dactyloctenum aegypticum), camphor tree (Blumea balsamifera), Xylosoma
longifolia, Oroxylum indicum, Plectranthus ternifolius and Ficus hispida. All the
other plants are prized for their medicinal properties (Singh et. al., 2003).

Traditional homegardens play a vital role in cultural festivals or religious
activities. They provide their owners with culturally important materials, and can
serve as sites for festivals and religious rituals. Some plants found in homegardens
have no other value apart from a cultural one (Huai et.al., 1998). In some cases,
every component of the homegarden has special cultural meaning and value (Trinh
et.al., 2003). For example, in Vietnam, Musa spp, Citrofortunella microcarpa,
Citrus spp., C. grandis, Capsicum sp., and Pyrus pyrifolia (all common in
homegardens) serve as symbols of the five elements of Vietnamese Buddhism, and
are used in shrines during the Vietnamese New Year festivals (Trinh et. al., 2003). Hmong people who have migrated to the USA still cultivate certain plants in their gardens because of their cultural importance in their homelands (Corlett et.al., 2003).

According to Van den Eynden (2004): "Management decisions are very individual and dynamic in time, as are using decisions. A plant managed by one individual is not necessarily managed by anyone else. Similarly, one particular plant species may be managed in different ways by different people, and its management may change in time."

The changes in lifestyle, food habit and exotic culture have made the new generation more prone to easy life. They are going after fast food and loosing interest in agriculture, traditional food gathering and horticulture including vegetable gardening. Materialistic thinking and immediate returns are the priorities for them (Singh & Adi, 2010). This attitude has affecting the biodiversity of these areas and their sustenance. The gap between the generations with respect to traditional knowledge is getting widened and food and medicinal uses of ethnobotanicals are not properly getting diffused among them. The traditional knowledge is restricted to elder generation in the absence of proper documentation and is eroding (Jain, 2004; Singh et.al., 2010).

Traditional ecological knowledge and traditional resource management have played a crucial role historically in resource sustainability and management (Ticktin & Johns, 2002; Miller & Nair, 2005). Along with changes in traditional lifestyles and environments, traditional knowledge on homegardens is fading (Gillespie et.al., 1993). So it is necessary and urgent to conduct studies on
biodiversity and traditional management practices in homegardens and to explore their scientific meanings (Huai & Hamilton, 2009).