

**CONSERVATION AND SUSTAINABLE  
USE OF  
NON TIMBER FOREST PRODUCTS**

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## Table of Contents

|  |    |
|--|----|
| <b>1.0 Introduction :</b> .....  | 3  |
| 1.1: <i>Problem:</i> .....   | 3  |
| 1.2: <i>Objectives:</i> .....  | 3  |
| 1.3: <i>Methods:</i> .....   | 4  |
| <b>2.0: Details of individual NTFP species</b> .....   | 4  |
| 2.1 <i>UPPAGE (Garcinia gummi-gutta):</i> .....  | 4  |
| 2.2 <i>Rampatre (Myristica malabarica), Hedamangala (Myristica fatua) and<br/>Giddapatre (Myristica dactyloides)</i> ..... | 7  |
| 2.3: <i>Dhoopa (Vateria indica) an endangered species</i> .....  | 9  |
| 2.4: <i>Study report on Cane</i> .....   | 10 |
| 2.5: <i>Nelli (Phyllanthus emblica)</i> .....  | 13 |
| 2.6: <i>Cinnamon</i> .....   | 14 |
| <b>3.0 Workshops</b> .....   | 18 |
| 3.1 <i>Report of workshop on cane and Sustainable Harvesting of NTFPs</i> .....  | 18 |
| 3.2 <i>Workshop on Sustainable Harvesting of NTFP; Field Demonstration on<br/>medicinal plants</i> .....                   | 20 |
| 3.3 <i>Workshop on Sustainable Harvesting of NTFP in Anshi</i> .....   | 22 |
| 3.4: <i>Workshop on Sustainable Harvesting of NTFP</i> .....   | 24 |
| 3.5: <i>Workshop on Sustainable Harvesting of Cinnamon</i> .....   | 25 |
| 3.6: <i>Workshop on conservation of Wild foods and Uncultivated Foods</i> .....  | 27 |
| 3.7: <i>Workshop on marketing of NTFP</i> .....  | 29 |
| 3.8: <i>Workshop on Sustainable Harvesting of Gums and Resins</i> .....  | 30 |
| 3.9: <i>Workshop on Sustainable Harvesting of Wild Foods</i> .....   | 32 |
| <b>4.0: Out come/result of these workshops:</b> .....  | 34 |
| <b>5.0: Regeneration studies</b> .....   | 35 |

## CONSERVATION AND SUSTAINABLE USE OF NON TIMBER FOREST PRODUCTS

### 1.0 Introduction:

Non Timber Forest Products are gaining importance globally. The relevance of NTFP in contributing to the rural development and conservation of nature is also considered recently. A number of studies over the period revealed that they are not minor (as they are called 'minor forest products' earlier) in any sense of the word if their use by the local people is considered. They have a great importance in the food security, livelihood and employment of the local people. Non-Timber Forest Produce (NTFP), as they are now called, are to be seen in relevance to the lives of people using them rather than their share in the revenue earned by the government. It is suggested that NTFP harvesting is less damaging to bio-diversity and other environmental values than harvesting the timber. Contribution or economic importance of NTFP especially to poor is well understood nowadays. What it is important is to understand the impact of commercial harvesting of the product on bio-diversity and forest ecology. What makes NTFP different from timber and as a conservation strategy is the assumption that the forest will remain standing and more or less biologically intact under sustained harvesting (Nuemann et al, 2000).

### 1.1: Problem:

There is threat to several NTFP species due to harvesting pressure. The species that have become commercially important are exploited affecting the resource base. However, the knowledge on the resource availability and management aspects is lacking. On the other hand there is no clear government policy towards sustainable harvesting of the products. Present market system also provides monopoly to very few contractors on majority of the NTFP species. While the collectors are not organised and they do not have the bargaining power in selling the NTFPs.

### 1.2: Objectives:

1. To study the threats and harvesting pressure on certain NTFP and its impact on regeneration.
2. To arrive at and to promote sustainable harvesting practices of NTFP.
3. To facilitate policy changes towards sustainable harvesting of NTFP and to enhance the resources base.
4. To strengthen/ establish NTFP gatherers network in Western Ghat region.

5. Alternate marketing for better and assured price.
6. Evolving management plans for NTFP.

### **1.3: Methods:**

1. Study on economics of NTFP, contribution of NTFP to local community living adjacent to the forest.
2. Impact of harvesting pressure on regeneration of the plant and on trees harvested.
3. Organising NTFP gatherers, organising workshops on sustainable harvesting of NTFP. Lobbying the Forest Department to ensure sustainable harvesting.
4. Media coverage.
5. Encouraging propagation of species through regeneration and planting.

### **2.0: Details of individual NTFP species**

#### **2.1 UPPAGE (*Garcinia gummi-gutta*):**

**General description:** An evergreen tree, which can grow 8 to 12 meters, at evergreen patches. Tree grows in cone shape and branched perpendicular to stem. The fruits, which grows up to a size of orange, with ridges ranging from 8-12, contains, approximately same number of seeds. Green fruits turn orange after maturation. Tree starts to give yield after 8-10 years of age. Recently, an attempt of grafting also tried to get the yield early with promising success rate. The importance to this plant came recently. Traditionally, the seeds were collected by Havyak Brahmins community, for extracting oil. And in some regions the dry rind was stored for years to use it as tamarind substitute. But, recently, from last 10 years, the rinds are attracting market, for HCA, (Hydroxy Citric Acid) content in the seed.

#### **Collection practices:**

Harvesting season starts from first week of June and ends with 2<sup>nd</sup> week of August. Since trees can be found in deep evergreen forests, mainly in crest line of Western Ghats, with the pouring rain, slippery forest slopes, and tenacious leeches, it is really a challenging job to collect these fruits. Usually women collect the fallen fruits and separate the seeds from the fruit and bring it to home. These seeds were mixed with ash dried and then de husked.

#### **Processing:**

Fruits, after bringing to home yard, are sliced to separate seeds and rinds. Normally the fruit rinds are dried in open fire method. Rinds are dried on trays, meshed size, using firewood. However, the rind can be processed through drier. But this is bit costlier and a common collector cannot afford this. Seeds are mixed with ash, to remove gum jelly component around the seeds and dried. Seeds are roasted, crushed, and boiled with water and kept stable for hours. The low-density oily content floats on the top, and slowly extracted from the mixture. This ghee (oil) is used at specific occasions like in festivals to prepare sweet dishes.

#### **Changed scenario:**

Since last ten years the product has gained commercial importance because of Hydroxy Citric Acid (HCA) in it. Now only the rind of the fruit is collected and not the seed as it was done previously. HCA is extracted from the rind and is exported to many countries (including USA and Japan). Ultimately there is high industrial demand for the rind.

#### **Consequences of the change:**

The product is being over harvested and there is pressure on the forest for the resource. The returns per Labour Day attracted even outsiders, (those who are non-residents of the area mainly from sub urban places) thus resulting in the unsustainable harvesting practices. Harvesting of unripe fruits, cutting of branches and some times entire tree is being done in the process. This has made the species vulnerable of extinction.

#### **Uses:**

- 1) The sour rinds are used as a tamarind substitute, mainly in Kerala State and in part of Karnataka, with beef and fish curries.
- 2) Oil (edible clarified butter) is used for all culinary purposes. The fried sweet dishes, from oil of *Garcinia gummi-gatta* last longer than others, increases shelf life of fried food products.
- 3) The oil is used for medicinal purposes for joint pains.
- 4) Hydroxy Citric Acid, (HCA) which is available at about 30% in *Garcinia gummi-gatta* rinds, used for reducing fats, and is exported.

#### **Market:**

Forest Department auctions the products once in two years. The highest bidder gets the permission to collect the fruits. Contractor appoints sub agents or middlemen to collect the product from the harvesters. The contractor himself solely decides the price of the product. Therefore it is believed that there is big gap between the actual quantity harvested and the quantity reported by the contractor to the Government. It is also believed that the Government records always under estimate the quantity of any NTFP.

#### **Recent Trend:**

Due to the industrial demand and hence high price for the product has forced to collect more and more rind. In the process unripe fruits are also collected as explained earlier. More over adulteration is carried out to the product. Because of adulteration the price for the rind in the export market dropped. During 1997-98 the price of rind went up to Rs. 100 per kilogram when the price was just Rs. 5 in 1985-86 (Figure 1) (45 Indian Rupees is one US\$).

The quantity and revenue from the *Garcinia* was rising initially and highest during 1991-94 and then started decreasing (Figure 2).

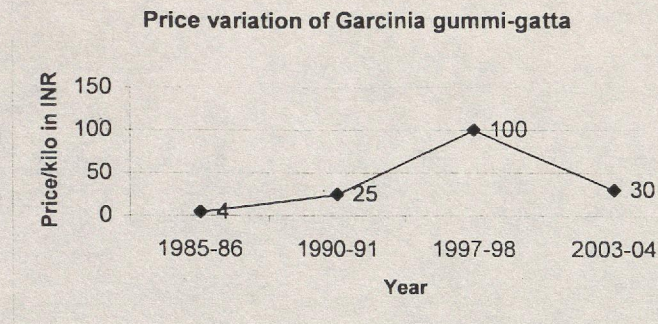


Figure 1: Price variation for the rind of *Garcinia gummi-gatta* over the years. (Source: PRAKRUTI field data 2000 to 2004)

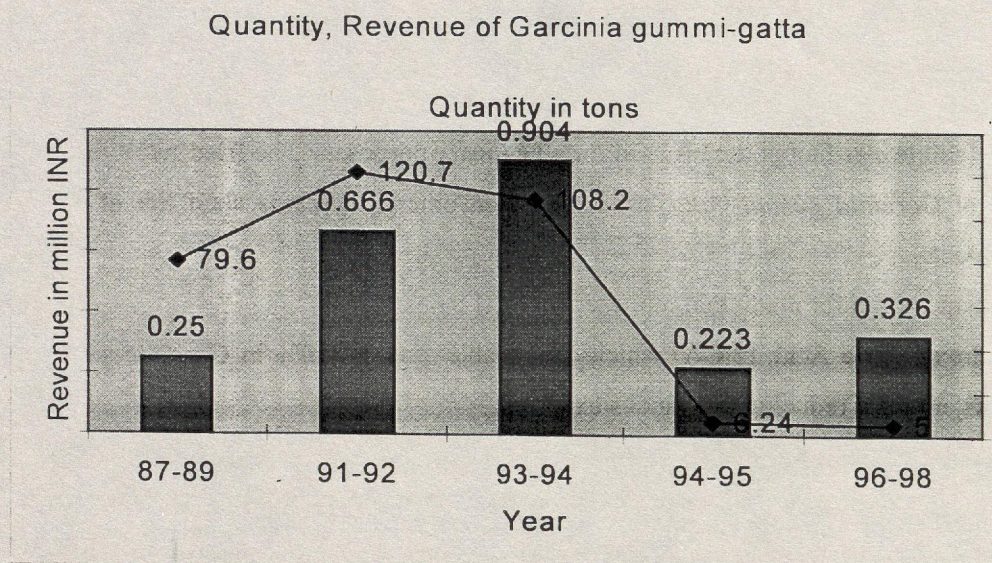


Figure 2: Quantity harvested and revenue earned from the *Garcinia gummi-gatta* is reducing. (Source: Karnataka Forest Department Data 1985-1999)

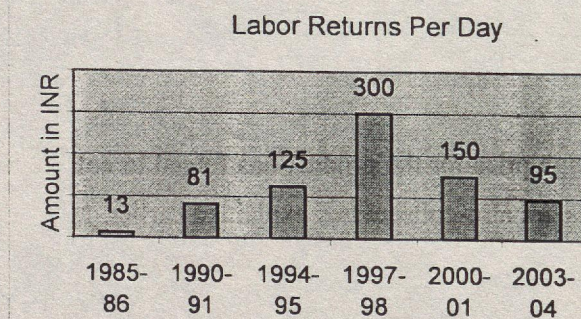


Figure 3: Labor returns Per Day from harvesting the *Garcinia gummi-gatta* to primary collector. (Source: Field Data – PRAKRUTI 2000-04).

Labor returns per day are almost in accordance with the quantity harvested and price for the *Garcinia* rind. It was just Rs 13 during 1985-86. In this period resource availability was high, however, people were not interested to collect the resource because the price were not attractive. It went up to Rs. 100 per kilogram during the year 1997-98 and then decreasing mainly because of adulteration.

**Actions:**

*Workshop on sustainable harvesting:*

We have organized workshops on sustainable harvesting of NTFP in various places, Anshi, Muregar, Achave are few to name. In some of the villages the collectors decided to bring restriction to harvest the product until maximum fruit ripens (as in Muregar village). Monitoring the harvesting by local people and Village Forest Committees (VFC) to check the early harvesting, to avoid chopping of branches or cutting of trees.

*Discussions with Forest Officials:*

To take against those involved in harvesting the resource unsustainable and on the contractors promoting such illegal activities.

*Brochures:*

We have circulated brochures in Sirsi Forest Divisions through the Forest Department explaining why sustainable harvesting is needed to conserve the resource and urging the collectors, contractors and sub contractors to practice sustainable harvesting.

*Encouraging propagation and Domestication:*

This is done by propagation of the species in VFC (Village Forest Committees) areas through planting and encouraging the farmers to cultivate in their land. And allowing the regeneration of the species in the natural forest. In several VFCs planting of the *Garcinia gummigatta* has been done and several farmers also have grown in their agriculture land. There are reports that fruits from the domesticated trees or which is in the privately owned land are harvested in sustainable methods.

*Alternate drying system:*

We have installed community dryers in remote villages to dry the rind. Drying the rind requires large quantity of fuel wood and we have been asking the research institutions to look for the alternate drying systems. Extracting the juice from the fruit and concentrating it is one such method we are asking for. This would decrease the fuel wood requirement and halt the harvesting of unripe fruits thus avoids cutting of branches.

**2.2 Rampatre (*Myristica malabarica*), Hedamangala (*Myristica fatua*) and Giddapatre (*Myristica dactyloides*)**

*Myristica malabarica* and *Myristica fatua* and *Myristica dactyloides* are the species found in natural forests of Western Ghats. A wild relative of nutmeg grows in thick forest of evergreen forest.

It is a moderate sized tree found in Karnataka and Kerala states in India.

Seed kernels yield 15-16 percent natural fat that is used as an illuminate and locally for medicinal purposes.

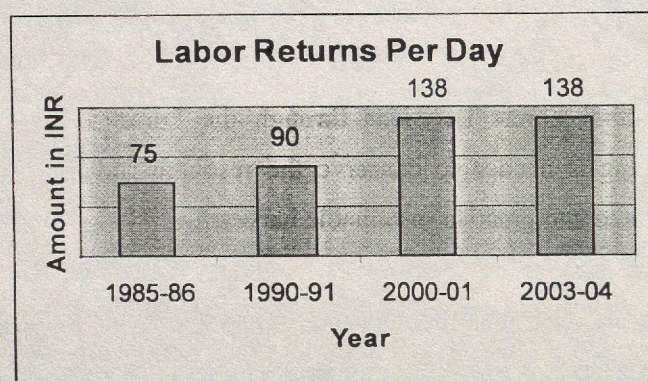
**Collection Practice:** Harvesting season of *Rampatre* (*Myristica malabarica*) starts from December ends at January. But the 'high price', 'uncertainty' about the availability and tenural security, are the main reasons to harvest these fruits in unsustainable way.

Usually, men collect the fruits, since only the mace has the commercial value; the hard outer cover is removed to get the mace. These are dried for 3-4 days and then marketed.

**Uses:** 1) It is used as one of the spice with meat and other culinary purposes.

2) Also it is used in making colours.

Figure 4: Labour returns per day for *Myristica malabarica* over the years.



#### Threat:

Preliminary surveys in the forests and discussions with the NTFP collectors have revealed that the species is vulnerable of extinction. Even some research organisation (FRLHT, Bangalore) has put the *Myristica malabarica* species in red list of endanger. Over harvesting of the resources and cutting of branches and trees have caused threat to the species. Besides the swamps well known as *Myristica* swamps are being degraded due to various factors. Diversion of these swamps for other uses like agriculture and ono agriculture purposes and fragmentation of the corridors between two *Myristica* swamps are the major reasons for the destruction this habitat.

#### Conservation efforts:

We have already started working towards conservation of the species. These threats were discussed in the NTFP workshops with the NTFP collectors and Forest Department. Efforts will be taken to ensure *in situ* conservation of the species in some of the VFC areas.

*Through planting:* We insist Forest officials to make nurseries of the species and transplant and distribute the seedlings in various places.

*Through allowing regeneration:* Efforts will be made to encourage propagation and regeneration of the species in various levels.

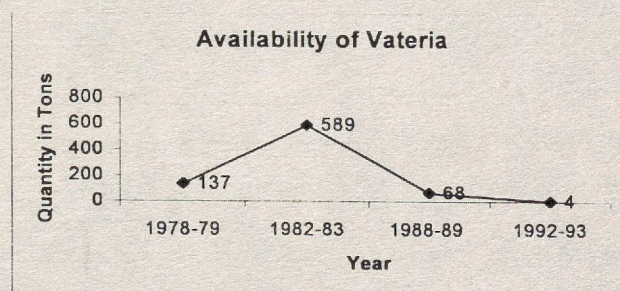
### 2.3: Dhoopa (*Vateria indica*) an endangered species

Halmaddi Dhoopa or white dammer (*Vateria indica*) is a tree that grows mostly in moist evergreen forest and in semi evergreen to deciduous forests. The species is endemic to Western Ghats and the resin obtained from the stem is used in incense (Agarbatti) and in paint and varnish industry. The resin starts to ooze from the deep wound on the tree.

Earlier, the use of *Dhoopa* was restricted only in religious and cultural functions. Increased commercialization and urbanisation has created more demand for the product.

#### Over extraction:

There are very few trees of these species in the natural forests. Due to over extraction, most of the trees have died. Since there are very few trees and the availability of *Dhoopa* is small, many NTFP harvesters do not collect *Dhoopa*. The growth rate seems to be hindered by the extraction methods. However, this needs to be studied in detail.



Source: Annual reports KFD (1975 to 1998)

Figure 5: Graph showing the decrease in availability of *Vateria indica*

Because of making indiscriminate and deep wounds to extract resin several trees have died. The species is put in critically endangered red list by some research institutions (FRLHT, Bangalore).

*Vateria indica* was one of the species allowed for plywood industries to harvest during 1950 to 1970. However, environment movements were able to stop green felling in the Western Ghats. Later on the Government gave tender to harvest the resin from the trees to contractors. During the year 1982-83 a record of 589 tons of resin was collected in Western Ghats, and it was reduced to 4 tons in 1992-93.

#### Ban on tender to harvest the resin:

When the tender is given to the contractors they recruited their own people to harvest the resin. Unsustainable harvesting techniques were adopted to harvest the resin. Thus the

resource base was depleted and destroyed. Lobbying with the Government and providing evidences of unscientific harvesting resulted in imposing a ban on tender to harvest the resin. However, this ban was only in the Sirsi Forest Division. In practical terms this does not serve any purpose because the tender/contractor who is allowed legally to extract from other forest divisions can use the same permit to transport the illegally collected resin from Sirsi Forest Division.

### **Illegal tapping**

Recently there were reports of illegal tapping of resin in Siddapur and Yellapur Forest Divisions in Kanara Forest Circle. The members of Prakruti/PSK, Sirsi visited these areas and found that several thousands of trees were affected by the illegal harvesting. These are very remote areas and people were afraid of telling the actual situation to outsiders and to the senior forest officials. The team had to make several visits and discussions with the local people to find out the facts.

In the Nagarjaddi and Soorimane Forests in Manchikeri Forest Range of Yellapur Forest Division a huge quantity of *Vateria* trees have been wounded/debarked for tapping the resin. The harvesting method was very crude and unscientific. Surveying and discussion with the local people revealed that more than 2000 trees were wounded. These wounds were very deep and are on both sides of the tree. Trees cannot survive due to this extraction method. Already some pests like stem borer have damaged several trees especially the younger ones.

Prakruti/PSK team took media people to this site and the issue was brought to notice of people and Forest Department. Discussions were also held with local level Forest Department officials and staff.

### **ACTIONS:**

We have sent letters to senior Forest Officials like PCCF Bangalore, urging to ban harvesting of *Vateria* and to stop illegal tapping of the resin.

- Similarly we have initiated efforts to arrive at sustainable harvesting of the gums and resins. Various field demonstrations on scientific collection of the product awareness through media, brochures and organising workshops on sustainable harvesting were done.
- We planned to work with value addition and linking with the market for better quality and price for the products.

Assessment regeneration status and trying to understand the impact of harvesting were also studied for other gums and resin producing species like *Canarium strictum*, *Boswellia serrata* and *Hopea wightiana*.

### **2.4: Study report on Cane**

Their length, strength, durability, flexibility and uniformity make rattan (cane) stems a versatile source of raw material (De Beer, 1996). Traditionally cane was used as binding material, in making various agriculture implements like cane baskets of varying size for transport and storing agriculture products, manure etc.

**Objective of the work:**

1. To list the cane species in Uttara Kannada district with local name, botanical name and the use.
2. To know the harvesting methods and dependency of artisans (weavers) on cane, who live in the midst of the forest.
3. To study the threats and harvesting pressure on cane and its impact, sustainable harvesting practices and regeneration.
4. To facilitate policy changes towards sustainable harvesting of cane and to enhance the resources base.

In Uttara Kannada district many forest dwelling communities, for example *Khare Vokkals*, *Kunbis*, *Marathis*, *Naiks* and other communities are engaged in making these articles from cane. These articles are mainly used for household needs and sold locally within the villagers or bartered. The artisans get substantial income through selling articles. Besides cane has certain cultural importance. Basket of different size is prepared for religious purpose. For example a basket of specific size is prepared which is usually given as a gift (*Baluvali*) to bride during wedding ceremony in many communities. Cradle, small basket to collect flowers for worship, boxes for storing cloth are also prepared.

**Species:**

In India cane is found mainly in the Western Ghats belt. Twenty-one species were identified in this region there may be one or two other species that are under the verge of extinction or not yet described scientifically. Mainly *calamus* species are collected for making articles. Villagers identified seven different sub species that have different characteristics. They are *Handibhetta*(*Calamus thwaitessi*), *Naga bhetta*(*Calamus nagabettai*) *Halu bhetta*(*Calamus lakshmanae*) *Sone bhetta*, *Hedige bhetta*, *Naru bhetta* and *Gonagalu bhetta*.

**Threat:** In Western Ghats cane is found mainly in evergreen forests. Commercialisation of cane resulted in over exploitation thus depletion of the resource. The case study by Mallikarjuna (1996) in the tropical forests of *Anshi* in Karwar Forest Division. *Kunbis*, a forest dwelling community have been traditionally engaged in weaving cane articles. The Karnataka Forest Department figures of extraction of cane over a period (1992-96) from this region reveal that *Kunbis* removed 17% of the total harvest whereas Forest Department removed 83% of the harvest. Before commercialisation local people used it for their

household requirement and the harvesting was sustainable. However, the Forest Department started to extract the cane and supplied to urban based furniture and other industries.

Degradation of the forest, forest fire, harvesting pressure are the major threats to cane. Besides no skill in the outside labourers recruited by the contractors and harvesting of immature cane (age below 10 to 14 years) also caused damage to the resource.

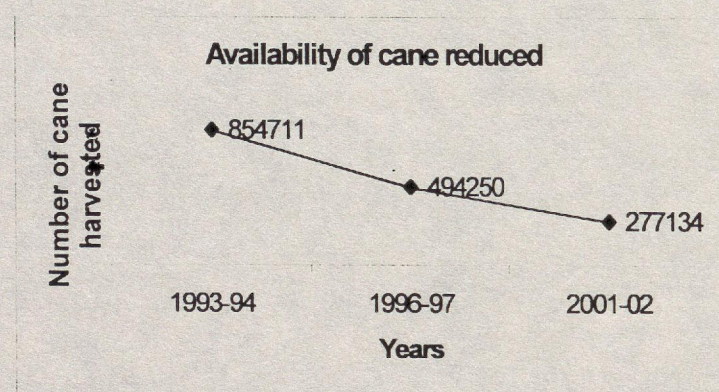
The extraction of cane is being under taken in following areas in Uttara Kannada:

*Gerasoppa* and *Katagal* forest Ranges in *Honnavar* forest division. *Mastikatta* and *Ramanaguli* Ranges in *Karwar* forest division. *Joida* and *Kumbarawada*, *Tinaighat* Ranges in *Haliyal* forest division. *Idagundi* forest range in *Yellapur* forest division.

**Plantations:** Plantation of cane was done during 1993 to 2000 under Western Ghats Forestry Project in various forest regions. Cane saplings were planted in 2200 hectares of forest. However the result is not so encouraging. It requires at least twelve to fifteen years so that the cane matures. The rizomes has to develop then only the result can be known. In case of plantations in private land it is difficult to establish this type of plantations due to the tendrils as they possess thorns and not feasible.

How can we make the plantations successful? What are the possible solutions to ensure sustainable harvesting? How can we involve the forest dwelling communities in conserving efforts? These are the questions addressed by us in our work.

Ten-year data from Karnataka Forest Department suggests that there is depletion in quantity of cane harvested. There is 33% reduction in quantity harvested in the year 2001-02 compared to 1993-94.



Source: Karnataka Forest Department annual reports

Figure 6: Availability of cane reduced over the years.

**Regeneration:** Villagers who have knowledge on cane opine that it requires at least 12 to 15 years to get matured and to prepare the articles. All the types of cane available here are single stemmed and will regenerate only if they are harvested when they get matured. Female plants

bear fruit when they attain age of about 10 to 14 years (Lakshmana 1997). They say that cane which is less than *aaru maru* (about 9 meters) should not be harvested.

And at least two or three meters of stem should be left in the bottom to ensure regeneration. Flowering appears during October to November in all the four species and fruiting in April to May. Forest fires and over exploitation of the evergreen forests are inhibitory to natural regeneration. Hence regeneration is delicate and requires favourable conditions to grow (Lakshmana 1997).

Improved plantation techniques, scientific harvesting method and popularising it to harvesters, treatment to the cane to enable longer durability are essential for the conservation and development of the species. Establishing nurseries and new nursery techniques, resource inventories and training to various stakeholders this respect shall promote sustainable cane development.

### 2.5: Nelli (*Phyllanthus emblica*)

**Habitat:** It is growing naturally in the Moist and Dry deciduous type of forest. Also it is growing in small patches of high altitude in between the evergreen type of forest. Tree is growing about 3 - 4-m height. The fruits are rich in vitamin 'C'.

**Collection and processing practices:** Fruits become mature in November to February. The *Rajanelli* (*King amla*) yields thrice in one year. For preserving the fruits for long time it is necessary to dry these fruits. In some cases, these fruits are preserved by putting the fruits in Brine (concentrated salt water) for more than six months.

#### Uses:

1. It has been used in preparing medicine as one of the constituent in famous, popular Ayurvedic preparation, "*Triphala*" ( A mixed medicine from three type of medicinal plant products)
2. It has been used in preparation of pickles.
3. Fruits, mixed with spices are being used as a masticator. Now sachets of these are available in local commercial market.
4. Fruits have been used as one of the constituent in herbal shampoo.
5. Leaves are used as green manure in agriculture.
6. Since these fruits are rich sources of C vitamin, is being used in number of Ayurvedic preparations.

**Market:** Market is not uniformly developed in this region. In southern part of the state, these fruits are marketed through LAMPS (Large Scale Adivasi (tribal) Multipurpose Society). But in northern side of the state, market is not developed, and price is also

comparatively low. Hence it is found that, it is the most popular NTFP in southern side of the state, particularly in tribal belt, but not in northern side.

**Regeneration:** Regeneration is usually occurs naturally by seeds.

**Problem:** While harvesting the entire quantity of fruits are harvested and sometimes cutting of branches and trees is also taking place. It is believed that harvesting the whole produce resulted in less regeneration and cutting of branches lead to the depletion of the resource.

**Labour Returns Per Day:** The product has got market demand in recent years and the price and labour returns per day are not attractive to the collectors. The price per kilogram of the fruit was Rs. 6 per kilogram returns per Labour Day is Rs.18.

**Actions:**

The issue of unsustainable harvesting is discussed in various NTFP workshops. It is revealed that the harvesting of Nelli is not so attractive as the returns per Labour Day are low. However, few people and not all the villagers are doing the commercial harvesting. Participants in these workshops decided to keep monitoring of harvesting the resource through Village Forest Committees especially commercial harvesting.

**2.6: Cinnamon**

There are mainly two species belongs to *Cinnmomum* genus available in the forest. They are *Cinnamomum zeylanicum* and *Cinnamomum macrocarpum*. The species mainly found in Western Ghats of Karnataka, Kerala and parts of Tamilnadu (Krishnamurthy 1993).

Stem bark is obtained from the *C zeylanicum* and buds are harvested from *C macrocarpum*. Leaves of *C zeylanicum* are also harvested to extract cinnamon oil.

**Use:**

The oil obtained from the stem bark is used in medicine as a carminative and antiseptic against cold and diarrhea and as a flavoring agent. This use is industrial use, however, locally stem bark is used as a flavoring agent in culinary preparations especially in curries.

The fruit (bud of the tree) is harvested and used as spices.

**Harvesting:**

The stem and leaves are harvested normally in summer season, during January to May. The bud ripens during January to March. The harvesting of either stem bark or leaves is destructive, as collectors have to open the bark or harvest the leaves of the tree. These collectors are mainly people out side from the particular forest area appointed by the contractors. There is ban on collection of these products from the forest and some contractors therefore appoint these laborers for the collection.

Collection of buds is also destructive because the buds are small; collection of buds from branches is very time consuming. Most of the collectors cut the branches and then pluck the small twigs from the branches and the buds were removed.

### Ban on harvesting the product:

Through lobbying and discussion with Forest Department we could able to convince them that harvesting stem bark, leaf and buds would damage to the resource base of *Cinnamomum zeylanicum* and *Cinnamomum macrocarpum*. Considering the fact that unscientific harvesting of the leaves would damage to the species the Principal Chief Conservator of Forests (PCCF) Bangalore banned the tender to collect the leaves. (Letter number M.F.P: CR-96: 89-90 dated September 19, 1994). However, ban is imposed only in certain Forest Divisions.

The permission to extract cinnamon leaves was given in other divisions (Shimoga, Sagar Forest Divisions). Due to this loophole, the permission from one forest division is used to collect and stock cinnamon leaves/buds illegally from Sirsi division. This also makes the ban ineffective.

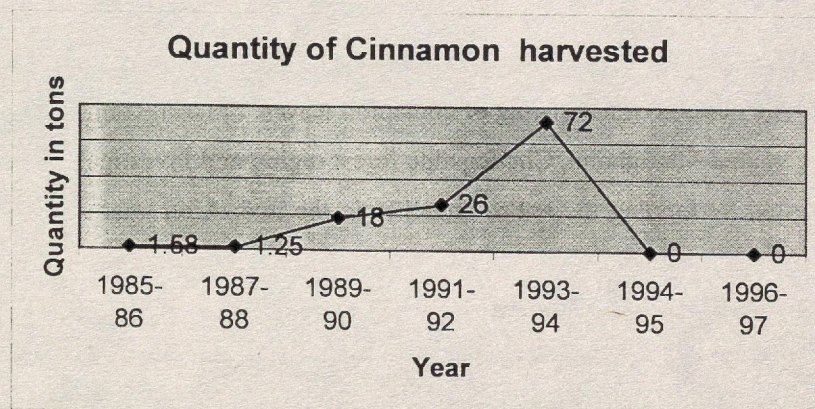


Figure 1. Quantity of Cinnamon harvested over the years in Canara Circle. (Source: KFD annual reports).

### Recent Trend:

Now in the year 2004 the collection was started again. There is an organised Mafia involving traders and forest contractors. There is a strong feeling among the people that some forest officials are supporting this illegal removal of cinnamon leaves. While harvesting entire branches of the tree are lopped and this would cause problem for regeneration of the species and we fear that within few years this species would become extinct. Considering the above factors we requested PCCF (letter dated 15 January 2004) to stop harvesting of the cinnamon leaves immediately in all forest circles of Western Ghats. We also requested to take strict action against those involved in illegal harvesting. Imposing the ban on harvesting of cinnamon for next ten years will provide necessary rest and would lead to conserve the resource. This rest will also provide the opportunity for regeneration of the species.

However, despite our request certain Forest Divisions have started auctioning the tender to harvest the cinnamon leaves recently. We had frequently sending letter to concerned officials and gave media coverage that the resource is under threat and continuation of ban is necessary. We have also stressed that even the contractors should not bid the tender

considering the damage to the resource. Prakruti cautioned them that it would start agitation with the help of local people to halt harvesting of leaves wherever the auction is made.

Tender has been called in Sirsi Forest Division, we have attended during the tender to convince the contractors and Deputy Conservator of Forests about the consequence of harvesting the leaves. They said that they would try to harvest the leaves in a sustainable way by lopping only one third of the leaves in a tree. However, no such study has been done to prove the sustainable harvesting. In the terms and condition of the contract it is mentioned that not a single trunk of the tree should be removed while harvesting the leaves. We warned the contractors that Prakruti/PSK would start agitation in the places where the collection of leaves start and also the contractors will be made responsible if the trunks or branches of the tree are removed at the time of harvesting the leaves.

**Agitation:**

Due to our press coverage on the issue Youth Club in Mattighatta village approached us and wanted to halt unscientific method of harvesting of cinnamon leaves. Prakruti team along with media and Youth Club visited Mattighatta, Challegadde forest region and investigated that the leaves are being harvested by lopping the entire branches in the tree. After vast coverage in the media and frequent pressure from us senior forest officer including conservator of forests of Canara circle visited the site and discovered that hundreds of trees were lopped and agreed that this type of harvesting would cause threat to the resources.

**RESULTS:**

**Forest Department organised a seminar:**

After this conservator of forests organised a seminar on sustainable harvesting of cinnamon leaves. Village Forest Committee (VFC) members, Contractors, harvesters, NGO representatives, scientists and other groups participated in the seminar and expressed their views. Contractors requested to allow the harvesting as they have already deposited the money. Local people, VFC, media and environmentalists stressed to impose ban on harvesting considering the destructive harvesting method. They also urged to undertake resource assessment of cinnamon, regeneration status and to know whether or not the trees can tolerate lopping of branches.

**Impact of the seminar:**

Tender has been cancelled in the Haliyal and Karwar forest divisions in Canara Forest Circle to harvest the leaves.

*Supplementary agreement:*

The forest department made a supplementary agreement with the contractors putting following additional conditions:

1. Retention of crown: At least 50% of the crown of the tree from the topside should be retained.
2. Girth class restriction: Trees of only 60 Cms and above of girth at breast height (GBH) should be harvested.
3. Leading shoot/branch should be retained at all times.
4. Thick side branches should not be lopped.

However, the contractors violated these conditions and continued lopping of the branches and some times entire tree. Prakruti team investigated such area and with the help of media the issue was highlighted. This has pressurised the forest department to take action to stop unscientific harvesting and cases were registered. To arrive at a sustainable harvesting practice and to involve various other stakeholders in conservation of the resources a workshop on sustainable harvesting of cinnamon organised and the detail report is furnished in the chapter 3.5.

### 3.0 Workshops

#### 3.1 Report of workshop on cane and Sustainable Harvesting of NTFPs

A one-day workshop was organised in Muregar village in Sirsi taluk of Uttara Kannada district on 21 November 2002. The objective of the workshop:

1. To know different species of cane available in the region, use, threat and possible solutions for sustainable harvesting and resource development.
2. To list other NTFPs which are collected for commercial purpose and to know the past and present scenario of the resource.
3. To evolve a strategy for sustainable harvesting of these NTFPs.
4. To know local problems in protecting the forest and forest resources and to have an action plan to overcome these problems.

Villagers of Kudragod, Kelase, Gonsar and Muregar, Village Forest Committee members, forest officials and staff, media persons, Professors and students of College of Forestry, members of Parisara Samrakhsana Kendra participated in the meeting. About 90 people participated in this workshop.

Pandurang Hegde, of Prakruti in his introduction speech said that the knowledge on harvesting of NTFP, use and storage practice is essential for local people. He said that profit by extracting the timber goes to government and to the contractor. Where as harvesting of Non -Timber Forest Produce directly benefit the local people and forest dwellers. Assistant Conservator of Forests Manoj Kumar said that there are certain aspects that hinder the development of NTFPs. They are, NTFP is seasonal and continuous supply of products is not possible. Forestry sector is timber oriented so emphasis is more on timber. Since it is a small-scale industry, it does not attract the policy makers. Therefore, discussion in workshops and some concrete suggestion would help them to send proposals to the government to involve proper policy on NTFP. He requested the participants to discuss certain broader issues namely resource development, rational utilisation and institutional operation. He requested to discuss on sustainable practice, propagation, collection practice, processing, storage, and qualitative loss and on value addition.

Gopalkrishna Hegde, former Zilla Parishat member presided over the function.

**Cane/Rattan:** Halu Betta (*Calamus laksmanae*) and Handi Betta (*Calamus thwaitessi*) are the two important species found in this region. Cane is mainly used for household consumption. There are few artisans in Kudragod, Kelase region who prepare articles from cane, which is locally sold. Over harvesting, cutting of immature cane is the threat.

**Uppage:** (*Garcinia gummigatta*): Uppage is one of the important commercial NTFP collected in this region. Earlier about 20 years back the collection was restricted to seed for extraction of the oil, which is edible. However, after market demand for the Hydroxyl Citric Acid (HCA) content in the rind the price of dried rind increased to Rs. 75 to Rs. 100 per kilogram

(during 1996-98). Over harvesting of the product and harvesting pressure from non residents of the forest region have resulted in to depletion of the resources. Cutting of branches and some times even the green trees is taking place. Harvesting season of Uppage comes in monsoon and a study conducted by Karnataka Forest Department say that 17 kilogram of fuel wood is required to dry one kilogram of rind. Hence processing of this product requires lot of fuel wood.

Discussions were done on other NTFPs like Honey, *Terminalia bellerica*, *Phyllanthus emblica*.

Villagers said that this year *Gurige Katte* - flowering of strobilanthus take place in this region which happens once in 10-12 years. This attracts bee colonies and many colonies are expected to make their nests. The crucial thing is unscientific harvesting techniques used by contractor and villagers. Putting fire to drive away the bees, harvesting of bees when the colony still having enormous quantity of pollen and larvae are the threats. When they put fire, in case the queen bee dies the whole colony will be destroyed.

Besides sustainable harvesting, marketing channel for *Terminalia bellerica*, *Phyllanthus emblica* and quality control and processing aspects are also discussed in the workshop.

**Action Plan:**

1. It was decided to propose the state Forest Department to declare a patch of forest (360 hectares -name of the forest *Undadi Kanu*) as preservation plot. This forest has good and young cane plants, which is illegally harvested. In this forest, extraction of timber and any other activities should be banned and sustainable techniques should be adopted to harvest other NTFPs.
2. Logging of dead and fallen trees is being done for last 15 years in the forests of Gonsar, Kelase and Kudragod. This is very destructive to forest and several kilometers of roads were constructed within the dense forest to transport the timber. Other impact of logging was discussed in the workshop and finally participants decided to send proposal for government through Village Forest Committees to restrict logging once in ten years. And after one-year period of extraction all the roads leading to forest should be closed.
3. Putting time limit to harvest certain NTFP: Due to harvesting pressure certain NTFPs are harvested before they get matured and sometimes it is very destructive to the resources. To avoid such early and unscientific harvesting the participants urged the Forest Department to put certain time boundary before that period the product should not be harvested. For example *Garcinia gummi-gatta* fruiting start from June every year and by second week of July almost 50% fruit ripens which is the right time to harvest the product. There fore proposals shall be sent to forest department to circulate a notice to concerned people and contractors like 'no product should be harvested before July 15 every year'.

4. Possibility of collective processing of NTFPs especially *Garcinia gummi-gatta* was discussed.
5. Alternate to drying of *Garcinia gummi-gatta* fruits: the Professors of College of Forestry, Sirsi assured to conduct a research on possibility of selling the *Garcinia* in liquid form instead of present technique of drying the rind.
6. Under Joint Forest Planning and Management Plan (JFPM) the Village Forest Committee (VFC) is developing some plantations of different species. Now the VFC has decided to request the Forest Department to supply 1000 cane saplings to experiment the planting of cane in private land.

The program ended after VFC president's assurance of spreading the message of the workshop especially on scientific harvesting and sustainable use of forest resources to other villagers. Village youth performed *Kolata* (a folk dance) and school children sung songs on environment.

### 3.2 Workshop on Sustainable Harvesting of NTFP; Field Demonstration on medicinal plants.

**Venue: Muregar** (Salkani Panchayat)

Taluk: Sirsi

Forest Range: Hulekal

A one-day follow up workshop on NTFP was held on February 12, 2004 in Muregar together with Village Forest Committee Muregar.

The **objectives** of the workshop are:

- To review the progress achieved after the November 2002 meeting and to see how far the resolutions made were materialized.
- To create awareness on impact of logging and to help local people stop unscientific method of logging.
- To create awareness and to conserve medicinal plants available in the region.

In the morning session field demonstrations were held on medicinal plants. *Ganapati Isloor*, an expert in identifying medicinal plants and in Ayurvedic medicine and a traditional medicine man *Yenku Gowda* lead the demonstration program. Village Forest Committee (VFC) president and other members and village youth participated in this event. More than hundred of medicinal plants were identified, their uses and importance were recorded.

In the afternoon discussions on NTFP were held and finally the following resolutions were made.

1. Forest Department is giving tender to harvest honey in the surrounding forest. However, due to unscientific method of harvesting by these contractors the number of honey bee colonies have drastically decreased. During flowering of *Gurige* (*Strobilanthus*) that takes place once in seven to ten years) the host trees near *Asale Bare* and *Mallikai* provided shelter for more than forty bee colonies. However, in the previous flowering period these trees hosted for only three and four colonies each. *Donne Kanu Mara* a host trees where a record of more than 300 rock bees have built their colonies in the previous flowering period has not even a single bee colony this time. Possible other reasons for decrease in bee colonies like monoculture plantations and change in climatic conditions are also discussed. Considering the above points the participants decided to urge the Forest Department to ensure sustainable harvesting of honeybees once the tender is given to contractors. They also decided to ask Forest Department to ban tender to harvest honeybees until the present crisis is solved. Discussions were on community participation in harvesting and management of these honeybee host trees.
2. Considering the fact that lot of wood is required (twenty five kilogram to dry one kilogram of rind) to dry Uppage rind (*Garcinia gummi-gutta*) a request had been made to the college of Forestry to study alternate method of processing the *Garcinia gummi-gutta* in the previous workshop. CFTRI Mysore was contacted in this regard, however, this agency denied to share the result of research until they get their PATENT registered. Villagers asked to publish this research out put at the earliest for the benefit of the community and to save the fuel wood.
3. Certain villagers adjacent to Muregar come to harvest the NTFP to Muregar forest area. Some of them collect NTFP in unsustainable methods. Village Forest Committee Muregar and Prakruti would try to convey them to practice sustainable harvesting of NTFP. At the same time it is decided to discuss with the senior forest officers to tackle this problem and to ask them take action against those collectors should necessary.
4. There are several roads inside the forest that are constructed during transportation of logs. To conserve the forest resource the participants of the workshop decided to request Forest Department to close all these roads immediately. To protect the surrounding forest and rich bio diversity of the area the villagers demand to allow logging once in not less than ten years period in a forest.
5. To reduce the pressure on forest for fuel wood a model bio gas plant will be installed in *Yenku Gouda's* home by VFC. Encouragement would be given to other *Khare Vokkaliga* community families in the village to install bio gas plant.

### 3.3 Workshop on Sustainable Harvesting of NTFP in Anshi

Place: Anshi

Taluk: Joida

District: Uttara Kannada

Date: 24 December 2002

#### Objectives:

1. To document the existing management aspects of harvesting of the NTFP resources.
2. Creating awareness for sustainable harvesting of NTFPs.
3. To discuss the high stress NTFPs in the region.
4. To evolve community based action plan for sustainable harvesting of the NTFP.
5. To interact with the Forest Department Officials about the official policy about the NTFP resources.

The venue of workshop is located in a very remote and dense forest area. Forest type is evergreen to moist deciduous types. Population is very sparse. *Kunbi's* and *Marathi's* are the major community living around Anshi. Thirty villagers including nine women participated in the workshop. Forest Department officials, members of Prakruti/PSK, Professors from College of Forestry Sirsi, representatives of local NGO *Hindulida Guddagadu Vikasa Sangha*, Officer from FRLHT (Foundation Revitalization for Local Health Traditions, Bangalore) were among the participants.

In the inauguration secession purpose of the workshop, brief details on NTFP, different classification of NTFP and its importance were explained to the participants. Listing of NTFPs collected by the villagers for commercial, edible, agriculture and other house hold purpose and for medicinal plants were done. The changes in the availability of NTFPs, harvesting pressure were discussed. Finally an action plan for sustainable harvesting was made.

More than 50 different NTFPs were listed which are collected for household and agriculture needs, as medicine and food. Wild pepper, *Artocarpus lakoocha*, *Myristica malabarica*, Honey, *Garcinia indica*, *Mammea longifolia*, *Acasia concinna*, Soap berry, Cane, *Garcinia gummi gatta*, *Embllica officinals*, *Terminalia chebula*, *Emelia ribes*, Mango, *Artocarpus heterophyllus*, Cinnamon, Mushroom, wild fruits, Several tubers and roots and wild animals are the important among all NTFPs.

Villagers said that the following NTFPs namely *Myristica malabarica*, *Artocarpus lakoocha*, wild pepper, Honey and cane are under harvesting pressure and they observed that availability of these resources has reduced.

The inflorescence of *Myristica malbarica* was collected during January and February in the past. Where as now harvesting is completed before December every year. Thus premature

harvesting is being done which result in loss in quantity and poor quality. Some times cutting of branches is also taking place.

Cane is available in abundance. However, extraction in a large scale by Forest Department through contractors has had impact on the resource. Earlier outsiders used to come for harvesting of cane, which is now stopped after the formation of the VFC (Village Forest Committee).

Wild pepper is available in the forest in surplus amount, however harvesting of unripe fruits, which are very immature, is being done.

There is some good traditional management practices of natural resources. All the villagers have the forest boundaries in each village, which is marked through traditional usage. The harvesting of Honey and *Artocarpus lakoocha* are done collectively and then it is equally distributed among collectors. This ensures a kind of tenural security over the resource thus leading to sustainable harvesting. In case of Indian bee (*Apis cerana*) whomever finds the honey bee colony makes a mark on the tree. Any other villager will not harvest the honey, which is marked like this.

Villagers do not go for collection of wild pepper until *Makara Sankramana* (January 14<sup>th</sup>) every year. And harvesting of *Myristica malbarica* will be done during January to February. However, in recent years both these practices are disappearing. This loss of traditional restriction on harvesting is causing damage to NTFP resource base.

#### **Impact/Results of the workshop:**

1. Prakruti team has been able to communicate the message as need to address the issue of issue of sustainability.
2. In Muregar and Achave the NTFP collectors have arrived at the community strategy to deal with over harvesting of the resource and how to evolve and adopt the sustainable harvesting practices.
3. The village people discussed the issues with the forestry officials who are legally the owners of the resource (forests) and sought their co operation in conserving the NTFP resource
4. The villagers decided to use the existing Village Forest Committees as a tool to control the over harvesting of the resource.

Villagers opined that now harvesting of *Myristica malbarica* is being done before December every year. Where as earlier it was done by January end to February when fruit ripens. Premature harvesting is resulting in loss in quality and quantity, which has to be stopped immediately.

Like this wild pepper is harvested before December. To control these practices participants decided to take necessary actions. First is to have a meeting with *oora buddivantha* (village

head) and asking him to order the collectors to practice traditional and sustainable methods of harvesting techniques. Participant's felt that this will certainly help check unsustainable and immature harvesting of the product within two three years. Otherwise they planned to tackle this problem with the help of Village Forest Committee (VFC) and Forest Department.

### 3.4: Workshop on Sustainable Harvesting of NTFP

Place: Kuntagani

Village : Achave

Forest Range: Hiregutti

Taluk : Ankola

A one-day workshop was held in Kuntagani, which is located in the foothills of Western Ghats. People belonging to *Naiks*, *Shetty*, *Siddi*, *Halakki Vokkals* and *Havyak* community participated in the workshop.

Objectives:

- To make an inventory of those NTFP which are under threat due to harvesting pressure.
- To discuss the problem of NTFP collectors together with Forest Department and NGO.
- To know the traditional management practice in using the forest resources especially on NTFP.
- To involve a strategy for sustainable harvesting of NTFP

In the inauguration session purpose and expectations of the workshop was explained to the participants. Farmer and cane artisan of the village Ganapayya Bhat Kallemane is honored because of his efforts in conserving the traditional knowledge on making cane articles and for practicing sustainable harvesting methods to extract cane.

Cane, Bamboo, *Artocarpus lakoocha*, *Phyllanthus emblica*, *Cinnamomum zeylanicum*, Honey, *Garcinia indica*, *Garcinia gummi-gatta* and wild pepper are the major commercial NTFPs. And these are the products facing harvesting pressures along with medicinal plants. Few year back roots of *Esculenta eucifera* (medicinal plant) have collected for marketing purpose. However, due to adulteration by some people collection stopped.

Large scale extraction of cane by the Forest Department, harvesting of immature cane, cutting of young cane while cutting and dragging of mature cane, leaving out a portion of cane that rest on huge tree and forest fire are the threat to cane. Ganpayya Bhat said that about 20 years back only 20 minutes walk was enough for him to harvest cane where as now he has to walk at least two hours to find cane that can be harvested. This shows the gradual depletion of the resources. Cutting of branches of certain trees, collection of unripe fruits and other unscientific technologies, harvesting all the fruits leaving no fruits for regeneration due to

harvesting pressure were the major threat for other NTFPs. Besides pulling out of climbers like wild pepper and *Acacia concinna* is taking place.

“*Nellikai Hididange Hidideedu*” is the proverb in the region to compare bumper yield to any crop. It means that the yield is comparable to that of *Phyllanthus emblica*. Elder villagers Mahabaleswar Gowda and Narayan Naik said that this proverb has no meaning today. The reasons are due to extraction pressure branches of *Phyllanthus emblica* trees were cut down and regeneration of this species is very poor. Normally flowering appears to this tree during May – June. Where as now since last two years the flowering starts in the month of March-April. Every year failure of crop is common in this region.

#### **Action Plan:**

- Participant felt that though there exists a social group in the village it should be strengthened and formation of a committee like Village Forest Committee is needed to keep going the activities. This committee would set certain norms to be followed to harvest the NTFP and will monitor in future. Range Forest Officer Manoj Kumar Tripathi and other staff assured to give all kind of support to form such committee.
- To avoid cutting of young cane while dragging out the mature cane and to reduce wasting of cane that rest in the tree, participants decided to invent a small instrument that helps in harvesting. Villagers also decided to try the way of going in-group to harvest NTFP especially cane.
- Possibilities of formation of a society to bid the tender or to get sub tender for NTFP from the contractor are also discussed.

Dr. R. Vasudev Professor, College of Forestry, Sirsi, Mr. Somashekhar FRLHT, Bangalore, Forest Department officials and staff were present in the workshop.

### **3.5: Workshop on Sustainable Harvesting of Cinnamon**

Unscientific harvesting of cinnamon leaves has caused threat to the species. To find out ways to conserve the species a one-day workshop was organized in Raita Bhavan Sirsi on May 10, 2005.

The objectives of the workshop are:

1. To evolve a strategy to implement sustainable harvesting practice.
2. To discuss possibilities of involving local community, media, community organisations and other stakeholders to monitor harvesting of the leaves.

3. To create awareness and possibilities of providing training to local people, forest department staff, Village Forest Committees, Collectors and contractors.

Mr. Bommu Gowda belonging to an indigenous community inaugurated the workshop.

Mr. M.N.Hegde Appiko activist facilitated Mr. Bommu Gowda for his brave initiation to conserve the cinnamon species.

Mr. Bommu Gowda has opposed the cutting of cinnamon trees and branches of trees in the forest near to his house. However, the contractor and local forest department staff threatened him physically and threatened his life. M.N.Hegde said that Bommu belongs to indigenous community. But it did not prevent him to struggle against unscientific harvesting of cinnamon leaves. "You have inspired many of us in protecting the forest," Mr. M. N admitted.

Pandurang Hegde explained the objective of the workshop and said that the villagers have started opposing the unscientific method of harvesting Cinnamon and PSK has supported it and now in several villages people stopped the unscientific collection of leaves.

Prabhakar Bhat of Center for Ecological Sciences urged to conserve the biodiversity and only through peoples movement we can bring changes in the forest policy to halt unsustainable use of forest resources. Mr.Ramanna Kadbai was the president of the function and said that after this workshop we should go to the remote forest regions and educate the people to stop unscientific harvesting of cinnamon leaves.

After this inaugural program the participants from different villages explained how they have reacted to the request of Prakruti/PSK to conserve the cinnamon species. Mensi and Gonsar villagers said that they did not allow the collectors to harvest the leaves. Mattighatta villagers also stopped collection of the leaves because the harvesting was very destructive.

Sripati Hasler a harvester said, "We have cut the branches of the trees leaving only one or two branches on the tree. Contractors give two rupees per kilogram for dry leaves and we are not aware of any rules". In contrary in the supplementary agreement it was clearly mentioned that 50 percent of the canopy should be retained and trees below 60-cm GBH should not be lopped.

Later two groups were formed and discussions were held. First group discussed how the sustainable harvesting is possible? What could be done to implement this practice in the field? How to train the collectors, local forest department staff and villagers about scientific harvesting?

Second group discussed about how to involve local people in conservation of the species? How to involve various stakeholders like collectors, contractors, Village Forest Committees and community organizations, youth clubs and media in conservation and awareness building process?

Jagnath Rao, Jayanna and Raju FRLHT Bangalore explained the study results conducted on Cinnamon leaf harvesting. They found that harvesting of all leaves cutting the branches has

adversely affected the regeneration of the species where as harvesting only the leaves without lopping the branches has no impact on regeneration pattern.

Following resolutions were made after the discussion.

1. To urge the contractors and collectors to collect only the leaves of the tree, that helps in the conservation of the resources. Meet and discuss and lobby to work as watchdog with senior forest officials to bring change in policy.
2. Strengthen community organisations, VFCs and youth club and provide supervision to proper harvesting of the products.
3. Consult research organisations to find out possibilities to harvest only the dried leaves.
4. Train and educate different stakeholders with involvement of media and bring a brochure on importance of the resources, need for sustainable harvesting and the harvesting practice.
5. Establishing nurseries and planting of cinnamon species through enrichment planting and gap planting modules.
6. Black listing of those contractors and terminate their contract who violate the rules and conditions and harvested the resource unscientifically.

Assistant Conservator of forests, B.J.Naik and Umesh Shastri, Mr. Pandurang Hegde, Ravindra Shetty Secretary Snehakunja, S.M.Hegde director IDEA organisations, villagers from Kakkalli, Shirasgaon, Muski, Shirguni, Mensi, Mattighata, Gonsar, Nanikatta were participated in the workshop.

### **3.6: Workshop on conservation of Wild foods and Uncultivated Foods.**

The workshop was held on May 20, 2004 in Tanneerhole in Vanalli Panchayat.

Retired teacher and farmer Shri. G. R.Bhat presided over the function. Dr. S.G. Hegde Vanalli welcomed the guests and other participants.

Shri M.N. Hegde Gubbigadde an appiko activist in his introductory speech said that there is a feeling that these wild foods are being used only by poor and forest dwelling all communities. However, this is not true and since ancient time people belonging to all community used these foods from the forest because of its nutrition and other qualities.

He said that this workshop is a unique and first step in conserving these spices and decreasing knowledge.

G.R.Bhat said that this is one of the historical days because no such programmes were organized in the remote areas like Tanneerhole. He hoped that local people get the benefit of this program.

Dr. Vasudev, College of forestry, Sirsi explained the importance of wild foods.

Narasimha Hegde explained the reason to conduct workshop on Wild Foods and how the school and college students participated in various activities. He also said that the purpose of workshop is mainly to create awareness on decreasing knowledge on the resources and loss of the resource it self.

#### **Discussions and resolutions**

After the formal inaugural function group discussions were held. The main subjects of discussion are

1. To disseminate the knowledge on wild foods, and to create awareness.
2. To encourage use of Wild Foods (WF).
3. Cultivation, propagation of WF.
4. Conservation of the resources.

To achieve these goals following actions were planed in the future.

- a. To disseminate the knowledge and create awareness it is decided to make a documentary film on WF. Efforts will be made to put thee film in TV channels and through other visual media
- b. Decided organizing more and more programmes and discussion on WF in village level.
- c. Discussion/ lobbying with opinion leaders (religious, politicians and community leaders) to influence the society to use and grow WFs.
- d. Organising contests on traditional recipes using WF through women organisation and youth clubs.
- e. Educating children on benefits of using WF and disasters using those markets affected by pesticides.
- f. Work to change the notion of people to use WF during special occasions. For ex, Using Kokum(*Garcinia indica*) juice in marriage ceremonies instead of junk drinks.
- g. Create platforms to exchange seeds, saplings of Wild Foods.
- h. Monitoring the use of resources to avoid over exploitation.
- i. Including recipe made out of WF in primary schools, which is provided by the Government to school children (*bisiyoota*).

Ganapati Hegde Muregar, President of Muregar Village Forest Committee, K.N. Hegde Shigehalli, appiko activist, Balachandra Sayimane, researcher, media people and local Marathi and Havyak community women are also participated in the program.

### 3.7: Workshop on marketing of NTFP

In order to enable proper and secured price to various NTFPs a workshop on marketing was held for NTFP gatherers in Uttara Kannada district. Prior to the workshop a meeting was held on 5<sup>th</sup> September 2004 in Prakruti office, Sirsi. Representatives from Federation of Voluntary Organization in Uttara Kannada were participated in this meeting. In the meeting need to work on marketing aspects of NTFP were discussed. Strength, opportunities and possible threat / competition from NTFP contractors/traders were also discussed in the meeting. Mr. Narasimha Hegde of Prakruti explained the availability, present harvesting practices of major commercial NTFPs and marketing systems. In the daylong meeting following conclusions were made.

1. It was decided to conduct a workshop on marketing of NTFP in Yellapur by the end of the September 2004.
2. Decided to invite persons/ companies involved in the primary processing and traders.
3. The companies including export companies shall be contacted and a small training on NTFP processing, quality maintenance and packing shall be organised.
4. Before the meeting it is decided to visit each Forest Ranges to collect data on availability, marketing channels and on those products banned to harvest due to harvesting pressure.

Training Workshop was held in Ishwari Vishwa Vidhyala Campus in Yellapur on 25<sup>th</sup> September 2004.

***Objectives of the workshop are:***

1. To evolve an alternate marketing system for NTFP.
2. Involve NTFP gatherers directly in the process and secure sustainability to the resources.
3. Promoting primary processing and quality control for better price to the products, which would enable to enhance the livelihood of forest dwelling communities.

Mr. Shivappa Poojari welcomed the participants and Mr. Susairaj Reddy explained the objectives of the training workshop.

After brief introduction by each participant Mr. M.G. Sathyanarayana, Managing Director of Magosan Exports limited explained different products that could be marketed, price, quality control measures and about packing. He also said that training could be organized for primary processing of various products should require.

NTFP gatherers and community leaders discussed various products that could be marketed and how they are harvested at present. Mr. Satish from HNH Trading Company shared his experience in marketing the various products.

NTFP harvesters and other participants discussed about possibility of marketing different products and how they are being harvested in a wider context.

Mr. Narasimha Hegde of Prakruti suggested to concentrate on few products in the initial stage so that it would enable to quality control and to ensure sustainable harvesting. The idea is agreed and participants decided to find out alternate marketing channels for the *Garcinia indica*, *Acacia concinna*, *Phyllanthus emblica*, Honey and wild pepper.

Mr. M.G. Satyanarayana and Mr. Satish explained about possibilities of marketing these products in different channels and the required quality, harvesting and processing techniques. They also agreed to organize training on processing of these products.

A separate co-operative society shall be registered to collect and market the NTFPs. Rupees fifty shall be taken as membership fee and Rs. hundred as share.

To formalize the byelaw and to form the governing body a meeting was scheduled in 4<sup>th</sup> October for six member representatives from different taluks.

### **3.8: Workshop on Sustainable Harvesting of Gums and Resins**

Prakruti organised a one-day workshop in Rait Bhavan, Sirsi on sustainable harvesting of gums and resins on March 11, 2005.

**Objectives** of the workshop:

1. To exchange the existing knowledge on gums and resins between harvesters and other stakeholders.
2. To understand the present harvesting system and to discuss possibilities of improving the harvesting system.
3. To create awareness on sustainable harvesting, to find out ways to keep continue the discussion and activities to conserve and develop the species.

The harvesters described about the types of resins available in the Uttara Kannada district, forest types in which these species occur, average quantity per tree and frequency of harvest, harvesting methods, its use, processing and about marketing.

There are more than 25 species from which gums and resins are being harvested in Western Ghats of India. However, *Vateria indica*, *Boswellia serrata*, *Canarium strictum*, *Kingiodendron pinnatum*, *Hopea wightiana* and *Antina mara* are considered as important. Participants decided to give importance based on criteria like availability, price, quality, and use of gums and resins available in these species and status of the species.

**Use:** These species are traditionally used as fragrance, Gums, Varnish, food preservatives, in preparing incense sticks and to protect bamboo and wooden articles.

Industrially it has been used in preparing varnish, paint, food processing, medicine and in various other purposes.

**Harvesting:**

Resins from *Vateria indica*, *Boswellia serrata*, *Hopea wightiana* and *Canarium strictum* are traditionally harvested during October, November. This is post monsoon and pre winter season. Traditional harvesters say that during this period gums and resins ooze quickly. For *Vateria indica* a triangular shape hole is made at a height of one meter. The size of the wound shall be 15-centimeter length and 10 centimeters width. Only the bark of the tree is blazed. A pipe is fixed from the edge of the wound to the areca leaf box located in the ground. This pipe is made up of hollow Bamboo or arecanut or of metal. The resin oozes for about two to three months and frequency of harvesting is once in a month.

Long sharply cut blazes are best as they give pure resin and the bark heals faster. Irregular cuts add impurities to the resin. Long cuts are better as they provide more area for exudation and heal faster. Square and round shapes take longer to heal, as the distance between the two walls is more. The size of the wound and number of wounds are determined by the age of the tree.

However, in contrast it is observed that the contractors and people appointed from contractors to tap the resin make deep wound to the tree and cut the hard wood and allows dipping and storing the resin inside the hole. The deep wound causes the tree to fall down during monsoon wind, there will be attack of termites, stem borers and other pesticides. This ultimately leads to the destruction of the tree and the resource.

For *Canarium strictum* a three-centimeter length and width wound and depth penetrating the bark is sufficient to get the resin. These wounds are made at a height of two meters. The resin dips and solidifies on the bark. To avoid mixing of impurities to the resin the bark can be gently cleaned.

However, it is observed that the contractors and their persons make deep wound to the tree damaging the resource.

*Boswellia serrata* is rarely found in the region and the tree is planted along the roads. The quantity harvested from this species is low.

Use of Gum obtained from the *Hopea wightiana* and *Antinmara* species is restricted to domestic consumption.

*Vateria indica* yields about three to four kilograms of gums in a year. *Canarium strictum* produces about five kilograms of resins in a year from a good matured tree.

**Resource availability:**

It is estimated that more than seven thousand producing trees are present in the Hulekal and Manchikeri forest Range alone in Sirsi Forest Division. Of course this estimation is very

vague and based on the observations of primary collectors, forest department field staff. It is also estimated that nearly fifteen tons of gums and resins are obtained every year.

**Processing:**

Resins are harvested and sold to the local dealers and no processing is involved. However, the resins from *Vateria indica* are mixed with ash to make it amenable for handling and for preservation.

**Marketing:**

There is no information on the marketing of the gums and resins as in the case of all other NTFPs. Primary collectors get only 30 to 35 Indian Rupees per kilogram of resins obtained from *Vateria* and *Canarium*. However, some of the small-scale perfumery industries located in Sirsi purchase these resins from Bangalore at a price of 220 Indian Rupees per kilogram!

**Action plan:**

- The Forest Department has the ownership of the trees. However, there is no clear policy regarding gums and resins. Even it is not known whether there is any ban to harvest the gums and resins in different Forest Ranges. Manchikeri Range Forest Officer Mr. Kanagil said that he would study these details pertaining to the gums and resins and inform within twenty days.
- It was decided to select two pilot plots in Hulekal and Manchikeri forest ranges. Assessment of the resources, improving the present harvesting system, awareness on sustainable harvesting will be done in these areas.
- Besides possibilities to establish value addition units, linking with marketing for better price to the collectors are also discussed in the workshop.
- It was also decided to contact other scientists, research organizations and senior forest officials seeking help to do this work.

In the afternoon Mr. Venkatramna Siddi and Ganapati Gowda demonstrated sustainable harvesting of *Vateria indica* near Neernalli.

Scientists from Center for Ecological Science, VFC presidents, representatives of other NGOs in the Uttara Kanada district, tribal involved in the collection were present in the workshop.

### **3.9: Workshop on Sustainable Harvesting of Wild Foods.**

Wild foods are the forest resources used traditionally from the forest dependent communities. Forest foods are nutritionally important and are traditionally used as supplements to the staple diet. These add diversity, flavour, vitamins and minerals to characteristically grain dominated diets. (Forests, trees and Food, FAO, 1992).

They include, leafy vegetables, Edible oil, Tubers, Items used for making health drinks, Mushrooms, Pickling items, Spices, Specialised items like stems, powders extracted from wild sources, Wild animals, honey, Wild Fruits and Toddy.

To document the different species used for food, to understand the threat and to create awareness to schoolchildren a one-day workshop was organised in Mabagi village in Ankola taluk.

Mabagi is situated on the foothills of the Western Ghats is surrounded by thick forest. Many forest dependent communities like *Hallers*, *Naiks*, and *Khare Vokkaliga* live in the village.

The workshop was inaugurated by the schoolteacher Girish Nayak. Then Narasimha Hegde from Prakruti explained about the importance of wild foods. He said any forest resource is considered as importance based on some criteria like income realised from that product, labour opportunities, foreign exchange and contribution in local use. However, the wild foods are important as they provide nutrition, fresh food, and availability in the proximity, medicinal property and no pesticide effect.

These resources are facing two major threats that is depletion of the resource base and about the knowledge on the resources. There is a need to take actions that would reduce these problems.

Then the participants discussed various aspects regarding the situation of wild foods in their forest. Availability of the resources, people involved in the harvesting, processing and food preparation, where and how much?

Then the changes in the availability of resources, harvesters, use compared to last fifty or thirty years.

The group discussed about action plans that could be initiated to reduce the threat.

***Details of the discussion:***

- Listing of 35 species that are being used in preparing food and recipes, twelve species of wild fruits, the area and people involved in harvesting. Mainly the women from *Haller*, *Khare Vokkaligas* and *Havyaks* are involved in processing and food preparation. However, men collect the wild foods that have market and industrial demand and which bring cash income.
- Harvesting of honey, collection of spices like *Myristica spp* and some fruits where climbing of big trees is essential are done by men.

***Present trend:***

Over harvesting of the product due to population pressure and industrial demand.

Many of the food producing species are declining. For example *Asparagus racemosus* the tuber of the species is used in food preparation and medicine. Due to over harvesting the species is declining. Harvesters collect all the tubers, which affects the regeneration seriously.

However, there are ways to conserve the species first is to adopt sustainable harvesting

practice that can be achieved through harvesting only fifty percent of the tubers from one side leaving other allowing the regeneration.

The products like *Garcinia gummigatta*, *Artocarpus lakoocha* honey, cane, Moli Gadde, Naazi Gadde, Somavar Beru, Kadu Kumbala Balli (botanical name of these species not known) are also decreasing.

#### **Action Plan:**

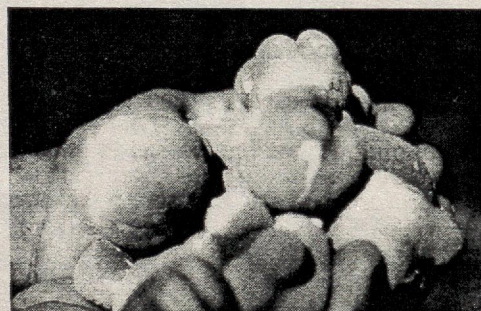
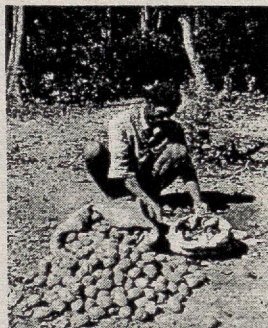
After the group discussion action plans that could be taken to conserve the species were decided.

- Restricting the harvesting time for the collection of *G gummigatta*, *Artocarpus lakoocha* is one of the activities that could be implemented. However, the participants who are mainly from the weaker sections of the society-requested time to take any final decisions, as the matter has to be discussed with other community leaders.
- They decided to organise a meeting within few days and other stakeholders' like Forest Department and VFC federation.
- Then field demonstrations and exhibition of posters related to wild foods were done for the school children. (Mabagi workshop was held on 17<sup>th</sup> June 2005).

#### **4.0: Out come/result of these workshops:**

- Community took initiatives for the proper management of the NTFP resources.
- Sustainable harvesting practise and promotion of these practise for with the harvesters and other stakeholders.
- Creation of platform for discussion on sustainable harvesting, value addition and alternate marketing links for the collectors, local Forest Department staff, Forest Department officials, Village Forest Committees and community organisations.
- Management skills developed for the project staff and improved capability to undertake such initiations aimed at conservation of the NTFPs.
- Awareness on need of sustainable harvesting, publication materials on impact assessment of harvesting NTFP and sustainable harvesting that can be used in future activities.
- Regeneration and propagation of the important NTFP species.

Photo 1: Person from indigenous community Processing the *Myristica malabarica*(spice). Photo 2: Fruits of *Artocarpus lakoocha* used as Substitute for tamarind in food.



### 5.0: Regeneration studies

Regeneration study has been carried out to understand the impact of harvesting of NTFP. *Cinnamomum macrocarpum*, *Cinnamomum zeylanicum*, *Canarium strictum* and *Vateria indica* are the species identified for regeneration study. These species are identified based on the information that these species are threatened due to harvesting pressure. These informations were gathered during the field survey and opinion of forest dwelling communities.

Methods: Sample plot of size 20 meters X 20 meters laid in the tropical forests where we found the trees and saplings belong to these species. The plants, trees of different sizes were enumerated.

Plants are classified into five classes. Class I - Plants below 40Cms height, Class II- 40Cms to One meter, Class III- one meter to two meter, Class IV-two meter to three meters and Class V- three meters to five meters. With regeneration of *C macrocarpum* plants belong to class III have disturbed considerably.

Figure: 4.1: Size class distribution of *Cinnamomum macrocarpum*.

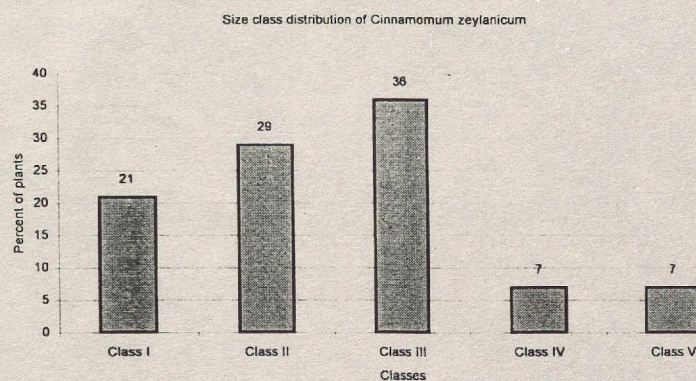
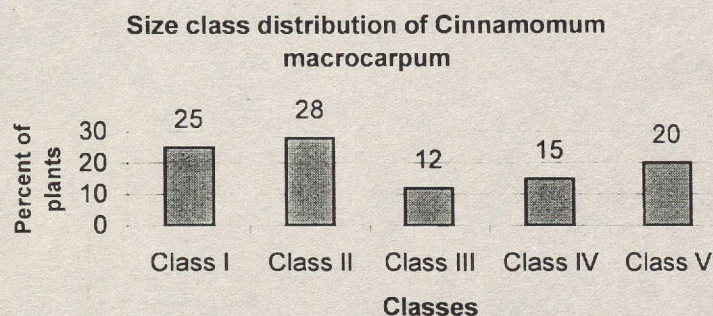


Figure: 4.2: Size class distribution of *C zeylanicum*.

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