CHAPTER 4

Local Returns and exploitation of Forest Resources
-A Qualitative Exploration
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Forests are reservoirs of valuable natural resources, which provide raw materials for industry as well as planting materials for agriculture. As far as medicinal plants are concerned, many species are not domesticated and the wild resources are facing extinction. Conservation of forest resources is obviously the need of the hour. Over-consumption of natural resources is caused by demand side as well as supply side factors. On the demand side, there is increasing popularity of natural products. Public boycotts of goods that are produced by over-using scarce natural resources are identified as effective methods for reducing over-consumption (Brown & Cameroon, 2000). In the case of medicinal plants it is not prudent to manipulate the demand side factors because commercialisation of medicinal plants could boost the rural economy and the medicines based on them are very promising. Any measure for reducing the demand for medicinal plants would have negative impact on development. Therefore reducing the supply of naturally grown medicinal plants and increasing the supply of cultivated plants is the solution. However, this should be done in a way that the sustenance of the tribes dependent on these resources is not affected. In this chapter, it is inquired
whether enhancing the returns to the tribes would make them reduce the
exploitation of wild plants to more sustainable levels.

**Socio-economic aspects of harvesting wild medicinal plants**

Ninety-two per cent of the people interviewed for the study are
engaged primarily in collection NWFPs. They have forest department’s
wage labour for three to four months every year. The medicinal plants that
are collected most frequently are *pathiri, kurunthotti, orila, muvila, maramanjhal* etc. which are easily available during their season and these
plants can be collected in large quantities. Apart from that they collect
frequently the products such as *kunthirikum* (Lac), shikakai, honey etc.
But *shatavari, kattupadavalam, koduveli* etc. are rare and cannot be
collected in saleable quantities in one visit to the forests. Further, the
societies do not encourage the collection of other plants. However, in
times of difficulties like illness or contingencies like marriage of a family
member, they try hard and gather as many marketable plants as they can
and sell them to the private dealers. Thus monetary returns from
medicinal pants are very crucial in emergencies.

Some of the gatherers carry rice, tapioca or pulses with them
during visits to the forests, cook food in the forests and stay there until
they collect materials worth a target amount of money. Some stay in the
forests for 2-3 days in a week, eating forest food such as fruits and rhizomes. Some of them go alone, some visit the forest as a group of two or three men and in some cases the members of a family except children below 8 years go to forests. Visiting forests is a part of their life and it is neither possible nor fair to make them withdraw from the forests.

Sixty-four per cent of the people falling in the sample have own house and the remaining 34 per cent live in their parents’ house. On the average, each of the houses is built in 5 cents of land. In addition to that, 55 per cent of them have land allotted to them for agricultural purposes, by the forest department. The average area of agricultural land allotted to them is 8 cents. But only 20 per cent are engaged in agriculture. Thirty-five per cent have livestock such as goat and poultry. [See box no.4.1.] Others feel that the wild elephants will destroy the crops and the tigers and foxes will eat up the livestock. Anyway, the earnings from agriculture and livestock are not very significant in the households. The major share of their income is from Non-Wood Forest Products. On the average, the annual income from NWFPs accrued to a person who regularly collects these materials for the period of the study is roughly Rs. 15750/-. The average income from the Forest Department’s labour is Rs. 6840/-. 
### Box no. 4.1

<table>
<thead>
<tr>
<th>1. Number of people interviewed</th>
<th>375</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>329</td>
</tr>
<tr>
<td>Female</td>
<td>46</td>
</tr>
<tr>
<td>2. Literacy rate</td>
<td>77%</td>
</tr>
<tr>
<td>3. Housing</td>
<td></td>
</tr>
<tr>
<td>1 room: 27% 2 rooms: 32% more: 5%</td>
<td></td>
</tr>
<tr>
<td>staying with parents: 36%:</td>
<td></td>
</tr>
<tr>
<td>4. Average land holding around the houses</td>
<td>5 cents</td>
</tr>
<tr>
<td>5. Percentage having land allotted for agriculture</td>
<td>55</td>
</tr>
<tr>
<td>6. Average area of agricultural land allotted to them</td>
<td>8 cents</td>
</tr>
<tr>
<td>7. Percentage occupied in agriculture</td>
<td>20</td>
</tr>
<tr>
<td>8. Percentage owning livestock</td>
<td>35</td>
</tr>
<tr>
<td>9. Average yearly earnings from NWFP collection</td>
<td></td>
</tr>
<tr>
<td>per head*</td>
<td>Rs.15750/-</td>
</tr>
<tr>
<td>10. Average yearly earnings from labour per head*</td>
<td>Rs.6840/-</td>
</tr>
<tr>
<td>11. Average yearly earnings from agriculture/livestock</td>
<td>not available</td>
</tr>
<tr>
<td>12. Average yearly expenditure</td>
<td>Rs. 22425/-</td>
</tr>
</tbody>
</table>

Source: Survey Data

*for persons whose prime occupation is NWFP collection*
As described in chapter three, the collectors get only a small portion of the market value of the medicinal plants. In a bid to maximise earnings, they rely on unsustainable collection practices such as cutting the branches of trees to collect the fruits, collecting the entire roots or bark at a time and so on.

**Importance of medicinal plants in the healthcare of the adivasis**

Eighty-four per cent of the respondents use raw medicinal plants collected by them for treating minor illnesses such as fever, cough, indigestion, body pain etc. Some commonly used remedies are:

- for fever - an extract of *orila* (*Urarialago podioides*)
  - or *panikoorka* (*Aniscochilus carnosus*)
- for cough – *atalotakam* (*Adhathoda zylanica*)
- for indigestion – *vayambu* (*Acorus calamus Linn*)
  - or *anachukku* (*Solanum stramonifolium*)
- for pain in joints – *karinkurinji* (*Nilgirianthus ciliatus*)
- for head ache – *munja* (*Premna herbacea Roxb*)
- for mouth ulcer – *karinochi* (*Vitex nigundo*) or *arya veppu* and so on.

Thus these plants are very crucial in the primary healthcare of the *adivasis*. In cases of moderately serious diseases, where they have to approach any medical practitioners, then 73 per cent approach the health
centres established by the Government, where modern medicines are prescribed. The dependence on modern medicines is partly because of they are provided in the health centre and partly because of the fast healing. Fifteen percent rely on Ayurvedic medicines and only 8 percent approach the tribal vaidyans. In cases of more serious diseases, 94 percent rely on modern medicines. [See Table no. 4.1] As a result the useful know-how of the tribes which could keep the cost of healthcare low, is being eroded.

Table no.4.1

Importance of medicinal plants in the health care of the adivasis

<table>
<thead>
<tr>
<th>Type of illness</th>
<th>Healthcare method*</th>
<th>Raw medicinal Plants</th>
<th>Tribal medicine</th>
<th>Ayurveda</th>
<th>Allopathy</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor</td>
<td></td>
<td>314 (84)</td>
<td>61 (16)</td>
<td></td>
<td></td>
<td>375</td>
</tr>
<tr>
<td>Moderate</td>
<td></td>
<td>15 (4)</td>
<td>29 (8)</td>
<td>57 (15)</td>
<td>274 (73)</td>
<td>375</td>
</tr>
<tr>
<td>Serious</td>
<td></td>
<td>7 (2)</td>
<td>14 (4)</td>
<td>354 (94)</td>
<td>375</td>
<td></td>
</tr>
</tbody>
</table>

Source: Survey data

* Percentages of raw total in parentheses.
Since the collection of NWFPs contributes to the major share of the tribal collectors’ income and they depend on medicinal plants for primary healthcare, reducing the extraction of medicinal plants from the forests is bound to affect the subsistence of the adivasis. At the same time, if the resources are exploited at the current rate, they will be left with no resources at all in the future. The following section discusses whether higher collection charges could induce them to reduce harvesting.

**Collection charges and Harvesting Intensity**

By the traditional work-leisure principle if the income effect of a wage hike is greater than the substitution effect, then persons offer less of their labour, as wages increase. Treating collection charges as wages, we want to explore the relation between wages and harvesting intensity. For quantitative analysis, data on the quantity sold at both lower and higher wages is required. Two rates at which the tribes sell the materials are available, viz., the official rate and the rate at which the private dealers buy. However, it is obligatory for the tribes to sell the materials to the societies, therefore the quantities sold to these two buyers are not guided by the collection charges. Hence empirical estimation of the impact of wage hike is not possible. In the present study only qualitative data were used for the purpose. [See table no. 4.2]
Survey data show that 74 per cent of the respondents visited forests keeping a target in mind. Some of them returned after collecting materials worth a target amount of money and some returned after collecting a target quantity. They visited the forest again after all the income earned was spent off. They felt that collection of medicinal plants is a tedious and risky job. Evidently more income per the quantity of collected materials would reduce the frequency of visits to the forests and reduce harvesting intensity.

Table no. 4.2

**Motive for visiting forests**

<table>
<thead>
<tr>
<th>Prime motive for visiting the forests</th>
<th>Number of respondents</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target return:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantity</td>
<td>53</td>
<td>14</td>
</tr>
<tr>
<td>Money</td>
<td>224</td>
<td>60</td>
</tr>
<tr>
<td>Fondness to forests</td>
<td>68</td>
<td>18</td>
</tr>
<tr>
<td>Others *</td>
<td>30</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>375</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Survey data

* those who visit the forests only when no alternative work is available
Eighteen percent of the respondents go to the forest with their family; in each visit, they stay in the forest for some days and collect as much materials as they can. They enjoy being in the forests and a hike in collection charges may not reduce the frequency of their visits to the forests. However, it is possible that at least some of them may prefer more leisure. For the remaining 8 percent, collection of NWFPs is not the primary occupation. They collect the plants only during the monsoon, when no alternative work is available. Better collection charges are not likely to induce them to increase the visits to the forests, since they prefer wage labour to collection of NWFPs. But it is likely that at least some of them harvest more intensively in each visit.

Moreover, when the collectors are in urgent need of more money 66 per cent of them sell the collected materials to the private dealers secretly instead of relying on harvesting more. Twelve per cent of the respondents harvested more and 22 per cent borrowed money. Apart from that, all the respondents complain that since they visit the forest, whenever there was a theft of timber from the forest, the officials first question them for information about the thieves. Majority of the respondents harvested the forest resources just enough to meet their day to day requirements because harvesting from the forests is a tiresome job
and they often get wounded by thorns or even by wild animals. Thus generally, better collection charges are bound to result in more controlled harvesting.

**Means for increasing collection charges**

As explained in the previous chapter, the reason for low collection charges is market imperfections. The returns to the collectors could be raised by a tie-up between the societies and the industry. Some of the societies do sell materials directly to the industry at times. This should be done regularly through some form of agreements. Since the supply is from natural sources, fulfilling the quantity agreed upon may not be always realised. Still initiatives in that direction could be taken.

Another option is for the industry to create an environment in which the companies can buy the goods directly from the collectors. This could eliminate official as well as unauthorised middlemen from the scene. But this requires infrastructure such as collection centres, transportation facilities, and so on. Infrastructure could be developed through self-help groups of the adivasis or the manufacturing units. The industry does have an association and it may be suggested that the Ayurvedic Medicine Manufacturers’ Association to take up the role of
middlemen. The association, at present, is interested only in their traditional role of lobbying.

Local returns through cultivation and processing of medicinal plants

Along with the efforts to provide better collection charges to the collectors, alternative sources of income should also be developed. The tribal people could be encouraged to grow medicinal plants in the land provided to them by the government for cultivation. Only 36 per cent of the tribal people who have agricultural land raise any crop. Among them 8 persons grow medicinal pants. The rest of the land is lying idle and could be engaged in the cultivation of medicinal plants to generate income. The constraint of marketing faced by the farmers will not be there in the case of tribes, since they have established channels of transaction. Apart from that, they will be free to sell the cultivated plants wherever they want. The societies should encourage this by providing planting materials at subsidised rate. Cultivation by the tribes could strengthen the tie-up between the societies and the industry. The quantity required by the industry would be supplied by them through collective action, even when the natural supply falls short of the requirement. In this case also the initiatives should be taken by the manufacturing units. The planting materials from the nurseries of the manufactures could be distributed to
the adivasis for cultivation and at the time of harvesting, the product could be bought back by the units. Two units have already taken initiative in this direction. Nagarjuna Herbal Concentrates Limited and Vaidyarathnam Ayurveda Oushadhasala have contacted some of the interested tribes through the krishibhavans in Thrissur and formed agreement. The problem is that the agricultural land allotted to the adivasis that is lying idle is mostly in Wynad district and the medicine manufacturers have not approached the adivasis in that region.

Apart from that, the manufacturers can benefit from such contacts with the adivasis since they can market the traditional know-how of the adivasis. The Tropical Botanical Garden and Research Institute has developed a drug called ‘Jeevani’ based on the knowledge of the Kani tribes of Agastyarkudam, Thiruvananthapuram. The marketing right was patented to the Coimbatore Arya Vaidya Pharmacy. The kanikars are to receive royalty of the know-how and 50 per cent of the commercial returns. The pharmacy has reached on an agreement with the kanikars to buy the *arogya pacha*, the plant used for the drug, cultivated by the kanikars. (Kurup, 2000)

Value addition through primary processing by the collectors also could lead to better local returns. The harvested plants and plant-products
require primary processing such as cleaning, drying, powdering or peeling off bark and in some cases, making extracts out of them. Such activities can be carried out using simple techniques without any capital investment. Currently, processing taking place at the collectors’/cultivators’ level is limited to cleaning and drying and in some cases peeling of the barks of rhizomes that too by very few collectors. The survey data shows that only 3 per cent of the collectors who sell directly to the manufacturing units carry out processing other than drying.

Although backward linkage to processing is week at present, there is scope for a greater potential linkage. It is palpable from the contract into which the Kottackal Arya Vaidya Sala has entered with some of their suppliers. They have some local collectors who traditionally supply some fresh plants, leaves and rhizomes. The primary processing of the large quantity of materials acquired by them is difficult to carry out in their premises. Now the suppliers process the items on a contract basis. These include drying some rhizomes after peeling of the bark and preparing extracts from some other items. The quality of the collected materials and the processing standards are under constant scrutiny by the experts from the Vaidya Sala. Such primary processing requires very little capital,
equipment and technology and if encouraged has a great potential for employment generation.

**Conclusion**

Providing better collection charges and promotion of cultivation and processing of medicinal plants by the adivasis can check exploitation of Forest resources. For this, encouragement from the industry is required. They do realise that in future supply of raw materials may fall short of demand, but most of them want government intervention as a solution. They press the govt. to raise a medicinal plant garden. However it is not the government’s duty to provide raw materials to industry. The AMMUs should realise that they should rely on self-help and encourage the farmers who are willing to cultivate medicinal plants through entering into strong contracts with them. Parallel to such an initiative, the societies should become more creative and imaginative in their marketing activities. Through better marketing, which is in tune to the present day’s liberalised environment, the societies can earn more income and repatriate better collection charges to its members.

Moreover, the *adivasis* should be made aware of the importance of conserving the natural resources. They should also be given proper training on sustainable collection techniques.
All such initiatives could lead to reduced exploitation of forest resources by the tribes. But the forests could still be exploited by illegal collectors. It is the business of the authorities to implement the regulations strictly and eradicate illegal collection of medicinal plants from the forests. The measures that required from the authority’s side will be discussed in chapter-6.
Reference:
