CHAPTER – II

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This chapter is intended to report the theoretical views and empirical evidences to the present study from the past findings and documentations. A review of the past research in the field has been done to enable a better understanding of the subject and the concepts. The different aspects covered under the review are presented as follows keeping in view the objectives of the study.

2.1 Role of NTFP in Village Economy

In his study on the importance of forests in tribal economy in Ranchi district, Mukhopadhyay (1991) found out that the tribals lived entirely on Mahua flowers and its byproducts for about forty days in a year. It was also found that the average number of trees per family on which Lac was cultivated was six. The average quantity of Lac harvested during the season was 47.2 kg, which was sold at Rs.5-6 per kg.

According to Ramprasad and Bhatnagar (1991), NWFP provided a very important livelihood support to indigenous tribes living on forest fringes of Madhya Pradesh. They opined that these tribes traditionally depended to a large extent on collection of NWFP in the forest.
In their study on role of NTFP in village economy in West Bengal, Malhotra (1992) revealed that income from NTFP per household per year ranged between Rs.1393 to Rs.3773 with an average of Rs.2558 in different tribal regions of West Bengal. Out of the total NTFP income, fuel wood constituted 40.1 per cent followed by fodder (36.8 per cent) and food (16.7 per cent). The average per hectare income from NTFP was Rs.2720. The study also pointed out that under Joint Management of forest systems, in the long run, cumulative income from NTFP and major harvest of poles would be of some magnitude in the household income.

Bautista (1992) reported that in Philippines the extent of extraction and composition of NTFP depend on factors like state policy on forest access and land use, the forest type, the demand for NTFP and their price relative to other products and price in relation to the cost of NTFP extraction. He opined that old growth forest had a more diverse and greater stock of NTFP than the residual forests. It was observed that higher extraction levels transpired when increasing prices exceeded the rising cost of extraction.

Nanjaty Reema (1992) observed that in the desert of little Raun and Kutch of Gujarat, the local people thrived by collecting gum from the trees of *Prosopsis juliflora*. The authors observed that men, women and children in groups start by 5 am
and travel a distance of 7 to 10 kms in the forest and return by 2 pm. Each person used to collect 1 to 1.5 kg of gum after putting 6 to 8 hours of hard work. It was found that private traders to whom they sell their produce exploited the collectors.

### 2.2 Employment and Income

A study on employment, income and expenditure pattern of tribals in Nasik district of Maharashtra was conducted by Raut et al. (1992). The collection of Minor Forest Products was found out to be the only source of income during summer season. Wage earning was the prime sources of income for the landless group, which amounted to the tune of 50 per cent of the total income whereas; agriculture was the main source for landholders who accounted for 50 per cent. Per family consumption expenditure was worked out to Rs.6570 and Rs.73112 for landless and cultivator group tribals, respectively.

A study by Suryavanshi (1992) on the employment income and household economy of tribals in western ghat zone of Maharashtra reported that the tribals got comparatively better employment in the Kharif season due to agricultural activity. Whereas, during summer season, they were involved in off-farm works such as collection of fuel wood, Minor Forest Products, fruits, hunting and scarcity works under the employment generation schemes. The forest work accounted for more than 30
per cent of the total days. Wage earnings and sale of MFP were the major source of income to the landless families.

A flora of 7 species were identified by Malhotra et al. (1993) as to be regularly gathered in large quantities from regenerating sal forests by the majority of villagers in the Midnapore division of Southwest Bengal. In addition to the plant species, it was found that 2 insect species and some 26 avian species (including birds), one reptile and 4 mammalian species were being seasonally hunted by the tribals. Sal leaves were widely collected for making leaf plates and cups, which were used within the home and also sold to sal plate factories. Kharang grasses were collected for making brooms and wild date leaves for weaving mats. The only fibre yielding NTFP of value was cocoons of silkworm, which was collected in small numbers in the spring.

Naik et al. (1994) reported that Himachal Pradesh supplied 80 per cent of plant products used in Ayurvedic medicine produced in India. Commercially important species like sal, Mahua, Gum Karaya, Neem, Kuth, Myrobalan were gradually found to be decreasing in the area. They recommended that a committee of commercial MFP be set up to increase the production in the country.

The fact that developing countries are the major exporters of botanical products in the World and that these
industrially exploited ones are exporting to developed countries was reported by Naik et al. (1994). The authors revealed that many medicinal herbs and other economic plant species once abundant in Himachal Pradesh, Uttar Pradesh, Madhya Pradesh, Bihar, Orissa and Northeastern States were dwindling rapidly. They also reported that some commercially important plant species like Sal, Mahua, Gum Karaya, Neem, Kutch and Myrobalan were gradually decreasing due to deforestation in other States of India. They recommended that the social forestry programme should help in increasing the production of tree borne commercial MFP like oilseeds, gum, karaya, Myrobalan, Acacia, Tamarind, etc.

The role of Minor Forest Produce in tribal economy was highlighted by Namdeo and Pant (1994). They highlighted the important MFP, which contributed significantly towards rural income and employment of tribals in India. Tendu leaves were estimated to provide employment to nearly 40 lakh persons annually by way of bidi manufacturing. Sal seeds had potential to provide employment to 4.5 million persons for a period of 40 days and regular employment of 300 days per year for 0.4355 million persons in processing of Sal seed. The annual production of gum karaya was about 6000 tonnes and creation of 6 lakh man days at arte of 10 kg per person per day.
Kumar and Pandey (1995) reported that the tribals of Chottanagpur region of Bihar were still dependent on primitive methods of agriculture and different forest products supported their livelihood. The forest produces and different parts of plant species were exploited by these tribals and utilized for food, medicine and for other daily requirements including as a source of income. Seeds of different wild plants were collected and stored as grains by the tribals.

Sixty nine species were identified by Kushalappa (1996) to be used as different Non Timber Produce from Tumkur division. The author grouped the potential Non Timber Forest Product yielding plants into 8 major categories providing vide variety of products. They were fibre and flosses (17), gums and resins (13), tannin yielding plants (12), oil yielding plants (12), dye yielding plants (7), lac sources (5), plants used as eating plates (2) and beedi leaves (1). It was found that although most of these were used in small scale they provided gainful employment and monetary benefit to local people.

The contribution of Non Wood Forest Products in Tribal economy of south Bihar and south West Bengal was studied by Rao and Singh (1996). They observed that Bihar, being rich in NWFP has higher dependence of population on it. It was estimated that NWFP offers employment to about one million every year and
also out of total forest revenue of Bihar, about 17 per cent is contributed by NWFP. In West Bengal it is only 1.7 per cent of total forest revenue. From the analysis they concluded that all possible steps have to be taken by different state governments for ensuring fair share to tribes and other forest dwellers from collection and processing of NWFP.

The extent of tribal involvement in the collection and marketing of Minor Forest Products by the largest cooperative society was assessed by Sekar et al. (1996) in the province of Tamil Nadu, viz., the Sathyamangalam Hill Tribes LAMP Cooperative Society. The study found that around 83 per cent of the members were tribals who were actively involved in MFP collection. Through MFP collection, the tribals earned on an average Rs.11,180 per annum by spending 8-10 hours in a day for the purpose. The study revealed that the tribals also worked as agricultural labourers during the farming season. During off-season, they went for MFP collection and generated 253 man days in a year with an average earning capacity of three members in a household. The study also emphasized that the extraction of various MFP in physical and value terms was appeared to be encouraging.

The fact that whenever people go to the Reserve Forest for collection of Non Wood Forest Produce and fuel wood, they had a tendency to enter the Wild life sanctuary which was revealed in a
case study of Madumalai Wild life Sanctuary by Hegde (1997). The author identifies three research sites in the forests of the study area with a view to assess the ecological and genetical impact of human actions of the forest as Heavily disturbed sites, and control site. It was found that these sites were more or less in conformity with the assumption that each of the forest areas is being impacted differently and by different means. A comparison of income composition (per cent) and employment generation (per cent) of the three tribal communities in the study area showed that Jenu kurubas derived more employment and income from commercial NWFP than the Soligas and Betta kuruba communities. It was noted that all tribal households near heavily disturbed sites could become members of the LAMPS through which they can trade their produce. Non commercial NWFP was the second highest source of employment for households both close to HDS and MDS. Also it was found that the contribution of subsistence NWFP is disproportionately low in relation to their contribution to employment in both the sites. Major commercial NWFP like amla, honey, tamarind were collected significantly more number of days and in higher quantities. There was a negative correlation between community and NWFP income, which indicates that Jenu kuruba community was more dependent of forests than others. It was seen that all other sources of income, such as forest labour,
wage labour and salaried jobs reduced the reliance of the people on
the forests.

The role of Non-Timber Forest Products in the tribal
economy of B.R.Hills of Karnataka was studied by Hegde (1996).
He reported that NTFPs generated the maximum employment
(42.96%) for the tribal households followed by farm employment
(22.06%) allied employment (12.72%). Wage employment (11.86%) and other sources of employment (10.40%). The analysis of the
composition of income of the tribal households revealed that NTFP
were the main income generator, which contributed about 34.09
per cent of the total income of the households.

NTFP collection was found to be the main employment
opportunity by Girish (1998) in the Western Ghats region of
Karnataka. NTFP contributed about 50.20 per cent, followed by
wage employment (23.97 per cent), agriculture (16.69 per cent),
allied activities (8.68 per cent) and other sources (0.46 per cent) to
the total employment of the household. Also NTFP was the major
income generating activity in the study area which contributed
about 43.73 per cent of the total income followed by wage income
(35.07 per cent), agriculture (15.97 per cent), other sources and
allied activities contributed a minimal amount. Seegekai was the
major income generator with 15.17 per cent of total NTFP income
followed by honey (12.64 per cent) and Rampatre (11.26 per cent).
Whereas fuel wood (60.30 per cent) was the major contributor when non-cash income was considered, followed by green fodder (19.97 per cent) and *vaate* (4.75 per cent).

Perez and Byron (1999) discussed the crucial issues that determine the outcome of NTFP development. They presented a method for classifying very divergent case studies of Non Timber Forest Products and their development potential. The assessment of the outcomes of NTFP commercialization in selected countries stressed the importance of political framework, traditions, level of organization, market features and pressure on the resources. The study showed that state regulations that confront traditional rights and that are little understood by people, a non-transparent market being approached by many individual sellers with poor organization, and a high pressure on the resource were generally considered to have adverse consequences on commercial exploitation of NTFP. Also they found that in the absence of an appropriate market behaviour and suitable management practices, empowering people with political and tenure rights might not be enough to promote a NTFP based development.

The collection and utilization pattern of minor forest products (MFPs) by the tribal people was studied by Alibaba *et al.* (2000). The examination of income and labor relationships in collection of Minor Forest Produce showed that labour spent on
gum and tamarind collection was significant in generating income by tribals in forest areas. Their study concluded that all the tribal households faced problems in searching MFP and the danger of wild animals. There was a need for controlled exploitation of MFP in order to give scope for rejuvenation of forests. Sixty three percent of the variation in the income was explained by the labour spent on gum and tamarind. Further, they opined that scientific training need to be imparted to the tribals in collection of MFPs to improve their income and prevent mishandling of MFP yielding trees.

The paper by Bisen et al (2000) presented many options for the use of Non Wood Forest fibres for composite materials. In the case of Non-Wood Forest based composites theses resources include fibre, labor, water, energy and processing equipment. In order to insure a continuous fibre supply, management of the non wood forest producing forest land should be under a proactive system of land management whose goal is both sustainable non wood forest produce and the promotion of healthy ecosystems. They classified Non Wood Forest based fibres into five categories according to what part of the plant they come from as bast or stem fibres, leaf fibres, seed hair fibres, core, pith or stick fibres and all other plant fibres not included above.
Minj and Quli (2000) studied the impact of agroforestry on socio economic status of NTFP farmers and observed a definite positive role of agroforestry in improving the socio-economic status of the farmers. The material possession recorded the highest level of improvement, followed by education level, social participation, farm implement possession, occupation, livestock possession, farm power, land holding and type of family. Their study established that agro forestry is helpful in overall improvement of socio economic condition of the respondent farmers.

Information from 22 important NTFP traders on Amarkantak Plateau was gathered by Tiwari et al. (2000), which is the most significant area for collection of NTFP in Madhya Pradesh. 47 NTFP amounting to about 8232.47 tonnes were traded in the area with an economic value of 2.70 crores circulating in traders channel. Mahul leaves accounted to 65 per cent of total trade; which went to the hands of few traders. One fourth traders were found involved in trade of more than 10 NTFP. About two third traders were from 5 to 20 years in trade of NTFP, which showed that trade of NTFP was not a very promising business. More than one fifth of NTFP trade was found to be captured by only one trader while more than half of the traders had less than one per cent trade share in monetary terms.
An introduction to Non-Timber Forest products and the basics of planning an NTFP enterprise was given by Wilkinson and Elevitch (2000). They gave three importance of NTFP – Environmental, Economic and Cultural. The authors opined that although starting a NTFP enterprise is a high risky proposition, it is an appealing challenge for many rural entrepreneurs. They reported that thorough research and careful planning are essential to minimize risks and develop a viable NTFP enterprise. Also they opined that the prospective NTFP entrepreneurs have to complete four evaluations before investing in a new venture. These are a personal evaluation, a resource evaluation, a market evaluation and a project feasibility evaluation. They reported that the existing policies often provide disincentives, conflicting in ways that hinder development.

Arnold et al. (2001) emphasized the contributions NTFP can make to rural livelihoods. The fact that their use is less ecologically destructive than timber harvesting, the authors were of the opinion that more intensive management of forests for such products could contribute to both development and conservation objectives, which has led to initiatives to expand commercial use of NTFP. The authors proposed an approach that needs to recognize the implications of the widely different roles that NTFP plays in the livelihoods of different categories of the poor who draw on forests.
The paper emphasized the necessity for designing and implementing policy and other institutional interventions to distinguish between those who can improve their livelihoods through NTFP activities, and those who have not other option but to continue to gather NTFP in order to survive.

A scheme for economic upliftment of farmers by using NTFP in Agroforestry systems and conservation of NTFP was given by Quli (2001). He advocated various intensive Silvicultural and other scientific management practices to promote a very viable growing stock of the NTFP plantations besides recommending the special preference to the NTFP species for the large scale plantation programs. Keeping in view of the scenario of site conditions and land availability in the village, he recommended appropriate models for three classes of land. For unculturable wastelands Silvipastoral and Agri Silvipastoral model was preferred, for cultivated lands farm bund plantation and alley cropping were suggested and for marginal lands he recommended Horti-Silvicultural model. He expected that proper implementation of the proposed schemes would help in conservation of the NTFP resources with simultaneous economic improvement of the farmers.

The traditional practice of growing NTFP on farm lands to fulfill basic household needs in the mountains of Nepal was studied by Pandit and Thapa (2002). The study pointed that
growing assorted types of NTFP on edges and Terrance risers of rainfed farmlands including shifting cultivation and permanent fallow plots for cash earnings as well as for domestic use has been a long established practice of the farmers in the area. The study revealed that NTFP grown on marginal lands contributed to farm household economies, as 24 per cent of the annual household income in the upper watershed and 13 per cent in and lower watershed is accruing from the sale of NTFP based products. Also they found that the domestication of NTFP reduced local people's dependency on NTFP as well as other forest resources as the frequency of visit to forest fodder and fuel wood resources reduced with the increasing NTFP domestication. The multiple regression analysis revealed that four variables namely, frequency of visit to forest, shifting cultivation land area, duration of fallow period and skill of making NTFP goods affected significantly the income from NTFP domestication.

NTFP sector in Dhading district of Nepal was identified by Pervez (2002) as to generate maximum employment. The employment generated by NTFP was 289.26 man days (60.72%), whereas agriculture generated 106.23 man days (22.30%) followed by allied activities for 75.40 man days (15.83%0 and other sources, which contributed 5.53 man days (1.16%0. with regard to income generation, allied activities was the major contributor (36.74%)
followed by NTFP (32.08%) whereas agriculture contributed 29.50 per cent of the total household income. *Chirata (Swertia chirata)* was found to contribute the most to the NTFP income with a share of 41.54 per cent of the total NTFP income followed by *Kurila (Asparagus racemosus)* with a contribution of 38.94 per cent and *Jhayu* with 11.00 per cent contribution to total NTFP income.

The role of NWFP in the economy of communities living in and around forests of South Bihar was highlighted by Vidyarthi and Gupta (2002). Nearly 49 items of these products were found to sustain people (especially the landless and marginalized groups) during lean season and supplement their income during other seasons. The study showed that NWFP contributed significantly to the annual income of the households (to the extent of 86%). Besides the economic value of NWFP, the local communities enjoyed several qualitative benefits from the forest such as medicinal, religious and aesthetic needs.

### 2.3 Marketing Channels of NTFP

In his case study on significance of minor forest produce in tribal economy of Andhra Pradesh, Rao (1987) found that two channels of marketing existed one through Girijan Cooperative Corporation (GCC) and the other through private traders. The study revealed that GCC was given monopoly lights over procurement of MFP and was asked to pay forest rentals to
the Government. The private trader was legal prohibited from buying the MFP. Thus it was envisaged that there would be only one channel of marketing i.e., GCC. However, the Corporation could achieve only a partial success and was not able to replace the non tribal trader even in the purchase of MFP. The trader continue to operate clandestinely, resulting in the availability of two channels to the tribes.

Chakravarthy and Verma (1991) studied the marketing of NTFP through Cooperatives in a tribal sub plan area in Rajasthan. They observed that NTFP collected and sold in unprocessed form fetched lower prices to the tribals. They felt that the endeavour by the Cooperatives in marketing of NTFP is an important step in saving the tribals from exploitation by the middlemen. Otherwise there would be conservation of forest resources without any effect on their productivity.

For types of markets were reported by Falconer (1992) in her study on marketing of Non-Timber Forest Products in eight villages of Southern Ghana. They were the small daily village market, which was only for meeting village demand. Second was the weekly village market where in primary wholesalers traded foodstuff. The third category was the large regional weekly market, which attracted more than 500 traders. These markets catered for rural as well as wholesale demands and were important centers of
NTFP trade. Lastly, there was the urban market, which catered for the urban public. The study revealed that NTFP were always available in these daily markets and there was usually a wider choice on offer than in the village or regional markets.

Mahapatra (1992) reported that apart from marketing a number of MFP were also bartered for agricultural commodities by the tribals in Sundergarh district of Orissa. The study revealed that the tribals exchanged high protein seeds and flowers for low protein rice and commodities like salt in the lean season when the price of rice was very reported high while the price of MFP being low. The study also showed that the moneylenders of the area advanced loan to villagers only after they handed the MFP collected to them. So it became obligatory for the tribals to sell the MFP to the lender at a price fixed by the trader.

A study of Denationalized Minor Forest Products (DMFP) by Marothia and Gauraha (1992) revealed that about 72 per cent of the total collection of DMFP was marketed. The study indicated the existence of five marketing channels for the trade of DMFP, which were (i) collector-tribal agent-primary wholesaler-cum-retailer-consumer, (ii) collector-tribal agent-secondary wholesaler-cum-commission agent (iii) collector-primary wholesaler cum retailer-consumer (iv) collector-primary wholesaler cum retailer-secondary wholesaler cum commission agent and (v)
collector-secondary wholesaler cum commission agent. The cost of marketing increased with the length of channels for all the five products. In case of lac, amla, mahua flower, tamarind and cherongi, it was found that the consumer price increased to the tune of 1.5 to 2 times and the collectors share in the consumer rupee ranged from 46.43 to 67.79 per cent in different marketing channels.

Patel et al. (1992) observed a high variability in the marketing and price of MFP in Gujarat. They found that there was a decrease in the marketed quantity of MFP like timru leaves, mahuwa flower and doli but there was an increase in quantity of gum and other products. The quantity collected in the previous year was found to have a significant impact on the marketed quantity. The quantity marketed remained indifferent to the prices of MFP, which indicated that price behaviours had no effect on the production.

Biswas and Karpate (1994) studied the existing marketing infrastructure pertaining to Minor Forest Produce in Maharashtra State. The important Minor Forest Produce notified for monopoly procurement by the State were found to be Tendu leaves, grass, gums, harda, mahuwa flower, mahuwa fruit and seed and rosa grass. Two Marketing Channels were found to be operating in the area. First, the local tribals were permitted by the
Government to collect MFP without charging any fees and who are required to sell the so collected MFP at the collection centers of the Tribal Cooperative Societies only. The second one, the right of collection of some MFP was also auctioned to contractors by tender method, who engaged their own labour for collection of MFP and are free to sell it in open market.

Chopra (1994) in her study on marketing of Non-Timber Forest Products in Raipur district of Madhya Pradesh found that five marketing channels were operating in the trade of NTFP. The study revealed that the collector's price as a percentage of the final sale price varied from 26 per cent to 85 per cent. The chain of intermediaries between the retailer and the collector varied considerably from product to product and was found to be smaller in the case of high value products.

The extent of tribal involvement in the collection and marketing of Minor Forest Product by the largest cooperative society was studied by Sekar et al. (1996) in the province of Tamil Nadu, viz., the Sathyamangalam Hill Tribes LAMP Cooperative Society. The study found that among the MFP, amla topped the list yielding revenue of Rs.24.57 lakhs followed by broom grasses, and stone and tree moss. These four MFP accounted for 83 per cent of the total revenue of Rs.53.51 lakhs. The study revealed the existence of two marketing channels in the MFP trade i.e., Society
acting as retailer and from society to ultimate consumer. The second channel was society as wholesaler and from society to retailer and from him to the ultimate consumer. Thus, the society acted both as a retailer and wholesaler in effecting the sale of MFP. The collectors were better off and received higher share of about 30 per cent of the total market price in the first channel, even though only 20 to 30 per cent of the total collection was marketed from the channel. But through second channel, even though 70 to 80 per cent of the commodities were marketed through auctioning or by inviting tender from the merchants, the collector received only 7.20 per cent of the total market price.

Three major marketing channels were identified by Hegde (1996) in B.R.Hills of Karnataka. Among the subsistence use, sale to private trader/middlemen and sale through cooperative the private traders were the most dominant option for the collectors to sell the NTFP. The price difference for private traders varied from a maximum of 400 per cent price appreciation in sale of gum to 25 per cent in case of Nerale and Stone and tree moss. Whereas the profit margins earned by LAMPS ranged between 200 per cent for Kadumavu and 8.33 per cent in case of stone and tree moss. Since the NTFP procured by the society was in tur purchased by the private trader either by open auction or by tender system private trader was able to grab such a huge margin.
The place of sale was found to influence the difference of prices in the Western Ghats region of Karnataka by Girish (1998). NTFP was found to be traded in five marketing channels. Collectors were found to sell the perishable NTFP like appimidi, gooseberry and mushroom directly to consumers where as in case of high valued NTFP like dalchini, murugalu, rampatre, uppage and wild pepper collectors realized better prices when they sold to traders compared to contractors. Also the forest department procured teak seeds from the collectors for nursery purposes. Antaval and harda were sold to forest contractors.

Tiwann et al. (2000) found that NTFP trade in Amarkantak Plateau was captured by only one trader while more than half of traders had less than one per cent trade share in monetary terms. They found that three marketing channels were operating in the NTFP trade in that area. First channel was collectors to Primary market trader in which major share of NTFP was traded. Second one was collector to primary market in which NTFP having local demands moved. The third one was collectors to traders in which NTFP having wide spectrum demands moved.

Negi and Bhalla (2002) studied the collection and marketing patterns of MFPs in Himachal Pradesh. The study pertained to Medicinal and Aromatic Plants (M&AP) extracted from Kullu Lahaul and Spiti district of the state. As the marketing of M
& Aps were not regulated, the collectors were generally exploited and then received very low prices as compared to the market prices of various items they sold. The net share of the collector’s in consumer’s rupee was worked out to about 14 per cent for dhoop and about 28 per cent for Karu. One of the important channels of Marketing of M & Aps in the state was identified as sale through collectors-contractors-broker-wholesaler-consumers. It was concluded that in order to provide remunerative prices to the collectors, the marketing of M & Aps should be streamlined and cooperative efforts may be promoted which would help in creating a say in the market for M & Aps collectors, who individually are a very small-lot sellers.

The study of marketing in NTFP in Nepal by Pervez (2002) revealed that only one marketing channel existed in the study area. The collector directly sold the NTFP to the local trader who sold it to the Indian trader. The collectors were ignorant about the price and other market information beyond the local trader. It was found that the local trader would make a capital advance to the collectors and also provided other services like co-ordinating them for participation in training programmes organized by Government or non-Government organizations or even local institutions. The local trader was in direct contact with the Indian traders and all the products were sold to them. It was found that
the Indian traders transported the products in raw form to Delhi, Calcutta and Punjab.

2.4 Collection, Processing and Marketing of NTFP

Forest officers have given information on the vegetation types and important tree species of Tumkur district in their working plan reports. The first working plan for Tumkur district was written by Venkataramanappa in 1899-1900 and was revised by Ramiengar in 1922. Kadambi (1941) wrote the working plan for the Devarayanadurga group of forests and Palekanda's revised this in the year 1952. The recent work plan for the district was written by Ataulla in 1969 and was approved in 1989 (Ataulla, 1989). Information on the vegetation of some parts of the district with information on forest types, vegetation on other habitats has been provided by Singh (1988).

Tumkur is one of the districts, which has been left unexplored except for few local collections. Buchanan Hamilton (1987) collected few plants from Tumkur, but not record exists of this collection. Rao and Sastry (1964) have collected plants from Devarayanadurga. They have reported 203 plants from this hill. Yoganarasiman et al. (1982) have surveyed the forests around Sidderabetta for plants for medicinal importance. Collections from parts of the district were done by Singh (1988) as part of the Flora of Eastern Karnataka.
The collection and marketing of major herbs by tribals in the hill districts of Uttar Pradesh was studied by Sangwan (1992). The study indicated that the traders and middlemen were the profitable one, who purchased the herbs from the tribals and sold to the processors or consumers with high margins. It was also reported that the prevailing marketing channel was a one way model with little scope for the collectors and processors to face each other. He opined that a cooperative federation in hill district could play this on the basis of predetermined margins for their services.

The marketing of MFP in Kullu district of Himachal Pradesh was studied by Singh et al. (1992). It was found that except wild vegetables, all other products were sold for cash requirements, while vegetables were consumed at home. The entire herbal produce was sold within the village to the local agents. These local agents sold their entire stock in the nearby market to wholesale agents. For the most of MFP, the price variation observed was more than 90 per cent. The price received by collectors varied from 60 per cent to 124 per cent less than the price of terminal markets. On an average, the producers were getting 50 per cent of their produce as compared to export/terminal market rates.
In terms of availability and use by the villagers of Midnapore division of South west Bengal, Malhotra et al. (1993) found that sal leaves were the most important item which was processed by households and contributed 99 per cent of all processed biomass flow. Kendu leaves constituted the largest proportion of gathered food items (49 per cent), followed by mushrooms (27 per cent), mahua flowers and fruits (17 per cent), dioscorid tubers (5.5 per cent) and leafy vegetables (1.5 per cent) which were collected over a very brief monsoon period. The interesting fact identified by the researchers was that the different social and economic statuses were the contributing factors in determining what is collected and by whom. Even though caste communities used NTFP, only tribal groups used mahua flowers and bakhar roots to make an alcoholic drink and also ate karkut ants.

An overview of Marketing of Minor forest Produce was given by Behari (1994). The paper emphasized on an ad hoc survey conducted by the Directorate of Marketing and inspection to study the marketing of MFP in the selected areas of the country. The author reported that the production and availability of forest produce differed widely from region to region and from State to State, as also the collection and processing of MFP differed from region to region and on the nature of the commodity. The paper
reported that in almost all the States tribals played a major role in the collection of MFP. The important MFP in Karnataka were listed as Tamarind seeds, Honge seeds, Neem seeds, Baje, Nellikai, Hippe seeds, Jayi kai Dhatura, rampatre, Honey, Vatehuli, Punarpuli, Dalchini, etc. They listed the important markets for MFP, which were Mangalore, Kundapur, Puttur, Karwar, Haliyal, Yallapur, Horanavar, Shimoga, Tumkur, Chickmagalur, Kushtagi, Hunsur, Krishnarajasagar, Kollegal, Gouribidanur, Bangarpet, Mysore, Bangalore, Channapatna and Ramanagaram. The report listed the MFP for which standards were available they are, Sandalwood oil, Lemongrass oil, Palmrosa oil, Giner grass oil, Eucalyptus oil, Vetiver oil, Himalayan Cedar wood oil, Aloe, etc.

An overview of Marketing of Minor forest Produce and Role of TRIFED in marketing of Minor Forest Produce in the country was highlighted by Singh (1994). The author emphasized the support provided by the TRIFED to state Tribal Development Cooperative Corporations (TDCC’s), Forest Development Corporation’s (FDC’s), Minor Forest Produce Development Corporation’s (MFPDC’s) for marketing and export of MFP. As also he reported the items of MFP in different states to be brought under the ambit of the Cooperative Marketing by the TRIFED and recommendations for fixation of minimum prices of such MFP in the tribal areas by each state. The author suggests that in order to
increase the market potentiality of MFP, they have to be used as industrial raw materials, which in turn raises the demand of MFP. He opined that all state level Government and Cooperative organizations dealing in commodities crucial for tribal economy should have a high priority in implementing policies designed to provide a fair price to tribals.

Even though more than 20 per cent of forest produce were collected by the tribals in Rohtas district of Bihar, Kumar (1996) found that because of the high margin of the middlemen, the tribals hardly got their share. He found that the market price was 25 times higher than the prices received by tribals. The total revenue from the forest produce (excluding Kendu leaves) showed a divergence between the target and actual realization. The study revealed that only Rs.1.87 crores realized as against the target of Rs.2.03 crores in the district. Thus, the loss of Rs.16.14 lakh amounting to about 7.9 per cent of the total expected revenue from forest produce revealed the defective system of marketing. And even though the actual revenue from Kendu leaves during 1973 to 1986 increased, the actual realization was less than the expected. Again the loss of revenue was due to defective system of marketing.

The extraction of Non-Timber Forest Products in the forests of Biligir Rangan Hills of Karnataka was studied by Hegde et al. (1996). With respect to the employment pattern of the tribes,
they found that a greater percentage (54.46%) of days were spent in extracting NTFPs in the interior block (39.25%). The contribution of NTFPs to the household gross income was significantly high in the interior block (60.44%) when compared to that in the exterior block (47.63%). With regard to wage employment, the contribution was significantly less to the household gross income of the interior block (14.66%) when compared to the interior block (23.76%). They found that there was no significant difference between the two blocks with regard to percentage income contributed by agriculture, subsidiary occupation and other sources of employment.

The prevailing management systems and forest policy in India was examined by Mahapatra and Mitchell (1997) with a view to analyze the problems and prospects for Non-Timber Forest Products development. Giving a historical perspective of forest management in India they listed the recommendations of commissions and committees and opined that despite many recommendations no significant steps have been taken in practice to improve production and commercialization of NTFP. They studied the NTFP resource of Orissa State and the results showed that 65 different products were being commercialized in the region. Myrobalan and fibre, etc. They observed that an increase in reserve forest area did not yield higher NTFP. They found that the
collection, grading and processing of most items was in a crude and done in a traditional way with little improvement and refinement. They suggested that sustainable development of NTFP must develop strategies to minimize the adverse impact of commercialization.

The performance of Bihar State Cooperative Lac Marketing Federation (BISCOLAMF) was analyzed by Pandey (1997). The average per annum lac production in India and Bihar was found out to be 16,094 and 9,605 Million tones respectively. It was found that about 2.14 per cent of total lac production in Bihar was purchased by BISCOLAMF for further processing and remaining 97.86 per cent were purchased by private parties showing the dominance of private traders in the trade. The time series data showed that the number of beneficiaries involved in supply of stick lac to BISCOLAMF increased from 5,088 in the year 1990-91 to 34,466 beneficiaries in the year 1995-96, where in tribals were the most benefited amounting to 80 per cent of total beneficiaries. The study indicated that on an average 6,776.2 million tones of lac of worth Rs.5,181.4 lakhs was exported out of which BISCOLAMF's share was 1.09 per cent in total value of export of lac.

In his study on Pooling of Minor Forest Produce through large sized multipurpose Cooperative Societies in Southern
districts of West Bengal, Lahiri (2000) identified that most of the collectors as well as the munshies who are engaged in collecting and pooling of Tendu leaves and Sal leaves are mostly from the peasantry class of the tribal areas. He found out that the proportion of landless agricultural labourers has been less among the collectors and munshies. The analysis indicated that more employment had been created among Munshies instead of collectors who are common people. The Munshies derived more employment by means of handling MFPs in bulk quantity by drying, packaging, storing and sending it to the godown of LAMPs.

Mallik (2000), in his study on sustainable management of Non-Timber Forest Products in Orissa, opined that the common property nature of forests and NTFP resources required secure, enforceable use rights as pre-conditions for their collective management and conservation. He stressed the importance of strong, self-regulating institutions and community organizations with effective and transparent mechanisms for ensuring equitable share. He suggests removing restriction on harvest and transport of forest products from one place to the other as well as official stipulations to sell nationalized products to Government agencies may be reduced. The study concludes that in any case, multiple uses, NTFP-based forest management needs a significant re-
ordering of the policy space and the institutional landscape, in the context of the ongoing liberalized world economic order.

Parikh (2000) attempted to identify an appropriate NTFP market structure, which would be least exploitative. He studied the status of almost all NTFP markets in Andhra Pradesh, Orissa and Karnataka and stressed for the entry of a well-meaning entity (Government agency or a cooperative) in a free market, which might lead to lesser exploitation by establishing a floor price. He provided a micro-economic argument against Monopsony and says that income earned by the collectors under monopsonistic market structure has to be lower than the competitive conditions. To evaluate the effectiveness of introduction of competition on various NTFP markets, he divided them broadly into four categories: low value-low volume, high value-low volume, low value-high volume and high value-high volume. He feels that a competitive market structure, with the Government acting as a facilitator to strengthen the competitive forces would be the least exploitative marketing arrangement for NTFP.

Prakash (2000) attempted to identify important minor forest produce and their markets and the role of marketing agencies (TRIFED) in marketing and export of minor forest produce. The major constraints in marketing/export of NTFP identified were collection in small quantity by traditional methods,
marketing in raw form without grading and standardization, unawareness about prices prevailing in the markets, absence of notification for sale in regulated markets of the country and lack of infrastructural facilities like transport, storage and processing. It was suggested that export of MFPs could be boosted by collection and storage of produce by scientific methods, marketing in processed form under brand status, marketing of raw produce after grading and standardization, demarcation of area of efficient production and procurement, strengthening marketing intelligence and survey for awareness of availability of produce in the country, improving storage, packing and transport facilities, interaction of TRIFED with other agencies, providing incentives for export ensuring the continuous flow of trade, availability of finance and publicity in international trade fairs.

Swaminath and Purushothaman (2000) in their attempt to assess and compare the potential and realized use values of forests: tourism and extraction of produces, at forest gate prices found that the annual forest revenue was increasing in the extractive reserves and declining in the sanctuary. The revenue from unit area of extraction of NTFP was found to be higher in the Indira Gandhi Wild Life Sanctuary compared to the Sathyamangalam reserve Forest. The major NTFP extracted in terms of contribution to total revenue were Nellikai, date leaves,
poochakkai, gallnuts, honey, etc. The study found that current earnings from the extractive reserves were Rs.189 per hectare out of which NTFP contributed Rs.17 per hectare as compared to the Wild life sanctuary with earnings of Rs.67 per hectare, out of which NTFP contributed Rs.22 per hectare and tourism contribution was Rs.15 per hectare. So NTFP collection revealed an economic potential more than that offered by tourism.

The impact of extraction on sustainability of forests under Joint Forest Management in West Bengal was assessed by Mishra et al. (2001) by comparing productivity and extraction of NTFP in terms of biomass. Seasonal productivity of NTFP was calculated in terms of above ground biomass within six randomly located protected plots. The major Plant species of ethno-botanical importance were *Hemidesmus indicus*, *Ichnocarpus fructescens*, *Smilax macrophylla* and *Andrographis paniculata*, which were used for medicinal purpose. during harvest, the whole plant was extracted in this case and in some cases root or tuber was used and in other cases the whole plant was used. In case of species of ethnobotanical importance, it was found that in most of the cases protected condition had more biomass than unprotected one and also because the whole plant was extracted in most of the cases, the scope of regeneration of plants vegetatively was very limited.
The study also reinforced the immense use value for the forest community.

The emphasis on introducing NTFP species in the plantations was laid down by Palit (2002) in his study on Plantations and Non-Timber Forest Products in Joint Forest Management. He emphasized on two factors while introducing NTFP species; that the species introduced are complementary in nature to the natural stock available in the forests and that the propagules used are of superior genetic quality so that the overall productivity increases. He also emphasized the need that collection of NTFP cannot be regulated unless the communities are motivated and they fully cooperate and says that forest departments neither have the staff nor the machinery to enforce selective and regulated collection.

The processing activity of NTFP in Nepal was identified by Pervez (2002) as to be limited to cleaning, cutting into small pieces, drying, sorting, etc., and it was mostly the assignment of women. The women performed these activities while attending the household activities. Also, women were found to have the skill and inherent characteristics to clean, dry and make into pieces. Even it was found that children spent more time than men did in processing activity of NTFP. It was seen that men dominated in
case of NTFP, which had higher value in exchange while the women dominated in the products with value in use.

A study by Joshi (2003) tries to explore the existing Secretative and Exploitative nature of the market in Minor Forest Produce sector. The author says that the collector doesn't know the uses of the produce she/he sells and unaware of the commercial worth of what they collect, they sell it for a pittance. The traders and manufacturers, on the other hand are mostly unaware of the forest from where their stock comes. In fact, the author points out that a lot of what is sold in the market is illegal. He maintains that Dhamtari, 70 km South of Chattisgarh’s capital Raipur, is the India’s biggest MFP market, especially of Medicinal plants. He gave the list of other major trade centers, which include, Jagdalpur in Bastar, Madhya Pradesh, Saharanpur in Uttar Pradesh and Khari Baoli in Old Delhi’s Chandni Chowk and a bulk of export market is handled from Mumbai. He finds out why manufacturers play into the hands of the traders, why they don’t buy from the collectors and growers. The reason he quotes is that the collectors want the same rates as the traders. And they want down payment. But the traders have good relationship with manufacturers and also trader’s supply on credit to manufacturers. Besides, the traders supply as and when the
manufacturer get orders from the distributors. The growers can't provide any of these services.

### 2.5 Factors Influencing Collection of NTFP

Sharma *et al.* (1997) studied the participation in collection of NTFP and their share in Tribal economy in Amarkantak Plateau in Madhya Pradesh. They found that 56.9 per cent households were involved in collection of NTFPs. It was found that there was no significant difference in participatory involvement among males, females and children. The analysis revealed that cash earnings from sale of various NTFPs increased 2 to 3 fold from core to peripheral and distant villages respectively. This finding was in contrast to common notion that due to high availability of forest resources, core villagers will have more earning from NTFPs. The study was able to find out that share of each NTFP species in income realization decreased with the increase in distance from forests. In distant villages not a single NTFP contributed to even more than 15 per cent share in total income realization from sale of NTFPs.

Three variable namely family type, family size and possession of land holdings were identified by Hegde (1996), have an influence on collection of NTFP. The joint family system of living and large family size were found to influence positively towards NTFP income, whereas possession of land holdings and greater
opportunities from wage employment was found to have negative impact on household income of NTFP. 43 per cent of the variation in income obtained from NTFP by the households was explained by 5 independent variables.

Dependency ratio, income from agriculture, income from allied activities and employment from NTFP were the factors identified by Girish (1998) as positively influencing the NTFP income in the Western Ghats region of Karnataka. NTFP income was found to be complementary with agricultural and allied incomes. Also it was found that NTFP income was positively related with NTFP employment, size of the family and income from agriculture, which suggests that as size of the family increased, NTFP income also increased. Also due to complementary relationship between NTFP and agricultural activity, income from NTFP and agriculture moved in the same direction. Income from NTFP, income from agriculture, income from allied activities and income from wage employment were found to be the main discriminating variables between the collectors and non-collectors. Agriculture income was found to be the main discriminating variable, which accounted for 85.29 per cent of the total distance between the two groups.

Principal component factor analysis was performed by Brown and Reed (2000) to determine whether latent constructs
existed within the set of 13 forest valued such that the forest value typology could be meaningfully reduced into a smaller set of variables. Out of the 13 factors the one with eigen values greater than one were retained which explained about 60 per cent of the variance in the model.

Brown and Reed (2000) used discriminate analysis to determine whether knowledge of forest values enhanced the ability to predict a respondent's predisposition toward a specific forest policy issue. Discriminant analysis was useful to determine which variables together most strongly distinguish or discriminate membership on a particular group, which consists of these individuals who support a particular forest planning decision such as opposition to all wild and scenic river designation. The results of the discriminant analysis which included only the 13 forest values as predictor values indicated that knowledge of one's forest values was modestly predictive of one's forest policy orientation and also the knowledge of forest values improved classification from what would be expected by random chance.

In Dhading district of Nepal, Pervez (2002) found that three variables, i.e., income from agriculture, size of holding and employment from NTFP significantly influenced the NTFP income. Income from agriculture and employment from NTFP had positive effect whereas size of holding exerted a negative effect on the
income from NTFP. Because of the low availability in the area, NTFP and agriculture sectors were found to be complementary in nature.

Rao (1987) studied the role of non-timber forest products in the economy of the scheduled tribes in the state of Andhra Pradesh. He found that the contribution of NTFPs to the total income of the two tribal areas studied was very high, accounting for 73.68 per cent and 82.28 per cent, respectively. There was only one channel for marketing of NTFPs namely through a cooperative corporation.

Chakravarti and Verma (1991) studied the marketing of NTFPs through cooperatives in a tribal sub plan area in Rajasthan. They observed that NTFPs collected and sold in unprocessed form fetched lower prices to the tribals. They felt that the endeavour by the cooperatives in marketing of NTFPs is an important step in saving the tribals from exploitation by the middlemen. Otherwise there would be conservation of forest resources without any effect on their productivity.

In their study on role of non-timber forest products in village economy in West Bengal, Malhotra et al. (1991) revealed that income from NTFPs per household per year ranged between Rs.1393 to Rs.3773 with an average of Rs.2558 in different tribal regions of West Bengal. Out of the total NTFPs income, fuel wood
constituted 40.1 per cent followed by fodder (36.8 per cent) and food (16.7 per cent). The average per hectare income from NTFPs was Rs.2720. They also pointed out that under joint management of forest system, in the long run, cumulative income from NTFPs and major harvest of poles would be of some magnitude in the household income. The latter was estimated 25 per cent of total sale proceeds from poles.

Mukhopadhyay (1991) in his study on the importance of forest in tribal economy indicated that in Paharpura and Sinjani villages of Ranchi district the tribals lived entirely on Mahua flowers and its byproducts for about forty days in a year. He also found that the average number of trees per family on which lac was cultivated, were six. The average quantity of lac harvested during the season was 47.2 kg, which was sold @Rs.5-6 per kilogram.

Appaswamy (1992) observed that majority of NTFPs collectors were males in the Palani hills of Tamil Nadu. He observed that a significant proportion of NTFPs collected was used for income generation rather than for home consumption, fifty per cent of firewood was used for home consumption and the rest for Sale.

A study conducted by Atibudhi et al. (1992) in Mayurbhanj district of Orissa revealed that employment per worker varied with the size of the tribal household. The total working days
per worker were found to be 174 Man-days. It was found that 58.6 per cent of the income was obtained from wage earning and only 20.7 percent was contributing by farming.

Balakrishna et al. (1992) carried out a study on the tribal economy of Nilgiris, Tamil Nadu. The study revealed that only 52.3 per cent of the total land area was cultivated and 40 per cent of the land was follow. They reported that about 75 per cent of households were cultivators and 58.5 per cent of them maintained livestocks. Out of the total house holds about 25 per cent were engaged as agricultural labourer.

Bautista (1992) reported that in the Philippines the extent of extraction and composition of NTFPs depend on factors like state policy on forest access and land use, the forest type, the demand for NTFPs and their price relative to other products and price in relation to the cost of NTFPs extraction. He was of the opinion that old growth forests have a more diverse and greater stock of NTFPs than the residual forests. It was observed that higher extraction levels transpired when increasing prices exceeded the rising cost of extraction.

Bhuyan (1992) reported that the consumption of cereals and millets was the highest among tribals engaged in forestry and it was the lowest among the tribals engaged in industrial economic activity in six tribal district of Orissa. He
added that the tribals of Orissa allocated 81 per cent of the total consumption expenditure on food items and 19 per cent on non-food items.

A study carried out by Chopra (1992) remarked that estimation of the value of NTFPs in India value of NTFPs was higher than that of sustainable timber yield. The latter was valued at about 63.53 per cent of the former. He opined that in case of NTFPs, the exchange value approximated by market price could be used as a measure of value.

Gauraha (1992) examined that tribals of Pendra block in Bilaspur district of Madhya Pradesh were mainly engaged in economic and household activities. About 70 per cent of the income was from settled cultivation and sale of NTFPs. It was found that for the majority of households employment was generated through collection of NTFPs (36.4 per cent) followed by settled cultivation (15.11 per cent) and agricultural labour activities.

Khattar and Sharma (1992) observed that Nomadic Gujjars of Punjab possessed neither land nor formal education. Their housing condition was miserably poor. A positive association was noticed with respect to family size and distance from the city. The association was also positive between family size and herd size. From the analysis of returns to fixed farm resources it was found
that more efficient use of variable resources was confined to smaller herd size.

In his study on the impact of Forest Act on the household economy of tribals, Mistry (1992) observed that collection of NTFPs was major sources of income and employment for tribals. The activity of *kendu* leaf collection *per se* provided employment of nearly 90 days in a year to about 7.5 million people in India.

Naidu (1992) revealed that shifting cultivation was widely prevalent in Chintapalli Tribal Mandal in Visakhapatnam district of Andhra Pradesh. Every farming family in the village on an average had two hectares of land under shifting cultivation. Further, it was observed that the women folk were actively involved in decision making and hence any programme meant for tribal welfare must be oriented towards women.

Naik and Mohanty (1992) observed that in the existing Marketing framework, 50 per cent of the tribals growing ginger in Phulbani district of Orissa committed their crop to the money lenders even before it is harvested. It was mainly due to the fact that the money lenders preserved the planting materials during post-harvest period and distributed the same to the tribals at sowing time, besides meeting the urgent cash needs of the tribals. It was found that such trades provided low prices to the farm products and pushed the tribals to indebtedness.
Nanavaty and Reemd (1992) observed that in the desert of little Rann of Kutch of Gujarat, the local people thrived by collecting gum from the trees of *Proscopsis Juliflora*. The men, Women and Children in groups start by 5 am and traverse a distance of 7 to 10 km in the forest and return by 2 pm. Each person used to collect 1 to 1.5 Kg of gum after putting 6 to 8 hours of hard work. They are found to be exploited by private traders to whom they sell their produce.

Oberoi *et al* (1992) reported that in the Gaddi tribal economy in Himachal Pradesh average family comprised of seven members, out of which around 60 per cent were with in the working age group and engaged on the farm. The profile of income derived from different economic activities revealed that sheep and goats together accounted for half of the farm income. Crops, milch animals and fruits contributed to 31, 11 and 5 per cent of the total income respectively.

Prasad Rao (1992) examined the income and employment pattern of tribals in three different ecological settings of Andhra Pradesh. Resource endowment was found to have definite bearing on the employment. Possession of land and its cultivation had generated more days of employment among Araku tribes, where as its absence drove the tribals in Nallmallai for collection of forest produce for a living. But income wise the
cultivation of inferior variety of Crops and low yields proved to be a set back in the standard of living of Araku tribals compared to others.

Raman *et al.* (1992) distinguished the developed and under developed regions of Bharmous tribal block of Himachal Pradesh. It was found that the people in underdeveloped region were more dependent on non-agricultural wage work (37 per cent) and animal husbandry (20 per cent) as far as income generation was concerned while people of developed region earned relatively more income from service, business and horticulture.

Raut *et al.* (1992) conducted a study on employment, income and expenditure pattern of tribals in Nasik district of Maharasra. Agriculture coupled with live stock was found to be the major source of employment. The collection of minor forest products was the only source of income during summer season. Wage earning was the prime source of income for the landless group to the tune of 50 per cent of the total income whereas agriculture was the main source for land holders who accounted for 50 per cent. The per family consumption expenditure worked out to Rs.6570 and Rs.7312 for landless and cultivator group tribals respectively.

Sharma *et al* (1992) studied the factors affecting female labour employment in hilly areas, literacy level, number of adult
human in labour force and dummy for some labour members who had gone away for work were found to be significant ones. On the other hand the number of adult males in the labour force and number of babies at home had adverse effect on female employment.

Sharma et al. (1992) analyzed the extent of labour utilization in tribal hills of Himachal Pradesh. They found that about 50 per cent of the surplus labour was available on farms for five months (December to April). Owing to geographical and climatic limitations, there was no possibility to mobilize the surplus labour from farm to Industrial sector. As agriculture was still subsistence in nature the possibility of transferring labour from farm to non farm sector was remote.

A study conducted by Sharma et al. (1992) analyzed the pattern and extent of unemployment in tribal economy of Himachal Pradesh. The medium and large households were found to be mainly engaged in activities on their own farms and orchards. The marginal and small house holds suffered from involuntary unemployment and under employment, the magnitude of which was very high on marginal holdings. They observed that the inequalities in employment opportunities could be reduced by creating gainful employment opportunities and by developing skills among the workers.
Singh and Pandey (1992) studied the unemployment limits in different categories of farms. He observed that the total employment of human labour was 201, 312, 398 days on marginal, small and Medium farms respectively in plateau regions of Bihar. As far as arable land was concerned the low land accounted for about 38 per cent of the total cultivated area. It was noticed that the local varieties dominated the region and accounted for 42, 39 and 42 per cent of total cropped area on marginal, small and medium farms respectively.

Singh et al. (1992) conducted a study on production and marketing of minor forest products in Himachal Pradesh. Their study revealed that the annual quantity of herbs and vegetables collected varied from 182 Kg in small house holds to 330 Kgs in medium house holds. They also reported that small house holds realized low net return of Rs.1562 from minor forest products. The share of herbs was the highest (12.7 per cent) in total family, income of marginal farmers.

Sinha et al. (1992) conducted a study on exploitation of tribes in factor and product markets in Tripura. The study revealed that there was a discrepancy in the wage rate paid to the tribal and non-tribal labourers. The average wage rates paid by the non-tribal households to the non-tribal labourers were much higher than what was paid to the tribal labourers by both tribal
and non-tribal households. Regarding the Sale of product, the tribal farmers received a lower price for paddy compared to the price received by the non-tribal farmers in the market. In respect of Aman paddy, the condition of tribal grower-sellers was found to be even worse.

Suryawanshi (1992) reported that for almost six months in a year, the tribals of western Ghatzone of Maharastra were unemployed. Due to incessant rains in Kharif season the tribals got relatively better employment. In summer they engaged in of farm works such as collection of NTFPs hunting and work under employment guarantee schemes. The forest work alone provided employment to more than 30 per cent of the total days employed in a year. Wage earning and Sale of forest produce were the main source of income of landless labourers.

Campbell (1993) opined that according to some estimates based on, valuation of NTFPs an average return of Rs.2720 was realized per hectare annually in India. He indicated that forest based enterprises provided up to 5 per cent of income for 20 to 30 per cent of labour force in India.

Mohapatra (1993) in his study indicated that the forest dwellers dependence on forest showed that the major income generating items for Bhuiyan tribes were Kendu leaves, Sal seeds and Mahua flowers. One or two members were engaged in
gathering of NTFPs during collection season and walked up to 10 Kms in search of NTFPs. The barter trade was noticed by way of exchanging Mahua flowers, Mahua seeds and Sal resins for Salt and tobacco. He also observed that each tribal household cultivated an area of 3.5 acres under shifting cultivation. The average yield of different crops from an acre of land was 5 Kg of blackgram, 15 Kg of Cowpea, 20 Kg of ginger, 5 Kg of ragi and 50 Kg of rice. Fertilizers and manure did not find favour among the tribals.

Mathur (1993) opined that in respect of NTFPs, the strategy should be to streamline the collection, storage and marketing of the existing NTFPs and arrange for converting these to value-added products so as to bring greater financial returns to the primary collectors; check over exploitation and take up conservation work for species which are vanishing or receding in our forest belts.

Prasad (1993) studied the status of NTFPs in Bihar. The Bihar forest development corporation was found to be the Sale agency for collection and disposal of NTFPs. There was an active participation of local people, especially women in collection, drying and storage of NTFPs and this had created greater employment opportunities in that region.
Prasad (1993) observed that there were greater fluctuations in production of NTFPS; apart from seasonality and terrain, every year was not a good seed year. He felt that the rural communities living in and around such forests depend only on selling the forests produce. The situation could be altered only with alternative sources of employment and opportunities for cash income.

Sekhar and Surendran (1993) found that among the tribal households, three members were involved per day in NTFPs collection, whereas only two members served as agricultural labourers. The income realized was Rs.2,800 per annum per head from NTFPs collection. In respect of marketing of NTFPs, two channels were found to exist.

Shiva (1993) observed that if a single product of NTFPs is collected and marketed, the individuals would not get adequate earnings. But, if few NTFPs together were collected and marketed they offered wholesome impact and provided good returns not only to the individuals but also increased revenue and foreign exchange earnings as well, with better marketing.

Mishra (1994) conducted a study on economics of joint forest management of forest in Mayurbhanj district of Orissa. He reported that economic gains rather than environmental conservation were the driving force to motivate the people for
preserving and protecting the forest. The production of *Sal* seeds increased 5 times after 5 years of protection of degraded forest. Besides, the demand for firewood and small timber for agricultural implements were met from regenerated forest.

Sarkar (1994) found out some weaknesses of the present joint management system in West Bengal. Silvicultural operations of shorter duration of 10 years and regular cropping followed in *Sal* regenerated forests might reduced productivity. He also stated that women folk were passive in decision making process though they were main agents of forest degradation.

Ravi Hegde (1994) conducted a study on the role of non-timber forest products in tribal economy of B.R. Hills of Karnataka. He revealed that the Large Scale Adivasi Multipurpose Cooperative Society (LAMPS) was the sole agency handling the NTFPs trade. It appointed an agent among tribals in each tribal settlement who worked on a commission basis. The agents procured the produce from the collectors on behalf of the LAMPS for which they got commission on the volume of the produce handled. The LAMPS disposed of the produce to the traders through either tenders or by open auction. The traders themselves may process the NTFPs or sell to the processing industries, which ultimately pass on the products to consumers.
Pradhan (1995) in this study on employment, pattern of tribals in two regions of northern Orissa, revealed that Agriculture accounted for 30.39 per cent of the total employment in region -I and 20.29 per cent in Region-II. The proportion of employment generated by NTFPs was lower (39.96 per cent) in Region-I than in Region-II (52.14 per cent). Wage employment constituted 15.53 per cent of total employment in Region-I as against 13.06 per cent in Region-II. With respect to other sources of employment, it formed 14.03 per cent of the total employment in Region-I while it was 7.44 per cent in Region-II.

He also observed that in marketing the number of channels was relatively more for non-nationalized items than for nationalized products. There were as many as 3 channels for Sal leaf plates vis-à-vis just one channel for Sal seeds. The collector's prices as a per cent of the final Sale price for kendu leaf, Sal seeds an tassar cocoon were 17,39 and 79 respectively. The comparable figures for Mahua flowers were 37.5 and 33.3 for channel I and channel II respectively. The collectors price as a per cent of the final Sale price worked out to be 50 100 for Sal leaf plate, 71 for mahua-seeds, 75-100 for mango, 60 for mushroom, 50 for Jack-fruit respectively.

Marothia et al. (1996) conducted a study on co-operative management of Tendu Leaves in East Raipur District
Union (ERDU) of Raipur forest circle of Madhya Pradesh. He observed that the management of the societies is largely dominated by the Government nominees and the members of the managing Committee, but other members did not have much control over management. The members received proper wages for the collection of tendu leaves but cases of harassment by Phad Munshis and inspector were evident. The members status was only that of wage labourers and the PMFPCs did not have much stake in the total benefits generated through collection of tendu leaves.

Ratna Rao and Singh (1996) conducted a study on non-wood forest products contribution in tribal economy in South Bihar and South West Bengal and reported that NWFP contributed significantly to tribal economy. It offered employment to about one million every year. The NWFP viz., Mahuwa flowers and seeds, Sal seeds and leaves; tendu leaves, tamarind and mushrooms emerged as major products collected by tribals of this region. Out of total forest revenue of Bihar, about 1.7 per cent was contributed by NWFP and in West Bengal it was only 1.7 per cent of total forest revenue. In South Bihar about 41 families collected Mahua flowers and in South West Bengal about 73 per cent families collect Sal leaves for augmentation of their income. However, processing technology was lacking in these states, which needs to be developed.
From the above review, it could be noted that the collection, processing and marketing NTFPs generated a sizable amount of employment and income to the tribal population. However, the tribals engaged in these activities were beset with several constraints and limitations. This highlights the need for proper understanding of the collection, processing and marketing of NTFPs for planning and design of programmes to improve the income and quality of life of people engaged in this occupation.