



Poverty, Vulnerability, Non-timber Forest Products and Rural Livelihood: An Indian Experience

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Author's contribution

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ABSTRACT

Poverty, vulnerability as well as rural livelihoods are all complex and dynamic themes making it difficult to achieve. Households may respond differently to risk depending on factors such as the household's socio-economic class, its lifecycle stage, its exposure to risk, its asset base and the coping strategies at their disposal. Rural households invest in a diversity of livelihood strategies and assets in order to spread potential risk and provide a buffer against vulnerability. Whilst some see this diversity as an inevitable poverty trap, households diversify as a means of coping as well as in response to changing opportunities and constraints. This paper argues that in India better management of forests and forest products like Non-Timber Forest Products can protect the rural poor - especially the forest dwellers, from the poverty trap, climatic vulnerability and insecure livelihood.

Keywords: Poverty; vulnerability; rural livelihoods; poverty trap; Non-Timber Forest Products (NTFP).

1. INTRODUCTION

Non-timber forest products (NTFPs) are an integral part of development and survival of

people living in and around forests and depending on them. The potential economic value of NTFPs either in terms of utilization or their market value is often underestimated or

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unknown [1]. NTFPs are important tools for addressing poverty issues for the marginalized, forest dependent communities, by contributing to livelihoods, including food security, income, health and sustainable human development [2]. Globally, an estimated 350 million people mostly in developing countries depend on NTFPs as their primary source of income, food, nutrition, and medicine [3]. These products play a vital role in sustaining the lives of local gatherers, who must increasingly adapt to diminishing resources to stay alive. The challenge is therefore to assess and quantify the value of these products and to transform the use of many of them as are socially and ecologically viable for subsistence and development. The significance of NTFPs in rural livelihood improvement and for subsistence has been established by a number of studies, but little is known about their collection and marketing dynamics. In India, there are about 15,000 plant species out of which nearly 3000 species (20%) yield NTFPs [4]. However, only about 126 species (0.8%) have been commercially developed [4]. NTFP activities hold prospects for integrated forms of development that yield higher rural incomes and conserve biodiversity while not competing with agriculture [5].

Rural households, particularly in the developing world, are vulnerable to adversity arising from changes in the socio-economic, bio-physical and political environments in which they exist [6;7;8; 9]. These changes include either short-term shocks or long-term trends. Poverty is the driving cause of the susceptibility of rural households to these crises and is considered to be more than just an economic concept, but includes social and geographic dimensions [10;11]. The risks to which households are vulnerable are inextricably linked to chronic poverty [7;8]. Whilst households might cope, chronic poverty is often beyond the control of individual households and requires responses at the broader scale. Households may be able to recover and move out of transient poverty because of the assets (human, social, natural, physical or financial) at their disposal [12]. Poverty is not homogenous nor is it purely a function of low income [10]. Internationally, goals (MDGs) has already been in place to significantly reduce global poverty by 2015, however the challenge was considerable. Distinctions are made between poverty prevention and poverty reduction with poverty prevention implying the maintenance of a minimum standard of living and survival whilst poverty reduction implies moving out of poverty over time [10]. Means to achieve

these may differ depending on whether the objective is with poverty reduction as the ultimate goal or poverty prevention, as an immediate need. In light of the goal to significantly reduce global poverty within the next decade, increased focus is being placed on examining how rural households manage and secure their livelihoods both on a regular basis and at times of increased vulnerability [13].

Commentators suggest that rural households are adept managers of vulnerability and, invest in a variety of livelihood and coping strategies to minimize the impact of crises as well as to achieve their livelihood outcomes [for e.g. 14;15]. Although rural households may be able to cope with idiosyncratic risks, there is evidence that in the face of larger, covariate risks, many of the informal insurance mechanisms households have at their disposal fail [5]. Covariate shocks that impact at multiple levels often leave households in a vulnerable position that can result in a downward spiral of increasing poverty and vulnerability particularly when household's efforts to feed and educate their children are constrained [16]. Despite this, there is the need to take household's own attempts/means of securing their livelihoods into account [16].

Poverty, vulnerability as well as rural livelihoods are all complex and dynamic themes making it difficult to achieve a one size fits all solution [5;6; 7;8]. A better understanding of the nature of rural livelihoods, the pressures rural households face and how they go about coping with these, efforts to reduce poverty and assist these household's in overcoming vulnerability, can be effectively targeted and geared to take into account household's own capabilities and efforts [5;7;14;15]. Indeed, it is the dynamic and complex nature of rural livelihoods that is considered by many to be rural households key means of reducing their susceptibility to vulnerability. There is the need to acknowledge that households may respond differently to risk depending on factors such as the household's socio-economic class, its lifecycle stage, its exposure to risk, its asset base and the coping strategies at its disposal. Rural households invest in a diversity of livelihood strategies and assets in order to spread potential risk and provide a buffer against vulnerability. Whilst some see this diversity as an inevitable poverty trap, some households diversify their livelihood options as a means of coping as well as in response to changing opportunities and constraints in the surrounding environment [7].

The strategies in which households engage include both off farm and on-farm strategies [8]. Many previous assessments of rural livelihoods have focused on select strategies but have often failed to take the complete livelihood portfolio into account [9]. In addition to this, there is a degree of interconnectedness between and within the strategies [6]. By investing in these various strategies households spread the risk across their entire asset base in the hope that shocks will not impact on all aspects simultaneously [17]. By diversifying households allow for various fall-back options, making livelihood diversification a pre-emptive means of coping. Shocks that impact off-farm activities drive households to an increased reliance on land based activities, whilst shocks to land-based strategies can be minimized by a reliance on off-farm strategies [18;19]. In recent years both research and policy debate have increasingly considered reliance on NTFPs as a livelihood strategy, with many researchers highlighting a high dependence on forests and Non-Timber Forest Products (NTFPs) especially amongst asset-poor households [20;21].

2. ECONOMIC BENEFITS FROM SUSTAINABLE USE OF NON-TIMBER FOREST PRODUCTS

Until recently, tree and forest products were mistakenly perceived as providing no more than a minor portion of income to rural communities. However, there is now a better understanding of the potential of forest and forest products for income generation at both community and national levels. There is growing agreement that Non-Timber Tree and Forest Products (NTFPs) play an important role in the livelihoods of the rural poor as a source of food, medicine, construction materials, and income [5;21;22]. It has been estimated that there are more than 60 million highly forest dependent people in Latin America, West Africa, and Southeast Asia, with an additional 400-500 million people directly dependent on these natural products [19;23]. Access to forest resources helps rural households diversify their livelihood base and reduce their exposure to risk [8;24]. Earnings from forest products are often important as a complement to other income [5;25]. Very large numbers of households generate some of their income from selling forest products, often when farm production is not enough to provide self-sufficiency [23;26;27]. Income from forest products is often used to purchase seeds, hire labour for cultivation, or generate working capital

for trading activities. For the poorest households, NTFPs can play a critical role in providing both food and income [28;24;25;29;30;27]. As forested areas throughout the world continue to be under pressure through land use changes and logging, their preservation is increasingly being linked to a strategy of integrating forest conservation with sustainable economic activities [8], such as the development of NTFPs enterprises. An underlying assumption is that tree and forest product entrepreneurs will conserve and protect forest resources, if they receive the economic benefits from sustainable forest use [6;7;27]. Other assumptions are that markets for NTFPs are changing. Free market systems are penetrating into rural areas all over the world, including in countries with a tradition of centrally planned economic systems [31]. This provides more access to national, regional and international markets. The penetration of the market economy extends into all aspects of rural life and forest degradation is increasing [8;27]. Forest dwellers, tree and forest product entrepreneurs will prosper only if they can adapt to these changes and learn new skills, by becoming real economic actors rather than bystanders or victims [8].

NTFPs were once used almost exclusively by forest-dwellers working as artisans and were readily available. Once their value as raw material for industry was recognized, their availability declined [32]. Bamboo, for example, was considered a weed until the paper industry discovered that it could be pulped [32]. As such uses of NTFPs grew, new rights were created for industrialists through long-term agreements for supply of these forest products at low prices [32]. This created hardships for the poor artisans and forest dwellers [27]. In the 1960s and 1970s, the Government of India (GoI) nationalized trade in NTFPs [33;29;30]. Though the nature and extent of NTFP trade nationalization varied considerably by state and product, nationalization in general required gatherers to sell the products to the Forest Department or to a Forest Department agent [33]. Rather than improving the bargaining position of the poor, nationalization achieved the reverse [33]. It reduced the number of legal buyers and choked the free flow of goods [33]. Government delays in paying the gatherers stimulated the growth of intermediaries, contractors who operated on higher margins to cover uncertain and delayed payments and to pay police and other authorities to ignore their illegal activities [33]. On paper,

the state agencies had three objectives: protect the interests of the local tribal, sellers, collect revenue, and satisfy the conflicting demands of industry and other end users [33]. In practice, a hierarchy of objectives developed where industry and other large end users had first claim on the products at low and subsidized rates [33]. Revenue was maximized subject to this, and the interests of the local tribal and poor were relegated to the third level [33].

The state and national corporations for marketing NTFPs such as Kerala Forest Development Corporation, the Girijan Cooperative Corporation in Andhra Pradesh, and the Large-Size Multi-Purpose Cooperative Society in West Bengal are examples accumulated huge, redundant capital and personnel bases [34]. Even on a variable-cost basis, these marketing organizations need huge markups to break even. Under the circumstances, they try to pursue a completely risk-averse policy [34]. In order to maximize their margins, these agencies buy only quality NTFPs, thus reducing collection [34]. The corporations also follow a policy of first finalizing purchase transactions, and marking down the selling prices to fix the procurement prices for the beneficiaries [34]. Since middlemen are involved, the actual prices received by the gatherers are usually lower than the expected ones [34]. Under the current policy, these institutions have become renters. Beginning with bamboo and Sal seeds, collection rights of a large number of NTFPs have been given to paper mills, owners of oil extraction plants, and large trading houses [34]. State monopoly has since evolved into private monopoly, and is aiding and abetting market imperfections [34]. Many forest protection committees feel that their profits could be enhanced by a factor of three if they had the option to directly deal with the market [34].

The degree of control varies from state to state, and so does the number of nationalised items [33;34;29;30]. For instance, tamarind is a free item in Madhya Pradesh and Bihar, but not in Andhra Pradesh, where Girija Cooperative Committee (GCC) has legal monopoly over its purchase and disposal [35]. The right to the procurement of tamarind was leased in Orissa to both the Tribal Development Co-operative Corporation (TDCC) and some private traders, but unauthorized traders also operate freely [36]. Since March 2000, tamarind is under Panchayat (Council at village level) control in Orissa [36; 11].

In Andhra Pradesh, trade in NTFPs is a State monopoly by law, irrespective of land where they occur [35]. Girija Cooperative Committees has been designated to procure all NTFPs and trade in Andhra Pradesh (AP) [11]. All items other than timber are included under this arrangement [11]. In Maharashtra, the Tribal Development Corporation is responsible for marketing of NTFPs and has a monopoly of purchase in respect of 32 NTFP items [37]. In Madhya Pradesh, sal seeds (*Shorea robusta*), gums (*Vachellia nilotica*), harra seeds (*Terminalia chebula*) and tendu (*Diospyros melanoxylon*) are nationalised, and the rest are free [36]. Resin, which is the main output from pine forests of the Uttaranchal hills, is also nationalised.

The Government of Kerala has created a monopoly for 120 notified NTFPs items [35]. According to the Kerala state's NTFPs related laws the Scheduled Tribes and forest dwellers have no right to make any direct sale to outside parties [34]. They have to sell these to cooperative societies which auction the products gathered by the tribals [34]. The open market price was much higher than the government price. Thus in Kerala, government monopoly was not only inefficient but also exploiting the tribals [34].

The Rajasthan Scheduled Tribe Area Development Cooperative (RSTADC) Corporation Ltd. Udaipur has a monopoly over designated NTFPs in Rajasthan [34]. It buys *tholi musli*, a medicinal herb, at Rs 250–400 (Indian Rupees) per kg, although designated tribal people could easily get buy the same amount at between Rs 500 to Rs 1000 in the open market. Similarly, the RSTADC Corporation pays only Rs 18 per kg for honey as against the market price of Rs 50 per kg. Thus nationalisation has not been of any help to the gatherers.

On the other side of the Spectrum, the women living in desert area of Santalpur Taluka of Banaskantha district, Gujarat state survive mainly on gathering gum from the Babul (*Acacia nilotica*) trees planted by the Forest department [21]. The Forest Department insists on licenses for gum collection, and since the women had no licenses, they were considered to be collecting and selling gum 'illegally' and selling to private traders [5]. After joining SEWA (Self Employed Women's Association- an organisation of poor, self-employed women workers), a voluntary agency of international repute, the women formed self-help groups and applied for licenses

which in turn allowed them to 'legally' sell the gum to the Forest Corporation [5]. The *gum* prices too are fixed by the Forest Corporation [5]. This has resulted into the women getting poorer rates than what they would have got from the open market [5].

Despite peoples' enthusiasm for Joint Forest Management (JFM) in West Bengal in the beginning, almost nothing was done to improve the marketing framework for NTFPs [38]. The World Bank Implementation Completion Report (1998a) [39] observed that 'no specific, clearly stated comprehensive objectives for strengthening and development of forest products marketing to contribute to the overall objectives of the project were presented. The outcome of the project in terms of the development and strengthening of forest product marketing remained meager' [38].

Some of the regulations in these states are summarised in Table 1.

3. FORESTS, FARMERS AND NTFP

The distribution of forest cover in India is very uneven: Five states, out of 29 states and 7 Union territories (Madhya Pradesh, Arunachal Pradesh, Andhra Pradesh, Orissa, and Maharashtra), account for more than 50 percent of the forested area [40]. India has a network of preservation/protected areas primarily established for in situ conservation of flora and fauna and the studies of the dynamics of natural populations under undisturbed conditions.

Non-Timber Forest Products (NTFPs) are an important source of livelihood for many Indian communities, particularly those living within or adjacent to forests [32;24;25;29]. Several thousand tons of NTFPs are extracted annually from India's forests [29;30;40] providing earnings that run into billions of rupees each year. About 60 percent of the NTFPs go unrecorded and are consumed or bartered by about 15 million people

Table 1. State trading regulations promulgated by state governments

State	Regulations	Implications
Andhra Pradesh	Andhra Pradesh Minor Forest Produce (Regulation of Trade) Act, 1971 and the AP Scheduled Areas NTFP (Regulation of Trade) Act	Trade in NTFP is declared state monopoly whether ownership is with government or not
Bihar	Bihar Kendu Leaves (Control of Trade) Act, 1973; Bihar Forest Produce (Regulation of Trade) Act, 1984	Bihar State Forest Development Corporation operates as state government agent for the collection and marketing of kendu leaves, sal seed, mahua (<i>Madhuca latifolia</i>) and harra
Gujrat	Gujarat Minor Forest Produce (Regulation of Trade) Act, 1979	Minor forest products identified include tendu leaves, mahua flowers, fruits, seeds and gum
Himachal Pradesh	Himachal Pradesh Resin and Resin Produce (Regulation of Trade) Act, 1981	Resin, bamboo and Acacia catechu (khair) collection through Himachal Pradesh Forest Development Corporation Ltd
Madhya Pradesh	Madhya Pradesh Vanopaj (Vyapar Viniyam) Adhiniyam, 1969	Items under monopoly include tendu leaves, sal seed, harra and gums; Madhya Pradesh Minor Forest Produce (Trade and Development) Federation acts as agent of state government
Rajasthan	Rajasthan Tendu Leaves Act, 1974	Rajasthan Tribal Area Development Federation collects and markets NTFPs

[Source: 3; 40; 41; 42]

living in and around forests [29;30]. In addition, a large variety of medicinal plants are also collected from forests. Large revenues flowing to the respective exchequers from NTFPs have given the states a vested interest in marketing the products, with huge losses to the poor who rely on gathering them for their income and to the end users of NTFPs [29;30]. NTFPs play an important role for poor people, particularly those in rural areas who depend on natural resources for their livelihood [24;25]. This is particularly the case during shortages of agricultural foods, as people can collect NTFPs for consumption and for sale to buy foodstuffs. Indian forest resources are also in better condition currently compared to the neighbouring countries and this makes the forests attractive to outside dealers [29;30].

Farmers want stable incomes. A stable income is critical to most poor farmers, for maintaining their active interest in NTFPs and conservation initiatives. Farmers worldwide basically want two things: a) to be able to produce enough/earn enough to satisfy their own subsistence needs; and b) producing a surplus to sell at best prices and at the lowest cost to themselves. Surmounting this challenge should start with a frank acknowledgement of the difficulties related to establishing NTFPs. And yet, there are individuals and companies that are willing to help - and it is in their own long-term interest to do so. If real trust is built, and if done thoughtfully, a real win-win situations can be created. While demand for certain species and products (such as handicrafts, select rattans, bamboos, mahua (*Madhuca latifolia*), Tendu patta for beedi rolling and medicinal plants) are relatively strong within India, there are numerous limitations to their availability. While diversification of agricultural and NTFPs species are important for managing risk (in order not to put all the eggs in one basket), NTFPs are often considered as supplementary crops or crops of the wild and therefore, - important- "economies of scale"- available to monoculture species may be lost [24;25;29;30]. Unless a product is extremely special, co-operative mechanisms capable of amassing a particular product across numerous sites may be considered.

NTFPs are important in rural consumption and for local marketing which in turn may support rural family incomes. At the subsistence level, NTFPs such as fern heads, wild asparagus, wild orchids, bamboo, cane shoots, betel leaves, herbs, thatching grasses, wild fruits, mushrooms, incense materials and spices are harvested and

immediately consumed. Rural families also earn a large proportion of their cash income through collection and sale of many local NTFPs, mostly to the local markets or middle-men.

4. FORESTS AS AN INTEGRAL PART OF DEVELOPMENT

As discussed above NTFPs are an integral source of livelihoods, providing food, medicine, dyes, tannins, gum, construction materials, and many other sources of income to the poor and landless communities in the rural areas [24;25]. Indian NTFPs are drawing increased attention both from the development planners and environmentalists due to their multiple functions and potential contributions to improved livelihoods of rural communities [29;30]. The International Centre for Integrated Mountain Development (ICIMOD) has found that subsistence agriculture is increasingly becoming unsustainable, both economically and environmentally in India.

Rural populace especially forest dwellers in India depend on the forests not only to supplement their domestic requirements for foods, fodder, fibre and medicines but also to supplement their incomes by selling part or all of their collection in local markets. In India, more than 41 million tribals and forest dwellers derive their earnings from these products after consuming about 60% of collected NTFPs for personal use [41;42]. Contemporary multidimensional forest management has led to a much broader concept of non-wood products and services include landscape amenity, clean air, water storage, biodiversity, providing a space for recreation and tranquility. NTFP is potentially obtainable from about 3000 species found in the forests of India [34;24]. NTFP collection, an important source of income for forest dwellers and rural poor, varies from state to state ranging from 5.4 to 55 percent [34;24]. Moreover, 60% of NTFP is consumed as food or as a dietary supplement especially during lean season by forest dwellers [34;24]. In Manipur, India alone, nearly 90% of the population depends on forest products as a major source and some 250000 women are employed in collecting forest products [34;24]. In Bastar district of Chattisgarh State, about 75% of forest dependent people supplement their food by tubers, flowers and fruits all the year round [43]. In a household based survey at Midnapur forests, it was observed that of the 122 uses of plants or their parts listed by the people, the maximum were for food (i.e. 44), followed by fuel

(i.e. 39) and medicinal purposes (i.e. 18) [23]. Various study reveal that it is the poorest households with agricultural lands, livestock, adult males that are predominant collectors of forest products [23].

NTFPs are estimated to generate 70% of all employment in the Indian forestry sector [5]. Commercial NTFPs alone are estimated to generate Rs. 3 billion annually [5]. One study estimated that NTFP collection generates over 2 million person years of work annually [5]. In addition, millions of individuals are employed in NTFP processing and marketing. With the promulgation of Wildlife protection Act, access to collection of NTFP and fishing has been prohibited in some states causing deteriorating relationship between forest department and forest users group [9]. However, some states have given free access to a number of NTFP collection and fishing. These primarily include fodder grasses, dry and fallen twigs and branches, leaf litter and leaves and where available mushrooms, edible tubers, flowers, fruits and medicinal herbs. But more valuable NTFP are excluded from free access (e.g. cashew nuts, bamboo and fibrous grasses) [32]. In addition, local communities do not get the full incomes they should from NTFP. They often get only collection charges even for products that have a very high market value. There are also products for which appropriate prices have not been set in the market. Sometimes marketing channels do not even exist. The market price for the NTFP, or the profits from products goes to middleman contractors, traders, industry etc.

5. CONCLUSION

The Non Timber Forest Products (NTFPs) play a significant role in rural incomes of India. In Madhya Pradesh State alone, upto 60% of the population survive on NTFPs. In other Indian states between 10 to 70% earn their livelihoods from the NTFPs [29;30]. As far as food requirements are concerned majority of the forest dwellers or over 50% depend on forests for fulfilling their food requirements [39;30]. It is estimated that about 100 million people especially rural and tribal communities living in forest fringes derived ecosystem services from forests including food, shelter, medicine and fodder for their animals and for themselves [11]. Apart from the need for subsistence and cash income, NTFPs also support large numbers of small to large scale enterprises in both the processing and/or trading of species. The States

of Madhya Pradesh, Chhattisgarh, Orissa, Maharashtra and Andhra Pradesh account for more than 75 percent of traded NTFP in India [11].

Forest gatherer communities who rely on NTFPs for their livelihood are often poorly organized and have great difficulty in selling NTFPs even at local markets [24;25]. However, it requires market cleverness, and an institutional and administrative set-up that is far beyond their reach. Primary gatherers, due to their geographical limitations, cannot sell their goods directly to the end users or consumers. By promoting collection by gatherers one can not only assure their income, but also allow proper utilization of NTFPs [44]. A host of marketing intermediaries stands between the producers and the end users performing a variety of functions and bearing different tags like traders, commission agents, retailers, suppliers, wholesalers and exporters [45]. There are groups and subgroups within the trade channel with various levels of bargaining power. But the business instrument of NTFP trade control is different from that of traditional business systems denying benefits to the procurers.

Thus, value chain creation is very important as it links the steps between the farmers (sellers) to the consumers, it's an empirical, analytical, and strategic tool that provides a framework for identifying and examining various actors of a value chain, the dynamics of processing and value creation, reward and distribution, power relation structures, and knowledge transfer.

Study on NTFPs for value chain development in India is limited and mostly focused on processing and sale [21;46]. Research on endorsing development of farmer Producer Company for promoting, processing and developing market linkage in rural areas is lacking in the country.

Conservation and people's livelihood are integral part of the forest development and development of the rural poor [24;25;30;27]. It was further strengthened by the 1st June, 1990 circular of Ministry of Environment and Forests (MoEF), Govt. of India. It highlighted both the need and process for involving village communities and non-governmental organizations (NGOs) in the protection, development and rehabilitation of degraded forests [29;30]. It encouraged forming village level institutions for forest management [29;30]. Formally, NGO were identified to provide interface between forest department and rural

communities. The benefit sharing mechanism also has been outlined to enable rural communities to develop an equity-based stake in the protection, development and rehabilitation of the degraded forests. There is the need to manage the forest and forest products, particularly NTFPs in a better and enhanced way so that the rural poor can be protected from the poverty trap, vulnerability and insecure livelihood [24;25]. NTFPs are therefore vital to India and its people. The union and the state governments should therefore pay more attention to this sector.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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