
Rock Honey A Case of Patalkot

Arunima Sen and Radha Thakur¹

Abstract

Non-timber forest products (NTFPs) make up an important aspect of livelihood in the tribal pockets of India. In addition to the social and economic component of the NTFP based livelihood sector in rural and tribal India, the ecological aspect is worth considering as it provides an approach to conservation and highlights the complementary multiple objectives of conserving forests, enhancing livelihoods and improving social conditions, which must be met for such efforts to be sustainable. The case also discusses the distinctive features of such NTFP-based enterprises and marketing, which can influence the ecological impacts of NTFP extraction. The most important among these is that such enterprises are often based on multiple products, with varying ecological characteristics, availability and market demand, thus making enterprise development a complex proposition, necessitating unique harvest, processing and marketing arrangements tailored to each product.

The NTFP based intervention has been implemented by Madhya Pradesh Vigyan Sabha (MPVS), a Bhopal-based NGO in Patalkot Valley region, Tamia Block, Chhindwara District in Madhya Pradesh. MPVS interventions are based on collectivization and processing of wild honey along with development of a new range of products from locally available forest produces like Mahua, Bel and Jamun which are found in abundance in the valley. On the one hand, the implementing agency was involved in sensitization of the community with technical inputs on scientific methods of honey harvesting. On the other, the agency also established platforms for the aggregation of the produce, processing, packaging, branding and marketing, which also provide a secure buy back facility for the NTFP collectors. The intervention is designed to ensure both economic and ecological sustainability for the tribal community in Tamia Block.

Honey Subsector at a Glance

India is the sixth largest producer of honey in the world. It produces about 55,000 tonnes of honey per annum, of which a substantial quantity comes from wild honey bee colonies. A large proportion of the tribal population and forest dwellers earn a livelihood from the collection of wild forest honey. India has a potential of about 120 million bee colonies, which can provide self-employment to over 6 million rural and tribal families. In terms of production, these bee colonies can produce over 1.2

million tonnes of honey and about 15,000 tonnes of beeswax. Organized collection of wild honey and beeswax using improved methods can result in an additional production of at least 1,20,000 tonnes of honey and 10,000 tonnes of beeswax. This can generate income for about 5 million tribal families. However, the collection, processing and marketing of wild honey are largely unorganized.²

The state of Madhya Pradesh is endowed with rich and diverse forest resources. The forest area covering 95,221 square km constitutes 31 per cent of the geographical area of the state and 12.44 per cent of the total forest area of the country. The per capita forest area is 2,400 square metres, as against the national average of 700 sq m³. All this makes it an ideal rearing and breeding ground for honey bees. The state is one of the leading honey producers in India. Presently, most of the honey produced in the state is forest or wild honey (raw honey) which has only marginal market value. While raw, unprocessed honey was sold during 1992 at INR 25-30/kg, the price of processed honey can go today up to INR 70-120 per kg. A large section of the state's tribal population is engaged in collection of wild honey but due to lack of processing and value addition facilities, this honey either gets sold at a very low price or else traders having access to processing facilities exploit the honey collector for using the processing facilities.⁴

The Organization

Madhya Pradesh Vigyan Sabha (MPVS) is an NGO working in the state since 1985. The objectives of MPVS are promotion of sustainable development and protection of environment through popularization of scientific methods. The expertise of MPVS ranges from organic farming, horticulture, food processing to NTFP and medicinal and aromatic plants processing, etc.

It is also the Technology Resource Centre (TRC) of Council for Advancement of People's Action and Rural Technology (CAPART), and a nodal agency for catalyzing and coordinating the partnership between voluntary organisations and the government for sustainable development of rural areas in MP. CAPART is an autonomous body registered under the Societies' Registration Act of 1860 and functions under the aegis of the Ministry of Rural Development, Government of India. Today, this agency is a major promoter of rural development in India, assisting over 12,000 voluntary organizations across the country in implementing a wide range of development initiatives.

Objectives of the Study

The primary objectives of the study are:

1. To capture the learnings from an intervention in honey harvesting technology

2. To understand in depth the intervention model based on sustainability
3. To understand the replicability potential of the model.

Methodology

The study adopted a semi-structured interview method for collecting primary data from the field staff of MPVS and two honey hunter group members. Field visits were also made to the processing units of Gaildubba and Harshdiwari village. Focused group meetings were held with forest officials of Tamia Block for taking stock of the forest produces of the Block. The Secretary of MPVS was interviewed for gaining insights of the scalability and replicability of the model. Secondary data sources included review of documents and training reports. In addition to this, seasonality mapping with the villagers was used to understand the seasonal pattern of NTFP and agricultural crops.

Area Context

The tribals inhabiting the forest areas of MP are predominantly dependent on forest produce for their livelihood, although at a subsistence level. The major forest produces found in these forests include *Chironji (Buchanania Lanzas)*, *Amla (Emblica Officinalis)*, *Harra (Terminalia Chebula)*, *Baheda (Terminalia Bellerica)*, *Tamarind (Tamarindus Indica)*, *Mango (Mangnifera Indica)*, *Mahua (Madhuca Longifolia)*, *Jamun (Eugenia Jambolana or Syzygium Cumini)*, *Custard Apple (Annona Reticulata)*, *Bel (Acorus Calamus)*, *Sisal*, *Phycus (Ficus Altissima)*, *Jackfruit (Artocarpus Heterophyllus)* and *Tendu patta (Diospyros Melanoxylon)*.

The intervention began in the Patakot area of Tamia Block in MP. The area used to be quite inaccessible and socio economic problems prevailed in the region. The Block is mainly inhabited by the Bharia and Gond tribes who practise rainfed, subsistence agriculture and are mainly dependent on forest based products. Bharias are one of the primitive tribal groups.⁴

The findings of the initial study and market survey⁶ by MPVS highlighted the fact that 60 per cent of the household income come from the selling of NTFP and the remaining from other sources like agriculture and labour work involving migration to nearby cities. Chironji sale constitutes the chunk (60 per cent) of the income from NTFP. Agriculture is subsistence with only one monsoon crop. Due to lack of irrigation facilities in summer, a large number of families migrate to the state of Maharashtra and other places like Indore and Khandwa in search of work. Whole families walk out of the valley at the beginning of summer (Chait month in Hindi) to earn money, and this phenomenon is termed as 'Chaitua Palayan'. Villages in Tamia, viz., Kathotia, Thanakheda, Sidhouli, Satalva, Umarwa, Banki, Beejhadhana, Loutia, Bhainskho, Bamdi, Markadhana, Dhendhu, Bailpathar,

Pipariya Rajguru, Gaildubba, Kareyam, Rated, Chintipur, Chhindi and Jaitpur are among the places from where the tribals migrate to nearby cities. Thousands of tribals leave their home in the beginning of summer for harvesting crops in other areas. They work on the lands of rich farmers there. In return, they get 5 per cent of the total harvested crop, which is all they earn as 'Chaitua Majdoori'.

Patakot, situated in the hilly terrain of Tamia Block, consists of 12 tribal villages located at a depth of 1200-1500 feet in a horseshoe shaped valley. Because of the great depth at which it is located this place is known as 'Patakot' (Patal means very deep in Sanskrit). It is located at a distance of 250 km from the state capital of Bhopal and 62 km from the district headquarters and 23 km from the nearest town of Tamia which is a Block H.Q. in the district Chhindwara. The main villages of the valley are Rated, Chintipur, Gujja Dongri, Sahra Pachgol, Harra-ka-Char, Sukhabhand, Dhurni Malni, Jhiram, Palani Gaildubba, Ghatlinga, Gudichattri, Gaildubba, Kareyam, Ghana, etc. The population of Patakot mainly comprises the Gonds and the Bharias. It is said that Bharias have been living here for more than 500 years.

The villages of Patakot valley has a total population of 2786⁷ (651 ST and 2135 primitive tribes, Bharia), inhabiting 28 rural cluster settlements (dhanas)⁸ 12 revenue villages come under the three Panchayats of Kaareamrated, Harrakachar and Ghatlinga. The valley has 525 hectares of land suitable for agriculture but scarcity of irrigation leaves the community with a single kharif crop in a year. The landholding of the tribal families varies from less than an acre to not more than 10 acres. Agriculture is rainfed and maize is the major crop. Local crops like *Kodo* (niger), *kutki* and jowar are also cultivated for consumption. The tribes mainly depend upon what they grow in their fields or on the hill slopes. The yields chiefly comprise maize (*Zea Mays*), jowar (*Sorgham Vulgare*), urad (*Phaseolus Mungo*), millets (*Picorrhiza Kurrova*), beans, wheat etc. The cropping pattern is changing with time as some of the farmers have started cultivating wheat and gram varieties given by KVK with the support of JNKVV in Jabalpur.

The total forest area is 4606 hectares.⁹ Tribal people collect minor forest produces and sell them to local broker/trader directly or at the weekly haat in nearby Tamia and Delakhari Gram Panchayat. The seasonal availability of NTFP and the occupational pattern of the Block are as below (based on Seasonality exercise with villagers):

Table no: 1
Seasonal chart of NTFP¹⁰

Month	NTFP collected
January	<i>Amla, Baheda & Harra</i>
February	<i>Harra, Tendu</i>
March	<i>Mahua, Tendu</i>
April	<i>Mahua, Chirunji, Karanj, Kosum, Honey</i>
May	<i>Chirounji, Bel fruit & Wild Mango, Honey</i>
June	<i>Jamun, Mahua Gulli, Wild Mango</i>
July	<i>Jamun (small size)</i>
August	
September	
October	<i>Honey</i>
November	<i>Markangni (oil seed), Arandi (castor seed)</i>
December	<i>Amla , Arandi (castor seed)</i>

Among the forest products, *mahua, chironji, bel, jamun, amla, harra, baheda* and honey are easily available in the Patakot Valley and nearby regions of Tamia Block. The variety of the honey available is known as 'Rock Honey', as the honey combs are created on the vertical rock phases of the wall of the range that encases the valley within itself. This is collected by traditional bee hunters (Bharia tribe).

The extraction process involves climbing the rocks of the valley by using the traditional method of burning bee hives which destroys the entire hive. This results in no hive reformation. In addition, the practice is risky and the hunter can easily get stung by wild bees. While, on the one hand, the element of risk is high in this practice, the other disadvantage is that such extraction usually results in honey having a lot of impurities and a bitter taste due to the high presence of pollens.

Disadvantages of the traditional method of honey collection

- Burning of bee hive
- No hive reformation
- Possibility of getting stung by bees
- Impurities remain
- Bitter in taste

Disadvantages of the traditional method of honey processing

- No Processing
- Filtration only by cloth
- Separation of wax not possible
- Moisture level is high
- Difficult to get quality certification

Thus MPVS felt that the method adopted by the tribal people of Patalkot for collection of honey was unsustainable both economically and ecologically.

Intervention in Honey

MPVS is an organization that works for promotion of scientific and technological support in the upliftment of rural quality of life and livelihood. It began operation in 1984-85 in the district of Bastar, in the erstwhile unified state of Madhya Pradesh, in the field of technical improvisation for the local tribal artisans. The organization carried out a techno-economic study in the region to understand the requirements of the community and thereby design a project suitable to the region. This intervention could not be implemented in Bastar region, due to volatile socio-political conditions caused by the presence of insurgent groups in the district.

A similar initiative was then taken in the year 1994-95 when the organization identified the Patalkot region as one of the possible regions (profile similar to Bastar) to work with the local tribal communities, especially the Bharias and the Gonds. The Bharias are mainly inhabitants of the district of Chhindwara. Only a small section of this community lives in Patalkot.

The region also attracted the attention of the organization due to the dearth of efforts made in the direction of social and economic development of the tribals of the area. At that time Patalkot Development Authority, a unit of the Tribal Development Department, was the sole agency working in the region.

MPVS grounded its operations in Tamia Block, including Patalkot Valley, in the year 1996 with a very focused objective of developing rural technologies and facilitating and enabling measures for sustainable income generation for the tribal community through scientific methods of NTFP collection, processing, value addition, product development and diversification, thereby increasing the market and economic returns of the products and ensuring a defined livelihood opportunity for the community.

For achieving its objectives, MPVS prepared a study report based on secondary data available addressing the geographical and demographic profile of the area, the socio-economic condition, the existing livelihood pattern, the prevalent difficulties faced by the communities and the constraints to development initiatives.

The report further proposed a program for the primitive tribes of Pataalkot with the objective to create sustainable livelihood through affordable and appropriate science and technology. The report was prepared and sent to the department of science and technology (DST). Next, a team from the department of science and technology, accompanied by MPVS members, conducted household surveys in 5 villages of Pataalkot and met representatives from 12 Pataalkot villages and 8 adjoining villages in order to study the conditions of the local tribes and plan their development through application of science and technology. The team stressed on the requirements of the villagers, their preferences with regards to livelihood options, cultural and social aspects of their lives, their aspirations and suggestions on what they believe to be their urgent requirements and needs. Based on the discussion and feedback received from the villagers, MPVS prepared an action plan detailing the work areas to be emphasized for an integrated development of the region.

The following factors influenced the team in designing the structure of the project to be implemented in the region:

- 1) The abundance of the various NTFPs to ensure constant supply
- 2) High demand for the products in the markets in adjoining cities and states
- 3) Lack of market linkages and market intelligence that resulted in distress sale of NTFP
- 4) The traditional familiarity of the tribals with the NTFPs and the region
- 5) Quality issues, storage and hygiene aspect of honey processing. The products, especially honey, have a long shelf life and storage and preservation did not pose a problem.

The final draft of the Action Plan was put before an elite assembly of administrative officers and social and technical experts in March 1996. A meeting was held with the Pataalkot tribal community in Gaildubba village. The team visited these villages, called village meetings and carried out intensive group discussions, primarily with the aim of involving the villagers in the developmental process and planning the program through a bottom-up approach. The meeting was well attended by the local PRI members and villagers from more than 40 villagers. Agriculture including animal husbandry, irrigation, soil and water conservation, education, health, forest and forest produce collection and processing were issues identified in the meeting.

In view of the involvement and interest of the tribal community in development through science and technology and capacity of MPVS, DST sponsored the 'Integrated Development Plan for Pataalkot through Common Facility Centre'. The state government was given the details of the intervention and the government in turn ensured full support in the implementation of the program.

For technical support, the Central Institute of Agricultural Engineering, Bhopal,

Gandhi Medical College, Bhopal, Polytechnic Transfer Centre, Bhopal, Regional Research Laboratory, Bhopal, Indian Institute of Forest Management (IIFM) Bhopal, M.P Cost Bhopal and Community Polytechnic, Khirsadoh were approached and all of them extended full support.

For the implementation of the project a suitable work plan named 'Multi- sectoral Development Plan for Patakot Tribals through Development of a Common Facility Centre' was adopted. This plan aimed at a development process that would bring about a change with the full participation of the Patakot tribal community, while ensuring maintenance of the unique culture and traditional identity of the tribes. The plan was targeted at the Bharia community, with an objective of transferring technological knowhow to promote sustainable means of NTFP harvest and processing along with development of social organization towards bringing a collective integrated approach to livelihood in the region. It also included an element of identification and selection of Village Motivators/Leaders (Margdarshak) to include local people in the process of social mobilization. In the initial year, MPVS carried out demonstration activities in agriculture, NTFP, soil and water conservation as well as in health and education.

A. Organizing Villagers

MPVS started its work with organizing the community by the selection of opinion leaders (who would work on a voluntary basis) based on the inputs from the Sarpanch, Panch and the villagers. Subsequently, village meetings on the formation of savings groups and coordination and implementation of government projects were initiated. Some of the other topics discussed at the village meetings included giving individual approach to the seed bank and aligning the savings group with NTFP processing activities.

Apart from community mobilization, MPVS also generated awareness on scientific practices of standardization, initially by introducing the weighing system for valuation of NTFPs to be sold instead of the plain barter system that existed earlier. The transaction was either in Kudo or Pai, the local units. (1 Kudo =10 kg= 8 Pai and 1 Pai =1.25 kg).

A weighing machine was installed in the common facility centre, with the help of which the tribals weighed their produce before taking it to the local markets. This allowed them to assert firmly the amount and volume of their produce and enabled them to understand the valuation as per unit weight of the produce. Installation of weighing machines thus checked misappropriation in transactions and helped the collectors realize appropriate prices vis-a-vis the weight of the produce.

B. Assessment of resources and formation of honey hunters' groups

MPVS studied the resources of villages through PRA tools and identified groups based on traditional skills. Among these the traditional Bharia honey hunters were identified to work on honey collection and processing. There are two seasons when honey is extracted by the tribals of Patalkot. During summer, extraction starts at the end of April and lasts till mid-June. It is in this period of 45 days that honey is available in market. This honey is usually purchased by MPVS as it has lesser moisture content. During winter, honey extraction starts at the end of October and lasts till mid-December. This honey contains a high level of moisture, which reduces its value. Out of the many forest based produces found in the valley, MPVS chose to work with honey collectors due to the following reasons:

- The abundance of honey in the region
- The traditional familiarity of the local tribes with honey collection
- Demand for honey in the nearby towns and major tourist destination of Pachmarhi.
- Honey extraction and processing involve less technical models and can easily be accepted for practice
- The traditional system of honey extraction is highly detrimental to the environment and poses as a threat to the sustenance of the bee colonies as the bee hives are burnt and the honey comb crushed in order to extract honey.

It is estimated that nearly 30 quintals of honey is produced in the Patalkot region. A major part of it goes to Pachmarhi, a nearby tourist spot, while the remaining is consumed locally.

MPVS also thought that if this experiment turned out to be successful, it could be replicated in other districts of MP having abundance of wild honey. Thus, in 1996 with technical support from DST and financial support from CAPART, MPVS started working on natural honey production, protection and conservation. Six groups were formed in Patalkot valley in 1996.

C. Capacity Building of Honey Groups

MPVS identified honey hunters, organized them into six honey hunter groups and provided them training on scientific collection of honey and processing for better price realization. The honey hunter groups (total 30 members) were provided basic training on scientific collection and processing of honey. This training covered various aspects like survey and mapping of bee hives, bee types including their working and peculiarities, precautionary measures while extracting honey, usage and maintenance of honey kit and exposure to honey processing unit. It is usually a

four-day training, but in some cases seven-day trainings have been provided on need basis.

Apart from training, sting-proof dress was provided to the honey hunters. This dress made of canvas cloth has a life of more than 20 years. Each dress costs INR. 850 to the agency while it is sold to other agencies as part of training material at INR. 1275.

D. Establishment of Common Facility Centre

The organization observed that the tribes usually sold their unprocessed produce at low rates mainly due to use of non-standardized weighing system and distress sale for liquidity. To address these lacunae, it introduced a standardized package of processing and value addition of NTFPs. For ensuring the quality of the processed honey, MPVS worked on developing processing units. In 1997 one centre was established in Gaidubba village of the Patakot under the “Integrated Development Plan for Patakot through Common Facility Centre”. This village has a locational advantage as villagers from seven other villages have to take this route to take their forest produces to the market. The centre has a honey processing unit and an oil extraction unit. The Gram Panchayat provided eight acres of land for these activities. Today the Gaidubba centre stands as a demonstration cum training centre for all honey-related activities. In 2003, another centre was established in Harshdiwari village of Tamia Block on land taken on lease from the government. These two centres procure (collect), process, package and market the products. The Harshdiwari centre is the main processing unit having all the machines for cutting, mixing and extracting juice. Here the tribal honey hunters are trained in scientific collection and provided with kits for procuring and packaging of honey. At present 2 tonnes (2,000 kg) of honey is collected and processed annually under the brand name of 'Patakot' honey. This honey is also FPO certified. The procurement and processing are done by 4 small groups (7-8 members) which are called Self Help Groups (SHGs) of honey hunters. The honey is bottled locally (in 1/2 kg bottles). The cost per kg of honey comes to INR. 130 while it is sold at INR. 160 in the nearby market. The 6 honey hunters' groups are provided with technical training in scientific harvest, processing, storage and marketing of honey.

MPVS has worked extensively on developing honey processors including multijacketed filter. The existing fifth stage model has a capacity of processing 20 kg honey per hour. This processor has a combined filter and processor which previously were two separate containers. The organization worked on developing a kit for safe and sustainable extraction of honey by traditional honey hunters. The new technology kits provided to the honey collectors include sting proof dress with mask, gloves and socks, centrifugal machines which allow extraction of honey without breaking the comb (which can be used again) and portable ladders for climbing high and inaccessible rock bee colonies along with other items like torch, nylon rope, knife, net, bucket, can (20 litres) and muslin cloth.

The developed honey processing and filtration machine operate even without the use of electricity. There is provision for using a gas cylinder. It can reduce moisture level up to 20 per cent while retaining the quality of the honey. The capacity of this processor is 20kg/hour. Recently, the organization got a new processor (6th stage) developed, which has a capacity of 50 kg per hour by an agency based in Sultanpur (Uttar Pradesh).

E. Honey Processor Developed by MPVS

MPVS did research on the honey processors and developed models of honey processors. The cost of these processors ranges from INR. 30,000 to INR. 50,000, based on the processing capacities. Till date it has developed five models which are being used by different agencies in the state as well as outside the state.

The first to fourth stage models have multi-jacketed equipment and filter while the fifth stage model has advanced features. The latter makes it easier to grade/process honey and also enjoys high demand.

The processing centre is monitored from the Tamia Office of MPVS. Here one NTFP coordinator who reports to the District Coordinator is responsible for all NTFP initiatives. Each processing unit has one full-time supporting staff to carry out procurement and processing work of the unit.

F. Quality Control and Certification

In order to control the quality of the produce, the processing is done only at the two centres. Although FPO certification has been obtained for 'Patalkot Honey', it still remains a problem with other products like bel, jamun circa, etc., which are being launched in the market on trial basis. To obtain better certification like AGMARK for honey, the condition/facilities of the processing unit need to be improved, which, according to MPVS, will take some time.

G. Marketing and Distribution

MPVS also provides forward linkage in terms of marketing of forest produce. The main channels of marketing honey include distributors, exhibitions, fairs, naturopathy centres and individuals who have developed a relationship with MPVS. The organization has also appointed a distributor in Bhopal to cover Bhopal and nearby areas. Honey is also sold from one retail outlet in Tamia Block. The products are also sold at exhibitions and fairs (van mela, Gram Udyog Mela) in Bhopal and nearby places.

Cost – Benefit Analysis

FOR HONEY HARVESTING GROUP

Cycle in Days	=	120
One Group	=	5 Members
Total No.of Groups	=	04
Capital cost (Includes Collection Kit)	=	INR.7000 (Given by MPVS)
Total Capital Cost for 4 groups	=	INR.28000
Traditional Honey Collection Method		
Approx. yield from 100 hives per group	=	400 kg
Scientific Honey Collection Method		
Approx. yield expected from 100 hives per group	=	700 kg
Total Yield of Group (700x4)	=	2800kg
(as only four groups collected honey)		
Total Revenue (2800 x 60 per Kg)	=	INR.1,68,000
(INR.60 per kg is price of raw honey)		

(The collected honey to processing unit)

PROFIT = REVENUE – CAPITAL COST

PROFIT	=	INR.1,68000 – 28000
	=	INR.1,40000
Earning of each Group	=	INR. 35000
Earning of each Member (35000/5)	=	INR. 7000

The capital cost of equipment is covered in the first year itself, so the revenue for the group increases from second year onwards. The cost of transportation is covered by MPVS and paid in cash to the honey collector if he brings honey to the centre. But usually honey is collected from the collectors at their doorsteps.

Cost Benefit Analysis for Honey Processing by the Processing Centre

Cycle	=	12 months
Number of staff 02	=	02 members
Capital Cost		
Equipments	=	40,000
Infrastructure	=	15,000

Total capital cost	=	55,000

Total expected Yearly Yield = 3000 Kg
 Processing Per month (3000/12) = 250 Kg

Purchase of raw honey from Honey Hunter's group @ INR. 60

Costing of Honey (per kg)

Processed Honey (with a premium of INR 3/kg) = INR. 63.00
 Processing cost (Power & fuel) = INR. 2.50
 Labour cost = INR. 2.50
 Packaging Cost = INR. 16.00
 (Bottle, Raper, sealing, Testing) (A) = INR. 84.00

Marketing, Distribution
 And Promotion cost (B) = INR. 8.40
 10% On = INR. 8.40
 Cost of Production = INR. 92.40

Add: 30% Margin = INR. 32.46
 Selling price = INR. 124.86 per kg

This year the selling price has increased to INR. 140 (pouched) and INR. 160 per kg (bottled) as the cost of packaging has increased. The 30 per cent profit margin is retained by the centre for running the processing unit, which includes the salary of one supporting staff (INR. 1800/month) who manages the processing unit and a part of salary of the NTFP coordinator.

Outcome

Starting in 1999 with 192 families from 16 villages in and around Patalkot, the figures rose to 260 tribals within the Tamia block, working on forest produce at the centre set up by MPVS. About 100 of them were employed in the vermicompost section introduced by the organization to assist in promoting the agriculture carried out by the communities, and 50 others were involved in extraction and processing of honey.

The major outcomes of the intervention are described below:

In the year 2007-08, more than 80 families have been direct beneficiaries through collection and processing of NTFPs, of which 30 families have been involved in honey extraction and processing. The number fell as members of the honey

hunters' groups member got government jobs while the few SHGs were handed over to Janpad. During this year, 20 quintals honey was collected by members of four honey hunters' groups formed by the organization. The honey, which was traded in the local markets under the brand name of 'Patalkot Honey', fetched INR. 140 per kg in pouch pack and INR.160 per kg in bottled packaging. So in a single season of honey collection, the total honey collected from the honey hunters' groups was 20 quintals or 2,000 kg of honey and this was sold at the rate of INR. 140 and INR. 160 per kg, depending on the packaging. The average selling price of honey was INR. 150 per kg. This amounted to total sales of INR. 300,000 in one season of honey collection. The honey collector got a price of INR. 60/kg for the raw honey procured by the processing centre.

Table 2
Amount earned

Product	No. of families benefitted	Quantity in Kgs.	Total amount received @ INR. 60/kg
Honey (@60/kg from four groups out of the total six groups)	20	2000 Kg	120000
Processing Facility by the unit for Mahua Gulli.	198	7516.29 Kg	

Initially, the strategy followed by the organization for the procurement of honey was that the collectors brought the collected honey to the organization centres and were paid the market price of the honey along with an additional bonus based on the quantity brought. This system was followed till the year 2005, after which the bonus system was changed for the earlier system due to staff shortage and record maintenance. After 2005, the bonus amount was added to the price of the product, which is higher than the market price, and paid in cash at the time of purchase. In this way the collectors received a better price and market competition could be tackled as members had the freedom of selling.

MPVS has also established a unit for oil extraction from non-edible oil seeds and mahua seeds with an investment of INR. 9 lakh (subsidized from a project supported by DST). This unit provides processing facilities to the nearby villages for extracting oil. This is a paid service where INR. 1.6/kg is charged as diesel cost from the beneficiary. This is open for all and one caretaker stays there for providing this service 24 hours. Last season (July-Aug 2008), 7516.29 kg of mahua gulli from 198 households (individuals) was processed. The rate charged being INR. 1.6/kg, INR. 12,026 was received as diesel charge by the processing unit in Harshdiwari. Added to this, 62 quintals of mahua cake (Khali, which is waste left after oil extraction) was also sold at the rate of 3.25/kg (1 kg mahua seed @ INR. 12 per kg gives 400 ml of oil, and 600 gm of waste or khali, which is sold to fertilizer companies).

Benefit Sharing with Groups

As per the mandate of the organization, the earnings are divided into three equal parts after the costs of raw materials; labour and market have been deducted. One part of the earning goes to the beneficiaries, one to the organization and the third part for raw material procurement and infrastructure upkeep. In the year 2001-2002, a bonus (share) of INR. 18.50/kg was given to honey collectors' groups, while this increased to INR. 22/kg in the year 2002-2003. Last year the share was not distributed as the honey collected was brought individually by members instead of by a group as a whole. According to the norm, bonus is only provided if the produce is brought to the centre collectively and not individually.

Diversification in Other Forest Produces

The intervention started with improving the honey collection practices of the community. However, considering the availability of Bel and Jamun and the existing market demand, the intervention also took these two products into its fold and tried to add value to the products through processing and increasing the shelf life of the same. The products are being launched in the market on trial basis.

30 families were involved in collection and processing of Jamun in the year 2007-08. The total production of Jamun drink was 540 litres. The drink was packed in 200 ml packets and sold at INR. 25 per packet, which yielded a total earning of INR. 67,500. The beneficiaries received INR. 22,500 from the total earnings, which earlier had no economic value. 3 families were involved in collection and processing of Bel and each family earned approximately INR. 4,500 from the sale of Bel drink.

Dissemination of Technology

The dissemination of technology on honey processing started in 2001 after successful demonstration in the Patalkot region. As per data provided by MPVS,

trainings were provided to 748 tribal and non-tribal honey hunters between 2001 and 2008. Representatives from 86 NGOs/VOs and 19 Forest department officials also attended these trainings. Till date more than 1,200 sting proof dresses have been provided to honey hunters across various regions of MP.

**Table no. 3
Training Details on Honey**

Year	Area	Number of honey hunters trained
1997-1998	4- Tamia Block 2-Patalkot	52
2004-2005	Tamia Block	69
2006 (in collaboration with Minor Forest Produce federation)	Gaildubba- Patalkot	58
2006 for MFP federation	Different locations of MP	540

The master trainers from the organization were invited to other similar ventures emulated in other states as well. For instance, trainers conducted trainings on scientific extraction of honey and processing for 35 tribal beneficiaries (male: 29 and female: 06) in Talakot village in Nuapada District, Orissa.

Besides providing training, MPVS has also provided Honey Processing Units to 28 different organizations in MP. The average cost of one honey processing unit is INR. 32,000.

MPVS has also disseminated the technology to other States like Tamil Nadu (1), Andhra Pradesh (2), Orissa (2), Jharkhand (1), Chhattisgarh (4), Uttar Pradesh (1) and Himachal Pradesh (1).

Impact of the Intervention

The greatest impact of the interventions designed by the organization has been to introduce standardized measures for the transactions, which in turn helped the traditional collectors to realize better prices for their produce. Earlier, the traditional collectors were not acquainted with the system of weighing and subsequent valuation and hence had to settle for whatever the trader gave them, without having any way of knowing the actual value of the produce. The installation of weighing machines set the tone for instituting norms for transaction and also helped in paving

the way for fair trade by virtue of transparency. This initiative simultaneously yielded in trust building within the community.

The organization familiarized the tribals with the system of weighing by installing weighing machine in its common facility centre where the tribals weighed their produce before taking them to the local markets. Though this gave rise to some initial conflict between the organization and the local traders, who alleged that the organization was inciting the community, subsequently the process did result in better bargaining for the right price of the forest produce, especially Chironji, in the local market. The beneficiaries were also made aware of the necessity of maintaining a standard quality of Chironji, which necessitated harvest after it had reached a certain stage of maturity.

The same community has a point of transaction in the form of CFCs where the secured price at par with the market price can be realized. Apart from the economic benefits it has mitigated the health risks of the collectors and the risk of depletion of the natural resources.

The introduction of the honey collection kit was also instrumental in striking a balance between the economic well being and conservation of the natural wealth as it checked the mortality rate of the natural sources of honey collection and production. The production loop could be retained and kept intact for continuation of the production cycle of the honey. In addition to this, health risk to the honey collectors has also been mitigated to some extent.

Provision for providing the cost of transportation when the honey collector comes to the CFC to deliver the honey, has increased profits. The margins are also high for the honey collector when bonus is provided to them out of the profits earned by the centre.

Product diversification (from honey to Bel, Jamun and recently Mahua) by the implementing agency has also helped the community to realize the economic value of such products that were usually not considered to have commercial value.

The same model is now being replicated by MPVS in the Sheopur district of MP with 100 families (Sahariya tribe) involved in honey hunting.

Challenges

The CFCs have been doing well in production, processing, packaging, branding and selling of the various NTFPs produced in the area but the financial sustainability of the units is yet to be established as product diversification is being carried out mostly on trial basis. Although there is a lot of potential to expand the

volumes, bulk purchasing for processing is limited due to financial constraints. This affects the business and the economic viability of the units in terms of business of volumes and scale.

The results could be conclusive in case of scale up. Apart from product diversification, the vibrancy of the nodal units becomes strategic as the intervention is almost donor dependent and does not have a business model in place. Although the operational expenses of the units and staff are being efficiently met by the financial orchestration of grants and revenues collected through the sale of the products, the stake of the community in the institutional and financial sustainability is very low as they have least obligation in building up the corpus or other reserves of the units. The ownership of the community is limited to sale of the produce to the CFC and the accountability of the community towards the units remains low by virtue of their autonomy to sell their produce to the local market without selling it to the CFC.

The redirection mechanism of the profits generated from the sale of the honey which is collected and sold to the units by the community, though existent, is not followed now. The mechanism would have been instrumental in generating ownership and accountability among the community towards the units.

The intervention today faces the challenge of changing employment pattern of the Pataalkot area. Over the years, government focus in this area has created employment opportunities in the form of special projects under which a person of the Bhariya tribe of Pataalkot region can get a government job after passing 12th standard. In addition to this, the NREGS has brought opportunities by creating wage employment in the area. The Bharias are now leaving their traditional activities like honey collection which are risky and seasonal in nature and opting for wage employment and government jobs.

Key Learnings

The focus of the intervention was on providing service of facility centre along with technological inputs which would result in better and just price realization by NTFP collectors. Though the transfer of technology remains at the level of CFCs, the intervention was preceded with initiatives on awareness generation by involving the local volunteers or Margdarshaks.

The establishment of the CFCs enabled the community to sell their produce for a secured price and a transparent system of payment was made available to the community households. This also resulted in aggregation of the produce and the critical volumes thus generated could be processed and packed to meet market demand. The demand for the product was gauged in advance and appropriate channels were set up for its sale.

Before the transfer of technology, appropriate training and technical inputs were calibrated in simple form as tacit knowledge for the community which in turn enhanced the acceptance of the technology and also helped in retaining the quality of the product as natural honey. The transfer of technology was smooth and was preceded by initiatives on awareness generation involving the local volunteers. The sequential and systematic introduction of scientific and technological models was followed by proper conscientization and awareness generation within the community and the equipment was easily accepted by the community, which readily comprehended the mitigation of the risk to honey collectors.

Conclusion

The intervention of establishing the common facility centre for rock honey collectors together with scientific inputs on honey collection process has positively impacted the lives of bhariya tribes in Patakot region. The initiative has not only resulted in better price realization of rock honey but has also ensured assured price thus managing price risk. The economy of volumes and number is being achieved through collection of other forest produces which are available in different seasons. Although the initiative is small but this single point procurement system for honey and other produces along with providing services of processing a few other forest produces has been an effective strategy for enhancing the livelihoods of the people of the region.

Notes

1. Arunima Sen is an Extended Faculty Group Member and Radha Thakur is a Faculty Member with the Livelihood School.
2. Trifed Ministry of Tribal Affairs, Govt of India, website
<http://trifed.nic.in/omain.asp?sno=43>
3. http://en.wikipedia.org/wiki/Madhya_Pradesh
4. <http://www.mpsidc.gov.in/mp07>
5. The Scheduled Tribe groups identified as more backward communities among the tribal population groups were categorized as 'Primitive Tribal Groups' (PTGs) by the Central Government in 1975. So far 75 tribal communities have been identified as 'primitive tribal groups' in different states of India.
6. Internal study carried out by MPVS, 2004.
7. Chindwara, Madhya Pradesh, District Census Handbook 2001
8. Internal survey report (unpublished) 2004
9. Records of the Chindwara Divisional Forest Office.
10. Findings from PRA exercise done as part of the Study.

Abbreviations

AGMARK	Agricultural Marketing (The Agmark label is a certificate for food products for their quality)
APEDA	Agriculture Produce Export Development Authority
BDS	Business Development Services
BDSPs	Business Development Service Providers
BoFM	Bark and other Foreign material
CAPART	Council for Advancement of People's Action and Rural Technology
CBO	Community Based Organisation
CDRI	Central Drug Research Institute
CF	Conservator of Forest
CFC	Common Facility Centre
CFTRI	Central Food Technological Research Institute
CGCERT	Chhattisgarh Certification Society
CGMFP	Chhattisgarh State Minor Forest Produce (Trade and Development) Co-operative Federation Limited
CIG	Common Interest Group
CIMAP	Central Institute of Medicinal and Aromatic Plants
CLCs	Cluster Level Centres
DFO	Divisional Forest Officer
DRD	Daily Requirement Depot
DRDA	District Rural Development Agency
DSMS	District Supply and Marketing Society
DST	Department of Science and Technology
EPEs	Enterprise Promotion Executives
FAs	Field Assistants
FPO	Food Products Order
FR	Fixed Rate
GCC	Girijan Cooperative Corporation
GCCL	Girijan Cooperative Corporation Limited
GDP	Gross Domestic Product
GGPA	Association of Girijan Gum Pickers
GMT	Grassroots Management Training
GoAP	Government of Andhra Pradesh
Gos	Government Organisations
ICDS	Integrated Child Development Scheme
IIFM	Indian Institute of Forest Management

ITDA	Integrated Tribal Development Agency
JNKVV	Jawahar Lal Nehru Krishi Vishwavidyalaya
Jr EPEs	Junior Enterprise Promotion Executives
KL	Kendu Leaf
KM	Kilometer
KVK	Krishi Vigyan Kendra
LAMPS	Large-sized Adivasi Multi Purpose Cooperative Society
LDPE	Low Density Poly Ethylene
LPO	Livelihood Promoting Organization
MACS	Mutually Aided Cooperative Societies
MD	Managing Director
MFP	Minor Forest Produce
MIS	Management Information System
MP	Madhya Pradesh
MPRLP	Madhya Pradesh Rural Livelihood Programme
MPVS	Madhya Pradesh Vigyan Sabha
MRP	Maximum Retail Price
NBR	Nilgiris Biosphere Reserve
NGO	Non Government Organisation
NPOP	National Programme for Organic Production
NREGA	National Rural Employment Guarantee Act
NTFP	Non Timber Forest Produce
OFDC	Orissa Forest Development Corporation
ORMAS	Orissa Rural Marketing Society
PESA	Provisions of Panchayats (Extension to Scheduled Areas) Act
PoP	Package of Practices
RFRC	Regional Forest Research Center
SC	Storage Cost
SDO	Sub Divisional Officer
SERP	Society for Elimination of Rural Poverty
SGSY	Swarnajayanti Gram Swarojgar Yojna
SHG	Self-help Group
SSI	Small Scale Industry
ST	Schedule Tribes
TAMS	Thalavadi Adivasi Munnetri Sangham
TC	Transportation Cost
TDCC	Tribal Development Cooperative Corporation
TEST	Training of Enterprise Support Teams

TRC	Technology Resource Centre
TRIFED	Tribal Development Cooperative Federation
UJAS	Udyam Jagaran Sansthan
UN	United Nations
UNIFEM	United Nations Development Fund for Women
UP	Uttar Pradesh
USP	Unique Selling Proposition
VAT	Value Added Tax
VFC	Village Forest Council
VLCs	Village Level Centres
Vos	Voluntary Organisations
VSS	Vana Samrakshana Samiti
WEG	Women Enterprise Group
WEMTOP	Women's Enterprise Management Training Outreach Program