

# LAC - A Good Source of Livelihood in Jharkhand

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## Abstract

Jharkhand state is blessed with the presence of tiny insects *kerria lacca* belonging to the family Tachardiidae. Lac is one of the most valuable gifts of nature to the Tribal of Jharkhand who dwell in and around the forest areas which have the conventional host trees, Kusum, Palash and Ber. The present study examines the role of Lac in providing sustainable livelihood in Khunti, Simdega and Gumla districts of Jharkhand which are the largest producer of lac in the state of Jharkhand. Through interviewing the villagers, conducting FGDs and visiting the local markets in twelve villages of three districts this research study has tried to bring out the volcanic potentiality of lac production in these three districts of Jharkhand. The Government intervention and role of JASCOLAMP have to be increased to give technical and marketing support to villagers for producing more LAC so that the income of the tribal could increase.

**Keywords:** Tribal, Livelihood, *kerria lacca*, Kusumi, Rangini.

## 1. INTRODUCTION

Lac is a natural resinous substance of profound economic importance in India. Lac resin being natural, biodegradable and nontoxic, finds applications in food, textiles, and pharmaceutical industries in addition to surface coating, electrical, and other fields. It provides immense employment opportunities in the country (Sharma et al 2006).

It makes a small but significant contribution to the foreign exchange earning of the country, but the most important role that the lac plays in the economy of the country is that roughly 3-4 million tribal people, who constitute the socioeconomically weakest link of Indian population earn a subsidiary income from its cultivation. India is the major producer of lac, accounting for more than 50 per cent of the total world production. It virtually held a monopoly in the lac trade during the period of the world war-I, producing nearly 90 per cent of the world's total output. Today an average of about 20 -22 thousand tons of stick lac (raw lac) is produced in the country per year. Most of the lac produced in India is from homestead land and wasteland. Approximately 90 species of Lac Insects (Hemiptera: Coccoidea: Kerriidae) have been described worldwide in nine genera (Ben-Dov, 2006), based on classification that was established by the monographic work of Chamberlin (1923, 1925). The most widely known lac insect species, *Kerrialacca* (*Kerr*) is renowned for the commercial use of its secretion, or shellac, as a natural polymer (Varshney, 1976; Ben Dov, 2006). In this backdrop the present study was undertaken to examine Lac as a good source of livelihood in Jharkhand. The livelihood contributions of forest resources are significant to the tribal communities of Jharkhand (Islam et al., 2013). Lac being mostly a subsidiary occupation however providing much-needed cash income in low agriculture activity seasons in Jharkhand (Magry et al.,

2017). Based on a survey in the local weekly markets of different lac producing districts, the estimated national production of sticklac during 2019-20 was approximately 18,944 tons comprising rangeeni (6050 tons) and kusmi (12894 tons) sticklac. Among the lac-growing states, Jharkhand state ranks 1st (54.60%) followed by Chhattisgarh (18.37%), Madhya Pradesh (13.03%), West Bengal (5.57%), Maharashtra (4.50%), and Odisha (3.55%). These six states contribute more than 99 % of the total lac production in India. The largest producer of lac in Jharkhand is the Khunti district. Khunti district has the largest producer of lac to the tune of 28.9 percent of total lac production of the state accompanied by Simdega (24.5 percent) and Gumla (17.9 percent). Among the different cropping season crops, aghani crop was ranked 1<sup>st</sup> with a contribution of 36.48 % followed by jethwi (31.58 %), baisakhi (17.58 %), and katki (14.36 %) in total lac production. In comparison to the average production during 2010-11 to 2019-20, the current year (2019-20) production of rangeeni crop declined by 9.24% while the production of kusmi crop enhanced by 23.11%, respectively. The increase in production was comprised of 13.64 % and 32.68 % for the jethwi and aghani crops, respectively. However, a decrease of 13.14% and 3.96% was observed in the case of baisakhi and katki crops, respectively. Overall, the total lac production for the year 2019-20 has increased by about 3.28 % in comparison to the average production. All India's annual lac production ranged from 15,000 tons to 20,000 tons during 1970-71 to 2019-20 with a peak level of 23,000 tons in 1972-73 and the lowest level of 9,000 tons in 2010-11. Similarly, Jharkhand state contributed about 7000 tons to 12000 tons annually during 1970- 71 to 2019-20 with a peak level of 16,000 tons in 1973-74 and the lowest level of 4,000 tons in 2010-11. (ICAR 2020-23)

Lac is secreted by an insect known as *Kerria lacca* (Kerr.) which thrives on the tender twigs of specific host trees, viz. Palas-Dhak (*Butea monosperma*), Ber (*Zizyphus mauritiana*), Kusum (*Schleichera oleosa*), Semialata, *Ficus* sp., etc. The total numbers of lac insect species reported from the world are 87 under nine genera, of which 19 species belonging to two genera are found in India (Sharma et al 1999). The lac insects are very small in size and attach themselves in great numbers to plants. The mouth part of these insects is piercing and sucking type.

### 1.1 Distribution of Lac

Lac insects are found distributed in South-East Asian countries mainly in India, Myanmar, Thailand, Malaya and China. Among these, India and China are main areas in the world. India has prime position in relation to lac production. In India, lac cultivation is widely practiced in the states of Jharkhand, West Bengal, Chhattisgarh, Madhya Pradesh, Orissa, Maharashtra and parts of Uttar Pradesh, Andhra Pradesh and Gujarat. Over 90% of Indian lac produced comes from the states of Jharkhand, West Bengal, Madhya Pradesh, Chhattisgarh, Eastern Maharashtra, Bihar and northern Orissa. Some pockets of lac cultivation also exist in Andhra Pradesh, Punjab, Rajasthan, Gujarat, and Mirzapur and Sonebhadra districts of Uttar Pradesh.

### 1.2 Climate

A hot and moderate dry climate is necessary for successful lac culture whereas extremes of dry and wet weathers are injurious to production.

### 1.3 Different forms of Lac Table 1

<b>Stick lac</b>	The lac encrustations separated by knife or broken off with finger from the twig of host plants
<b>Seed lac</b>	The stick lac, after grinding and washing
<b>Shellac</b>	The manufactured product prepared from stick lac after washing and melting, which takes the form of yellow-colored flakes
<b>Button lac</b>	After melting process, lac is dropped on a zinc sheet and allowed to spread out into round discs of about 2 diameter and 1/4 thickness
<b>Garnet lac</b>	It is prepared from inferior seed lac or kiri by the solvent extraction process. It is dark in colour and comparatively free from wax
<b>Bleached lac</b>	It is a refined product obtained by chemical treatment. It is prepared by dissolving shellac or seed lac in Sodium carbonate solution, bleaching the solution with Sodium hypochlorite and precipitating the resin with sulphuric acid. Bleached lac deteriorates quickly and should be used within 2-3 months of manufacturing.

### 1.4 The Host Plants

The Lac insects thrive on twigs of certain plant species for sucking plant sap. These plants are called host plants. There are 113 varieties of Lac host plants reported from India and out of these the most common are: Palas, Ber, Kusum, Khair, Babul, Akashmani, Sal, Arhar, Dhaman, Siris, Semialata, Bargad, Peepal. Of these host plants, Palas, Kusum, and Ber are of major importance, while semialata is emerging as a potential host species in Jharkhand. The industrial parameters consider the kusumi lac to be the most useful one and therefore it fetches higher price in market, Semialata has also been identified as well as established as a good kusumi lac host on plantation basis. Ber (in Jharkhand) is also being grown for enhancing the kusumi lac cultivation.

In Jharkhand state Khunti, Simdega, Gumla, Ranchi, West Singhbhum, Latehar, Palamau, Garhwa, and Hazaribagh are the main lac growing districts. Though three major lac host trees namely palas, ber and kusum are available in plenty but production is confined in these conventional areas. The greatest setback recorded in Ranchi which witness 42.8% negative growth and this district alone contributed around 28.5%. Khunti, Simdega and Gumla districts known for kusumi belt recorded positive growth ranging 6.3 to 29% and these three districts together contributed around 56% of the state total lac production. More than 4 lakhs families in the state are involved in lac cultivation activity resulting creation of 35-40 million man-days per year. Forest department, Jharkhand have 16 broodlac farm of kusum and palas tree in Gumla, Saraikela, Hazaribagh, Palamau, Godda and Chatra districts.

### 1.5 Cultivation

Indian lac insect is known to have two distinct strains ‘\_Kusumi’ and ‘\_Rangeeni’. The Kusumi strain is grown on Kusum tree and semialata. Crops of Kusumi lac are (i) Jethwi (June/July) and (ii) Aghani (Jan./Feb.). The Rangeeni strain thrives on host plants like Palas, Ber and also has two crops; (i) Katki (Oct.

/Nov.) and (ii) Baisakhi (June/July). The kusumi strain is more valuable but less extensively cultivated because of fewer occurrences of kusum trees. Two distinct strains Kusumi and Rangeeni are widely present in Jharkhand. Each strain completes its life cycle twice a year but the seasons of maturity differ considerably.

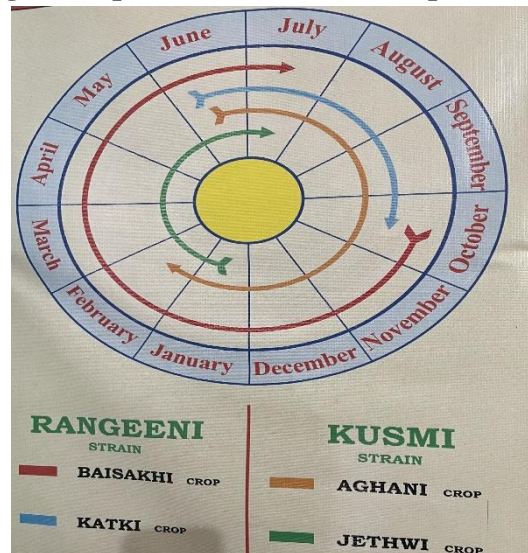
**Table 1:** Lac crop wise production and crop harvesting season are shown in the table below.

Strains of Lac	Crop	Weather	Lac Host Plant	Seed Inoculation	Crop Harvesting	Duration (month)
Kusumi	Aghani	Winter	Ber	June-July	January-February	Six
	Jethwi	Summer	Kusum	January-February	June-July	Six
Rangeeni	Katki	Rainy Season	Palas	June-July	October-November	Four
	Baisakhi	Summer	Ber	October-November	June-July	Eight

Source: Jascolampf

**Table 2:** Lac crop wise production and season wise growth in Jharkhand

**Fig 1. Crop wise and season wise production**



Source: Indian Institute of Natural Resins & Gums, Namkum, Ranchi

Crop is harvested in the following months depending on the crop and the strain used

- February for kusmi winter season crop
- July for kusmi summer season crop
- November for rangeeni rainy season crop
- July for rangeeni summer season crop

**Fig 2: Cultivation and Processing of Lac**



Yield of the lac, much depends on the local factors and host-plants. Two crops a year is obtained, one summer crop and another winter crop. The figure above explains the cultivation and process of lac in Jharkhand. 18 months are taken to cut the branches of Kusum and Ber trees. Growth of tender branch tree is called insect development Area. The branch is cut into small stand and is tied with plastic to the tree. This is done in 6 months and after six months Lac develops and mature into phunki Lac. Then the phunki lac is processed and chouri lac is developed. The annual yield of stick-lac per year per tree may be only 1 to 1.5 kg or as much as 8-16 kg in case of well-maintained trees. Even those who do not own the tree collect almost 9 to 10 kg and sell the same in the open haat bazar.

In the local villages under study the process is limited to as follows:

- **Bihin lac:** The bihin lac (seed lac) is tied to the tender twigs of the host plant/ tree and the lac insects inoculates the tender branches and spread over and start producing lac
- **Phunki lac:** is the stick lac which is left behind once the lac insects in large number move out of the stick to the host plant thereby leaving behind the resin which is then separated from the stick or phunki.
- **Chauri lac:** is the process of removing the lac from the phunki lac and keeping it separately which is very small pieces of lac.
- **Button lac:** Button Lac is refined from churi lac using the Heat Melting process, which does not remove the naturally occurring wax contained in the Lac. It is produced using traditional handmade methods, which involves packing churi lac into a long, narrow, round cloth bag and heating one end over an oven containing a charcoal fire while the other end is gradually twisted. The heat produced by the fire melts the Lac which is forced out through the pores of the cloth by winding pressure. The molten Lac is formed into a flat circular disk around two inches in diameter which is then sold to the traders at average price of Rs 320/Kilogram

### 1.6 Life cycle of the Lac Insect

The whole life cycle of lac insect takes about six months and consists of four different stages- egg, nymph, pupa and adult. The female lays around 200-500 eggs with fully developed embryo. Eggs hatch within few hours and birth of nymphs take place. Next five weeks are crucial because at this important stage

nymphs crawl on the branches and at this stage, twig is tied to the branches. Both male and female nymphs live on the sap of the trees. 45 days Later they settled down and start sucking saps. After a day or so, they start secreting resin. This resin is semi-solid and hardens on exposure to air. The nymphs molt thrice inside the cells before reaching maturity. The duration of each of this insect is dependent on several factors, viz. temperature, humidity and the host plant on which it preys. Any variation in mean temperature, humidity is likely to affect the production process.

**1.7 Value addition of Lac**

Major uses of Lac resin being natural, biodegradable and nontoxic, finds applications in food, textiles, and pharmaceutical industries in addition to surface-coating, electrical, and other fields. It is used either in the form of solution in some solvent or as mixture with other substances. Lac finds a wide variety of application in paint, electrical, Pharmaceutical, automobile, cosmetic, adhesive, leather, wood finishing and other industries. Earlier about half of the total output was consumed in gramophone industry. Several other products are produced from the lac i.e., Dyes, Bangles, Varnishes, Paints, Polices, Jewelry, Toys and Handicraft.

**2. MATERIAL AND METHODS**

**2.1. Study area**

The present study is conducted taking both primary and secondary approaches. Primary data has been gathered through field monitoring carried out in different villages in three districts of Jharkhand. FGDs, observation and visit to local markets were also done and used as the tools to closely examine the activities involved in studying the commercial viability of Lac in the State.

**Table 3**

S. No	Activities involved	Data Collection	Places visit	Total
1.	Personal interviews	Structured Interview	In all three districts of Jharkhand	56
2.	Focused Group Discussion	Interaction with participants	Khunti, Simdega, Gumla,	6
3.	Local market visit	Observation / Visit	Khunti, Simdega, Gumla,	5

The primary data was conducted through structured interview with purposive selection of the samples. 198 structured interviews were conducted from three districts of Jharkhand. See the Table 4

**Table 4**

Districts	Division	Community/Communities	Location/Village	Interviewed		Total number of respondents
				Men	Women	
KHUNTI	South Chotanagpur division	Munda, Oraon	Rumut kel	12	2	14
			Sokoy	8	2	10
			Binda	13	2	15
			Gulu	19	2	21
SIMDEGA	South Chotanagpur division	Oraon, Kharia	Konmerla	18	3	21
			Jaldega	15	3	18
			Aidega	16	2	18
			Tutikel	17	3	20
GUMLA	South Chotanagpur division	Oraon	Kondra	19	1	20
				17	2	19
			Kobja			
			Bamalkera	10	2	12
			Sikoi	8	2	10
<b>Total Respondents</b>						198

**Table 5** The detailed profile of the twelve sample Villages from three districts namely Khunti, Simdega and Gumla of the state Jharkhand.

Sample Villages Census Parameter	Rumutkel	Sokoy	Binda	Gulu	Konmerla	Jaldega	Aidega	Tutikel	Kondra	Kobja	Bamalkera	Sikoi
Total Population	883	370	1207	502	2222	3161	2041	3023	2280	2603	1264	1915
Total No of Houses	146	74	224	99	439	641	423	532	455	531	253	347
Male Population	448	177	625	240	1120	1496	1043	1523	1126	1338	646	976
Female Population	435	193	582	262	1102	1665	998	1500	1154	1265	618	939
Scheduled Tribes Population	861	324	1169	407	1380	1424	1644	2553	1367	1828	907	1538

Working Population	472	196	634	215	881	710	978	1829	1426	1385	779	1268
Child(0 -6) Population by 2011	140	73	201	100	407	1118	323	458	364	409	160	298
Main Workers	355	6	362	38	591	710	406	188	1426	649	485	550
Cultivators	186	0	326	9	468	349	323	102	297	558	441	407
Agricultural Labourer	156	1	0	1	31	32	42	4	43	27	28	33
Marginal Workers	117	190	272	178	290	408	572	1641	1018	736	294	718
Marginal Workers(Male)	37	96	138	90	120	222	213	790	377	101	148	244
Marginal Workers(Female)	80	94	134	88	170	186	<b>359</b>	851	641	635	146	474

<https://www.census2011.co.in/>

The primary data was conducted through structured interview with purposive selection of the samples. 198 structured interviews were conducted from 12 villages from three districts of Jharkhand. Both men and women were interviewed.

## 2.2. Survey and data collection

Under the present study, data were collected through household surveys, trader surveys, focus group discussions, and collation of secondary information. Structured questionnaires were used to capture the primary information from forest village communities and small traders. The questions were grouped into the following categories i.e., production/collection, processing, storage, value addition, price, transport and sale. By and large, the focus of the survey was confined to (a) Volume available of Lac, (b) House Hold (HH) income enhancement through commercialization of Lac (c) Major barriers associated with collection/ production, processing/storage and trade of Lac. The survey was conducted by visiting each village and every fourth household. Interviews with a group of collectors (including men and women separately and together) were used for this purpose, along with other more participatory research methods. Besides, the household survey, small traders associated with concerned villages were also contacted for the survey. Market rates and market-chain was further cross-verified through visiting local traditional markets (locally called Hat) nearest to sample villages. Secondary information was gathered from various reports and consultation with expert organizations and local NGO. Further For the secondary source the information was available through various literatures like books, journals, periodicals, government data, reports, schemes and notification



### 3. DATA INTERPRETATION AND ANALYSIS

The state of Jharkhand is spread over an area of 7.97 million hectares. Around 29% of the Jharkhand's area is under forest covering and 3.4% of the forest cover of India ranks 10th among all states. Jharkhand is also known as the land of the forest. A vast majority of the tribal population live in or near the forest, trying to make both ends meet on a living based on Non- timber Forest products and subsistence agriculture. Since the early 1990s, the role of NTFPs for sustainable forest use and poverty alleviation has received increased attention.

FGDs with selected groups on the basis of purposeful sampling were conducted to obtain maximum information. The samples were selected from the age groups 15-46 and above. These included local youth, village representative, elderly person, women.

#### 3.1 Field observation of Lac

- Lac cultivation was found in the sample districts of Khunti, Simdega, and Gumla.
- Lac cycle starts from pruning of host trees followed by inoculation of lac in host plants.
- Inoculation of lac is generally carried out by stick lac and these sticks are removed after 20-25 days. This removed lac is called Fuki lac which assures highest price.
- Application of the pesticides is carried out after 40-50 days of inoculation and depends on host plant and environment.
- The state government and private sector takes steps for promoting lac as an enterprise especially in Khunti district.
- Individual producer level prices vary from Rs. 450-550 per kg for Kusmi.
- District wise village collection rates vary. It is found in survey that the rate is Rs 1500 /KG in Khunti and Simdega districts but in Gumla district the rate is Rs 900/ KG.

**Table 6**

Minor Forest Production	Individual Selling Rate in local haat (Rs/KG)	Village wise Average Collection Rate (Rs / KG)	Village wise Average Collection (In Quintals)	Village wise income (In Rs)	Village	District
Lac (Kusumi) Two Crops: Aghani (6 Months) Jethwi (6 Months)	450 - 550	1500	30	45,00,000	Rumutkel	Khunti
		1500	30	45,00,000	Sokoy	Khunti
		1500	30	45,00,000	Binda	Khunti
		1500	30	45,00,000	Gulu	Khunti
		1500	25	37,50,000	Konmerla	Simdega
		1500	25	37,50,000	Jaldega	Simdega
		1500	25	37,50,000	Aidega	Simdega
		1500	25	37,50,000	Tutukel	Simdega
		900	20	18,00,000	Kondra	Gumla
		900	20	18,00,000	Kobja	Gumla
	900	20	18,00,000	Bamalkera	Gumla	

		900	20	18,00,000	Sikoi	Gumla
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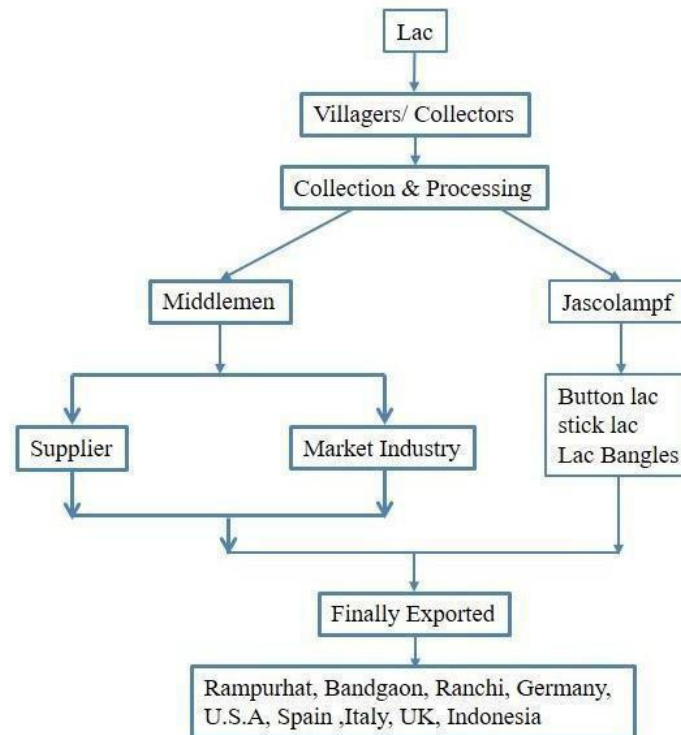
Field Observation

### 3.2 Findings and Analysis of Lac

During the survey it was found that the villagers are fully aware of the value of the lac, however on account of lack of support from the government mechanism they are unable to add value to the lac and end up selling individually, phunki lac in the local haat bazar for Rs. 450 to 550 per kg. But the collected lac from the villages is sold to the middlemen at Rs 1500/ KG. The group of youth in Gulu and Binda village, collectively gather lac from the cultivators and with the support of JASCOLAMPF, they have built up the preliminary production unit of phunki lac to Chauri lac after extracting the impurities, which then can be sold to the middlemen for Rs. 1500- 1700 / KG. In this process they can do away with middleman and thus the money is directly going to the villagers and the youth of the village. But due to paucity of fund, their production unit is not working well presently. The sample villages in Simdega district also witnessed tremendous growth in Kusumi lac. However, on account of lack of proper marketing the individual villager ends up getting meagre amount to the tune of Rs 550 per kg.

The youth of the village in Khunti district explained, the lac is the most profitable business because it is widely grown in Khunti district and unlike other crops, which are harvested only for six month it is harvested throughout the year. With Lac production, the youth are busy throughout the year in collection and processing. Till the level of Chouri lac, they get little support of the government mechanism but with this little support, the cultivators earn money and earn up to Rs. Rs.1500 per kg.

TRIFED launched Sankalp Se Siddhi – a village and digital connect drive has been working successfully in value addition of Lac in Siladon, VDVK Cluster in Khunti district. Under the leadership of Smt. Lalita Devi, the VDVK cluster in a short period of time has sold a large amount of lac bangles. The raw lac is collected by the villagers and the Siladon VDVK process the raw lac and makes bangles out of it. Fig 2 provides a present-day value chain of lac production moving from hand to hand which is very unorganized and hence do not fetch desired money in the hands of villagers. It is here government intervention is required to boost up the production of LAC so that more and more collectors from villages join the bandwagon of collection and reap good harvest and substantial money which otherwise are going in the hands of middleman and factory owners who are involved in direct export to the outside world.



**Fig 2: Market chain of Lac**



**Fig 3: Price Value chain of Lac**

#### 4. PROBLEMS AND CONSTRAINTS

There are various problems associated with Lac such as villagers distress selling as the cultivators need instant money and sell it at prices much below the market value. As one would expect no value addition can be done because of instant sale of the commodity.

4.1 Low selling price at village level and small trader level is attributed to the monopoly of the big traders and factories who eventually decide the price often much lower than expected by the villagers or the small trader. It is also interesting to note that the big traders/ factories are people who have gained significant political clout and power and much of the NTFP trade in Jharkhand is as per their will. The market chain analysis suggests that elimination of middlemen and value addition of the product may yield higher economic returns to the cultivators. It was also found that some of the small traders act as agents or middle men placed by big traders in these villages for collection.

#### 4.2 Constraints in Production and Marketing both at Village Level and Trader's Level

There are several constraints and problems related to Lac at both the levels. At village the problems are attached with Cultivation (unavailability of brood lac) and there are storage problems as villagers need instant money. They do not prefer to store. Besides

the market area is far away and people have to walk up to 10 km by foot and the prices are fixed by traders. The traders also revealed that there is no margin so that they can save and earn. Small traders also told that the prices are fixed by big traders or by factory men so the margin of profit at both villagers and small trader's level are Low.

#### 4.3 Value Chain Inefficiencies in Lac

##### a. Production-related inefficiencies

- Production of lac is fairly simple, but requires timely execution of cultivation operations. Delay in harvesting of broodlac, crop inoculation and wrong method of transportation of broodlac as well as untimely and incorrect pest management operations may result in substantial loss to lac crop or even complete failure. Hence, scientific knowledge of lac cultivation will help to overcome these problems and training is one of the methods to acquire the knowledge. In Gumla district, during the field visit it was observed that the villagers are not even aware of any crop inoculation or insecticide. The insects are left as it is to grow in Kusum tree and no medicine is sprayed as they have not been taught or supplied with any pesticide in remote village of Kondra and kobja.
- Lac is exported in the form which does not fetch them good revenue. If value added products are exported, then it brings more revenue. The value addition of lac-based products offers many opportunities in Indian as well as international markets. There is no value addition done at village level in any of the district.
- Lac farmers are very small and marginal and own 3-10 trees per farmers which fetches around 5-10 kg of lac per tree. There are only few large farmers in Khunti.
- Farmers face lot of problems as the forest officials would not allow them to cultivate. So, the interventions from three different ministries such as Ministry of Forests, Ministry of Agriculture, and Ministry of Commerce are required to help them cultivate seamlessly.

##### b. Marketing Inefficiencies

- There is an absence of organized market and lac is mainly sold through haats. Sometimes, representatives of the industry visit the farmers' house and sometimes farmers sell the lac through weekly haats. (Middlemen). Since the farmers are not organized, price is fixed by the middlemen which are the biggest flaw in the system.
- The price also depends upon the demand-supply system as there is a lot of demand fluctuation from both domestic and international scenario. If fluctuation is huge, the farmers do not get the right price in a season and they do not cultivate lac in next season and hence the cycle is broken as the brood lac cannot be stored and it has to be cultivated again.
- Since the value chain of lac is mainly controlled by private parties, there are a lot of inefficiencies existing in the system which are mainly related to unreasonable prices offered to farmers and also due to lack of transparency. Most of the produce is sold in haats/bazaars (local market), which totally exploits the farmers as the middlemen indulge in wrong weighing practices. Here, the price is mainly set by the middlemen and farmers are unable to negotiate on this. Middlemen sometimes take undue advantage of farmers' ignorance.
- The marketing system is such that most of the industries buy in anticipation. When purchasing capacity

of the industries is exhausted, the poor tribals become the victims in the hands of these middlemen, who then start buying at much reduced prices as the arrivals at that time are at peak. These elements then get the major quantity of the lac produced at very minimal prices offered to the farmers. These middlemen store lac in huge quantities and when there is a demand from both domestic as well as international buyers, the lac is sold at a very higher price. Sometimes, these prices go as high as up to 400-500 per cent. Due to this wrong practice prevalent in the state, the overseas buyers have lost interest in lac in spite of it being organic and biodegradable in character. The second main reason of price fluctuations is that when the prices go too low the farmers' loose interest in production resulting in short crop and higher prices.

- Only one cooperative organization namely JASCOLAMPF (Jharkhand State Cooperative Lac Manufacturing Federation) is intervening in the purchase of lac grown by lac growers through Primary Lac Cooperative Society (PLCS) like LAMPS/PACS/VMSS/ PLGCS. But their share of procurement is only five percent. However, the same organization has the potential to procure more lac for processing of lac into seed lac, button lac, sealing wax, shellac and aleuritic acid.

**Table 7 Constraints at village level in production and marketing**

Item	Constraints			
	Cultivation	Storage	Processing	Marketing
Kusmi	Un availability of brood lac/higher costs of brood lac	Space problem/ Need instant money	No	Market area far away/Travel by foot up to 10 km/Price fixed by traders

**Field Observation**

- Private lac industries are mainly concentrated and organized. They jointly decide to purchase the commodity at their own convenient price. Normally they keep it low till they have purchased their required stock. They sell at a higher price when demand is there. Hence other competitors from other states and cooperative agencies cannot compete. Rather sometimes they join with primary level cooperative societies and sell their low rate purchased lac at higher rate to government agencies.

**5. CONCLUSIONS**

The overall study reveals that Lac is one of the major livelihood options in study area, however certain problems (Lack of Brood Lac, Storage problems, and Price fixation) need to be addressed to make it available economic enterprise for the village population. Kusmi Lac should be given the top priority followed by Rangeeni Ber and Rangeeni Palash. Brood Lac should be made available and selling of raw harvest should be avoided. With Lac being mostly a subsidiary occupation however providing much needed cash income in low agriculture activity seasons. In the studied village the collectors are not aware of value addition techniques, storage and processing. Organized commercialization of Lac is apparently not in tune as market prices are solely fixed at by middleman. Villagers are not taken into consideration. In this scenario, interventions for proper organization, proper marketing is a need. Lac based enterprises should form a basic part of such an integrated livelihood approach. Issues related to transportation of Lac products, price fixing by small traders and businessmen, lack of facilities for storage and processing – all contribute to the general lack of interest in commercialization of Lac, these need to be addressed in the interest of the villagers.

There is immense opportunity in the collection and production of lac. However, on account of proper marketing and value chain analysis in the hands of the villagers, the grassroot level people are left with nothing. There is need for proper training, Governmental support in terms of pesticide/insecticide, safeguarding mechanism to guard the lac producing tree lest it is stolen and full proof marketing funnel will help go a long way to support the local villagers of Jharkhand and there will be tremendous boost to the production of lac in the state of Jharkhand. Surely the State government is giving push by making it an agriculture produce but more timely intervention and monitoring is required for the production boost of lac.

During the field study in three district and the twelve sample villages, it was observed that there can be volcanic eruption in the production of lac if they are given little support in collecting and marketing of lac. People at the sample village level are waiting for the support and much awaited training.

Further in the district of Khunti only Tajna lac factory is running well. However, there is need for more such factory so that the produce is sold at fair price and continuity of business remains.

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