



## Constraints of Farmers in Rubber Cultivation in Nagaland, India

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**Abstract:** A study on rubber cultivation was conducted in Wokha district of Nagaland. Nagaland is one of the states in the North Eastern region of India. The total geographical area of Nagaland is 16, 579 sq. km. In Nagaland, rubber cultivation is new and farmers practices in a small and medium scale but the state has a great potential to produce in large scale. Wokha is a district under Nagaland with an area of 1, 628 Sq km. Rubber was introduced as a cash crop in Wokha in 2000. The farmers in this district have considered rubber cultivation as a profitable farming and had started in a small and medium scale. Therefore, in order to create awareness amongst the rubber growers on the problems of rubber cultivation, this study was carried out in one block covering four villages and 120 respondents. The findings of the study revealed that problems of rubber cultivation were related to related to infrastructure: lack of proper smoke house and lack of rubber rollers; Processing; Transportation; Harvesting; Weeding and lack of direct marketing channel and permanent market.

**Key words:** Rubber cultivation, constraints, smoke house, processing, wokha, Nagaland.

### 1. INTRODUCTION :

Natural rubber (*Hevea brasiliensis*) belongs to the family Euphorbiaceae and genus Hevea. Among the different varieties that is found *Hevea brasiliensis*, *Heveaguianensis* and *Heveabenthamiana* are the only three species of the genus that yields useable rubber. The use of natural rubber is immense and is used extensively in many products and applications, either alone or in combination with other materials in most of its useful form, rubber has high resilience, has large stretch ratio and is extremely waterproof. It is a common fact knowledge that rubber is harvested in the form of latex from the rubber tree and this process is called tapping. These trees generally have 32 years of economic life and the plantation would start its harvesting from 6<sup>th</sup> year onward. "Thailand, Indonesia and Malaysia accounts to be the largest producer of natural rubber in the world ([www.statista.com](http://www.statista.com))". *Hevea brasiliensis* or commonly known as natural rubber is a quick growing tall tree and is adaptable to a wide range of agro-climatic conditions and thrives well on many types of soils. Viswanathan *et al.* (2008) demonstrated contrasting empirical evidence of adoption of rubber-integrated farm livelihood systems in the rubber growing regions in Kerala and NE states of India. The contrasting scenarios of adoption of rubber-integrated farming systems are mostly explained by region-specific factors dominated by socio-economic, institutional variables, and policy-level constraints.

Nagaland is located in the North Eastern region of India has a total geographical area of 16, 579 sq. km. According to the 2011 census, it has a population of 19, 80, 602 and literacy rate of about 80.11 %. Nagaland lies between 25°6'N and 27°4'N latitudes and 93°20'E and 95°15'E longitudes. "It has a potentiality of about 3.55 lakh hectares of rubber plantation, out of which the present area covered is about 19, 077 hectares consisting about 85 lakh standing trees at various stages of growth (Land Resource Department, 2019)". Under the guidance of the Land Resource Department and the Rubber Board, extensive plantation has been carried out through-out the state. Maximum of the plantation concentrated in the district of Dimapur, Wokha, Mokokchung and Peren district". "However, gradual extensions are also being done in the districts of Mon, Longleng, Zunheboto and Tuensang districts (Patton *et al.*, 2012)". Viswanathan (2015) in a report on "More Women Need to Enter Plantation Jobs" assessed that women participation in rubber smallholding sector is very low and says that more women should get in to rubber plantation jobs after skill development in tapping, latex collection, processing and sheet making so that the plantation can overcome the present labour shortage problems. Rubber cultivation is a recent practice in Nagaland. Due to its potentialities in increasing the economic status



of the poor and the state and to alleviate rural poverty, the Rubber Board and the Land Resource Department reach out to the farmers on practicing improved method of rubber cultivation in some part of the state.

## 2. LITERATURE REVIEW :

Chianu *et al.* (2001) reported that labour is a limiting factor in the vast majority of West African farming systems technologies and labour productivity hold the key to the development of agricultural economies.

Pathania *et al.* (2005) in their study revealed that the important constraints faced by the tea growers were the scarcity of unskilled and skilled labours, lack of timely availability of agro chemicals, lack of remunerative price and untimely payment to the producers by cooperative tea factories.

Giroh *et al.* (2006) conducted a study on the productivity of rubber tappers in the rubber belt of Nigeria and found out that tappers productivity is affected by lack of infrastructures in rubber plantation like living quarters, pipe – borne water, electricity, health facilities and roads.

Giroh *et al.* (2007) identified poor wages, delay in payment, job insecurity, and inadequate management of rubber plantations as factors affecting the productivity of rubber tappers.

Samantaray *et al.* (2009) opined that the major constraints like lack of post-harvest technologies, absence of storage facilities, inadequate training programme and inadequate demonstration of new technology are faced by growers. The study has confirmed that lack of proper follow up services, lack of location specific recommendation, lack of community awareness and lack of effective supervision are also contributing to low production.

## 3. MATERIALS AND METHOD :

The study was conducted in Nagaland. Nagaland is one of the states in the North Eastern region of India. The total geographical area of Nagaland is 16, 579 sq. km. One district, Wokha district was purposively selected as it shows more farmers are engaged and interested in rubber plantation ([www.easternmirrornagaland.com](http://www.easternmirrornagaland.com))” and from which one block, Sanis Block covering four villages viz., Longtsung, Chudi, Morakjo and Lotsu village were selected. A total of 120 respondents were randomly selected following Descriptive research design and multi-stage sampling method. Statistical tools like frequency and percentage were utilised for analysis of quantitative data.

## 4. RESULT AND DISCUSSION :

### Constraints faced by the farmers

Through this objective various problems faced by the farmers in rubber cultivation were identified and an attempt was also made to explore the suggestion made by the rubber farmers in order to overcome the problems.

**Table 1 Distribution of respondents on problem faced in rubber cultivation and measures suggested by the respondents for improvement.**

Sl. No.	Category	Nature of problems	%	Suggestions
1.	Weeding	Labour intensive and labour charge is high	34%	Use of mechanical weed cutter
2.	Infrastructure	Lack of smoke house and rubber roller.	75%	Assistance from the Government.
3.	Processing	Difficult to maintain the required temperature inside the smoke house	50%	Construction of better modern and improved smoke house
		Lack of standard measurement tools		Usage of proper measurement tools
4.	Harvesting	Tapping is done by unskilled laborers	42%	Provide training in tapping
		Large consumption of bark during tapping		
5.	Transportation	Lack of road connectivity and poor road condition	46%	Proper maintenance of road
6.	Marketing	No permanent and direct market	30%	Establishment of proper marketing channel

Table 1 contains information about various constraints faced by the rubber farmers in the study area. It also contains various measures to improve rubber cultivation in the area as suggested by the farmers. The problems stated



by the respondents were recorded and analysed as per requirement and interpreted accordingly and it was categorised into six different categories.

Table 1 further shows that problems related to infrastructure were the most important problem faced by the farmers and it was reported by 75 per cent of the respondents. Here, problems such lack of proper smoke house and lack of rubber rollers were the main problems encountered by the farmers. Some farmers build their own smoke house according to their experience and thoughts as a result of which the smoke house is relatively less scientific or not up to the mark. Installation of rubber rollers was also another problem faced where many of the farmers in the area does not own the machine for which they had to take turn to use from their fellow farmers who owns it.

Study shows that problem related to processing was the next important problem faced by the farmer and it was reported by 50 per cent of the farmers. Problems under processing were difficulty in maintaining the required temperature inside the smoke house and lack of standard measurement tools.

From the table, problems related to transportation was the third important problem faced by the respondent and it was reported by 46 per cent of the respondents. Lack of road connectivity in the farm, poor road condition and transportation facilities were the most stated problem. The poor condition of the road was a problem faced by the farmers in availing easy transportation to the farmers in carrying their produce to the market areas and also for purchasing necessary goods.

The fourth important problem faced by the farmers was related to harvesting and 42 per cent of the respondents reported the same. Lack of skilled labourers' is another factor of problem involved in rubber cultivation. When tapping, removal of bark is an important work where it is very much essential for skilled labourers to do the work properly but in the study area, they removed the bark either in deep or in shallow tapping which is not desirable for proper growth and even for an optimum yield. Similar problems on lack of skilled labourers in plantation sites were reported by Pathania *et al.* (2005) whereby in their study it was revealed that the important constraints faced by the tea growers were the scarcity of unskilled and skilled labours.

Problems related to weeds and its control was the fifth important problem faced and 34 per cent of the respondents stated the same. Preferably, 2 to 3 weeding operations are required yearly in rubber plantation to prevent the incidence of insects and disease. Weeding in the area is mostly done by manual labour along with some traditional hand tools and it demands more labour.

Problem related to marketing was another factor of constraints for rubber growers in the area where 30 per cent of the respondents had reported the problem and was ranked sixth. Lack of direct marketing channel and permanent market is another problem faced by the respondents in marketing sector. Similar problems were found from the study done by Samantaray *et al.* (2009) who opined that the major constraints like lack of post-harvest technologies, absence of storage facilities and inadequate market.

## 5. CONCLUSION AND FINDINGS

The study concluded that problems related to infrastructure were the most important problem faced by the farmers. Some farmers build their own smoke house according to their experience and thoughts as a result of which the smoke house was relatively less scientific, this leads to the problem of maintaining the required temperature inside the smoke house whereby they were not able to meet the recommended temperature i.e., 40-60°C. Another major problem was the lack of standard measurement tools. The commercial output of rubber is latex. Mixture of chemical with latex is the first step of conversion from latex to rubber sheets and the proportionate admixture of chemical and latex is an important factor but due to lack of measuring instrument (to measure the volume of latex and chemical) farmers were facing problems. Lack of road connectivity in the farm, poor road condition and transportation facilities were the most stated problem. Lack of skilled labourers' was another factor of problem involved in rubber cultivation. Problems related to weeds and its control was the fifth important problem and lack of direct marketing channel and permanent market is another problem faced by the respondents in marketing sector.

## RECOMMENDATIONS

Despite all these constraints, most of the farmers had rubber cultivation as their primary occupation, therefore, there is a wide scope to improve the economic status of these farmers by supplying them with various inputs, technical inputs and improved techniques.

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