

An Insight into Sandalwood & Medicinal Plant Cultivation as a Potential Entrepreneurial Project

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Abstract

One of the most valued trees in the world, may be quoted as the world's second most valuable tree, is the sandalwood. Basically the growth of this valuable plant is seen mostly in the state of Karnataka in India and scarcely in some of the other southern states of the country. But to our utter astonishment, the same plant is also grown in the North- Eastern Part of the country. In the last decade, this high value crop is seen to be growing in the soil of Karbi Anglong district of Assam in huge numbers. Karbi Anglong is notably known for its 'Rubber Plantation' and also for the production of around 600 varieties of medicinal plants. And now this land has moved towards achieving another milestone of producing the world's second most valuable tree- Sandalwood. Karbi Anglong is basically a tribal land and the largest district of Assam. These turns out to be one of the virgin lands in the North- East India which is yet to be nurtured and a lot yet left to be discovered. This current research paper entitled 'A study on Sandalwood & Medicinal plant cultivation as an Entrepreneurial Venture' is undertaken with an aim to find out the scope for entrepreneurship development among the tribal people of Karbi Anglong district with regards to the sandalwood and medicinal plant cultivation.

This research paper is based on the field survey conducted by the researcher in the study area with the following objectives:

- To examine the genesis & historical evidence of medicinal plant cultivation by the tribal people.
- To analyse the economy of sandalwood & medicinal plant in the select study area.
- To analyse the socio- economic impact of sandalwood & medicinal plant cultivation in the study area.

Keywords: Sandalwood, Bamboo, Medicinal herbs

Introduction

A Treatise on Sandalwood:

Sandalwood, one of the most valuable trees in the world, is a prized gift of Mother Nature which is found in the abundance in the culture and heritage of India. It is basically a small to medium- sized hemi-parasitic tree, whose natural distribution extends from 30°N to 40°S from Indonesia in the east to Juan

Fernandez Islands (Chile) in the west and from Hawaiian Archipelago in the north to New Zealand in the south. In India, the population of Sandalwood trees is mostly concentrated in the southern part of the country, namely Karnataka, Kerala and Tamil Nadu.

The sandalwood is important not only for the Hindus in India but is equally valuable to other religions of the world for varied purposes. The Egyptians imported these woods for the manufacture of medicine and in rituals burning to venerate the Gods. For the Hindus, according to mythology, this wood is considered sacred and is used for worshipping God Shiva. Further, it is believed that Goddess Lakshmi resides in the Sandalwood trees.

Rabindranath Tagore wrote 'as if to prove that love would conquer hate, the sandalwood perfumes the very axe that lays it low'. Long before the reorganization of states in India, B. M. Srikantaiah (former Professor of English and Kannada in Mysore University/Maharaja's College, Mysore), the champion of the 'navodaya movement' (renaissance) in Kannada composed a poem on the Princely State of Mysore entitled Children of Mysore. He wrote: 'Chinnada nadadu mysuru, Gandhada gudiyadu mysuru, Veeneya bedagadu mysuru, Nalumadi Krishanana mysuru' (the English rendering would be broadly: A land of gold that's Mysore, A sandalwood shrine that's Mysore, The elegance of Veena music that's Mysore, Nalmadi Krishna's Mysore).

Properties and Uses

Sandalwood is commercially known as the 'East Indian Sandalwood' and its oil is known as the 'East Indian Sandalwood Oil'. The tree has two parts and the most valued part is the 'Heart Wood' which constitutes the central part and is the most valuable one for its fragrance.

It is no wonder that sandalwood is the second most expensive wood in the world, next to the African Blackwood (*Dalbergia melanoxylon*). A wide variety of articles such as boxes, cabinet panels, jewel cases, combs, picture frames, hand fans, pen holders, card cases, letter openers and bookmarks are made from sandalwood. The Vidhana Soudha which houses legislative chambers of state of Karnataka in Bengaluru has an intricately carved, imposing sandalwood door leading to the Cabinet Room.

Sandalwood oil is obtained by steam distillation of heartwood powder. It is expensive and sold by weight. The current (2012) cost of 5 g of oil sold at the Karnataka Government outlet is Rs 1500, which works out to be Rs 300,000/kg. This oil is usually pale yellow to viscious yellow in colour and constitutes a sweet fragrant, persistent, spicy, warm, woody, animalic, milky, nutty note, which is extensively used in the making of perfumes, cosmetics and pharmaceutical industry. It is believed that without an ample dose of sandalwood oil, the composition of perfume remains incomplete.

Most Indian attars (atar, in Persian means a fragrant essential oil or aroma) use sandal oil as the base because of its inherent capacity to absorb most of the ethereal notes of other whole herbs or flowers, as it can enhance their perfumery

status and stability. Perhaps one of the most precious perfumery materials from antiquity down to modern times, the popularity of sandalwood oil has shown no signs of waning. The oil is used as a flavouring substance in food products such as frozen dairy desserts, candy, pan masala, baked food, gelatin, puddings and also in alcoholic and non-alcoholic beverages. The oil is approved for use by the US Food and Drug Administration, Flavour and Extract Manufacturers Association, Council of Europe and Joint FAO/WHO Expert Committee on Food Additives. On account of acute scarcity of sandalwood oil, search for novel synthetic raw materials imitating the characteristic odour profile of sandalwood oil has become a challenging task. Extensive studies are being carried out to investigate the structure- odour relationship. The oil is used for its therapeutic effects in Ayurveda, Chinese and Tibetan medicinal systems.

The Sandalwood oil can be extensively used in the treatment of the following innumerable diseases:

- common colds,
- bronchitis,
- fever,
- dysentery,
- piles,
- scabies,
- infection of the urinary tract,
- inflammation of the mouth and pharynx,
- liver and gall-bladder complaints and
- as an expectorant, stimulant, carminative, digestive and as a muscle relaxant.

A recent study reports that α -santalol exhibited anti-influenza A/HK (H3N2) virus activity of 86% with no cytotoxicity at the concentration of 100 μ g/ml. Sandalwood oil elevates pulse rate, skin conductance level and systolic blood pressure and brings about higher ratings of attentiveness and mood in humans.

Objective of the Study

The present research enquiry is undertaken with the following objectives with the hope that a new stock of knowledge may be created with the study undertaken:

- To examine the genesis & historical evidence of medicinal plant cultivation by the tribal people.
- To analyse the economy of sandalwood & medicinal plant in the select study area.
- To analyse the socio- economic impact of sandalwood & medicinal plant cultivation in the study area.

Research Methodology

Profile of the Plantation Activities of Diphu, Karbi Anglong District of Assam:

Plantation crops like sandalwood are high value crops of great economic importance and provide huge employment opportunity. Suitable land and also agro climatic condition provide favorable environment sandalwood plantation.

Expansion of cultivation, which is one of the reasons for stepping up sandalwood production on a sustainable basis, is taking place mainly in non-traditional areas. Diphu is one of such non-traditional areas.

It is gathered from the concerned people that sandalwood cultivation is highly income generating if managed properly. The small scale cultivators of sandalwood are emerging in the district. The implication of this development on firm will be significant. There are of course, several inherent problems of small scale cultivation of sandalwood like long gestation period, nature of production systems, processing and marketing problems.

In Diphu, sandalwood plantations and along with rubber plantation is very popular and the growers are very much interested in cultivating such crops. The land is climatic in nature which is suitable for both types of plantation activities.

Apart from sandalwood and rubber plantation in the district, the place is well known for the cultivation innumerable medicinal plants having various numbers of utilities. The tribal people in the area have been using such medicinal plants for centuries and these are proven medicines for many kinds of vulnerable diseases.

Research Design

The research design for this study is descriptive in nature. Descriptive researches are those studies which are concerned with describing the characteristic of a particular individual, or of a group. A descriptive research design can be either quantitative or qualitative. Descriptive research involves gathering data that describes events and then organizing, tabulation, depiction and describing the data collection. It includes survey and fact finding.

Data Collection

For the purpose of the present study, primary data has been collected exclusively by the Researchers from the field directly by visiting the areas concerned. The Researchers have conducted Personal Interview with different local people to gather information of varying nature relating to the subject matter.

The Present Study and its Relevant Findings

The present researchers have ventured in to the region with the quest of finding out the different opportunities' underlying in the region for entrepreneurial development and have been able to formulate the idea that mostly three types of

cultivation activities have been flourishing in the last two decades in the Karbi Anglong District of Assam and these activities have huge potentialities for its growth as an entrepreneurial activity in the near future due to a lot of favourable reasons. Along with plantation activities, the region also has the potentialities of the growth of rare medicinal plants and herbs.

However, following are the relevant findings with regards to the present study:

- It was found out that the local people themselves volunteered to take up the occupation when they realized that with these activities they can sustain their livelihood and thus entrepreneurial activity emerged in the present study area. There was no force from the external agency.
- During the field survey, the Researchers found out that there were around 50 household in Diphu area alone where sandalwood plantation have taken place at their household level. Most of them responded that they were supplied with the seed and saplings of sandalwood plants by the forest officials for a meager cost of Rs. 10 INR only.
- The people undertook Sandal Cultivation in their domestic premises out of the encouragement offered by the State Forest Department and the planters gradually started realizing the benefit of deriving commercial gain out of plantation activity.
- Further, the researchers during the field survey felt that the local inhabitants were mostly unaware of the economic benefits that they might be able to derive once the sandalwood plants reaches its fullest bloom.
- Interestingly the maintenance cost incurred by the local people towards the growth of the sandalwood plant is very much negligible.
- In course of the field survey, during the period 2014-15, as a close participant observer over the plantation activities, the researchers realized that the return or yield out of plantation activity is comparatively much higher than the gain obtained from any other activity.
- In course of the field survey in the study area during the month of August and September, 2015, we gathered that the entire area from Diphu town towards Recreation Park, 5 mile is flooded with Sandal wood plantation which are planted by the local tribal people. This kind of plantation at the private initiative without any government assistance is unique in the history of Sandalwood cultivation in India other than the Karnataka State.
- Sandal wood in open market couldn't be found by the present researchers when they undertook a field survey over the city of Bangalore in the month of February, 2014. The two wildlife sanctuaries located on both sides of National Highway from Mysore to Utkamond which are the store house of sandal wood plantation but felling of sandalwood is prohibited as a preservative step. The same is the state in Karbi Anglong whereby sandalwood in the open market is not available.
- In course of our field survey, we noticed that the plantation is not very old, a sandalwood plant generally require 15 years to grow and to be able to

produce yield. It is reported to us when we contacted the forest officials engaged in the recreation park on 18th September, 2015 that once the plants are grown up each plant can contribute roughly 1.5 crores of Rupees.

- Mr. Ranjan Baruah, the Ranger in the park has taken an initiative to preserve and cultivate precious sandalwood plants and other 600 varieties of medicinal plants in the park. Names and uses of a few medicinal plants are given below:

Table 1 : Names and Uses of Medicinal Plants

Karbi Name	Assamese Name	English Name	Botanical Name	Family	Parts Used	Uses
Hampur/ Hampur Arong	Sotkora	Assamica, Sweet orange	Citrus macrophtho ra, Montr	Rutaceae	Rind, Flower, Fruit	It is used to digest food, repair stomach pains, etc.
Nopak ban	Bhat- Ghila	Indian Trumpet flower	Oroxylum Indicum, Vent or Colosanth es indica or Bignonia indica	Bignonia ceae	Root, Bark	Root bark is astringent, bitter tonic, stomachic, anodyne & sufordic, root bark is also useful in diarrhea & dysentary.
Hanther	Thebu lota	----	Hodgsonia macrocarp a, cogn.	Cucurbit aceae	Leaves	Leaves are used in dysentary and in vomiting, seeds are used as vegetables.
Hiru/ Rumet	Etam Challi	Demis	Demis elliptica, Benth	Papilion aceae	Roots	Used as fish poison & in throat cancer as smoking remedy.
Pradang	Kuji thekera	----	Garcinia Morella, Desr.	Guttifer ae	Fruits	Used in dysentary, diarrhea & in stomach pain, etc.
Mir Lochan	Akongi	Zedeoaria	Curcuma zedoaria, Rosc.	Zingiber aceae	Tuber & leaves.	Dyspepsia, juice of the leave is given to the patient.

Source: Field Survey.

- The Researchers while conducting the personal interview found out that the tribal inhabitants in the area have been using the medicinal plants for the treatment of various diseases from time immemorial and they have carried forward the tradition of its uses from generation to generation.
- However the Researchers are of the opinion that a very less amount of initiatives have been taken by the local authorities and bodies towards the education of the local people with the knowledge of the economic benefits that may be derived from sandalwood plant and medicinal plant cultivation.
- Bamboo cultivation, bamboo made products and use of bamboo as a decorative piece for art objective is an important milestone of the plantation activity in Diphu.
- The Researchers after conducting the field survey are of the opinion that even after the existence of a variety of medicinal plants and the likelihood of the growth of sandalwood plants the local people have not been benefitted economically at present. However, there is a huge possibility for benefits to be derived out of the cultivation activity once the local inhabitants are made knowledgeable about the prospects.
- Further the Researchers are of the opinion that the 'Recreation park' located in the Diphu- Manja road has the potential to become an International tourist hub incase steps are initiated by the concerned agencies.

Suggestions

The Researchers after conducting the study would like to put forward the following suggestions:

- The relevant plantation board is required to educate the local people with regards to the plantation activities. They are required to provide them with knowledge that must be required for maintenance of the plants and ensuring proper growth of the same.
- Further the local people must be encouraged such growth at their household compound by providing them proper incentives for the same.
- The forest official in the Recreation Park must work towards getting hold of Intellectual Property Rights (IPR) with regards to their growths in the park.
- Further it is highly essential that the growths obtained from the different medicinal plant cultivation are sought for sale through proper channels so that the local people may obtain some economic benefits out of it.
- It is also highly essential that some Awareness drive or programmes are organized by the relevant boards to make aware the local people the importance of the growth of such plants.

Conclusion

The plantation activities and its artistic design, is appreciable preservation for local art, culture, heritage objects that have been created in the park will act as a

monument for future generation to know the artistic quality. Sense of preservation and usefulness and of the plantation products to sustain human lives, would curb out a golden place in the conservation effort of bio- diversity and flora-fauna plantation, commercial use of planted objects in fostering the human civilizations and sustaining human life with co-existence and complimentary of the life of man and nature in the national landscape of India. However, a lot still remains to be done towards the development in this field.

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