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### **The Role of Pine Trees in Rural Development**

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#### **ABSTRACT**

This study was conducted with objectives to find out the annual income of five pine community forests and the role of pine trees in rural development. The study is mainly based in the primary and secondary data. Those are collected by using techniques of field survey, discussion, observation and focus group discussion with the help of questionnaires and check-lists. But household samples were randomly taken. The data were processed for analysis with the help of scientific calculator and computer. In conclusion, it was found the five pine community forest earn three lakh per year by selling oleo-resin to the sunrise rosin and turpentine industry. Local people used that money to build school's buildings local roads and spread transmission line of electricity. But local people do not know commercial value of oleo-resin and the tapping cost of per-pine trees. If the Government properly assess for detail study of pine trees and potentiality of tapping and storing oleo-resin, it will help to increase income of community forest user groups and they can invest more money for development works.

**KEYWORDS:** pine, Oleo-resin, tapping, storing, development

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## **INTRODUCTION**

Income is essential for rural development process. It is needed in every field like agriculture, industry, health, education, communication, transportation etc. Due to this cause every people try to increase income by using available resources. Thigh income makes people's life is easy and comfortable. But income generation activities are different in different parts of country. However, major income generation way is mobilization of available means and resources. "in this study area, there are eight community forests"<sup>1</sup> Out of them, five community forests are pine forests. But they are mix with sa l ( Shorea Robusta) these five pine community forests main income source is pine trees, there us 40,000 pine trees pine trees in five community forests. Among of them 4500 pine trees are tapped by the community user groups. But majority of pine trees are not tapped in the five community forests. However, there income is higher them other community forest."<sup>2</sup> But this study only focuses on the income and collection of aleo-resin. It does not give impasses on what is main contribution of pine trees in development in present context. So this my article try to dig out the main role of pine trees in development in study area.

According to university of Georgia "pine trees are the fasted growing trees in south America making them reading viable and renewable resources. The wood is also loaded with sugars that the yet uses in the fermenting process".<sup>3</sup> This study also studies on only site of renewable every and their growing process. It ignores the contribution of development without processing condition. So my research article give importance in income level of the community forests and how much contribution should be done by the income which is available from only pine trees in the study area.

According to Jeffery Dean of bio-technology in the University of Georgia warn Ell School of forestry and natural resources "Globally pine is the primary target for this research project because of its current commercial importance in the south state as its potential for providing biomass to future bio-fuels market". 4) This study focuses the commercial value of pine trees. It provides income without processing situation. User groups make furniture, so they sell it for the furniture factories, provide for the furniture for School children, home use etc. From these activities user groups earn money and invest in development process. So this research project also neglects the contribution of the pine trees in development process.

According to Mellon University Scholars “pine trees are one of the biggest contributor of air pollution because pine goes chemically transformed by free radicals”. 5 ) Similarly Jenkin said that if the people stop growing pine trees in the pasture land that change many affect soil health , regional green gas admission and one all profitability of the form enterprise”. 6) This Scholar also examines from environmental and Geographical side of pine trees. He does not examine the income side and development. So my article tries to examine both these sides.

Jackson chained that “about 10,000 people are involving in resin tapping work. The resin tapping activities would provide regular supervision of forest which control the activities like illicit, felling , forest fire poaching , illegal collection of NIFPS collection of diyalo” 7) Jackson studies on the side of people’s involvement in resin tapping activities and security of the forest because many forests are insecure in Nepal. Many illegal activities are alone by the local people. They do not think about importance of forests because of poverty and hunger. But this study does not give important of pine forests in development. We can provide many incomes by planting and preserving pine trees in the bare land. That enhance people living standard. After improving living standard of people, they do not evolve in illegal activities. For this , we should study on the role of pine trees in development. That’s why, this article tries to search role of pine trees in development.

Casar says “by processing in the distillation method in the plant resin give two main products that are rosin and turpentine. In normal condition pine oleo-resin processing give 76 % rosin and 18% turpentine” 8) He studies only on the oleo-resin processing. Future more he calculates on the percentage of rosin and turpentine from oleo-resin. But, he does not studies on how much money earn from oleo-resin and in which sectors are their investment. So this article mainly based on the investment sectors of the people by earning money from oleo-resin.

Further cares says, “Resin is the major obtained from pine it is in volatile residue. It is brittle transparent glass solid insolvable in water but soluble in a number of organic solvents. Most resin is used in chemically modified from rather than the row state it is obtained. It consists primarily of maximum mixture of biotic and primate types of acids with smaller amount of neutral compounds. It can be converted to a large numbers of downstream derivatives that are used wide range of application, synthetic, rubber paint, foodstuff adhesive, printing oil, electrical equipment, paper making, soap, construction materials, linoleum and floor covering metal processing, Bactericide, pine chemical, plastic

oils and greases printing inks, shoes polish and seated materials”. 9) This article mainly focuses on what is resin and application of rosin in different sectors. We have know rosin can be produced from the oleo-resin from many research article but this article does not focuses how much money can earn people by selling un process oleo-resin and where local invest that money. Thus , this my article mainly focuses on how much money can local people earn by selling pine timber and oleo-resin without processing and where they have been investing that money is study area.

Susil Adhikari claims “Utilizing one of the states as the most valuable and widespread commodities pine trees to produce liquid fuels such as Gasoline and diesel. It is only one practice in Nepa”<sup>10</sup> this article also focuses on Secondary product of the oleo-resin. But many community forests user group have been earning from by selling pine timber and unprocessed oleo. So this article neglects these activities. Due to this my this article high lights the income of community forests by selling pine timber and oleo-resin and role of pine trees in development. It is also discussed as “ for two years research grew the yeast, altering, it is just enough to produce the maximum amount of ethanol as possible from pine trees. Culturing the yeast on in increasing in hospitable environment. The researchers were able to from a strand that services when places on pine with a high biomass percentage, which could typically stress the yeast”. 11) This research also mainly emphasis on the pine as a source of renewable energy. It does not give priority of the role of pine trees in rural development. As a result, this research article tries to explain the role of pine trees in rural development.

According to Gimire, “ pine trees improve soil drainage in central Nepa.l”.<sup>12</sup> He searches on only Geographical factor. So he explains the importance of pine trees for soil conservation. But, it does not examine on the side of development. Due to this cause, this article can not explain about the development aspect. In this situation, this article digs out the importance of the pine trees in development aspect.

Forest research, Deharadun, India , explain the social economic advantage of oleo-resin tapping in Nepal. They are as follows:- 1) Create employment 2) enhancement of business and industries 3) Revenue for government income of community forest. User groups and 4) source of foreign currency”.<sup>13</sup> This study only focuses on the socio-economic impact. It does not explain how much making can be year from oleo-resin and timber. In which sector community user groups invest that

money. So, this article tries to explain the investing sectors of the money which is earned from oleo-resin and timber.

Lila Prasad Limbu claimed that oleo-resin based turpentine industry should be possible to establish in Bhimeswor municipality in Dolakha district because it has 300000kg collection capacity in a year<sup>14</sup>. His research article explores the oleo-resin collection capacity for oleo-resin based turpentine industry in Bhimeswor Municipality of Dolakha District and found there is possibility of establish oleo-resin based turpentine industry in Bhimeswor Municipality. But he does not explore the earning money capacity of community forests and investing sectors of community forests user groups. As a result, this article tries to explore the investing sectors of pine community forests user groups.

According to Jackson “there are five types of tapping methods. They are cup and lip method, silva method, Bark chipped method, Rill method and Bore whole method. Furthermore, he claimed “the rill method is practice in Nepal because Rill method of tapping has considered as a more economical as the other’s methods”.<sup>15</sup> But it does not explain the how much money become consumer surplus of tapping and selling oleo-resin from community forest. And how much money can be earned from per kg oleo-resin and in which sectors mainly they invest. So this article tries to convey the role of pine trees in development.

Poudyal claimed that “the Rill method is not used systematically in Nepal. Due to this 2% of pine trees from which resin is extracted are dying” 16) people have base experience about the tapping and starting user groups tapped and store the oleo-resin for selling. However, they have earned much more money than the other community forests. So this article tries to search the income level of the pine community forests and investment position in development.

Dolakha District forest office’s analysis and evaluation book 2013 explain “whole oleo-resin collection capacity of Dolakha district is 2, 80,000 kg per year.” 17) But this book cannot calculate total earning money from oleo-resin in a year and how much money should be invested in development sector.

When we examine above books and article nearly every research are mainly based on the pine trees are the source of renewable source energy and socio and economic impact of the pine trees. Only a few researches are based on commercial application of oleo-resin. But none of research and research

article is based on role of the pine trees in development. So my question is this, why researchers do not keep attention on the role of pine trees in development process. Thus this research article tries to partially fulfill this questions answer.

## **METHODOLOGY**

This study mainly based on ‘‘ the role of pine trees in rural development in Basantatar VDC of Dhankuta District’’ has descriptive analysis tic and observational in nature. For this study samples were randomly selected 56 households from 280 households who are members of five pine community forests.

Data collection is based on both primary and secondary sources primary data were collected by using field survey, field observation, discussion, focus group discussion and interview methods by the help of the structured check-lists and questionnaires. The field observation, discussion, Focus group discussion and interview were carried out to get data required for pine community forests income, and role of pine trees in rural development. Forest Ministry FAO, Ministry of Forest and Soil conservation, Babar Mahal Nepal, Nepal Soil Corporation, HMG Nepal, DFO,.

A master table was prepared from structured questionnaires and check –lists for tabulation pine community Forests based annual income and role of pine trees in rural development. At last, data processed for analysis with the help of scientific calculator and computer.

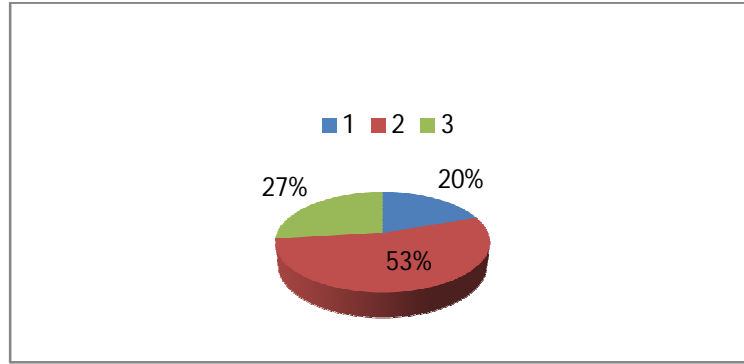
## **DATA ANALYSIS AND PRESENTATAION**

Pine Forest are only spread low part of the Basantatar VDC of Dhankuta district . Due this cause only five pine community forests are in there. Around this five community forests there are 280 households. Some users are live in away from community forests area. They only come in winter season to use the forests because they have land around the forest areas.

Respondents in questionnaire survey included only the income wide and role of pine trees in rural development wise distribution of population. Those are given as follows.

### ***A) Annual Income of five Pine Community Forests.***

The following pie chart show the income wise distribution of population of all five pine community forests

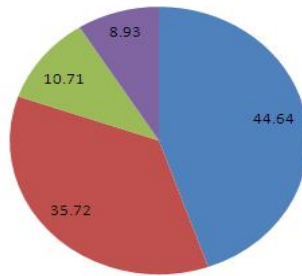


Source field survey 2014  
**Pie chart -1 Annual income of five community forests.**

Above pie chart 1 shows that 30 households (53.57% ) said Rs 3 lakh, is annual income of five pine community forests, followed by 15 households (26.79%) said 2 lakh and 11 households (19.64%) said above 3 lakh.

**B) Role of Pine Trees Distribution of Respondents.**

The role pine trees in rural development wise distribute of respondents in study area are as follows. Pie chart – 2 role of pine trees in rural development distribution of respondents.



Source field survey 2014  
Pine chart-2 The role of pine trees in rural development.

Above pie chart – 2 shows 25 households (44.64%) said role of pine trees in rural development is to construct the road, followed by 20 households (35.72%) said to construct school's buildings, as same way 6 households (10.71%) answered to spread transmission line of electricity and 5 households (8.93%) said role of pine trees in rural development is to conduct awareness program for backward community, and construct play ground, water tap etc.

## **CONCLUSION**

The pine forests are almost continuously spread the low part of Basantatar VDC. There are five pine community forests. Total annual income of five pine community forests is Rs 3,00,000 community forest user groups earn money by selling pine wood for furniture factories, house use and oleo- resin company. Due to this cause pine community forests income is higher than other community forests. But only two pine community forests tapped the pine trees for storing oleo-resin. Those two forests used reel method for oleo-resin collection but it is not systematically used in forests area. As a result community forest user groups had bad experience. They do not want to tap pine trees for oleo-resin. Only 4500 pine trees are tapped in two forests areas for oleo-resin collection Average oleo-resin yield per tap is found 4 kg in a year. Selling price oleo-resin is Rs 6 rupees per kg. Due to the bad experience of tapping and storing oleo-resin process majority of pine trees are not tapped by the user groups. However, their income is high. They use their income is to construct schools building, road, play ground, drinking water pipe line etc. in study area. So it helps to run the development process in rural area. Even though, pine community forests user groups do not know, the commercial value of pine trees. Petroleum product, turpentine, oil rosin, gum etc are made by commercial people from oleo on the other hand, we can make fume, basket, bio-Brigitte etc from pine leaves. So Nepal government should provide skill, knowledge and technology for the pine community forests user groups to reduce hunger, diseases unemployment in the rural areas.

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