JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

# CHANGE OF FOREST COVER AND ITS IMPACT ON OCCUPATION OF FOREST DWELLERS IN HAZARIBAG DISTRICT (JHARKHAND)

**Pant Prakash Mehta**
Assistant Professor,
St. Columba's College, Hazaribag,
Vinoba Bhave University, Hazaribag, Jharkhand.

**Abstract**

**(***Hazaribag district endowed with diverse flora and fauna. Over the period the period the forest cover changes. Forest plays an important source of occupation to the forest dwellers. Many nontimber forest produces (NTFPs) provides an important source of income to the residents of forest areas. In the present study the stratified random sampling of 500 house hold is taken for knowing the impact of change of forest cover in Hazaribag district. Since the Schedule Tribe are affected most due to change of forest cover therefore the sample of villages are taken such a way that where more concentration of ST population. Average annual income of the population of sample is 33.33 man-days. )*

**Key Words: Occupation, Forest Cover, NTFPs, Flora, Fauna,**

## Introduction:

Forest provides an important source of livelihood. It is a law of nature that each and every thing change with time. It is also applicable to the forest cover. With passage of time population of an area increases. Due to increased population several human activities bring changes in forest cover. Hazaribag district with its topography and climate a large part of the district is covered with the forest. Hazaribag district has recorded remarkable depletion of forest cover. Development in mining area, industrial growth, construction of roads, extraction of forest produces, construction of new railway line and other activities causes the depletion of forest cover in the district. Inaccessible areas with rough terrain and less interference of human have more forest cover. In this region some forests have been protected. At the same time efforts have been made to develop forest to minimize the soil erosion. Important trees are Sal, Sisam, Murga, Siris, Palas, Mahua, Kend, Gambhar etc. This region also has some fruit trees like Mango, Jamun, Kadam Kathal, Aura etc.

District has endowed with various kinds of flora and fauna. Number of many species especially medicinal plants are produced in the area. Number of different trees are also declined. On fauna side many species of wild animals are rare in the area. Forests and natural scenic beauty attract tourists. Hazaribagh district blessed by nature with diverse natural beauty. Due to cutting of trees and destroying of forest decreases the avenues in tourism. Water is an essential component of life. We cannot imagine life without water. Trees and plants facilitate the groundwater recharge. Reckless cutting of trees and clearing of forest affect the timing of infiltration of water which affect the groundwater level. In Hazaribagh district ground water level is going down. There is a strong relationship between forest and the tribal culture. Way of life of tribes are dependent upon forest. Their culture has deep roots with forest. Every ritual of the tribal people, food habits, festivals and their samskara are related to the forest. Decreasing of forest will affect their culture also. Declining of forest has several other impacts apart from the above-mentioned effects. But my research is focused on the impact of occupation and livelihood of the people who resides near to the forest areas.

**Objective:**

To know the impact of change of forest cover on occupation of forest dwellers in Hazaribagh district.

**Study area:**

Hazaribag District is one of the oldest districts of Indian state Jharkhand. It is established in 1834. The district of Hazaribag is part of north-eastern portion of the Chhotanagpur Plateau lies between $23^0$38'43" to $24^0$31'44" North latitude and $85^0$1'9" to $85^0$55"22" East longitude. The total geographical area of present district is 4313 sq. km

**Methodology:**

Data for this research is obtained from both primary and secondary sources. The primary data is gathered through stratified random sampling. Villages are selected from different CD blocks of Hazaribagh district.

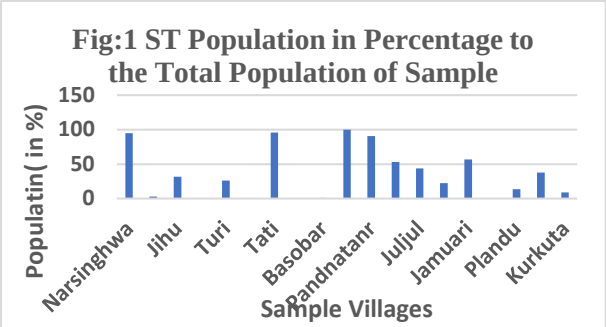
Such as; Hazaribagh,Barhi,Chouparan,Keredari,Barkagaon,Katkamsandi,Katkamdag,Churchu,Daru, Bishungarh, Barkatha, Chalkusa, Padma, Ichak, Tatijharia and Dadi blocks. Villages are stratified on the basis of percentage of tribal population to the total population. Since maximum impact of forest change on the livelihood of tribal population. So, 20 villages are randomly selected for the survey purpose. Among the selected villages 500 household as selected randomly for the survey. Data collected through pre-set questions through Schedule and Interview method from the respondent. Secondary data from Census Hand book of Hazaribag district. Data are then analyzed.

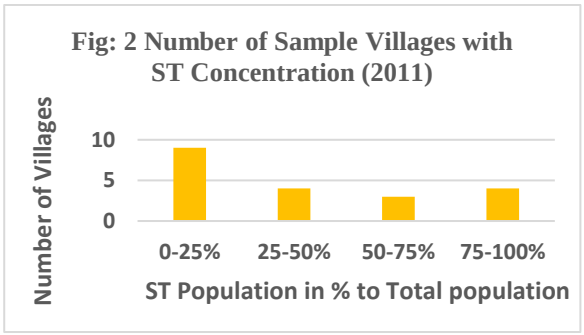
**Table :1 Village surveyed (Different C.D Block of Hazaribag District) 2018**

| Sl.No | Name of Village | C.D. Block | Total Population | No. of Household | No. of H.H Surveyed | % of S.T Population | S.T Population | S.C Population |
|---|---|---|---|---|---|---|---|---|
| 1 | Narsinghwa | Barhi | 74 | 15 | 10 | 94.6 | 70 | - |
| 2 | Padma | Padma | 7896 | 1407 | 52 | 2.9 | 230 | 1268 |
| 3 | Jihu | Padma | 1060 | 191 | 25 | 31.6 | 335 | 108 |
| 4 | Bonga | Ichak | 4436 | 813 | 40 | 0.34 | 15 | 632 |
| 5 | Turi | Ichak | 1054 | 55 | 15 | 25.9 | 273 | 19 |
| 6 | Jharpo | Tatijharia | 5790 | 1088 | 53 | 0.29 | 17 | 1105 |
| 7 | Tati | Tatijharia | 286 | 55 | 10 | 95.8 | 274 | - |
| 8 | Tatgawan | Daru | 1145 | 216 | 30 | Nil | - | 371 |
| 9 | Basobar | Daru | 964 | 160 | 20 | 0.93 | 9 | 37 |
| 10 | Jamua | Barkatha | 238 | 42 | 15 | 100 | 238 | - |
| 11 | Pandnatanr | Chalkusa | 401 | 57 | 15 | 90.5 | 363 | - |
| 12 | Parasia | Bishungarh | 70 | 11 | 5 | 52.8 | 37 | - |
| 13 | Juljul | Hazaribag | 296 | 60 | 15 | 43.6 | 129 | 6 |
| 14 | Datokalan | Katkamsandi | 1588 | 258 | 35 | 22.2 | 353 | 557 |
| 15 | Jamuari | katkamdag | 853 | 146 | 25 | 56.6 | 483 | 225 |
| 16 | Keredari | Keredari | 3693 | 716 | 35 | Nil | - | 705 |
| 17 | Plandu | barkagaon | 834 | 176 | 30 | 13.5 | 113 | 214 |
| 18 | Bodra | Churchu | 742 | 120 | 20 | 37.6 | 279 | 29 |
| 19 | Kurkuta | Dadi | 1318 | 242 | 30 | 8.8 | 116 | - |
| 20 | Dhoria | Chauparan | 262 | 54 | 20 | 56.9 | 149 | 113 |
| Total | | | 33000 | 5882 | 500 | - | 3483 | 5389 |

**Source: District Census Hand Book (2011), Survey by Researcher**

There are 20 villages from different CD blocks of Hazaribagh district are selected for the primary survey. Highest population amongst the Sample villages is Padma with 7896 population then Jharpo with 5790 population then Bonga with 4436 and Keredari with 3690 population according to 2011 census. Lowest populated villages are Parasia with 70 people, Narsinghwa with 74 people. Villages with highest population of scheduled tribe with 100% is Jamua of Barkatha CD block and the lowest schedule tribe population are Tatgawan of Daru and Keredari of Keredari CD block where no ST population. Population with varying percentage of the total population are as below:




**Source: Census of India, 2011 and prepared by Researcher**

Out of 20 sample villages there are 9 villages have below 25% of scheduled tribe population to the total population of the Village. They are Padmaa, Bonga, Jharpo, Tatgawan, Basobar, Dato kalan, Keredari, Plandu and Kurkuta. Villages which have 25% to 50% S population are Jihu, Turi, Juljul and Bodra. More than 50% ST population of the total village population but less than three fourth in Parsia, Jamuari and Dhoria. Four villages which have more than 75% of scheduled tribe population to the total population of the village are Narsinghwa,Tati, Jamua and Pandnatarn.

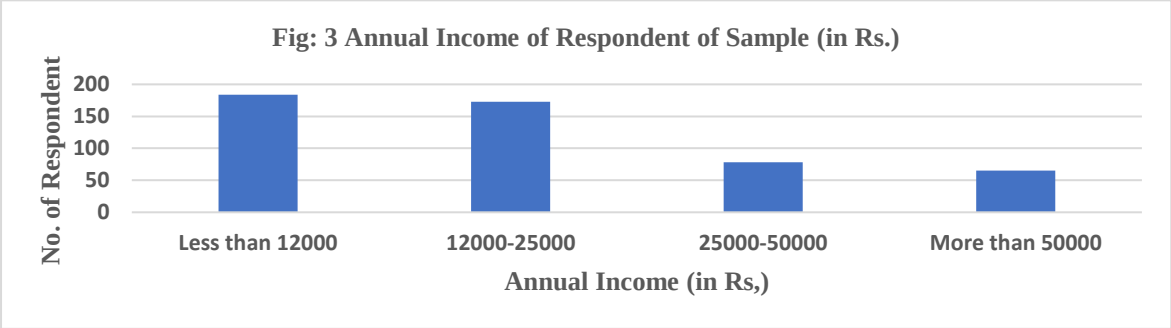
Out of 5882 House Hold from the 20 sample villages taken for primary survey, 500 House Hold is surveyed. This is about 8% of the total household. Among the Respondant 160 are female and 340 are male.

**General Information of Respondent of Sample:**

To know about the social background of the respondent it is necessary to get information about their social category. Respondents are categorized under four categories such as General, Other Backward Class, Schedule Caste and Scheduled Tribe. More number of scheduled tribe people are chosen for the study purpose.40.8 percent are ST,19.2 percent are SC, 35.6 percent OBC and 4.4 percent are in General Category.

**Annual income:**

Income of family is very important information about the living of standard. Incomes of family also gives us the information about the poverty of the area.

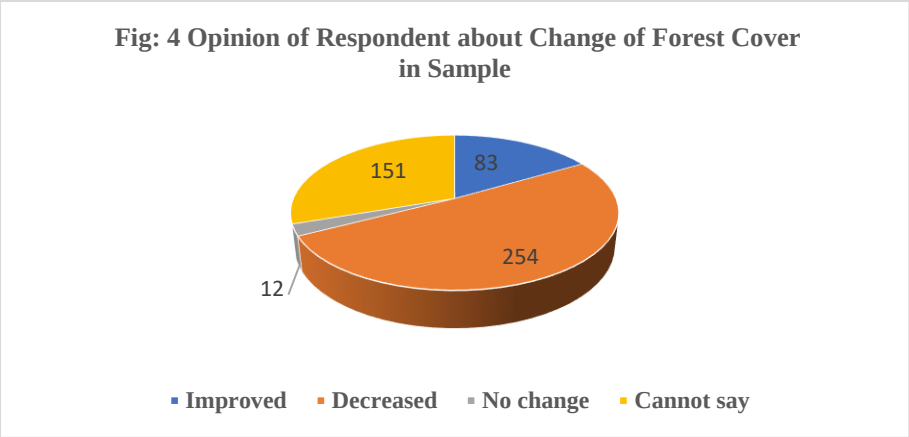



**Source: Survey by Researcher**

As per the above figure 3, 6.8 percent of the respondent has less than Rs.12000 per annum of income. 34.6 percent of the population has annual income ranging from Rs.12000 to Rs. 25000. More than 15 percent of the sample household has the annual income of Rs.25000 to Rs.50000. Thirteen percent of the respondent has annual income more than Rs.50000. This includes the government employee of the area also.

**Change of Forest Cover during last 35 years:**

To know about the change of forest cover during last 35 years in the study area. Respondent has asked the question whether there is increased in the forest area or decreased in their surroundings. They have also the option of there is no change or they do not know. Their opinion is given below:

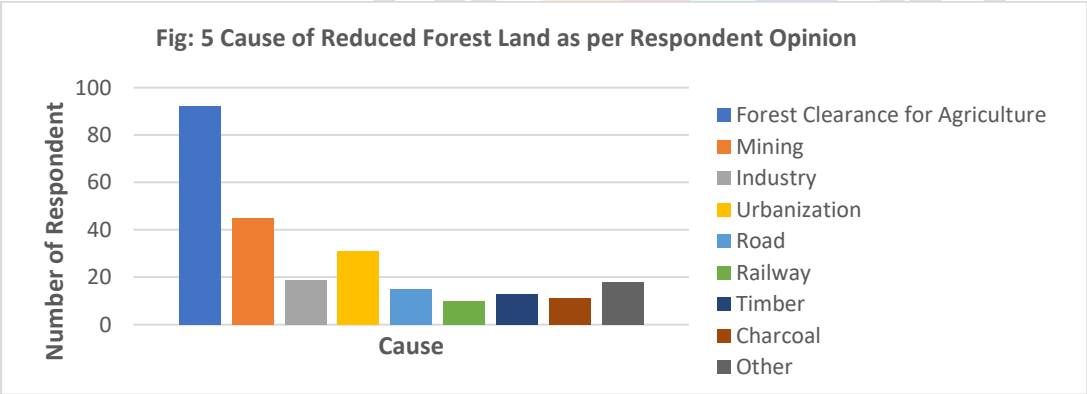



**Source: Survey by Researcher**

Among the respondent 16.6 percent believe that there is increase in the forest area while more than half of the respondent believe that there is decrease in the forest area during last 35 years. Some of the respondent has the opinion that there is no change in the forest cover. About 30 percent has no idea about any change in forest area. This is because their age is below 35 years.

**Cause of Reduced Forest Land:**

Due to change in population over last 35 years, needs of people increased during this period like more land required for agriculture, road, settlement. Developmental activities also increased during this period. People believe that several factors which are responsible for the decreasing of forest. But here researcher put several options and asked them which one is most important factor for the decreasing of forest land. Their opinion or response is as follows:

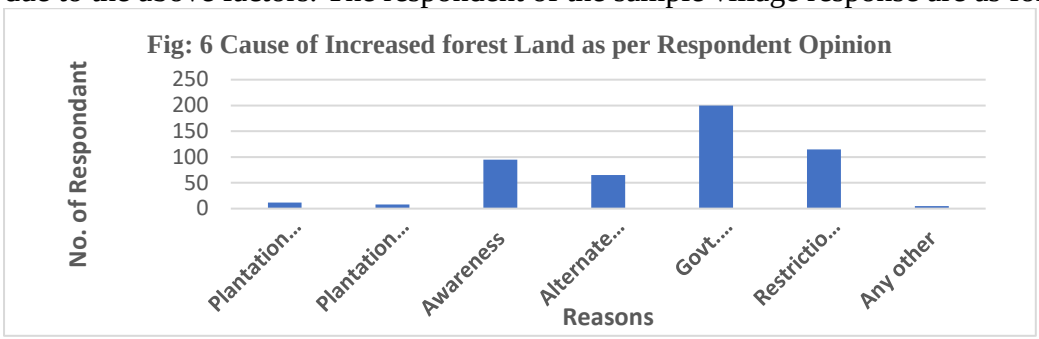



**Source: Survey by Researcher**

From the above graph, 36 percent of respondent among those who believe that there is decrease in forest land thinks that prime factor for the decrease forest land is agriculture. People clear small patches of forest for agriculture. Those who resides near to the forest area clear forest land and cultivate some crops like paddy or cereal crops on it. Many occasions forest official register a case on the villagers for the encroachment of forest land. 17 percent accept the main causes of decreased forest is mining activities. Different mines are operated in the area in recent past. Seven percent of the respondents think the major industries or power plant are responsible for the deforestation. Urbanization is also one of the factors for the shrinking of forest. 12 percent respondents blame the urbanization for the decreasing of the forest. About one-fourth of the respondent blame it on the construction of roads, railways and other factors. The variation in the opinion about deforestation depends on the developmental activities on their surrounding areas. The impact of decreased forest area, they said that the number of minor forest produce had decreased. Some said that the number of trees of some species had decreased like Mahua, Amla, Keund, Assan, Dheotha etc. They also told that the number of wild animals had also decreased in this period. Earlier wild boar came to their villages and destroy their crops but now a days these event does not occur. Numbers of Hyena, Fox, Kharha and many other wild animals are decreased.

**Cause of increase of forest:**

Government intervention, public awareness, stringent forest laws, activities by the NGOs and management by the Gram Smities makes a positive impact on forest. Increase in forest cover in the Hazaribag district is due to the above factors. The respondent of the sample village response are as follows:

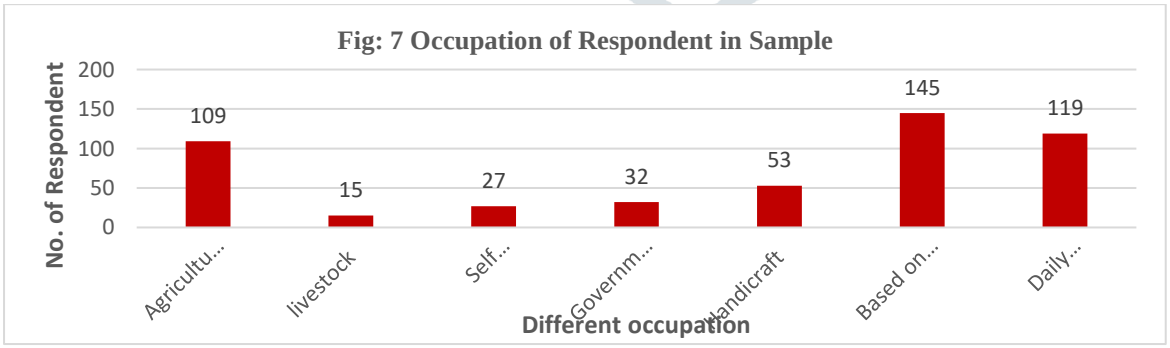



**Source: Primary Survey by Researcher**

For increase in forest area 40 percent of respondent believe that the Government restriction is the main reason. Gram Van Raksha Samiti also play an important role for the increase in forest in their areas. Twenty three percent respondent gives credit to the village samiti which is responsible for the restriction and serves as watchdog for the cutting of forest trees. They give information about to the local forest officials about the illegal cutting of forest trees. Due to their awareness, there is increase in forest areas near to their villages. About 19 percent of respondents accept that public awareness in villages also play a vital role in the increase of forest cover. People voluntarily take part in the afforestation program started by the Government. Mukhyamantri Jan Van Yojana gives impetus to the afforestation program in rural area. Afforestation program also implemented through MANREGA. Raksha Bandhan of trees in which men and women tied a sacred thread to the trees and take a pledge to save the trees. This campaign also give result in increasing of forest areas.

There is a positive impact of forest cover in villages that the number of different trees increased over the year. Availability of fodder to their domestic animal also increases. They also told that there was increase of Non-Timber Forest Produces is like different herbs, seeds and flower from the forest. All these forest produces supplement their income.

**Occupation:** Occupation is any of economic activity which fulfil the basic amenities to the people and their family. Although in rural areas people do not depend on single economic activity. People engage in different economic activities in different seasons. But the purpose of the research is to know how the forest cover affect their source of livelihood. To fulfil this objective researcher asked to the respondent of the sample village about the main occupation and the same time the researcher also get information about the forest based NTFPs role in their livelihood. Response about the main occupation of the respondent is as follows:




**Source: Primary Data Collected by Research**

People who engage in agricultural activities are mostly from the OBC category. ST people are still dependent on the forest produces. Some of them are daily wage laborer. Very few people are the government employee. Among the SC category more people are daily wage laborer. They visit to the nearby urban area for search of employment. About 30 percent of people get their source of livelihood from the forest. Maximum number of these people are from ST category. 10 percent people get their earning from handicraft like making Tokri, mats, ropes, etc. based on forest based raw materials. Maximum number of people from General category are either government employee or self-employed.

**Note: GE- General OBC-Other Backward Class SC- Schedule Class ST- Schedule Tribe**

## Livelihood Generation from NTFPs based on Self-employment

Sal leaves, lac, bamboos are important forest produces collected by the forest villager mainly for commercial gain while Mahua and other fruits is used both for commercial gain as well as domestic uses. Many medicinal herbs and edible items are also collected by the local tribal and villagers for their domestic and commercial purposes. The monetary value of these items is not known. Average monetary value of these items are taken from the price at which these items are sold in local markets for study purpose. After that total annual income is converted into monetary values by the rate at which this item sold at local market. After that total annual income is converted into employment man-day on the basis of average wage of Rs. 225 per day per person. This average wage rate is taken because such amount is given to the MANREGA labourer per day. These employment generation based on NTFPs are as below:

**Table 2 Livelihood Generation from NTFPs based on Self-employment**

| Sl. No. | Non-Timber Forest Products | Collection (kg/annum) | Sale(kg/annum) | Average Rate/Kg/bundle (in Rs.) | Income (Rs/annum) | Employment (Manday/annum) |
|---|---|---|---|---|---|---|
| 1 | Sal leaf | 50000bnl * | 45000bnl * | 20 | 900000 | 4000 |
| 2 | Lac | 50 | 50 | 150 | 7500 | 33.33 |
| 3 | Tooth brush/datun | 5000bnl* | 4500 | 10 | 45000 | 200 |
| 4 | Fodder | 20000 | - | 5 | 100000 | 444.44 |
| 5 | Fuel wood | 30000 | 5000 | 10 | 50000 | 222.22 |
| 6 | Charcoal | 2000 | 1500 | 20 | 30000 | 133.33 |
| 7 | Mahua flower | 728 | 628 | 20 | 12560 | 55.82 |
| 8 | Mango | 817 | 717 | 20 | 14340 | 63.73 |
| 9 | Ber | 426 | 400 | 15 | 6000 | 26.66 |
| 10 | Jamun | 613 | 555 | 20 | 11100 | 49.33 |
| 11 | Keund | 216 | 198 | 20 | 3960 | 17.6 |
| 12 | ChirounjiSeed | 168 | 158 | 150 | 23700 | 105.33 |
| 13 | Karanj seed | 108 | 108 | 40 | 4320 | 19.2 |
| 14 | Sal seed | 308 | 308 | 45 | 13860 | 61.6 |
| 15 | Mahua seed/Dori | 316 | 316 | 20 | 6320 | 28.08 |
| 16 | Kusum seed | 218 | 218 | 18 | 3924 | 17.44 |
| 17 | Tamarind | 1608 | 1608 | 20 | 32160 | 142.93 |
| 18 | Bamboo Corn/shoot | 418 | 318 | 80 | 25440 | 113.06 |
| 19 | Khukhri/Phutka/Rugra | 712 | 612 | 250 | 153000 | 680.0 |
| 20 | Putkal leaf bud | 150 | 130 | 15 | 1950 | 8.66 |
| 21 | Konar tender leaf | 1350 | 850 | 30 | 25500 | 113.33 |
| 22 | Bhelwa | 830 | 830 | 20 | 16600 | 73.77 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 23 | Bel | 1200 piece | 1000 piece | 4 | 4000 | 17.77 |
| 24 | Satwar | 105 | 105 | 200 | 21000 | 93.33 |
| 25 | Chiraita | 45 | 45 | 50 | 2250 | 10.0 |
| 26 | Hara | 50 | 50 | 50 | 2500 | 11.11 |
| 27 | Baher | 45 | 45 | 50 | 2250 | 10.0 |
| 28 | Awala | 1100 | 1100 | 20 | 22000 | 97.77 |
| 29 | Jack fruit | 1016 | 900 | 35 | 31500 | 140.0 |
| 30 | Bamboo basket | 1800 piece | 1500 piece | 50 | 75000 | 333.33 |
| 31 | Broom | 2200 piece | 2000 piece | 25 | 50000 | 222.22 |
| 32 | Mat | 500 piece | 450 piece | 125 | 56250 | 250 |
| | Total | - | - | | 1753984 | 7795.39 |
| | Average | - | - | | - | 53.76 |

Note;-bnl* Bundle, 1 bnl=10Pices, Rates of produces are based on average rates in local Hats
Employment Man-day=Total income/Average wage per day Average wage= Rs. 225/day per person
**Source: Based on Primary Survey by Researcher**

The details of livelihood generation from Non-Timber Forest Produces are given in the above Table 2. The table includes NTFPs, collection in Kg per annum, sales in Kg per annum, total income in Rs. and employment man-days/annum from the sampled villages. Total annual income from different produces of forest is calculated on the basis of total sales of the item @ rate of average price of that item sold in local hats. It is clear from the table sal leaf plates is the highest source of annual income (Rs.900000) then fuelwood (Rs.50000), wild mushroom/khukhri/phutka (Rs.153000), bamboo basket (Rs.75000), mat (Rs.56250), charcoal (Rs.30000), tamarind (Rs.32160), konar tender leaf (Rs.25500), satwar (Rs.21000), jamun (Rs.11100), etc.

Employment generation is calculated through total annual income from the collected items divided with Rs.225. For example, total annual income from lac is Rs. 7500. It is divided with Rs.225 then it comes 33.33 man-days/annum. This amount is taken because minimum wage paid per labourer per day in MANREGA. The extraction and marketing of sal leaf generates highest employment opportunity 4000 man-days/annum, the fodder extraction is the highest unpaid employment opportunity 444.44 man-days/annum among the people in study area. Employment opportunity generated in the sample villages are from bamboo basket 333.33 man-days/annum, fuelwood 222.22 man-days/annum, khukhri/phutka 680 man-days/annum, charcoal 133.33 man-days, tamarind 142.93 man-days/annum.

**Phutka (Forest Produce)**

**Bamboo Shoot (Forest Produce)**

Sal Leaves and Datun (Source of Livelihood)

Medicinal Herbs (Source of Livelihood)

The bamboos are priced for its multiple uses like young bamboo corn for pickle, culms for brooms, basket, fans, plates, and other handicraft making. Konar tender leaf are important vegetables for local population and sold by quantifying the with khala in local hats. Jackfruits are used as vegetable. Satwar, awala, hara, baher are used and marked as the medicinal plants. Chiraita leaf are dried and bundle it and sold in the market and nearby urban areas. Mahua seeds, karanj seeds, kusum seeds and sal seeds are used for extracting oil for local consumption and lighting purposes. The residue oil seed cake is utilized as cattle feed and mauare of farms.

**Conclusion:**

Forest plays an important role in different field. In environment forest is an important component. Forest purifies the air, increase the underground water, enrich the soil fertility, minimize the soil erosion provide habitat to the wild animals. Jharkhand state is the land of forest. Its topography and climate are suitable for forest. Many forest dwellers and nearby villagers get opportunity to their livelihood. Hazaribag district has covered about 40 percent geographical area with forest.

As the developmental activities progress the land of forest decreased in the district. Establishment of big industry, construction of roads and railways, widening of important highways in the district forced to the people for cutting of trees. Urbanization and mining activities in the district put pressure on the forest areas. Several mines operated in the district diverted the forest land.

These forests provide various NTFPs which is the main source of livelihood in the villages get different kinds of forest produces like fuel wood, fodder, fruits and medicinal herbs. Several tribal and local festivals are based on forest. In the study area livelihood and employment opportunities are still based on forest. With awareness and government restrictions improves the forest cover. But these afforestation programs are focused on the plantation of trees. These trees are of same species. Though the forest cover increased through different schemes of government but there is lack of diversity in the plant species. Natural forest has diversity in the plant species. Monoculture plantation shrink the opportunity of source of livelihood in the forest areas. Forest collections by the villagers are decreasing over the year. There is lack of marketing of forest collection in the Haaribag district. People of sample villages are compelled to the local market where they do not get proper price of their forest collection. Middle man take maximum profit of these forest produces.

The employment generation based on NTFPs are very less in the surveyed village. The average employment generation from NTFPs based on self-employment is only 53.76 mandays per annum. This small numbers of employment in a year forced to people to migrate for daily wage laborers to the urban and big cities outside the state. We can say that change in forest cover directly affect the occupation of the people of villages of forest and near to the forest areas in the Hazaribag district.

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