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COLLECTION OF NON-TIMBER FOREST PRODUCTS AND DYNAMICS OF FOREST DEPENDENCE

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ABSTRACT

Forests are the source of livelihoods for billions of living organism. Forests provide food and shelter to the countless wild habitants, they are acting as a separate eco-system where everything is depended on each other. The symbiotic relationship in forest eco-system is a live proof of forest interdependence. Apart from this interdependence of forest eco-system, forests are an important source of food and other requirements of human also. Forests acts as major source of food to the millions of forest dwellers or fringe people. From hundreds of years' people were collecting materials from forests for their food, clothing, shelter and fuel. The development of nations is still positively related with its forest cover, forests not only provide the direct benefits like food and fuel but also sustain the space where humans are settled. The overwhelming importance of forest can be understood from its contribution to eco-system, the eco-system of which humans are a single part. Forest protect the land for settlement, balance the atmosphere and conserve the hydrosphere. As for the human development is concerned, forests stable the land for our settlement, clean the air and provide the water and of these are the better indicators of sustainable development of human race. Forest also provide multiple direct benefits for the purpose human development, they provide material to several industries like furniture, paper, food, medicine and other construction related industries. The benefits from forests are not alike for all, some are directly while others are indirectly benefited by the forests and some are highly benefited while others are comparatively low. Several studies on forest dependence has revealed the significance of forest cover to development of forest fringe villages across the world. Forest are considered the natural market for forest dwellers where from they get their basic needs of life. This paper will also try to find out how the fringe villages of Kashmir valley (A Himalayan valley) are depended on the forest and how the dependence on these forests are changed over the time. The paper will analyze the collection of NTFP by the fringe population of Uri block of Baramulla district of Jammu and Kashmir and how the dynamics of collection has changed.

Keywords: Forest, Fringe People, Eco-system, NTFP, Development, Habitants, Kashmir

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INTRODUCTION

The large variety of Non-timber forest products includes mushrooms, ferns, seed cones, seeds, tree nuts, maple , cork, cinnamon, rubber, tree oils and resins. The definition of NTFPs is "any biological resources found in woodlands except timber", and wild Harvest, defines them as "materials supplied by forests - except the harvest of timber". These definitions include wild items, fish, and insects. NTFPs are commonly grouped into categories such as floral greens, medicinal plants, foods, flavors and fragrances, fibers, and saps and resins. Other terms similar to Non-timber forest produce include non-wood, minor and secondary forest outputs. In recent years, the growing interest in Non-timber forest produce as alternatives or supplements to forest management and development practices. To increase biodiversity and potentially economic diversity. Medicinal plant cultivation in the forests of Jammu and Kashmir is a good example of a high profitability when well managed

Economics of Non-Timber Forest Products

In temperate forests such as in the Kashmir, wild edible mushrooms such as Morchella, Matsutake, medicinal plants such as Artemisia, and floral greens such are the potential areas of development. While these high-value species may attract the most attention, a diversity of Non-timber forest produce can be found in most of woods of the world. In tropical forests, for example, Non-timber forest produce can be a significant source of earnings that can supplement farming and/or other activities in forest fringe areas. The potential harvestings of Non-timber forest produce per hectare is more as compared to the collection of conventional timber. Their economic, cultural, and ecological values, when considered in aggregate, make managing NTFPs an important component of sustainable forest management and the conservation of biological and cultural diversity.

Study Areas

To study the Collection of Non-Timber Forest Products and Dynamics of Forest Dependence, the three forest villages of Uri block of district Baramulla were undertaken. Uri is a highly forest concentrated area of Jammu and Kashmir. It is a north-western areas of state and closely located with the Line of Control (LOC) between India and Pakistan. Most of the people from Uri are Schedule Tribe (Gujjar and Bakirwals) and people are settled near to the natural forests. To study the dependence of these fringe people three forest fringe villages of Uri were taken for study. The villages for study were Ishem, Nawa and Baaz. The socio-economic background of these villages are far from the urban areas. People from these villages were mostly farmers, herders

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and labour. The social infrastructure like roads, schools hospitals etc. were almost absent from these areas.

Data Collection and Methodology

People from fringe villages are highly depending on the forests near to them, to study the dependence of people on forests from Uri a sample of 150 respondents were taken from three villages of Uri. The sample size from each villages was equal to 50 respondents. The information regarding the collection of major Non-timber forest produce from these villages were taken and the data were collected of last five years (2014-18).

Artemisia

Artemisia is one among the major Non-timber forest produce collected by fringe population from Uri, most of the people are collecting it for market purpose and earn their livelihood from its collection. Artemisia (*Artemisia annua*) is an aromatic herb widely distributed in the cool temperate and subtropical regions of Kashmir valley.

The plant is of Chinese origin and in India the cultivation of *Artemisia* in Kashmir valleys has taken place. The chemical composition of *Artemisia* consists of volatile and nonvolatile constituents, mainly sesquiterpenoids, including artemisinins. Malaria, is still challenging people's health. every year, millions of people around the world die due to malaria and near about two billion people in over hundred countries and regions are threatened by the Malaria. The artemisinin compounds are effective against disease. Therefore, the market for products including artemisinin derivatives is now significantly growing and the demand for artemisinin is increasing. Hence, there is a vast scope for expanding area under *Artemissia annua* cultivation in Kashmir Valley, for which modern agro-technologies for its cultivation is a prerequisite.

Sample Distribution

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A sample of 120 respondents were taken from three forest fringe villages of Uri, Baramulla. The three villages are Ishem, Nawa and Baaz. Out of 120 respondents 40 respondents were taken from each villages. The selection of 40 respondents from each villages was randomly taken.

Table 1: Sample Distribution

Study Area Block Boniyar (District Baramulla of Jammu and Kashmir)			
Village	**Total Households**	**Sample Size**	**Literacy rate of respondents**
Ishem	260	40	3.16 per cent
Nawa	200	40	4.00 per cent
Baaz	250	40	2.20 per cent

Collection of Artemisia

Artemisia is one among the most commonly found NTFP in the forests of Uri, people from different villages are harvesting it from their nearby forest. The forest dwellers consist of both men and women. Out of total 120 respondents of study there were 35 women collectors. The percentage of women collectors was equal to 29.17. People from these villages are collecting Artemisia from market. The quantity of Artemisia collected by 120 respondents from 2014 to 2018 is shown in table 2 of this paper. The total collection in 2014 from the three villages of study was equal to 70 kgs of Artemisia. The highest collection was taken place from villages Ishem, which was equal to 30 kgs and the least one was Baaz. The Ishem contributed 42.86 per cent of total collection in 2014, while in Baaz the percentage was equal to 21.43. in 2015 the total collection of Artemisia decreased to 62 kgs, which was 70 kgs in 2014. The reduction was taken place from Ishem, where the collection in 2015 was decreased by 5 kgs and in Nawa the total collection in 2015 was less by 3 kgs as compared to the collection of 2014.

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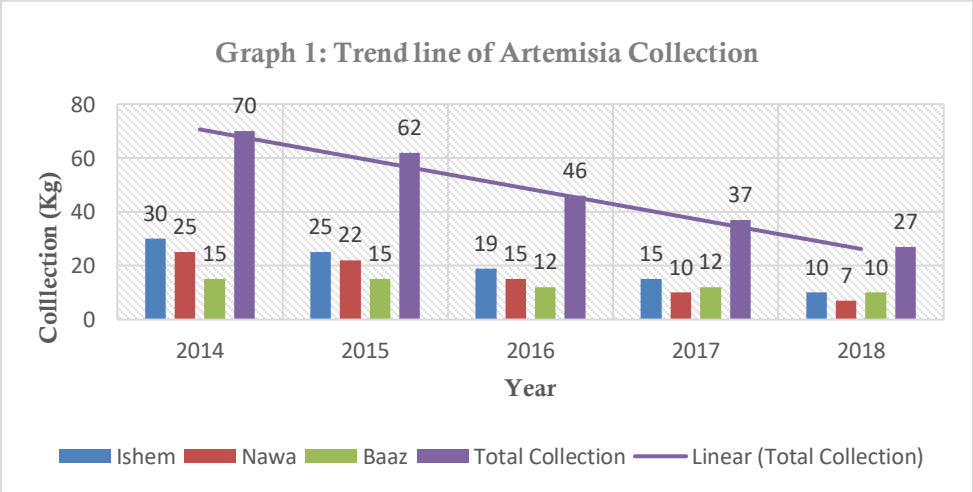
Table 2: Collection of Artemisia from three villages of Boniyar (kgs)

Village	2014	2015	2016	2017	2018
Ishem	30	25	19	15	10
Nawa	25	22	15	10	7
Baaz	15	15	12	12	10
Total Collection	70	62	46	37	27
Average collection	0.58	0.50	0.38	0.31	0.22

Source: Survey Data

The total collection 2016 from all the three villages (respondents from three villages) was equal to 46 kgs and significant fall was recorded from the Nawa. In 2017 and 2018 the collection had further worsened when it comes down to 37 and 27 kgs of Artemisia collection respectively. The average per person collection from 2014 to 2018 has decreased by 62.07 per cent. The decreasing collection of Artemisia has significantly decreased the income from its collection. The falling contribution of Artemisia towards the income of forest dwellers are due to reduction of forest cover and confined movement into the forests by the concerned department. The others reasons revealed by the respondents were the low gains from its collection. The market of these wild products is not a regular market and most of the collection is purchased by local middle man. Decreasing and low demand with little benefits had discouraged its trade among the local forest dwellers from the three different villages of Uri.

Trend line of Artemisia Collection from Uri block of Kashmir Valley



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Collection of any product defines the importance of it and decreasing collection usually explains the lower importance of Artemisia as the income from its collection is concerned. The overall trend line of Artemisia collection by 120 respondents of this study had shown the decreasing collection of Artemisia in every succeeding year. The growth rate for Artemisia collection by 120 respondents of this study in 2015 was equal to -11.43 per cent, and the same rate in 2016 was equal to -25.81 per cent. The overall reduction of total collection from 2014 to 2018 was equal to -61.43 per cent. This significantly falling growth rate of Artemisia collection has decreased the earnings of fringe people and reduced the dependence on its collection.

Income from Artemisia Collection

Earning income from any commercial activate this primary objective of that work. Collectors of Artemisia are purely collecting it for money. High earnings from it can encourage its collection and low benefits will make put it on the side line. The below table (Table 2) shows how the earnings from the Artemisia collection has changed from last five years (2014-2018).

Table 3: Income from Artemisia Collection

Year	Range	Collection (Kg's)	Avg. Selling Price (₹)	Income Generated (₹)	Annual Income (₹)
2014	**Ishem**	30	100	3000.00	7000.00
	Nawa	25		2500.00	
	Baaz	15		1500.00	
2015	**Ishem**	25	100	2500.00	6200.00
	Nawa	22		2200.00	
	Baaz	15		1500.00	
2016	**Ishem**	19	150	2850.00	6900.00
	Nawa	15		2250.00	
	Baaz	12		1800.00	
2017	**Ishem**	15	150	2250.00	5550.00
	Nawa	10		1500.00	

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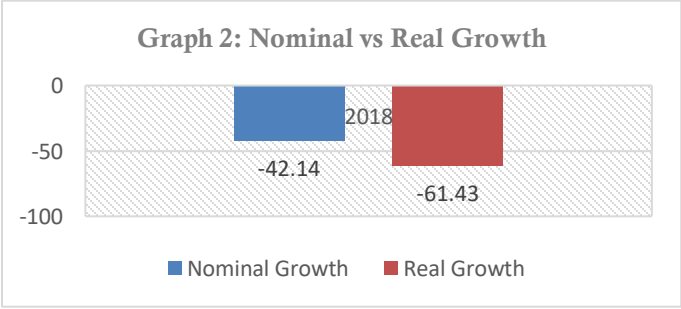
	Baaz	12		1800.00	
2018	**Ishem**	10	150	1500.00	4050.00
	Nawa	7		1050.00	
	Baaz	10		1500.00	

Source: Survey Data

The price in the above table is average price of per kilogram of Artemisia, it is the price at which the local buyers are buying Artemisia from village collectors. The total income from collection of Artemisia by 120 respondents from three different villages of Uri, Baramulla, in 2014 was equal to rupees 7000. The average income in 2014 was rupees 58.33 per person which decreased to rupees 51.67 in 2015. In 2016 the total income from Artemisia collection has increased by 700 rupees as compared to the income of 2015 but from the table 2 the total collection of Artemisia has decreased by 16 kgs in 2016 as compared to 2015. Increase in income in 2016 is only because of increase in price. The average for Artemisia in 2016 increased by 50 rupees as compared to 2015. The total income earning in 2018 is very much decreased despite of increase in price of Artemisia. The overall decrease in income from 2014 to 2018 are equal to -42.14 per cent. The reason behind this fall in income from Artemisia collection is the decrease of collection in these five years which was equal to -61.43 percent.

To find out the real change in income, we have to study the effect of price rise. The above calculated income growth which was equal to -42.14 per cent is a nominal one, without taking rise in price in consideration. To calculate the actual change in income from collection of Artemisia we have eliminate the factor of inflated prices and present the actual growth figure. The total income earned in 2014 by 120 respondents of our study at price index of 2018 (PoI of 2018 is equal 150) is equal to rupees 10,50,000. To find out the value of this figure in 2014, divide it with the price index of 2014 which is equal to 100 (2014 is a base year).



The result will is the worth of income from 2014 in 2018. To calculate the real growth rate of income from Artemisia collection, subtract the result from which we have to compare it i.e.

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nominal income from 2018. By eliminating the effect of rise in price, the real growth rate of income from Artemisia collection from 2014 to 2018 by 120 respondents from three different villages of Uri is equal to -61.43 per cent. The two different growth rates of income collection of Artemisia are shown in graph 2.

CONCLUSION

The real and nominal growth rates shown above had revealed that income from Artemisia collection has decreased significantly. The decreasing income discouraged people or forest dwellers towards the collection of Artemisia. The dependency of fringe villages had decreased from forest harvest, people from these fringe villages are mostly engaged in agriculture and livestock rearing. A significant proportion of people are working as labour in their villages are in near urban stations. The changing income dependency have explained the dynamics of income dependency of forest villages on their nearby forests. Production of NTFPs in forest is the only way to enhance to forest revenue within the principles of forest conservation and forest sustainability. To enhance to revenue from NTFPs several steps and polices should be undertaken like awareness about the product, uses and utilities of several NTFPs and most important in it is the creation of markets.

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