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Foreword

Uttarakhand was formed as the 27th State of India in 2000 to give voice to the aspirations of the people in the hills and the vision was to transform Uttarakhand into a prosperous State so that people are gainfully employed in an equitable society; synergy between the environment and inhabitants is enhanced and the development process is sustainable and inclusive.

Historically the NTFP Sector was neglected for many decades from main stream Forestry and they were considered as “minor”(Minor Forest Produce) despite the fact that monopoly rights over several such NTFP’s/MFPs fetched a good income for Forest Department. After the ban on green felling, the income from NTFP’s in the total income of the Department became a major one with that of Timber marginalized in many states. Export of NTFP’s and its products contributes a major chunk of the total export from the forestry sector. NTFP’s have a tremendous potential to create large scale employment opportunity thereby helping in combating the menace of migration and reducing poverty and creating sustainable livelihoods. One of the major focus area of the Vision Document of the State for attaining the Sustainable Development Goals set by the UN is through creating employment opportunities in the Forest Sector (Non Timber Fibre Produce). Besides food security the Sector has tremendous potential for establishing micro, small and medium enterprises through clear tenured rights, better collection methods, financial support, capacity development, infrastructure and institutional support at local level in near future.

During the last year the CoE has done surveys in some of the forest fringe villages of Kumaon and Garhwal Region and has made some conscious efforts in tapping the work done in Non Timber Forest produce by the Non Government Sector and tried to establish vital linkages through them in the villages. This has helped them in conducting surveys and two stakeholders meetings; one at UCOST and other at remote location of Laata village in Chamoli district so as to get the maximum information from different stakeholders. The Centre is also trying to create vital linkages through researchers and industries so that value chain analysis of some of the NTFP’s could be done. I wish all the best for their future endeavours.

Rajendra Dobhal

CONTENTS

INTRODUCTION	01
LITERATURE REVIEW	04
FOREST RIGHTS IN UTTARAKHAND	08
MANDATE, VISION AND OBJECTIVES OF CoE	16
METHODOLOGY	18
<ul style="list-style-type: none">Collection of secondary dataSurvey of forest fringe villagesVisit to medicinal plant mandisOther visitsPreparation of News-BulletinsMeetingsExpert Lecture at CoEWorkshops ConductedWorkshops attendedPublications	
CoE IN NEWS	29
FINDINGS	30
List of Figures	
<ul style="list-style-type: none">Forest fringe villages of Uttarakhand surveyed for livelihood studyResin production in UttarakhandMarketing of medicinal plants at Bibiwala MandiMarketing of medicinal plants at Ramnagar MandiMarketing of medicinal plants at Tanakpur MandiMarketing of Jhula Ghas in UttarakhandMarketing of Moss in UttarakhandMarketing of Tejpatta in UttarakhandVillage Boundary Map of Lata Village in Niti Valley	
List of Tables	
<ul style="list-style-type: none">Agency wise marketing report of medicinal herbs in three mandis of UAFDCSpecies wise marketing report of medicinal herbs in three mandis of UAFDC	
REFERENCES	39
ANNEXURE I	41

ABBREVIATIONS

CAMPA	Compensatory Afforestation Fund Management and Planning Authority
CoE	Centre of Excellence
FGD	Focused Group Discussion
GMVN	Garhwal Mandal Vikas Nigam
HRDI	Herbal Research and Development Institute
ICFRE	Indian Council of Forestry Research and Education
IUCN	International Union for Conservation of Nature
KMVN	Kumaon Mandal Vikas Nigam
MoEFCC	Ministry of Environment and Climate Change
NTFP	Non- Timber Forest Product
UAFDC	Uttarakhand Forest Development Corporation
UCOST	Uttarakhand State Council for Science and Technology
IUFRO	International Union of Forest Research Organizations
NFAP	National Forestry Action Programme
FSI	Forest Survey of India
NFP	National Forest Policy
IPCC	Intergovernmental Panel on Climate Change
IFSR	India State of Forest Report
KUZA	Kumaon and Uttarakhand Zamindari Act
FSO	Forest Settlement Officer
FRA	Forest Right Act
GO	Government Order
NGO	Non Government Organization
CHEA	Central Himalayan Environment Association
FTA	Forest Training Academy
CEDAR	Centre for Ecology Development and Research
SRHU	Swami Rama Himalayan University
JICA	Japan International Cooperation Agency
NSSO	National Sample Survey Office
HIMCOSTE	Himachal Pradesh Council for Science, Technology and Environment
IMI	Integrated Mountain Initiative
SDFU	Sustainable Development Forum, Uttaranchal
ENVIS	Environment Information System
PAC	Project Advisory Committee

Annual Progress of the Project

Title of the Project :
Centre of Excellence on Forest Based Livelihood in Uttarakhand- A Pilot Study

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Uttarakhand, the 27th state of Republic of India lies between 28° 44' and 31° 28' N latitude and 77° 35' and 81° 01'E longitude. Total geographical area of the state (53,483 Km²) is 1.6% of the total geographical area of the country, out of which 46,035 Km² (86%) is hilly. Hence the terrain and topography of the state is largely mountainous with large areas under snow cover and steep slopes. Uttarakhand State comprises of 02 regions, 13 districts, 78 Tehsils and 95 community development blocks. Garhwal region comprises of Uttarkashi, Chamoli, Pauri, Rudraprayag, Tehri, Dehradun and Haridwar districts and Kumaon region contains Udham Singh Nagar, Nainital, Almora, Pithoragarh, Champawat and Bageshwar districts. Uttarkashi, Chamoli and Pithoragarh districts share international boundary with China in the northwest. Pithoragarh, Champawat and Udham Singh Nagar districts share International boundary with Nepal in the east. Uttarkashi and Dehradun share inter-state boundaries with Himachal Pradesh in the northwest, while Dehradun, Haridwar, Nainital and Udham Singh Nagar touches the boundary of Uttar Pradesh in the south.

Uttarakhand is represented by bio-geographic zones 2B Western Himalaya and 7B Shivalik. Physiographically, Uttarakhand represents a cross-section of the Himalaya on the basis of its evolutionary history, namely the Trans-Himalaya, Greater Himalaya, Lesser Himalaya, Shivalik ranges, Terai and the Plains almost running parallel to each other from northwest to southeast. The northern zone contains segments of the Zaskar and Greater Himalaya with elevations

ranging roughly from 3,000 to 7,800 m. Most of the major peaks are located in this zone. Some of the highest mountains in the world are found in Uttarakhand viz. Nanda Devi (7,817 m), the second highest peak in India, Kamet (7,756 m) and Badrinath (7,138 m). Adjacent to and south of the Greater Himalaya is a zone containing the Lesser Himalaya, with elevations between 2,000 to 3,000 m. To the south of this is a stretch of the Shivalik range. The southern edge of the Shivalik range merges with a narrow bed of gravel and alluvium known as the Bhabar, which interfaces to the southeast with the marshy terrain known as the Tarai. The combined Shivalik-Bhabar-Tarai area ranges in elevation from 300 to 2,000 m. Flat-floored depressions, locally known as *duns* are found south of the Shivalik. By virtue of its extensive geographical stretch, varied terrain and climate the Himalayan mountain ranges in Uttarakhand are bestowed with a series of wetlands. Important perennial rivers are Ganga, Yamuna, Bhagirathi, Alaknanda, Ramganga, Nayar, Kosi, Saryu, Sharda and their tributaries.

The major wealth of the state is its forests with very rich biodiversity. The state has varied terrain, major portion of which is mountainous with unique ecological diversity consisting of high alpine areas to the Sub-tropical and Tropical regions. It is rich in natural resources especially water and forests with many glaciers, rivers, dense forests and snow-clad mountain peaks. It is blessed with a rare bio-diversity which *inter-alia* includes 175 rare species of aromatic and medicinal plants. Total forest cover in the state is 24,295 Km² constituting 45.43% of the state's



geographical area (FSI 2017). The forest diversity of the state comprises of Tropical Moist Forest (500-1000 m) in Terai and Bhabar belt of Sub Himalayan Tract, Sub-Tropical Pine Forest (1000-2000 m), Himalayan Moist Temperate Forest (2000-3000 m), Sub-Alpine Forests (3400-4000 m) and Alpine Forests (4000-5000 m).

Uttarakhand has a highly varied topography, with snow-covered peaks, glaciers, deep canyons, roaring streams, lakes, and a few patches of dusty plains in the south. The forests provide not only timber and fuel wood but also extensive grazing land for livestock. Only a small portion of the state's total land area has permanent pastures. Common tree species of the temperate forests include Himalayan cedar (Deodar cedar), Himalayan (blue) pine, oak silver fir, spruce, chestnut, elm, poplar, birch, yew, cypress, and rhododendron. Tropical deciduous forests of Sal, Teak, and Shisham—all hardwoods—occur in the submontane tract. Thorn forests of dhak (a type of flowering tree), babul (a type of acacia), and various bushes occur in the south. It has almost all major climatic zones, making it amenable to a variety of commercial opportunities in horticulture, floriculture and agriculture. It has a vast tourism potential in adventure, leisure, and eco-tourism. Enormous floristic and vegetation diversity marks the upper limit of vegetation, with variety of orchids, horticulture and economic plants, including Bamboo, wild germplasm of some cultivated species. Due to its unique bio-diversity, the state is also home to several rare and endangered species of herbal and aromatic plants. Realizing the immense potential of this resource in the state, the state government has declared Uttarakhand as a Herbal State.

Uttarakhand has half of its population in the rural areas which is partially dependent on surrounding forest resources for its livelihood. About

55% of employment from forestry sector is based on non-timber forest products (NTFPs). NTFPs like firewood, fodder, bamboo, grasses, wild fruits, medicinal and aromatic plants, lichens, wild flowers and vegetables etc. are the articles of day to day needs of the people. They have been used for subsistence by communities living near to forests. Minor forest products as they are also referred to have tremendous potential and make significant contribution in terms of income and employment in rural areas, near forests. NTFP based activities are mostly household based, labour intensive, prevalent among low income and socially disadvantaged classes and most often managed by women. These activities are usually seasonal and characterized by the usage of simple techniques and formation of diverse products. They provide direct benefits to the local economy by bringing supplementary income to the family. Most of the industries in the state are



forest-based which *inter alia* include 54,047 handicraft units. The National Forest Policy (1988) also emphasizes upon the importance of marketing and trade of NTFPs to ensure adequate wages to the tribal collectors, including women.

Uttarakhand is well known for its rich diversity of medicinally important plants and associated traditional knowledge. The use of herbal medicines is enormously increasing due to fewer side effects, easy availability, low cost and longer shelf-life. This has put a heavy pressure on the biodiversity of the medicinal plants particularly on native plants of Himalayas. Nearly 90% medicinal plants in use are collected from the wild. *Aconitum heterophyllum*, *Angelica glauca*, *Dioscorea deltoidea*, *Hedychium spicatum*, *Heracleum candicans*, *Picrorhiza kurroa*, *Podophyllum hexandrum*, *Saussurea costus* and *Valeriana jatamansi* are high value threatened medicinal plants of Himalayan region. *Aconitum heterophyllum*, *Arnebia benthamii*, *Dactylorhiza hatagirea*, *Nardostachys jatamansi* and *Picrorhiza kurroa* are in critically rare category. Whereas *Angelica glauca*, *Fritillaria roylei*, *Rheum emodi*, *Swertia chirayita* and *Taxus baccata* are enlisted under the endangered category and *Gloriosa superba*, *Polygonatum verticillatum* and *Valeriana jatamansi* under the vulnerable category (Bisht *et al.*, 2013). Though, this categorization is not beyond objections, sustainable exploitation of these resources definitely could go a long way in conserving the biodiversity and ecosystem besides improving the livelihood of the local people through supplemental income and employment generation. Cultivation of medicinal plants is also viewed as an alternative method ensuring sustainable supply of raw material without threatening their existence in wild habitats (IUCN *et al.*, 1993).

Few species apart from providing fodder also used in medicines, fuel etc. and are known as multi-purpose species. For example, the flowers of *Bauhinia variegata* are edible, petals have medicinal property and dry wood is used as fuel; *Diploknema butyracea* provides edible fruits, vegetable fat and

fuel; *Castanopsis tribuloides* provides edible seeds, timber, and fuel. Similarly, species of *Quercus* provide excellent fuel and timber. Seeds of *Corylus jacquemotii*, fruits of *Zanthoxylum armatum*, *Terminalia chebula*, *Embica officinalis*, *Myrica esulenta*; roots of *Aparagus racemosus* and flowers of *Bauhinia variegata* are traded and are source of income generation in the area (Samant and Dhar, 1997). Wood of *Boehmeria rugulosa* and *Ougeinia oojeinensis* is used for making various types of utensils and culms of *Thamnocalamus spatheflorus* for making mats (Locally known as Mosta) and other items and add to the income generation. Livestock population is an important part of rural economy of Uttarakhand which cannot be maintained on the fodder produced on arable land alone. To maintain healthy livestock farmers have to largely depend on the forest resources (Purohit and Samant, 1995). Fuelwood is the only source of energy for many people living in the mountains (Sundriyal and Sharma, 1996) because it is freely and easily accessible and simple to use (Blaikie, 1985). The most preferred species for fuelwood are: *Alnus nepalensis*, *Quercus floribunda*, *Pinus roxburghii*, *Rhododendron arboretum*, *Rhus pur vilflora* and *Toona ciliata*. In Garhwal Himalayas 77.4% of the total human population is rural (Anonymous, 1991) and fuelwood collected from nearby forests is the only source of energy in this region (Bhatt and Badoni, 1990). *Quercus floribunda*, *Alnus nepalensis*, *Rhododendron arboretum*, *Lyonia ovalifolia*, *Pinus roxburghii* etc. are exclusively used fuel wood species in higher altitude (1500-2000m asl) while *Quercus floribunda*, *Rhododendron arboretum*, *Alnus nepalensis*, *Shorea robusta*, *Pinus roxburghii* and *Indigo fer aheterantha* are preferred fuel wood species in middle altitude (1000-1500 m asl) and *Pinus roxburghii*, *Rhus pur vilflora*, *Mallotus philippensis*, *Toona ciliate*, *Woodfordia fruticosa* in lower altitude (500-1000 m asl). *Pinus roxburghii* was commonly used in all three altitudes.



Literature Review

Forests contribute to the livelihoods of over 1.2 billion people worldwide. They provide innumerable assets for subsistence and for sale; for example fodder, energy source, non-timber products, many kinds of foods, structural materials, medicines and treasured environmental services. In developing countries, forest-based enterprises provide 13–35% of rural non-farm employment and hence contribute to local and regional economies (IUFRO). India is a developing nation and majority of its population lives in rural areas. Forests play a vital role in the rural economy. In many areas, forests and trees are among the few resources that are available to rural dwellers. They provide different kinds of benefits such as jobs and incomes, often needed to supplement inadequate returns from agriculture; produce such as fuelwood, food, fodder and building poles for the home; and a range of environmental benefits without which other activity, such as agriculture might be impossible. Forest sector is the second largest land use after agriculture. In remote forest fringe villages about 300 million tribal and other local people depend on forest for their subsistence and livelihood and about 70% of India's rural population depends on fuelwood to meet its domestic energy needs. For about 100 million of them, forests are main source for livelihood and cash income from fuelwood, non-timber forest products (NTFP) or construction materials. More than half of India's 70 million tribal people, the most disadvantaged section of society, subsist from forests. Forests contribute 1.7% of GDP of the country. However, this figure does not take into account its numerous non-market and external benefits and the vast amount of fuelwood and fodder and other forest products collected legally or illegally. One estimate shows that total annual removals from the forest is worth Rs.30,000 crores which includes about 270 million tons of fuelwood, 280 million tons of fodder and over 12 million cubic meter of timber



and countless non-timber forest products (NTFP). This does not include value of environmental services provided by the forest.

India's biodiversity is rich and unique. It is one of the 12 mega diversity countries in the world having vast variety of flora and fauna, which collectively account for 60-70% of world's biodiversity. Its ten bio-geographic regions represent a broad range of ecosystems. India has world's 6% flowering plant species and 14% of world's avian fauna. (World Bank 1996). There are nearly 45,000 species of plants and 81,250 recorded species of fauna in the country (NFAP 1999). The land area of India is about 328.7 million ha. of which 142.5 million ha. (43.3%) is under agriculture and 76.5 million ha. (23.27%) is under forests cover. According to the State of Forest Report (FSI 1997), the actual forest cover is 63.34 million ha (19.27%) of which 26.13 million ha. are degraded. (NFAP 1999). Forest area is being rapidly depleted due to the heavy pressure of population on land. Having about 2.5% of world's geographic area, India at present is supporting 16% of planet's human population and 18% of cattle population. The forest cover has been reducing both in quality and extent. The degradation is not only indicated by crown density decline but also soil erosion, lack of natural regeneration. Between 1950 and 1980 India lost about 4.3 million ha. of forest land for non-forest use like development of agriculture, heavy industries and other developmental process. Complete with this there are serious problems of encroachment, grazing, forest fire, shifting cultivation and illegal felling. Most



of the flora and fauna species are endangered with a serious economic implication. It has been estimated that due to degradation and deforestation the loss has been up to one million ha. per year during 1970s to 1980s (World Bank). It is increasingly realized that unless the opportunities for rural livelihoods are created, development of forest would be an extremely difficult task. In the past, forests had been considered just as a source of revenue. The National Forest Policy 1988 was a paradigm shift in the forestry sector. It differed from the previous policies of independent India. The objective of the 1988 policy was to ensure that the rights of the forest dependent people are protected. The ecological security was the primary goal of this policy. The policy also emphasized upon the close relationship between the tribal population and the forest. Though the National Forest Policy (NFP) 1988, has main thrust on conservation of flora and fauna diversity, it clearly recognizes that "the life of tribals and other communities living within and near forests, revolves around forests. The rights and concessions enjoyed by them should be fully protected. Their domestic requirements of fuelwood, fodder, minor forest produce and construction timber should be the first charge on forest products". Conservation and people's livelihoods are integral part of the forest development and development of the rural poor.

Forest provides direct benefits (physical products such as wood, food, medicine, fuel, fodder, fiber, organic fertilizers and host of other products) and indirect and attributable benefits for environmental enrichment. As an inseparable component of the total land use systems, forestry has significant inter-

relationships with agricultural, pastoral and food-producing systems. Through soil and water conservation, and maintenance of soil fertility, forest provides critical support for agricultural development. In addition, forest based small and cost effective enterprises can help increase in rural employment and raise the income and living standards of rural people including forest dwellers and indigenous groups. The potential of NTFPs for poverty alleviation is very important. The rural poor and tribal communities collect various kinds of products throughout the year to sustain their livelihood. Activities related to NTFPs provide employment during slack periods in the agricultural cycle and provide a buffer against risk and household emergencies. The significance of the NTFPs in livelihood generation is being increasingly realized through better understanding of their value to the economy as well to the environment. The emerging trend of market preference for natural products and the increasing emphasis on the efficient and sustainable use of natural resources have further helped gain this appreciation.

In many developing countries, rural poverty has increased and scarcity of forest resources and degradation have increased. The dependency on forest resources for survival has increased, forested land continues to be converted to agriculture and forest management is increasingly devolved to local communities. Significant poverty alleviation through extraction and trade of non-timber forest products (NTFPs) is likely to remain limited. Most of the measures to elevate the potential of NTFPs may marginalize the poor, as they lose their comparative advantage as suppliers. IUFRO has listed lack of developed markets, competition with substitutes and seasonality of income from NTFPs as the key problems in this sector. Government policy should focus on promoting the guided use of forest





resources to promote sustainability on the one hand and to augment rural livelihoods and income on the other hand.

“Livelihood” comprises the capabilities, material and social resources and activities required for a means of living. India has a huge population living close to the forest with their livelihoods critically linked to the forest ecosystem. There are around 1.73 lakh villages located in and around forests (MoEF, 2006). Though there is no official census figures for the forest dependent population in the country, different estimates put the figures from 275 million (World Bank, 2006) to 350400 million (MoEF, 2009). People living in these forest fringe villages depend upon forest for a variety of goods and services. These includes collection of edible fruits, flowers, tubers, roots and leaves for food and medicines; firewood for cooking (some also sale in the market); materials for agricultural implements, house construction and fencing; fodder (grass and leave) for livestock and grazing of livestock in forest; and collection of a range of marketable non-timber forest products. Therefore, with such a huge population and extensive dependence pattern, any over exploitation and unsustainable harvest practice can potentially degrade forest. Moreover, a significant percentage of the country's underprivileged population happened to be living in its forested regions (Saha and Guru, 2003). It has been estimated that more than 40 per cent of the poor of the country are living in these forest fringe

villages (MoEF, 2006). Apart from this, a significant percentage of India's tribal population lives in these regions. Several fieldbased studies have documented the adverse impact of such dependence pattern on the forest quality. The forest fringe communities not just collect these forest products for their own consumption but also for commercial sale, which fetch them some income. The income from sale of the forest products for households living in and around forest constitutes 40 to 60 per cent of their total income (Bharath Kumar et al, 2010; Sadashivappa et al, 2006; Mahapatra and Kant, 2005; Sills et al, 2003; Bahuguna, 2000). A study (Saha and Sundriyal, 2012) on the extent of NTFP use in north east India suggest that the tribal communities use 343 NTFPs for diverse purposes like medicinal (163 species), edible fruits (75 species) and vegetables (65 species). The dependence for firewood and house construction material is 100 and NTFPs contributed 19–32% of total household income for the communities under study (Saha and Sundriyal, 2012). This makes forests an important contributor to the rural economy in the forested landscapes in the country. The widespread poverty and lack of other income generating opportunities often make these people resort to over-exploitation of forest resources. The collection of firewood for sale in the market, though it is illegal, is also extensive in many parts of the forested regions in the country and constitutes the source of livelihood for 11 per cent of the population (IPCC, 2007). However, many other forest products have been

sustainably harvested by local communities for many years, and are a constant source of household income. Agriculture and livestock are two other major sources of livelihoods in the forest fringe villages, which in turn depend extensively on the forest for various inputs. People rear both bovine and ruminant livestock and forests and other local common land are the major source of grass and tree fodder. Open grazing in the forest is the conventional rearing practices for forest fringe communities. ICFRE (2001) estimates suggest that India's forest support 270 million cattle for grazing against its carrying capacity of 30 million. The incidence of grazing is estimated to be affecting 78 per cent of the India's forests of which 18 per cent are highly affected with remaining 31 per cent and 29 per cent medium and low respectively (World bank 2006; MoEF, 2006). The large livestock population also results in huge collection of tree fodder, which affects the forest quality adversely. The annual requirement of dry and green fodder is estimated to be 569 MT and 1025 MT respectively against the availability of 385 MT and 356 MT (Roy and Singh, 2008). This explains the pressure on India's forest from livestock sector and its contribution to the state of degradation of forests in human dominated landscapes of the country. Agricultural systems in the forested regions also inextricably related to the forest ecosystem. Farmers collect small timber, poles, and other materials from forest for agricultural implements and fencing the agricultural fields, leaf litter for manure, herbs, and medicinal plants to deal with pests and so on. The agriculture in this region is predominantly subsistence and crop production highly vulnerable weather conditions and wildlife attack. All such dependence does not affect as long as these resources are extracted sustainably and well within the regeneration or carrying capacity of the forests.

Firewood constitutes the major source of cooking energy in India and more than 853 million people use firewood for cooking in India (FSI, 2011). As per the 2011 census, 49 percent of the households in the country use firewood for cooking. In some states, it is as high as 80 per cent. The forest rich states have higher incidence of firewood use for cooking. As the total annual volume of firewood use is concerned, it is estimated to be 216.421 million tonnes and of which 58.747 million tonnes (27.14 per cent) are sourced from forests. India's total fodder consuming livestock population as per the 2007 Livestock Census is estimated to be 518.6 million. Of these 199.6 millions of livestock, depend, partially or fully on forest for fodder (FSI, 2011). Forests provide a range of marketable NTFPs like fruits, flowers, berries, tubers, resins, honey, leaves, creepers etc. that has great nutritional, medicinal, and other use values. However, many of these products fetches a good price in cities and markets but the collectors (the forest dependent) sell these to the intermediaries at abysmally lower prices. The support for marketing and value addition by creating processing facilities would not only enhance the income but also the employment opportunities in these hinterlands. Approximately, NTFP sector with annual growth rate between 5-15% also contributes to 75% of forest sector



Forest Rights in Uttarakhand

Manoj Chandran IFS

Uttarakhand is a Himalayan State in India having an area of 53483 sq.km, out of which 37999 sq.km (71.04%) is recorded as Forest Area as per Uttarakhand Forest Statistics 2018, however, the actual tree canopy cover in forest areas is only 24295 sq.km (45.43%) as per State of Forest Report 2017 published by the Forest Survey of India. The remaining areas includes grasslands, waterbodies, alpine meadows, rocky areas, barren lands and snow bound areas, not having any tree cover, yet recorded as Reserved Forests, Protected Forests, Village Forests (Van Panchayats) or Protected Areas. The State was carved out from the erstwhile Uttar Pradesh State in the year 2000.

History of Forest Rights in Uttarakhand

The people of Uttarakhand in British India enjoyed unlimited forest rights during the past till the enactment of Indian Forest Act 1865 in which Forests were 'Reserved' for the first time primarily for the purpose of extraction of timber. No rights of villagers were recognized during this process. Such forests came to be known as Rights Free Forests or Old Reserves.

However, due to mass protests from the villagers, the Indian Forest Act was again enacted in the year 1879 in which provision for rights and concessions to villagers was introduced for the first time. Thus the rights which were enjoyed by the villagers and forest dwellers became rights 'conferred' by the British Government. The Forest Settlement process under the Indian Forest Act 1879 started in the Kumaon division (which included the present Pauri Garhwal and Chamoli Garhwal districts too) in the year 1911 by issuance of notification of intent. The process of settlement of rights was done by the Forest Settlement officer after which several forests were reserved around the year 1916. However, many of the village youth were deployed in the British Army during the First World War, while the settlement process was going on. On their return from the war, they found that several of the forests were Reserved without adequately settling the rights of the forest dwellers and forest dependent villagers. This resulted in mass protests which compelled the British to constitute a Kumaon Forest Grievance Committee in the year 1921. Consequent to the report of the Kumaon Forest Grievance committee, several reserved forests were dereserved, the boundaries of several reserved forests were amended to exclude certain springs,



grazing grounds, etc. But the major recommendation was the classification of Reserved Forests in to Class I Reserves, which contained no commercial timber species and Class II Reserves, which had commercial timber species. All Class II Reserved Forests were put under the management of the Forest Department and all Class I Reserves were put under the control of the District Administration. While felling of trees in Class II forests were restricted and regulated as per working plans, there was no ban on felling of trees in Class I forests, which were mostly Oak and miscellaneous trees which were exploited heavily to meet the demands of fuel and fodder.

The Indian Forest Act was again amended to a great extent and re-enacted in 1927. The rising demand from the villagers to own, conserve, protect and utilize the forests themselves rather than banking on the district administration or the forest department for permission led to the enactment of the Kumaon Forest Panchayat Rules 1931 under the Scheduled Districts Act. Under these rules all the Class I forests were to be transferred to the management by the Village Forest Committees, known as Van Panchayats. Several Class I Reserved Forests were constituted in Van Panchayats, while several others remained with the District Administration despite repeated demands from the villagers. Thus many of the villagers and forest dwellers could enjoy forest rights with regulation only from local self-governance. However, several villagers were still deprived of the same.

The Tehri State was not a part of British India and had its own Act and Rules. The Tehri Garhwal State Soyam Jungle Rules 1932 was one of the important law which provided for constitution of forests 'closed' by boundary pillars which was to be managed by the forest department as per set rules and 'open' forests which was open for exploitation by villagers for exercising their forest rights. These forests came to be known as Civil Soyam Forests. The Tehri State merged with independent India in the year 1948, by virtue of which the aforesaid rules lost its existence and instead the Indian Forest Act 1927 was made applicable. In the 1960s, under Section 20A of the Indian Forest (Uttar Pradesh Amendment) Act, all closed civil forests of the erstwhile Tehri State were deemed to be Reserved Forests.

The Uttar Pradesh Private Forest Act 1948 provided for notification of forest areas owned by private parties and management thereof by an approved working plan.

The Uttar Pradesh Zamindari Abolition Act 1960 led to ceiling of several land holdings. The law applicable in Uttarakhand was known as the Kumaon and Uttarakhand Zamindari Act 1960 (KUZA) However, since forest areas were exempted from such ceiling, several zamindars claimed that their lands were either notified as private forests or when though not notified, were covered with trees and shrubs and wild growth on barren lands and hence were forests. In order to address this issue, a new Chapter "Of Claimants' Forests" was introduced in the Indian





Forest (Uttar Pradesh) Amendment Act 1965, under section 38A of which forests and forest lands were defined as below:

38A (b) - "Forest" means a tract of land covered with trees, shrubs, bushes or wood vegetation whether of natural growth or planted by human agency and existing or being maintained with or without human effort, or such tract or land on which such growth is likely to have an effect on the supply of timber, fuel, forest produce, or grazing facilities, or on climate stream-flow, protection of land from erosion, or other such matter and shall include

- (i) land covered with stump or trees of a forest;
- (ii) land which is part of a forest or lies within it or was part of a forest or was lying within a forest on the first day of July, 1952;
- (iii) such pasture land waterlogged or cultivable or non-cultivable land, lying within or adjacent to a forest, as may be declared to be a forest by the State Government;

(c) "Forest land" means a land covered by a forest or intended to be utilized as a forest

But this did not serve the purpose as several areas were interpreted subjectively to evade the ceiling of land holdings and several forest areas continued to be in the hand of landlords. The KUZA 1960 was amended in 1978 to introduce a new section 4A, by which the rights over all forest lands were vested in the State Government. Several private forests were vested with the Government after due procedure of

payment of compensation. However several of such areas are still under litigation and not yet vested completely with the State Government.

Settlement of Forest Rights under the Indian Forest Act

Section 3 of the Indian Forest Act 1927 confers the powers for reservation of forest areas. A proposal for such notification of reserved forests is notified under Section 4 of the Act and a Forest Settlement Officer is appointed to settle the rights on such land. The Forest Settlement officer entertains various claims from the forest dependent villagers and after settlement of the claims, the Reserved Forests are finally notified under section 20 of the Act. The FSO settles the rights of land either by excluding the claimed area from the final notification of Reserved Forests, by demarcating of enclosures known as 'chaks' which would be revenue villages not included in the Reserved Forest or by acquiring the land by providing suitable compensation as per Land Acquisition Act. In case of rights over forest produce, grazing and other community rights, the FSO can settle the rights by excluding the land for exercise of such rights or by providing alternate land or may extinguish the rights by providing suitable compensation. In case of allowing rights to be exercised, they are entered in the schedule to the final notification of the Reserved Forests. Such rights allowed in the past notifications of Reserved Forests included right to fuelwood, fodder, grazing, stones and also timber to a prescribed limit. However, since there was no provision to increase the limits of timber rights, the limited timber rights are no longer enough to cater the demand of the increased population and households in these villages today.

Forest Rights in Van Panchayats

The Forest Panchayat Rules were framed in 1976 under the Indian Forest Act, which provided for constituting civil forests also into Van Panchayats, to be completely under the management of Village Forest Committees, however under the supervision of Forest Panchayat Inspector. While the Van Panchayats constituted from Civil Forests could enjoy forest rights as decided by the committee and mentioned in their microplans, Van Panchayats constituted from Reserved Forests had a limit to such rights only to the extent allowed in the original Reserved Forest notification. The Forest Panchayat rules were revised in the year 2001 and again in the year 2005, in which the Forest Panchayat Inspector was done away with and replaced by the Village Forest Committee to be headed by a Sarpanch and 8 other members with a forest guard or forester from the Forest Department to act as the secretary of the committee. The revenue sharing pattern among village forest committee, district panchayat and revenue department was done away with and 100% of the revenue generated was put to the disposal of the committee to be used for village development, development of van panchayat and forestry purposes in the ratio 40:30:30.

Forest Rights under the Wildlife Protection Act 1972

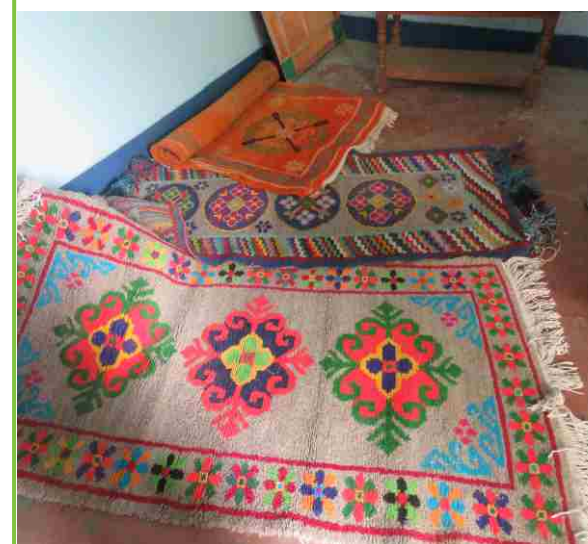
The Wildlife Protection Act 1972 provided for constitution of Wildlife Sanctuaries and National Parks and in subsequent amendments, it provided for constitution of conservation reserves, community reserves and tiger reserves. It had provisions of settlement of rights prior to the final notification of national parks and wildlife sanctuaries on lines almost similar to that provided in the Indian Forest Act. Though rights could be admitted in Wildlife Sanctuaries, they were not allowed in National Parks wherein settlement of rights could be done only either



by excluding the area from the extent of the National Park boundaries or by extinguishing the rights by adequate compensation as per rules. No villages could exist within the boundaries of a National Park. However, in the year 1991, the Act was amended in which the procedure for settlement of rights was done away with in case of Wildlife Sanctuaries and National Parks constituted from Reserved Forests. However, the terms of reference of settlement of rights in Reserved Forests being different and also in a different past time frame, this provision amounted to deprivation of rights of the villagers. However, the Act provides for right of passage and entry to *bona fide* residents in Wildlife Sanctuaries and only right of passage on a public road passing through national parks. The forest produce removed from national parks or wildlife sanctuaries for the purposes of management of habitat for wildlife, could be used only to meet the *bona fide* demands of the fringe villagers. In case of Conservation Reserves, the local committee has been conferred the powers to prescribe rights over forest and its produce. In case of Tiger Reserves, the rights would be as per the status of Wildlife Sanctuaries/National Parks/Reserved Forests from which the Tiger Reserve was constituted. There are 7 Wildlife Sanctuaries, 6 National Parks, 3 Conservation Reserves and 2 Tiger Reserves in Uttarakhand.

Forest Rights under the Biodiversity Act 2002

The Biodiversity Act provides for constitution of Village Biodiversity Management Committees and Peoples' Biodiversity Register, which enables the conservation of biodiversity and intellectual property rights of the traditional knowledge system of the villagers and forest dwellers as well as benefit sharing of profit from products derived from such sources conserved by the villagers.



Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Rights) Act 2006 otherwise known as 'Forest Rights Act'

Considering the limitation of forest rights in the existing legislation and treating the deprivation of rights of scheduled tribes and other traditional forest dwellers as a historical injustice, the Forest Rights Act came into being. It is applicable to persons primarily residing and dependent on the forests whose forest rights were not adequately settled in the past and also to persons who were forced to rehabilitate to new areas due to diversion of forests for developmental activities. The Scheduled Tribes who primarily depended and resided in the forests before 13-12-2005 and other traditional forest dwellers who have resided for three generations (75 years) prior to this date are eligible for forest rights under this Act.

Section 3(1) of the Act prescribes the following individual and community rights on forest lands, namely,

- a. the rights to hold and live in the forest land under the individual or common occupation for habitation or self-cultivation for livelihood by a member or members of forest dwelling scheduled tribe or traditional forest dwellers,
- b. community rights such as nistar, by whatever name called, including those used in erstwhile princely states, zamindari or such intermediary regimes,

- c. rights of ownership, access to collect, use and dispose of minor forest produce which has been traditionally collected within or outside village boundaries,
- d. other community rights of uses or entitlements such as fish and other products of water bodies, grazing (both settled or transhumant) and traditional seasonal resource access of nomadic or pastoralist communities,
- e. rights including community tenures of habitat and habitation for primitive tribal groups and pre-agricultural communities,
- f. rights in or over disputed lands under any nomenclature in any State where claims are disputed,
- g. rights for conversion of Pattas or leases or grants issued by any local authority or any State Government on forest lands to titles,
- h. rights of settlement and conversion of all forest villages, old habitation, unsurveyed villages and other villages in forests, whether recorded, notified or not in to revenue villages,
- i. right to protect, regenerate or conserve or manage any community forest resource which they have been traditionally protecting and conserving for sustainable use,
- j. rights which are recognized under any State



law or laws of any Autonomous District Council or Autonomous Regional Council or which are accepted as rights of tribals under any traditional or customary law of the concerned tribes of any State,

- k. right of access to biodiversity and community right to intellectual property and traditional knowledge related to biodiversity and cultural diversity,
- l. any other traditional right customarily enjoyed by the forest dwelling Scheduled Tribes or other traditional forest dwellers, as the case may be, which are not mentioned in clauses (a) to (k) but excluding the traditional right of hunting or trapping or extracting a part of the body of any species of wild animal,
- m. right to *in situ* rehabilitation including alternative land in cases where the Scheduled Tribes and other traditional forest dwellers have been illegally evicted or displaced from forest land of any description without receiving their legal entitlement to rehabilitation prior to 13.12.2005.

Section 3(2) of the Act provides for diversion forest land for the following facilities managed by the Government which involve 1 ha or less forest area and felling of 75 trees or less per hectare and are recommended by the Gram Sabhas:

- a. Schools
- b. Dispensary or hospital
- c. Anganwadis
- d. Fair price shops
- e. Electric and telecommunication lines
- f. Tanks and other minor water bodies
- g. Drinking water supply and pipelines
- h. Water or rain water harvesting structures
- i. Minor irrigation canals
- j. Non-conventional source of energy
- k. Skill upgradation or vocational training centres
- l. Roads and
- m. Community centres

Section 4 of the Act provides for conferring of forest rights mentioned in section 3. It also mentions that the rehabilitation of right holders would be resorted only as a last resort for the purpose of making inviolate spaces for wildlife and only after all the procedures for conferring of forest rights have been completed.

The forest rights are non-transferrable unless by means of inheritance.

The forest rights over land shall be equivalent to the actual possession subject to a maximum limit of 4ha.



The Act prohibits eviction of persons whose claims to forest rights have not been settled or disposed off finally.

The Forest Conservation Act 1980 would not be applicable while conferring of forest rights.

The cases of eviction from forest areas for developmental activities without adequate land compensation would also be eligible if the development works have not started within 5 years of such eviction.

Section 5 of the Act deals with duties of forest right holders. They are duty bound to conserve the forests, wildlife and biodiversity, protection of catchments, springs and eco sensitive zones, protection against activities detrimental to the cultural and natural heritage of habitat of forest dwellers, control over exploitation of community forest produce and following the rules of the Gram Sabha to prevent activities detrimental to forest, wildlife and biodiversity.

Section 6 of the Act deals with the procedures, especially the constitution of Village Level Forest Rights Committee, Sub-divisional Level Forest Rights committee, District Level Forest Rights Committee and also a State Level Advisory Committee. The committees would consist of officers of Revenue, forest and tribal development departments, panchayati raj institutions with at least two members from Scheduled Tribes and one woman.

Section 7 of the Act provides for penalty of Rs.1000 for violation of the provisions of the Act. Any forest dweller from the Scheduled Tribe shall give a 60 day notice to the State Level Monitoring Committee regarding violation of the Act and only if no action is taken within 60 days shall any court take cognizance of such offences.

Section 11 of the Act provides for appointment of a nodal officer. The Ministry of Tribal Affairs deals with the Act at the Centre whereas the Tribal Welfare Department is the nodal department in the States.

However, in Uttarakhand, the Tribal Welfare Department is under the Social Welfare Department at the Government level.

Rules have been framed under the Act, initially in the year 2007 and later amended in the year 2012. The rules, inter alia, provide the detailed constitution of the various committees as follows:

Village Level Forest Rights Committee—10-15 members out of which one-thirds shall be women and two-thirds shall be ST, in the absence of which one-third shall be women. The committee will appoint a chairman and secretary among themselves.

Sub-divisional level Forest Rights Committee—Sub Divisional Magistrate, Sub-Divisional Forest Officer and Assistant Social Welfare Officer, two BDC members belonging to forest dwelling community or ST, one woman BDC member

District Level Forest Rights Committee – District Officer, Divisional Forest Officer, District Social Welfare Officer, two District Panchayat members belonging to forest dwelling community or ST, one woman District Panchayat member.

Evidences for conferring Forest Rights

(1) The evidence for recognition and vesting of forest rights shall, inter alia, include-

- (a) Public documents, Government records such as Gazetteers, Census, survey and settlement reports, maps, satellite imagery,

working plans, management plans, micro-forest enquiry reports, other forest records, of rights by whatever name called, pattas or leases, reports of committees and commissions constituted by the Government, Government orders, notifications, circulars, resolutions;

- (b) Government authorised documents such as voter identity card, ration card, passport, house tax receipts, domicile certificates;
- (c) Physical attributes such as house, huts and permanent improvements made to land including levelling, bunds, check dams and the like;
- (d) quasi-judicial and judicial records including court orders and judgments;
- (e) research studies, documentation of customs and traditions that illustrate the enjoyment of any forest rights and having the force of customary law, by reputed institutions, such as Anthropological Survey of India;
- (f) Any record including maps, record of rights, privileges, concessions, favours, from erstwhile princely States or provinces or other such intermediaries;
- (g) Traditional structures establishing antiquity such as wells, burial grounds, sacred places;
- (h) Genealogy tracing ancestry to individuals mentioned in earlier land records or recognized as having been legitimate resident of the village at an earlier period of time;
- (i) Statement of elders other than claimants,



reduced in writing.

- (2) An evidence for "Community Forest Resource" inter alia, include –
 - (a) Community rights such as nistar by whatever name called;
 - (b) Traditional grazing grounds; areas for collection of roots and tubers, fodder, wild edible fruits and other minor forest produce; fishing grounds; irrigation systems; sources of water for human or livestock use, medicinal plant collection territories of herbal practitioners;
 - (c) remnants of structures built by the local community, sacred trees, groves and ponds or riverine areas, burial or cremation grounds;
 - (d) Government records or earlier classification of current reserve forest as protected forest or as gochar or other village common lands, nistari forests
 - (e) Earlier or current practice of traditional agriculture.
- (3) The Gram Sabha, the Sub-Divisional Level Committee and the District Level Committee shall consider more than one of the above-mentioned evidences in determining the forest rights.

Progress under FRA in Uttarakhand

A total of 7554 village level forest right committees, 78 sub-divisional level forest right committees and 13 district level forest right committees and a State level Monitoring committee have been constituted in the State of Uttarakhand. A total of 6672 claims which include 3581 individual and 3091 community claims have been received at the District Level Committees, out of which 5047 claims have been disposed. However, out of these disposals, 4906 claims have been rejected. Out of 141 claims accepted, 140 claims are individual claims involving an area of only 10.8 ha and one community claim involving a community pond in 0.4ha have been accepted. Out of the individual claims accepted, 45 claims were from the Van Raji community of district Pithoragarh who are forest dwelling Scheduled Tribes, whereas 95 claims were from other traditional forest dwellers of district PauriGarhwal.

Pending issues under FRA

A nomadic pastoral community known as Van Gujjars have been claiming their rights over forests. However, due to lack of records to prove their forest dependency for more than 75 years, the rights are yet to be settled. They were classified under Criminal Tribes in British India but after the repeal of the

Criminal Tribes Act in independent India, they were categorized as 'Denotified Tribes'. However, since they have not yet been included under Scheduled Tribes, they are still deprived of recognition of their forest rights. However, some rehabilitation and resettlement of Van Gujjars of Rajaji National Park and Sonanadi Wildlife Sanctuary has taken place in the past in which 1867 families have been successfully settled, outside the FRA regime. However, there are at least 1610 claims pending in Rajaji National Park, 824 claims in Haridwar Forest Division and several uncounted claims in various other divisions of the Terai and Bhabhar areas and Shiwaliks.

Around 64 forest villages, known as Goth/Khatta dotting the Terai regions are yet to be converted to revenue villages as their records pertaining of more than 75 years of forest dwelling could not yet been verified.

Similarly, some of the forest villages, known as Taungya villages are also pending to be settled.

Constraints and Weaknesses

The individual claims over Forest Rights have attracted a lot of Land Mafia who try to either prefer false claims or try to grab the land allotted to the right holders by use of various fraudulent tactics.

There have been attempts of encroachment of forest land in the hope that these encroachments would be converted to forest right claims. However, the use of historic satellite imagery has overcome several of such cases.

The responsibility of production of evidences of last 75 years is on the claimant. The State of Uttarakhand being a new State carved out from erstwhile Uttar Pradesh, the Government machinery has its own constraints to pro-actively make available such documents. Attempts are now being made to recover the old records from the State Archives. Non-Governmental Organisations can play a major role in this respect.

There has been fears that the claims rejected would result in eviction of claimants from the forest areas. However, each and every claim has to be seen separately whether they are legal/illegal or irregular irrespective of whether the titles could be granted under FRA.

Way Forward

Much work still needs to be undertaken in the State of Uttarakhand for better awareness among the public for preferring proper claims, verification of data and conferring of forest rights. Strengthening and training of the concerned departments and sensitization of the authorities is also necessary. Better coordination among the concerned departments and adequate budget allocation for the process is also required.

Mandate, Vision and Objectives of CoE

Mandate

Uttarakhand forests have been an essential part of the state development and nearly 80% people are directly or indirectly dependent on forests either for their sustenance or subsistence. Forests create microclimate for cultivation of several crops of the hill and also provide various forest based products like fodder, fuel wood and fruits etc. CoE thrives to generate datasets on forest based livelihood and income generating opportunities.

Vision

To become a resource and knowledge centre on forest based livelihood and contribute towards sustainable livelihood opportunities in the state.

Overall objectives

- To collect all the available data on forest based produce with focus on non-timber products like medicinal plants and bamboo and to create a clearing house for the same.
- To create a resource directory of various government and non-government organisations, private institutes and experts working in the area of forest livelihood.
- To interact with people through Focused Group Discussion (FGD) and to estimate their dependence on forests for their livelihood.
- To conduct socio-economic analysis and estimate cultural dependence of the forest fringe villages on forestry.
- To do value and supply chain analysis for different forest products.



Objectives undertaken during the year

- To organise Project Advisory Committee (PAC) meeting and mid-term review meeting of the Centre of Excellence
- To finalise sampling of forest fringe villages of Uttarakhand for the forest based livelihood study.
- To survey forest fringe villages and conduct Household survey and Focussed Group Discussions for livelihood dependency study.
- To develop a format for data compilation in MS-Excel.
- To organise a workshop of CoE at a high altitude village with the villagers.
- To disseminate work of CoE in Science Congresses and also through publications such as half yearly News Bulletins and periodical news in the newspapers.
- To set up an NTFP gallery at the Centre of Excellence.



METHODOLOGY

Collection of secondary data

CoE team collected the herbal auction data of UAFDC mandis located at Rishikesh (Bibiwala), Ramnagar (Aamdanda) and Tanakpur and also from the main office located at Dehradun. The data was cross checked, anomalies were removed and graphical and tabulated presentations were made specieswise, agencywise and mandiwise.

Survey of forest fringe villages

CoE team also visited Pangot village, Nainital on 21st May, 2017 and interviewed shopkeepers, villagers and gram pradhan. Dependency of villagers on forest here is very low as it come under Naina Devi Bird Conservation area and villagers do not collect any of the produces from the forest except fuel wood and fodder. On 23rd May, 2017 CoE team visited Chakbhediya and Hediya village Nainital district. Both these villages are near to forest and have their own van panchayat forest. These villages are famous for ringal artesian and almost all the villagers are involved in Ringal handicraft. They prepare ringal articles like chotitokri, phooltokri, supa, kandi, chappi, lamp, dhakni etc. and sell it to local market in Nainital and Haldwani. The team also interviewed many ringal artisans there. They collect fuel wood, fodder, vegetables and ringal from forest. Major fodder species collected by them were Bhimal, Quaraal, Timla, Banj, Utis, Bedu, Khadik, Kafal etc. Livelihood of this village is majorly dependent on Ringal handicraft.



- CoE team conducted household surveys in Netri, Sweel, Hudoli and Dhakara villages of Ranwail Ghati of Uttarkashi district from 17th to 20th April, 2018 for forest based livelihood study.
- The team conducted village surveys in forest fringe villages viz. Saneh, Farsula, Pataguni and Surari of Pauri Garhwal district from 22nd to 24th April, 2018.
- Household surveys in Reni, Lata, Malari and villages of Chamoli district were carried out from 14th to 18th June, 2018. Focused Group Discussion (FGDs) in selected villages were also conducted.



- Villages viz. Sara Saria in Udham Singh Nagar and Phagpur in Champawat Districts were also surveyed from 9th December, 2018 to 14th December, 2018 for forest based livelihood related study.



- CoE also conducted survey from 2nd - 6th January, 2019 in 10 villages of Pithoragarh district for the forest based livelihood assessment and study of cultural dependency on forest. FGDs and household surveys were conducted in Sirdang, Rung, Sirkha, Kureela, Garva, Ghatiyabgarh, Tankul, Himkhola, Sosa and Chalmchilanso villages of Pithoragarh district.

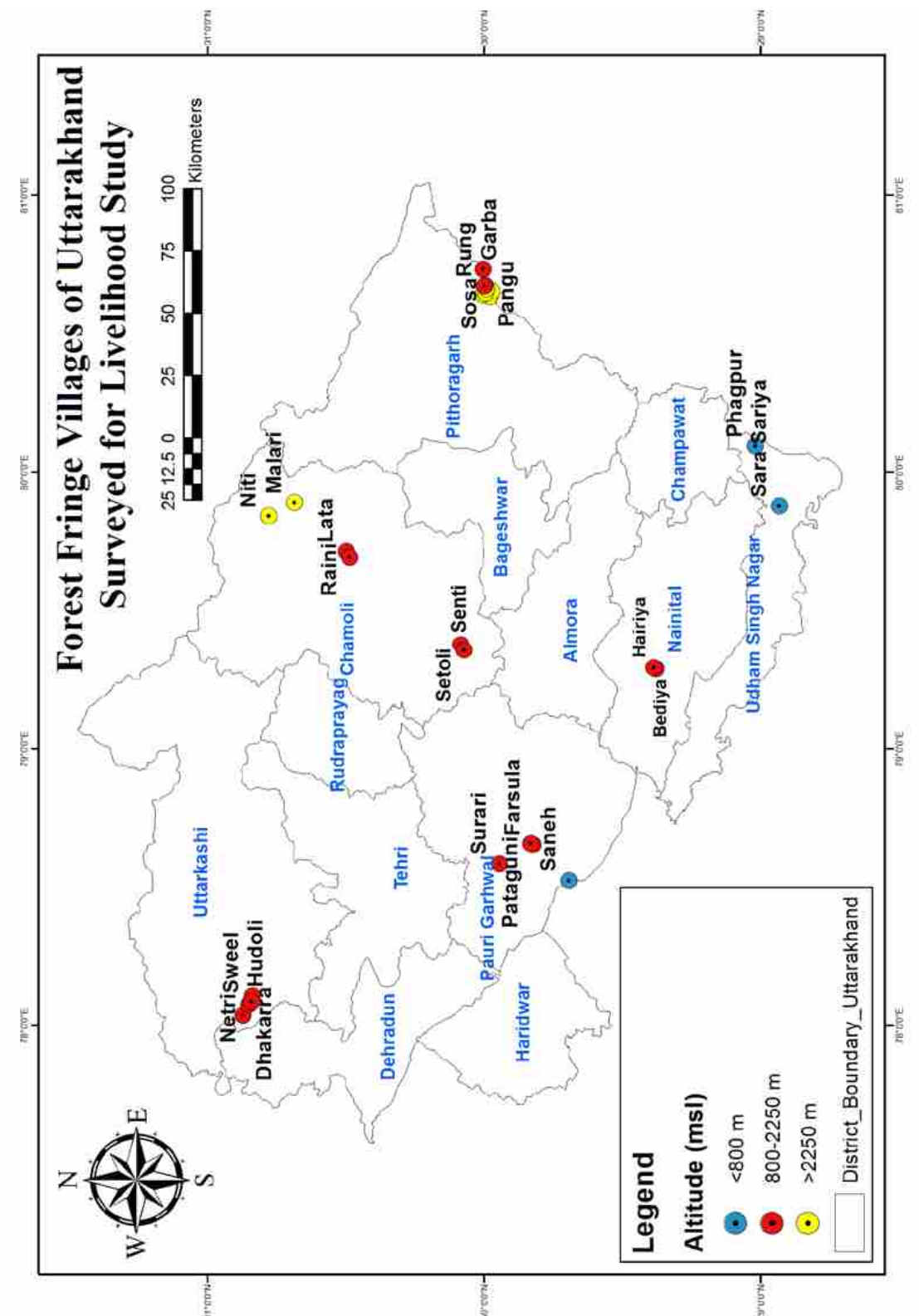


Figure 1: Forest fringe villages of Uttarakhand surveyed for livelihood study

Forest fringe villages surveyed so far for forest based livelihood study are shown in Figure 1.

Visit to medicinal plant mandis

Centre of Excellence (CoE) team (Dr. Ajeet Kaur- Sr. Scientist and Ms. Kanchan Dobhal-SRF) visited to UAFDC mandi Tanakpur and forest based industries in Tanakpur as a part of value and supply chain analysis.



Other Visits

Team also visited Himalayan Action Research Centre (HARC), Dehradun, Uttarakhand Forest Development Corporation (UAFDC) mandi at Aamdanda (Ramnagar), Uttarakhand Forest Development Corporation (UAFDC) mandi at Bibiwala (Rishikesh), Central Himalayan Environment Association (CHEA), Nainital, Forest Training Academy (FTA), Haldwani, Uttarakhand Bamboo and Fibre Development Board (UBFDB), Centre for Ecology Development and Research (CEDAR), Himmothan (NGO) Dehradun and many other government and non-government organisations working on forest related issues.

CoE team visited Sadiyatal, Nainital on 21st May, 2017 to collect information about drift woodwork and to collect primary data on dependency on NTFPs. Team interacted with Sh. Ram Lalji and his family who are involved in driftwood art. Team also visited 'Centre of Excellence on Oak' at Vinayak in Nainital district on 22nd May, 2017 to collect information of different Oak species and other medicinal plants growing in high altitude plant nursery.



Team interacted with Shri Nandan Singh Bohra forest guard of the area. This area comes under Kosi range with an area of 11589.3 ha and has 80 villages. Collection of forest produce from this range is not done as it comes under Naina Devi Bird Conservation zone. High altitude plant nursery was established in 2006 and many plant species were grown there like Oak, Devdar, Fir, Thuner, Nair, Angu, Ringal etc. Many medicinal plants are found in the nearby forest area like Chiraita, Nair Paati, Jagar, Thuner, Laljadi, Jhadu Kunj gulab, Pattharchatta, Jhula, Van lehsun, Apamarg etc.



Setting up NTFP Gallery

Non Timber Forest Product (NTFP) gallery was set up at Centre of Excellence (CoE), UCSOT. Different NTFPs, which are found in forests of Uttarakhand like seeds, fibres (hemp, nettle etc.), leaves, ringal items, high altitude medicinal plant parts (Choru - *Angelica glauca*, Faran - *Allium stracheyi*) etc are displayed in NTFP gallery at Centre of Excellence (CoE).





Preparation of News-Bulletins

Information on various activities of CoE were compiled from time to time to prepare News-Bulletin (Mar 2017-Aug 2017, Sep 2017-Feb 2018 and Mar 2018-Aug 2018). Some other relevant information was also incorporated into the bulletins. These were distributed among various stakeholders.

Meetings

- Project Advisory Committee meeting of Centre was held on 15th January, 2018 at UCOST in which expert members of PAC, CoE team and resource persons from UCOST participated. Mentor of CoE, Dr. Ram Prasad (IFS, Former D. G. MPCOST and Director IIFM Bhopal, M. P.) advised to motivate local people for SHG preparation and entrepreneurship. It was emphasized to document existing innovations in the field in Uttarakhand. It was also suggested by experts to select relevant knowledge and entrepreneurship development partners. Revised proposal of CoE was also approved in PAC meeting which is to be submitted in ministry.
- Review Meeting was attended by CoE team at Ministry of Environment, Forest and Climate Change (MoEFCC), New Delhi on 18th January, 2018 in which activities of CoE were discussed. On 10th April 2018, a mid-term review meeting of the CoE team was held with Dr. S. S. Negi (former D. G., Ministry of Environment, Forest and Climate Change and Vice Chairman of Rural Development and Migration Commission, Government of Uttarakhand) at UCOST.
- On 24th April, 2018 meeting of CoE team was held with Dr V. P. Bhatt, Scientist (HRDI) to discuss about collection of medicinal plants data and forest based livelihood in Chamoli district.



- CoE team visited Dr.Shubham Pandey (Department of Biostatistics, Swami Rama Himalayan University, SRHU Dehradun) on 8th May, 2018 to discuss about the response of villagers to the questionnaires during village survey and preparation of common data format for CoE.
- CoE team visited Shri M. S. Kunwar, Secretary, HARC, Dehradun for discussion regarding the workshop planning at Chamoli district on 1st June, 2018.
- Meeting was held with Dr Sunil Kainthola, Coordinator, Mountain Shepherd Initiative, Pvt. Ltd. on 8th June, 2018 regarding workshop in Lata village and survey in the villages of Chamoli district. On 18th July, 2018.



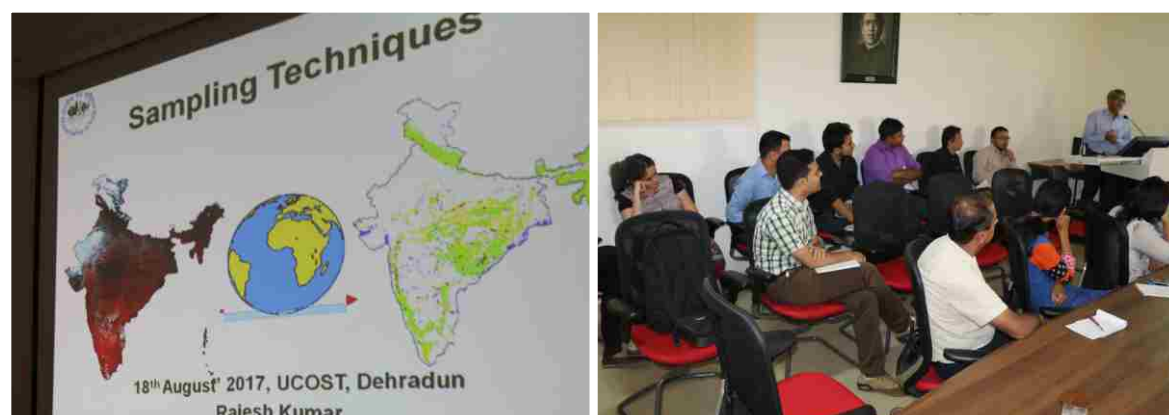
- A meeting of the CoE team was held with Shri S. T. S. Lepcha (former M. D., Uttarakhand Forest Development Corporation, Uttarakhand) at UCOST.
- Internal review meetings were held with Dr B. P. Purohit, Joint Director, UCOST on 27th July, 2018 and 31st August, at UCOST.
- Team visited and collected information from Dr. S. K. Singh, Japan International Cooperation Agency (JICA) about JICA project and its work on forest based livelihood on 28th July, 2018.





Expert Lecture at CoE

CoE team conducted an expert lecture on 'Statistical Sampling Strategies' which was delivered by Shri Rajesh Kumar, Joint Director, Forest Survey of India and Deputy Director General, NSSO, Regional Office, Dehradun on 18th August, 2017



Workshops Conducted

A workshop on "Current Status and Potential of Forest based Livelihood in Uttarakhand" was organized at Lata village, to gather the available information on forest based produce and to estimate people's dependence on forest resources for their livelihood. The workshop was held on 16th June, 2018 at Nanda Paradise (motel) in Lata (Niti Valley) (Report on workshop in Annexure 1).



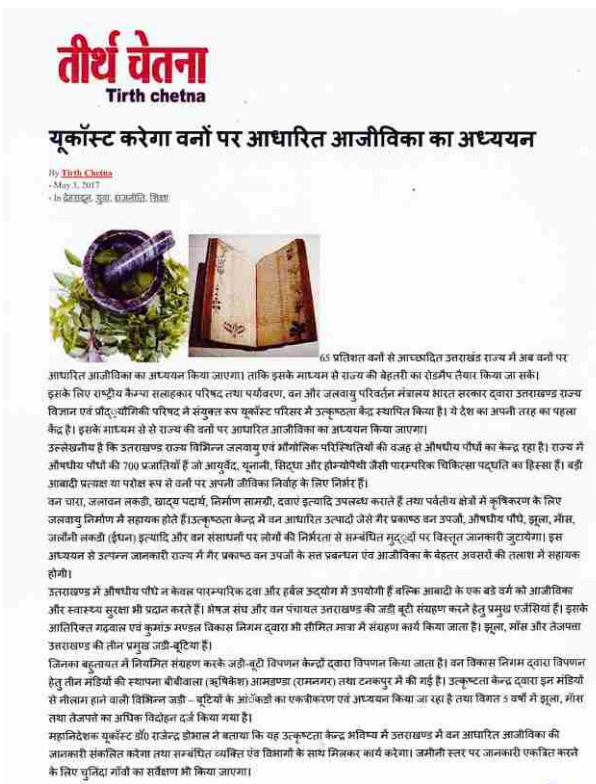
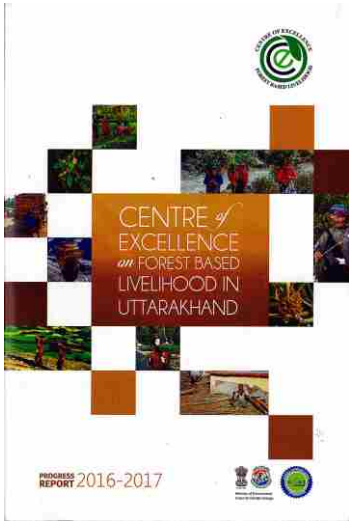
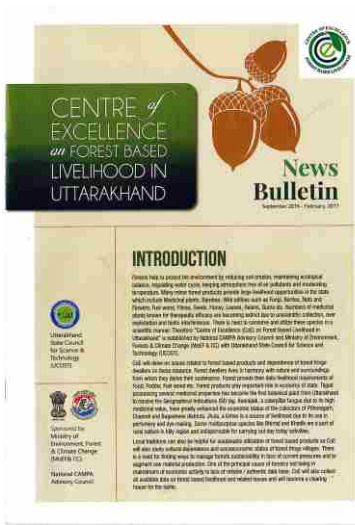
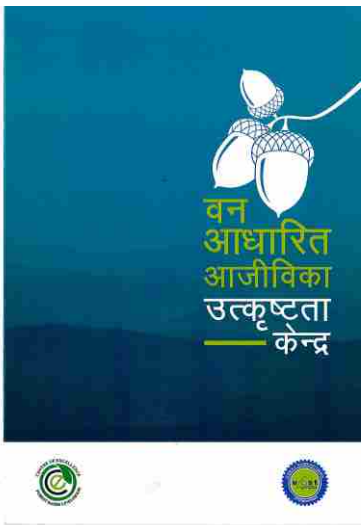
Workshops/Seminar/Sessions Attended

12th and 13th Uttarakhand State Science and Technology Congress (USSTC) 2018 and 2019 held at Uttarakhand State Council for Science and Technology, Dehradun.

- Valley of Words conducted by RST Forum in Dehradun 2017 and 2018.
- 2nd Himachal Pradesh Science Congress held on 20th and 21st November 2017 at Himachal Pradesh Council for Science, Technology and Environment (HIMCOSTE)
- One day workshop on 'IIRS User Interaction Meet-2018' held at Indian Institute of Remote Sensing, Dehradun on 27th February, 2018.
- 10th Annual JICA National Workshop conducted by Japan International Corporation Agency (JICA) on 10th and 11th April, 2018 at Mussoorie.
- One day seminar on NTFP as Livelihood Resource Opportunities and Challenges on 27th April, 2018 at Forest Research Institute, Dehradun.
- Brainstorming cum Review meeting for the new 52 episode Radio serial on climate change and global warming which was organised by UCOST Vigyan Prasar and All India Radio, Prasar Bharti, New Delhi on 24th and 25th July, 2018.
- Roundtable meet on Climate Change organised by Integrated Mountain Initiative (IMI) and Sustainable Development Forum, Uttaranchal (SDFU) held at Uttarakhand State Council for Science and Technology (UCOST) on 2nd August, 2018.
- Sensitization workshop on Popular Science writing under AWSAR Program of DST at UCOST organized by, DST, Vigyan Prasar on 10th Sept, 2018.
- International Biodiversity Congress organised by Navdanya held at Forest Research Institute, Dehradun on 4th to 6th October, 2018.

Publications

- Brochure of Centre of Excellence on Forest based Livelihood in Uttarakhand (in Hindi).
- Pamphlet of Centre of Excellence on Forest based Livelihood in Uttarakhand (in Hindi).
- News Bulletins (Mar 2017- Aug 2017, Sep 2017- Feb 2018, Mar 2018- Aug 2018, Sep 2018- Feb 2018) of Centre of Excellence on Forest based Livelihood in Uttarakhand.
- Seema Maikhuri, Ajeet Kaur, Siddharth Napalchyal, Kanchan Dobhal (2018) Lichen- livelihood potential, market survey and value chain in Uttarakhand. Indian Forester 144(11): 1076-1081.
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Findings

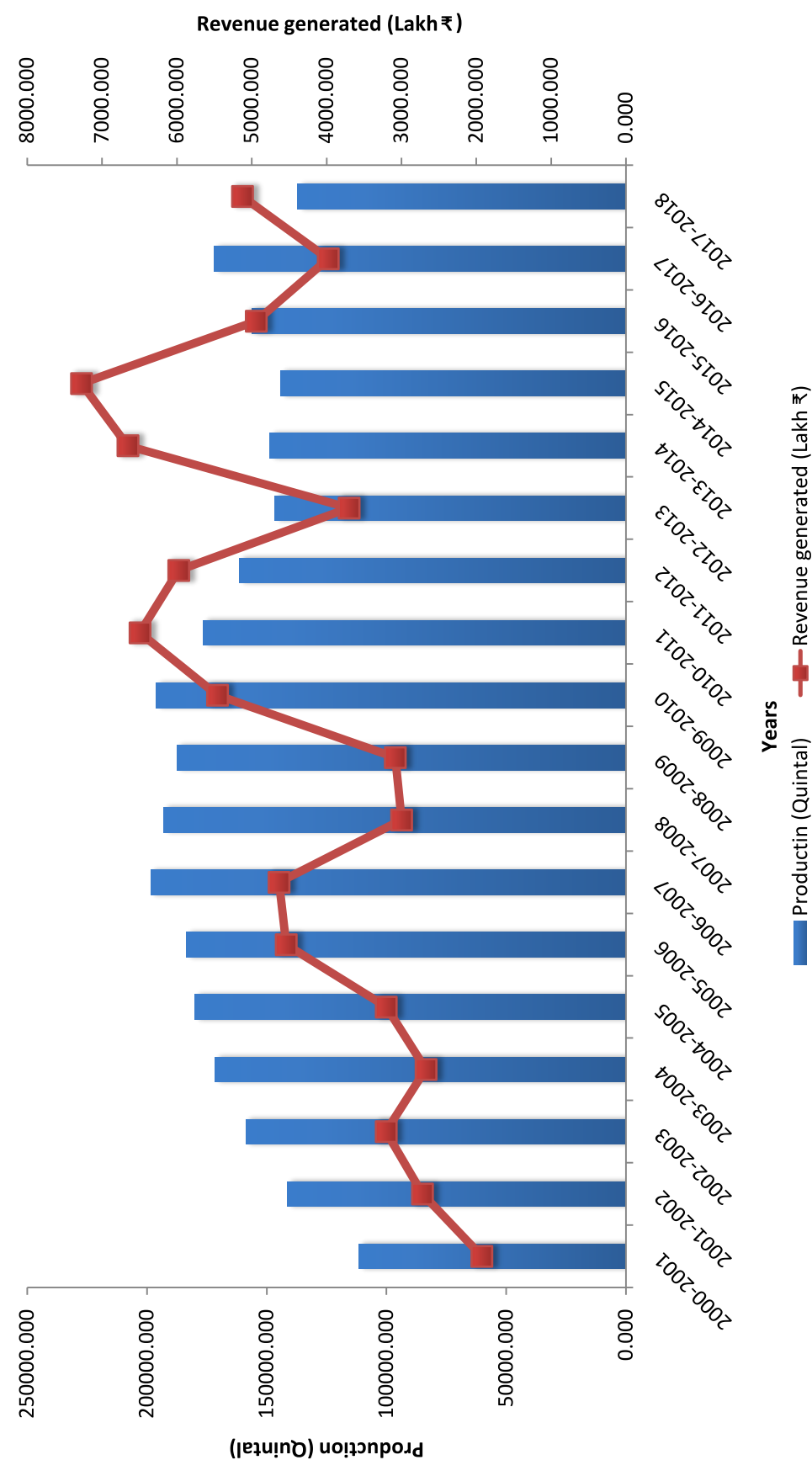


Figure 2: Resin production in Uttarakhand.

Pine resin tapping not only earns the highest revenue for the Forest Department but also provides a big livelihood opportunity for the hill people, given the fact that a substantial area of the State's forest are under pines. Since the introduction of resin policy on 30 April 2003, the production of resin and its sales from year 2000-01 to 2017-18 in Uttarakhand is shown in Figure 2 with the average production of 164637.449 quintal and highest revenue of ₹ 7271.58 lakh generated for year 2014-15. Around 90 pine resin units are working in Uttarakhand presently which are privately owned. They procure the pine resin from the Forest Department depots through auction as per State's resin policy (2003) to prepare turpentine oil, biroja (also known as viroja or rosin) and varnish. About 10% turpentine oil can be extracted from pine resin to be sold at about ₹ 80/ litre

which is used in polish and paints. After that about 84% biroja is extracted, sold at ₹ 100/Kg and is used for polishing. The residual waste can be used in kiln alongwith fuel in the pine resin unit. Alternatively, pine resin can be processed to produce varnish, dark coloured liquid which is used in dye industry. Double the quantity of varnish can be prepared using pine resin after adding lime and turpentine oil and is sold at about ₹ 80 /Kg. Annually, 7-10 trucks of turpentine oil, biroja and varnish are sold per pine resin unit. The units can sell the produce anywhere in India after receiving permit from the Forest Department.

The Figure 3-5 shows the data of medicinal plants marketed through the three mandies of the State established at Rishikesh (Bibiwala depot), Ramnagar (Aamdanda depot) and Tanakpur (Tanakpur depot) respectively.

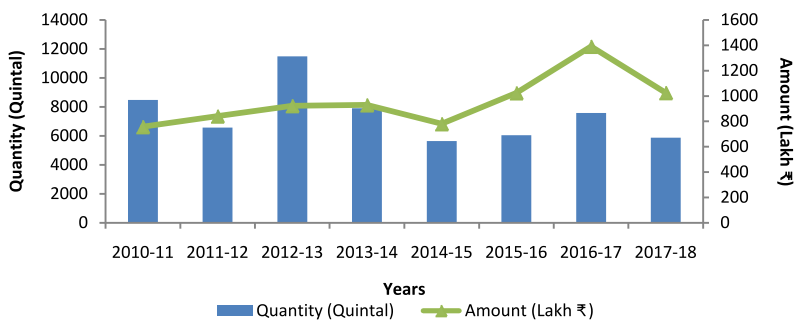


Figure 3: Marketing of medicinal plants at Bibiwala mandi

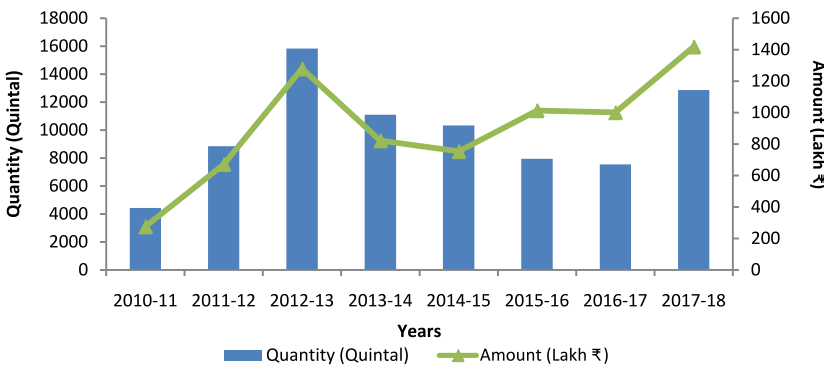


Figure 4: Marketing of medicinal plants at Ramnagarmandi

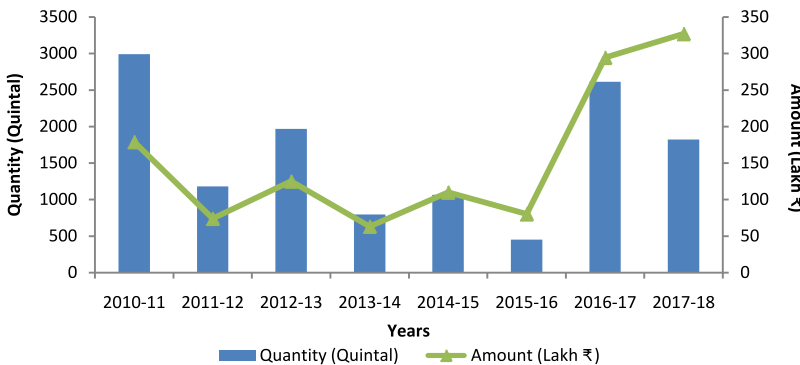


Figure 5: Marketing of medicinal plants at Tanakpur mandi

The number of species reduced drastically after that. However, Jhula Ghas (Lichen), Moss and Tejpatta are the herbs which have been regularly brought to the mandies and occupy major share of medicinal plant material (in terms of quantity). Their marketing data is shown in Figure 6-8 respectively. Quality of Jhula ghas determines its rate. The maximum rate at which Jhula ghas was auctioned was 18215.67 per quintal recorded in the year 2017-18. The maximum auction rate of moss was 5274.33 per quintal in year 2016-17. The quantity of Tejpatta, marketed through the herbal mandis declined a great deal from 293.97 quintal in the year 2010-11 to 0.13 quintal in 2018-19, the reason for which is the liberty to sell Tejpatta in the open market as most of the material is cultivated in the fields. This also fetch them high value. The maximum auction rate for Tejpatta was 5300 per quintal in year 2015-16.

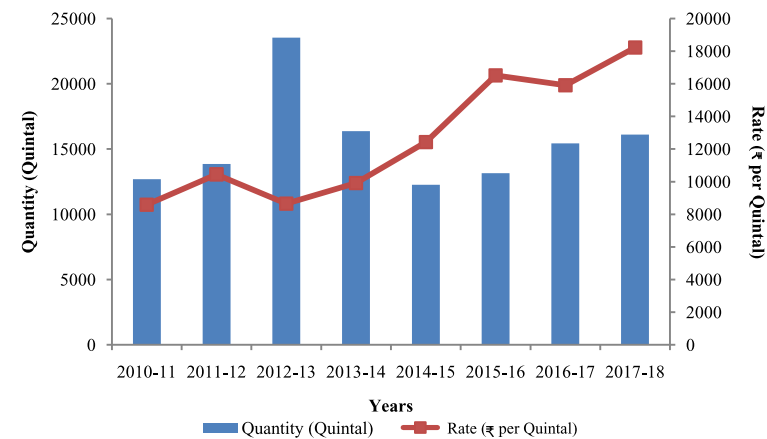


Figure 6: Marketing of Jhula Ghas in Uttarakhand

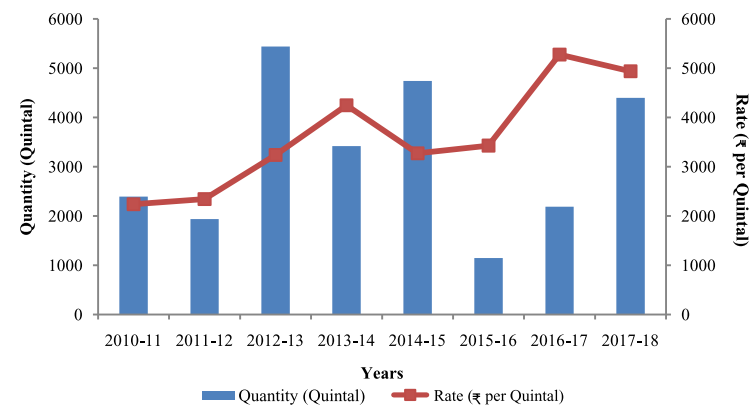


Figure 7: Marketing of Moss in Uttarakhand

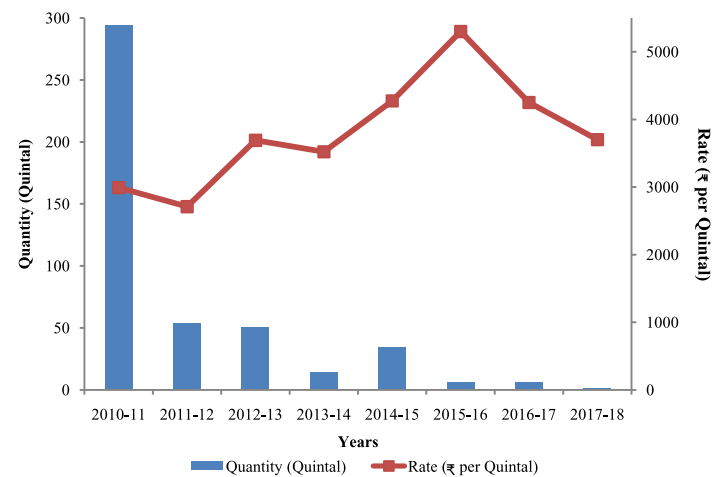


Figure 8: Marketing of Tejpatta in Uttarakhand

The average quantity marketed for 8 years from 2010-11 to 2017-18 through these mandies is 18924.546 quintal with sum total of ₹16285.745. Market price of these medicinal plants shows a significant increase from year 2015-16 due to the higher demands and its low availability in the mandies. The medicinal plants are collected through the agencies viz. Bhesaj Sangh, Van Panchayat, Uttarakhand Forest Development Corporation (UAFDC), Kumaon Mandal Vikas Nigam (KMVN) and Garhwal Mandal Vikas Nigam (GMVN) as per working plan prescriptions and brought to mandies from the forest for sale through open auction. Table 1 shows the collection of medicinal plants through different agencies and their sale through the three mandies of Uttarakhand. As also reported in our earlier Project Report (2016-17), Bhesaj Sangh followed by Van Panchayat were the major collecting agencies of medicinal herbs from 2006-07 to 2013-14. From the years 2014-15 to 2018-19, UAFDC emerged as a second largest agency to collect medicinal herbs after Bhashaj Sangh. Collection through GMVN and KMVN remain the least in terms of quantity.

Table 2 shows the medicinal plants species marketed through these mandis from years 2010-11 to 2018-19. From the Table 2 it is clear that a number of species which were reaching mandis for auction during the period 2010-11 to 2012-13.



1. Jhula ghas - *Parmelia perlata*



2. Kutki - *Picrorhiza kurroa*



3. Choru - *Angelica glauca*



4. Faran - *Allium stracheyi*

Table 1: Agencywise marketing report of medicinal herbs in three mandies of UAFDC (Amount In Lakh ₹ and Quantity In Quintal)

Years	Name of Mandis	UAFDC		Bhesaj Sangh		KMVN		GMVN		Van Panchayat		Illegal/captured material e.t.c		Total	
		Qty	Amount	Qty	Amount	Qty	Amount	Qty	Amount	Qty	Amount	Qty	Amount	Qty.	Amount
2011-12	Ramnagar	602.91	40.46	2309.90	175.87	849.10	43.19	0.00	0.00	6507.23	627.50	0.00	0.00	10269.14	887.02
	Rishikesh	2013.20	261.85	2641.93	331.01	0.00	0.00	19.75	0.11	1898.74	247.73	0.00	0.00	6573.63	840.69
	Tanakpur	0.00	0.00	844.45	47.17	337.69	26.58	0.00	0.00	0.00	0.00	0.00	0.16	1182.15	73.91
	Total	2616.11	302.30	5796.28	554.04	1186.79	69.77	19.75	0.11	8405.97	875.23	0.00	0.16	18024.92	1801.62
2012-13	Ramnagar	429.01	40.99	7150.25	459.61	937.20	32.52	0.00	0.00	7309.68	745.61	0.00	0.00	15826.14	1278.72
	Rishikesh	2123.42	23.15	7738.65	471.26	0.00	0.00	54.59	81.88	157.18	211.56	0.00	0.00	10073.83	787.85
	Tanakpur	0.00	0.00	1134.99	60.53	834.17	64.41	0.00	0.00	0.00	0.00	0.00	0.00	1969.16	124.94
	Total	2552.43	64.14	16023.89	991.40	1771.37	96.92	54.59	81.88	7466.86	957.16	0.00	0.00	27869.13	2191.51
2013-14	Ramnagar	188.95	17.22	6844.14	476.53	779.09	30.61	0.00	0.00	3274.86	297.23	19.75	0.34	11106.79	821.93
	Rishikesh	1667.20	183.32	5426.74	656.52	0.00	0.00	72.52	6.35	754.31	82.55	0.00	0.00	7920.77	928.75
	Tanakpur	0.00	0.00	467.14	31.30	329.55	26.56	0.00	0.00	0.00	0.00	0.00	0.00	796.69	58.07
	Total	1856.15	200.54	12738.02	1164.35	1108.64	57.18	72.52	6.35	4029.17	379.78	19.75	0.34	19824.25	1808.75
2014-15	Ramnagar	1876.66	178.72	7189.17	473.02	410.90	11.49	0.00	0.00	889.06	89.30	2.80	1.45	10368.59	753.98
	Rishikesh	1614.12	189.42	3518.97	527.81	0.00	0.00	50.89	7.48	455.48	55.83	0.00	0.00	5639.46	780.54
	Tanakpur	0.00	0.00	936.82	99.63	128.71	9.99	0.00	0.00	0.00	0.00	0.00	0.00	1065.53	109.62
	Total	3490.78	368.14	11644.96	1100.46	539.61	21.48	50.89	7.48	1344.54	145.13	2.80	1.45	17073.58	1644.14
2015-16	Ramnagar	2055.67	298.80	3934.79	715.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5990.46	1014.50
	Rishikesh	3100.98	342.20	4524.77	494.30	0.00	0.00	54.23	12.09	318.36	37.13	0.00	0.00	7998.34	885.72
	Tanakpur	0.00	0.00	334.41	62.78	119.00	17.26	0.00	0.00	0.00	0.00	0.00	0.00	453.41	80.04
	Total	5156.65	641.00	8793.97	1272.78	119.00	17.26	54.23	12.09	318.36	37.13	0.00	0.00	14442.21	1980.26
2016-17	Ramnagar	2552.11	354.76	4991.91	645.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7544.02	1000.63
	Rishikesh	2133.59	345.14	5309.09	1020.54	0.00	0.00	74.64	13.83	52.12	9.38	16.26	1.15	7585.70	1390.04
	Tanakpur	612.30	73.24	1959.70	215.99	42.31	5.03	0.00	0.00	0.00	0.00	0.00	0.00	2614.32	294.27
	Total	5298.00	773.14	12260.70	1882.40	42.31	5.03	74.64	13.83	52.12	9.38	16.26	1.15	17744.04	2684.94
2017-18	Ramnagar	6798.04	745.88	6061.73	672.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12859.77	1418.38
	Rishikesh	1421.41	186.10	4250.67	804.24	0.00	0.00	174.00	33.11	0.00	0.00	28.52	1.61	5874.59	1025.06
	Tanakpur	0.00	0.00	1822.98	326.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1822.98	326.81
	Total	8219.45	931.98	12135.38	1803.55	0.00	0.00	174.00	33.11	0.00	0.00	28.52	1.61	20557.34	2770.25
2018-19	Ramnagar	5522.50	760.00	5261.53	577.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10784.03	1337.51
	Rishikesh	2153.34	355.40	4312.54	960.96	0.00	0.00	324.41	46.93	0.00	0.00	0.00	0.00	6790.29	1363.29
	Tanakpur	0.00	0.00	2389.07	499.01	0.00	0.00	0.00	0.00	113.97	19.82	33.17	1.29	2536.21	520.12
	Total	7675.84	1115.40	11963.14	2037.48	0.00	0.00	324.41	46.93	113.97	19.82	33.17	1.29	20110.53	3220.92

Table 2: Species wise marketing report of medicinal herbs in the three mandies of UAFDC (Amount In Lakh ₹ and Quantity In Quintal)

Years	Species Name	Rishikesh			Ramnagar			Tanakpur			Total	
		Qty.	Rate (₹ per Quintal)	Amount	Qty.	Rate (₹ per Quintal)	Amount	Qty.	Rate (₹ per Quintal)	Amount	Qty.	Amount
2010-11	Jhula Ghas	7925.22	9449.00	748.85	2790.00	8779.00	244.93	1972.87	7524.00	148.44	12688.09	1142.22
	Moss	62.50	2411.00	1.51	1454.82	1847.00	26.87	876.41	2450.00	21.47	2393.73	49.85
	Tejpatta	24.02	3579.00	0.86	126.87	2442.00	3.10	143.08	2953.00	4.23	293.97	8.19
	Belgiri	0.91	1300.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.91	0.01
	BasaPanchang	3.04	450.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	3.04	0.01
	KaduPanchang	12.18	450.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	12.18	0.05
	PadamKashth	297.70	674.00	2.01	0.00	0.00	0.00	0.00	0.00	0.00	297.70	2.01
	Rohini Seed	5.82	1900.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	5.82	0.11
	Rohini Powder	0.22	5203.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.01
	RohiniChilka	4.62	551.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	4.62	0.03
	Belchilka	2.71	331.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	2.71	0.01
	BelSaboot	2.82	701.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	2.82	0.02
	Dandasa	20.00	10000.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00	2.00
	KingoreJad	109.84	1303.73	1.43	43.35	500.00	0.22	0.00	0.00	0.00	153.19	1.65
	YarsaGumbu	0.00	0.00	0.00	0.00	0.00	0.00	0.03	17704000.00	4.78	0.03	4.78
	Van Tulsi	0.00	0.00	0.00	3.05	3500.00	0.11	0.00	0.00	0.00	3.05	0.11
	KariPatta	10.43	300.00	0.03	0.36	1411.00	0.01	0.00	0.00	0.00	10.79	0.04
	Arijun Chaal	0.00	0.00	0.00	0.39	500.00	0.00	0.00	0.00	0.00	0.39	0.00
	Gud Bach	0.00	0.00	0.00	0.09	3000.00	0.00	0.00	0.00	0.00	0.09	0.00
	Kaphal Chaal	0.00	0.00	0.00	4.05	600.00	0.02	0.00	0.00	0.00	4.05	0.02
MeethaNeem	0.00	0.00	0.00	10.42	300.00	0.03	0.00	0.00	0.00	10.42	0.03	
Kantkari	0.00	0.00	0.00	0.01	6000.00	0.00	0.00	0.00	0.00	0.01	0.00	
Dhakphool	0.00	0.00	0.00	0.04	4400.00	0.00	0.00	0.00	0.00	0.04	0.00	
Amaltash	0.00	0.00	0.00	0.45	500.00	0.00	0.00	0.00	0.00	0.45	0.00	
	Total	8482.03		756.94	4433.90		275.29	2992.39		178.92	15908.32	1211.15
2011-12	Jhula Ghas	6338.96	13049.00	827.17	6808.69	9243.76	629.38	707.36	9029.21	63.87	13855.01	1520.42
	Moss	61.18	2891.00	1.77	1399.85	2045.04	28.63	474.79	2081.29	9.88	1935.81	40.28
	BansaPanchang	31.56	462.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	31.56	0.15

	Misc. – Misrit Species	31.15	5215.00	1.62	0.00	0.00	0.00	0.00	0.00	0.00	31.15	1.62
	Total	5874.60	1025.07	12859.77	1418.41	1822.98	326.82	20557.35	2770.30			
2018-19	Jhula Ghas	6052.82	22029.00	1333.35	8833.08	14396.00	1271.58	2110.93	23733.00	501.00	16996.83	3105.93
	Moss	676.84	4205.00	28.46	1950.95	3379.00	65.93	425.28	4499.00	19.13	3053.07	113.52
	Tejpatta	3.14	4000.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	3.14	0.13
	Vasa Panchang	7.00	500.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.04
	Satua	3.49	21564.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	3.49	0.75
	Misc. – Misrit Species	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Padamkast	47.00	1200.00	0.56	0.00	0.00	0.00	0.00	0.00	0.00	47.00	0.56
	Total	6790.29	1363.29	10784.03	1337.51	2536.21	520.13	20110.53	3220.93			

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Report of the Workshop on

“Current Status and Potential of Forest Based Livelihood in Uttarakhand”

Organized by:

Centre of Excellence on Forest Based Livelihood in Uttarakhand

**Supported by: Ministry of Environment, Forest & Climate Change,
Govt. of India (MoEFCC)**

Venue: Nanda Paradise, near Lata village

Date: 16th June, 2018

The 27th State of the Republic of India, Uttarakhand, lies on the southern slope of the Himalayan range. Uttarakhand is no less than a natural marvel and is an abode of floral and faunal diversity. From alpine meadows in the north of the State to temperate and tropical deciduous forests, from fast flowing river system to fertile Tarai area for agriculture, Uttarakhand is a vital part of Himalayan regime. As per FSI report (2017), the State has reported a recorded forest area of 71.05% of its geographical area. Due to its varied topographical, climatic and vegetative diversity, Uttarakhand also becomes the house of some of the endangered species like snow leopard, Musk Deer, Himalayan Monal, etc.

In the laps of Nanda Devi Biosphere Reserve, lies Lata village (30.49°N 79.71°E) of district Chamoli (sub-district Joshimath) which is a forest fringe village lying on the road-head. On the lower side of the road near the Dhauli Ganga River is the winter village of Lata; while on the upper side is the summer village which is approximately a 2 km's uphill walk from the main road. The pre-dominant Bhotia community of this region lives amongst the nature, constantly interacting with the wild and gaining their livelihood from it.

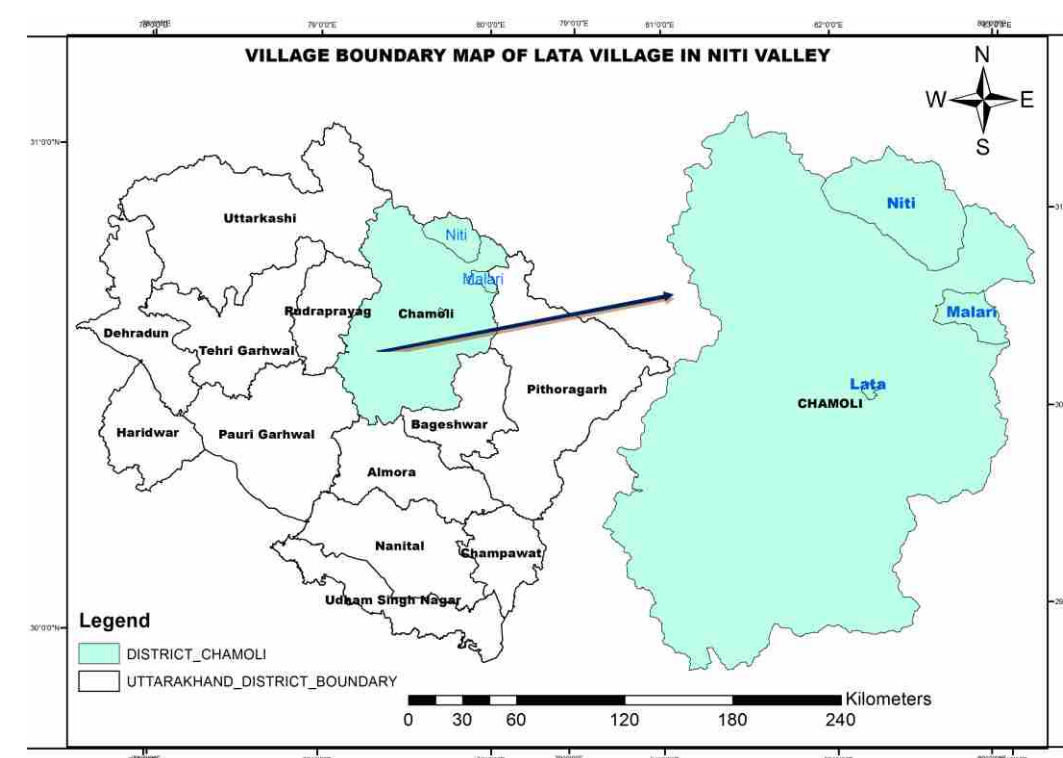


Figure 9. Village Boundary Map of Lata Village in Niti Valley



Ministry of Environment, Forest & Climate Change created a Centre of Excellence (CoE) on Forest based Livelihood in Uttarakhand with Uttarakhand State Council for Science and Technology (UCOST). Lata was one of the villages that was selected for the household survey under CoE also workshop on “Current Status and Potential of Forest based Livelihood in Uttarakhand” was organized at Lata Village, to gather information and traditional knowledge on forest based produce and to estimate their dependence on forest resources for their livelihood.

The workshop was held on 16th June, 2018 at Nanda Paradise (motel) in Lata (Niti Valley). It was attended by Dr. Rajendra Dobhal (Director General, UCOST), Dr. Ashutosh Mishra (Senior Scientific Officer In charge), Dr. Piyush Joshi (Senior Scientific Officer), Dr. Ajeet Kaur (Senior Scientist), Dr. Sunil Kainthola (Co-ordinator, Mountain Shepherd Initiative, Pvt. Ltd.), Ms. Kanchan Dobhal (SRF) and Ms. Rommila Chandra (JRF). Approximately, 60 villagers from nearby villages like Reni, Lata and Tolma had participated in the workshop.

The workshop started at 10:00 am with a welcome note by shrimati Rajmati Devi (Pradhan of Lata Village). Then Dr. Ajeet Kaur gave an introductory presentation where she explained the mission and vision of CoE. The objectives of CoE were also put forward, one by one. The purpose of the visit and workshop were also highlighted.

After this, Dr. Piyush Joshi explained the working and importance of CoE and that how this workshop could be helpful for the local/regional people. Dr. Joshi also told people to share their traditional knowledge; culture heritage and livelihood dependency to the CoE, Dr. S. Kainthola presented his idea's regarding eco-tourism, so that a livelihood structure could be developed for the people. He also enlightened everyone about the dying art of Bhotia community, which is weaving. He explained how one should preserve the cultural heritage and upgrade it. He not only talked about the revival of weaving but also trying hands on natural plant based dyes, so that the value addition of the product could be done. He also suggested selling these handmade, one of a kind designed products in the international markets.

The desk was then finally graced by Dr. Rajendra Dobhal. He interacted with the people, listened to their problems and suggested some valuable solutions as well. He proposed to sanction a medical camp at Lata for the village people, as no medical facility is available in the area (the nearest being Joshimath, which is approximately 25 Km's after a tedious walk). He also suggested that the Bhotia community should endeavour for obtaining Geographical Indication tag for the art of carpet weaving under the Geographical Indications of Goods (Registration and Protection) Act, 1999 (GI Act). He asked Dr. S. Kainthola to submit a project proposal regarding the natural dye unit as well.



In the second round of workshop people were divided into 3 heterogeneous groups (of mixed gender, age and location/place). Each group had its own facilitator, namely Dr. Ajeet Kaur, Ms. Kanchan Dobhal and Ms. Rommila Chandra. Each group had five pre-prepared charts containing five questions based on their livelihood and cultural dependency on forests



The Questions were as follows:

1. आप वनों पर किन किन चीजों के लिये निर्भर हैं?
2. आपकी समझ से पूर्व व वर्तमान की स्थितियों में क्या बदलाव आए हैं?
3. आपको वनों से जरूरत का सामान लाने में किन किन परेशानियों का सामना करना पड़ता है ?
4. आपको वनों से सतत् उत्पादन मिलता रहे और आगे आने वाली पीढ़ियों को भी लाभ मिले, तो उसके लिये आपके क्या सुझाव हैं ?
5. सांस्कृतिक निर्भरता
 - आपके इलाके के खास त्यौहार व मेले ?
 - वनों में स्थापित कोई मंदिर ?
 - पूजा में कौन कौन सी सामग्री इस्तेमाल करते हैं ?
 - आपके इलाके में कोई पवित्र वन हैं ?
 - आपके गांव में कोई स्थानीय वैद्य है ?

Each question was discussed 15 minutes and one village person from each group was writing the points on the chart, thus giving villagers a chance to participate. The whole session continued for approximately 90 minutes. After the group discussion, the various conclusions in the context with the different questions from each group were drawn, discussed and presented.

With the group discussion, the outcome we received is compiled as follows:

Some of the medicinal herbs collected for trade and ethno botanical purposes are: Keeda jadi (*Cordyceps sinensis*), Atees (*Aconitum heterophyllum*), Gandranu/Choru (*Angelica glauca*), Laljari/ Balchar (*Arnebia benthamii*), Hatajari (*Dactylorhiza hatagirea*), Kutki/Kaduwi (*Picrorhiza kurrooa*), Ban-Kakri (*Podophyllum hexadrum*), etc.

Deodar, Surai and Kail are the fuelwood species that the villagers use, Apart from taking the cattle for regular grazing, they also collect fodder from the forest. Some of the fodder species thus collected are kameru, saginu, Purakh, Khod, Kumayu, Chriya, etc. The people also consume some wild vegetables like Pumanu, Chandra, Barmau, Lingura, Kandali, etc. The wild fruits in the region are Jamun, Ghenu, Hisalu, Darbhau, Bedu, Chulu etc. Wild tea is also collected from the forest which they use in their daily routine, like, Thuner and Sheelpondi. Dhoop and agarbatti for praying is also made from aromatic plants like Masi, Tagar, Bhitaru, Nair and Purchu.

According to the people their dependence has nearly become half of what it used to be in the past. As the area has been declared Nanda Devi Biosphere reserve, all these villages come under its buffer zone and hence a lot of restrictions are being imposed as per the rules and regulations of forest department. Thus, their free collection of produce from the forest has been affected. They face another major problem of wild animals which affect their agricultural lands and hence their production is reducing over the years. They also have to face tough topographical conditions while going into the forest for the collection of different products. There is no facility of doctor or health care in the village (nearest being Joshimath which is approximately 25 Km from Lata village) in case of any emergency.

For the sustainable utilisation of the forest produce, the people come forward for the protection and conservation of forest. It is the land of Gaura Devi (the pioneer of Chipko Movement) and the people are very much attached to their forest and environment. According to them, they never cut a tree and collect the broken, branches from the forest. They have a proper knowledge regarding the harvesting of medicinal and aromatic plants which prevent the damaging of the yield for the future generation. They also follow the concept of green trails and prevent any kind of littering and waste production during trekking and camping.

Group discussion was followed by lunch which was organized for all the participants. After lunch break, Dr. Ajeet Kaur gave the concluding remarks. A small cultural programme was organized where the ladies of Lata Village presented their traditional dance and song. They gave a pleasant end to the fruitful workshop.

