

ADMINISTRATIVE REPORT

Financial Year 2020-21



Uttarakhand Bamboo & Fiber
Development Board

UTTARAKHAND BAMBOO AND FIBER DEVELOPMENT BOARD

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Executive Summary:

Bamboos are giant grasses, which grow in tropical, subtropical and mild temperate regions. India stands next to China in bamboo resources in the world. There are over 111 genera of bamboo with about 1575 species globally and distributed in many countries. About 134 species belonging to 18 genera have been described from Indian sub-continent. Bamboo is able to adapt to a wide variety of ecosystems and climatic conditions. China has the highest bamboo biodiversity in Asia, with over 500 species, followed by Japan, India, Indonesia, Myanmar and Malaysia, each with more than a hundred species.

Bamboo contributes substantially to the ecological, economic and social development. Ecologically, bamboo plays a critical role in soil and water conservation, the balance of oxygen and carbon dioxide in the atmosphere, lowers light intensity and protects against ultraviolet rays. Its inherent ability to grow on marginal and wastelands makes it one of the preferred crops for greening the wastelands and degraded sites, conservation of soil and moisture and sequestration of carbon. Bamboos are one of the versatile plant groups with multifarious uses and then meet many needs of the society. About 1500 documented traditional uses have been recorded for bamboo. Bamboo is a viable replacement for wood and industrial raw material for both traditional and modern sectors. The employment potential of bamboo is very high and the major work force involved are rural poor, especially women.

The state of Uttarakhand has recognized the economic and ecological potential of Bamboo and committed itself to a large programme to promote bamboo cultivation and their commercial development. Promoting bamboo, which occurs naturally in forests, and at the same time is cultivated in many parts of the state, is a part of the strategy that can apart from utilization of the existing bamboo resources of the state, develop into a livelihood activity for the rural poor. Uttarakhand has 64% of its area as natural forests, and bamboo is present on 1.48 lakh ha. (Report ISFR 2019) of forest land, although overlapping with other forests and scattered. As per an estimate there are more than 10,000 artisans who earn their living by bamboo-based craftsmanship.

In year 2020-21, a total of 04 bamboo nurseries covering 04 ha. area have been established under the National Bamboo Mission Programme, out of which 02 nurseries in government sector and 02 in private sector were established. Thus far, a total of 11 nurseries have been established across the State since 2018-19 under the NBM. The total stock in these nurseries presently is about 4 lakh plants and has the capacity to produce 5 lakh plants every year which can cater to more than 1000 ha of plantation every year. To promote bamboo in non-forest area a total of 471 ha of new plantations have been raised during 2020-21, out of which around 174

ha is in farmers' fields and field bunds and the remaining are on community lands. Along with this, bamboo plantation was also carried out on 117 hectares of forest land under the State Plantation Scheme, which has vital role from the point of view of wildlife and ecological restoration in the coming times.

The plantations include various species depending on their suitability and objective, namely, *Dendrocalamus strictus*, *Bambusa bambos*, *Bambusa tulda*, *Bambusa polymorpha*, *Bambusa balcooa*, *Thryostachys olivieri*, *Phyllostachys pubescens*, etc.

To create the bamboo-based industries in the State, one processing units for value addition of bamboo, three handicrafts unit and cottage industries, one jewellery making unit and one community facility center were established under the National Bamboo Mission Programme. Moreover, one incubation center was allotted to Chakrata Forest Division Dehradun, which will provide opportunity for holistic development of bamboo entrepreneurs of Uttarakhand through practical training and making them realize their full potential by building up their capacities.

To bridge the gap between rural craftsmen and urban affluent consumers four rural haats and two bamboo bazaar were established at various places of tourist interest. The Uttarakhand Bamboo and Fiber Development Board, under the State Bamboo Mission is undertaking promotion and marketing of the products of artisans and industries through these bamboo bazars. It is worthy to mention that the first batch of bamboo handicrafts were exported to Singapore from Dehradun in 2020-21. Moreover, participated in a series of exhibitions and trade fairs to showcase and sell the bamboo and natural fibers-based products being developed by self-reliant cooperatives and self-help groups (SHGs) promoted by Uttarakhand Bamboo and Fiber Development Board.

From the point of view of improvement and management of bamboo forest, cultural operation in a bamboo plantation of around 15 ha conducted early this year (2020-21) during winters which yielded about 80000 culms (1000 tones) of bamboos belonging to *Dendrocalamus strictus* and *Bambusa bambos*. During the FY 2020-21, a total of three training programmes on bamboo based handicrafts and value addition were conducted to the artisans group covered 150 artisans from Dehradun, Uttarkashi and Udham Singh Nagar. Additionally, online training programmes have also been organised for farmers on cultivation and value addition aspects, during the lockdown period covered more than 250 artisans, farmers, entrepreneurs, students and Government and Non-government officials from across India.

In the context of Uttarakhand, natural fibers have great importance to create rural livelihood, for which the Board is making continuous efforts. In 2020-21, a total of 35 quintals nettle/hemp/Bhimal fiber was collected/processed through existing cooperatives and Self-Help Groups associated with UBFDB and covered 400-500 artisans/farmers/entrepreneurs directly and indirectly. To address bottlenecks in the extraction, primary and secondary process of the

nettle and industrial hemp fiber a natural fiber processing center located at Dr. Sushila Tiwari Herbal Garden Rishikesh was strengthened and installed improved machines and tools for fiber processing and value addition. To improve primary and secondary process in Himalayan Nettle fiber, a research and development study was carried out by the Uttarakhand Bamboo and Fiber Development Board in technical association with Department of Clothing and Textiles, College of Home Science, G.B. Pant University of Agri. and Tech. Pantnagar, Uttarakhand with a financial support of UNDP under SECURE Himalaya project. The suggestions and recommendations that have been received after research will definitely be useful in improving the quality of nettle and hemp fibers as well.

Members of the Governing Body as on 31st March, 2021

Sl. No.	Name of Members	Occupation	Position in the Board
1	Mrs. Manisha Panwar	Additional Chief Secretary and Agriculture Production Commissioner, Govt. of Uttarakhand.	Chairman
2	Mr. Anand Bardhan	Secretary Forest and Environment, Govt. of Uttarakhand.	EX-Officio Vice Chairman
3		Secretary, Rural Development, Govt. of Uttarakhand.	EX-Officio Member
4	Mr. Rajiv Bhartari	Principal Chief Conservator of Forest (HoFF) Uttarakhand	EX-Officio Member
5	MR. Vinod Kumar	Managing Director, Uttarakhand Forest Development Corporation	EX-Officio Member
6	DR. Rajendra Dobhal	Director General, Uttarakhand State Council for Science & Technology	EX-Officio Member
7	Dr. Anil Joshi	Director HESCO, Dehradun	Member
8	Dr. Rajiv Oberoi	SPD, Dehradun	Member
9	Mr. Manoj Chandran	Chief Executive Officer, UBFDB	EX-Officio Member Secretary

Members of the Executive Committee as on 31st March, 2021

Sl. No.	Name of Members	Occupation	Position in the Executive Committee
1	Mr. Rajiv Bhartari	Principal Chief Conservator of Forest (HoFF) Uttarakhand	Chairman
2	Mr. S.S. Baldiya	Additional Secretary, Establishment, Govt. of Uttarakhand.	EX-Officio Member
3	Mr. A.K. Rajput	Assistant Commissioner, Rural Development.	EX-Officio Member
4	Mr. K.C. Pathak	Additional Director, Department of Agriculture Uttarakhand.	EX-Officio Member
5	Dr. J.C. Kem	Additional Director, Department of Horticulture, Uttarakhand.	EX-Officio Member
6	Mr. Jeevan Chandra Joshi	Finance Controller, Forest Dept., Uttarakhand	EX-Officio Member
7	Representative of UCOST	Representative of Uttarakhand Council for Science and Technology (UCOST) Dehradun	EX-Officio Member
8	Representative of CIBART	Representative of Centre for Bamboo and Rattan (CIBART)	Member
9	Mr. Manoj Chandran	Chief Executive Officer, UBFDB	EX-Officio Member Secretary

UTTARAKHAND BAMBOO AND FIBER DEVELOPMENT BOARD (UBFDB) Achievements in 2020-21

Project: National Bamboo Mission

Sponsored by: Govt. of India and State Govt. (funding ratio 90:10)

Status: In Progress

The restructured National Bamboo Mission (NBM) centrally sponsored scheme was started in 2018-19 under the Ministry of Agriculture and Farmers Welfare, Govt of India. The scheme aims to inter-alia supplement farm income of farmers with focus on the development of complete value chain of bamboo sector linking growers with industry. The scheme is being implemented in non-forest Government land, farmers field in States where it has social, commercial and economical advantage, including Uttarakhand State. The funding pattern for the National Bamboo Mission is 60:40 between Centre and State Government for all States excepting Northeast and Hilly states, where it is 90:10 and 100% in case of Union Territories (UT), R&D Institutes, Bamboo Technology Support Groups (BTSGs) and National Level Agencies.

Activity wise progress under APO 2020-21:

A) Propagation and Cultivation:

Bamboo nursery both in public and private sector:

- 1. Hi-tech nursery (2 ha.):** With the support of National Bamboo Mission scheme, one Hi-tech nurseries in public/Govt. sector was established by ICAR-Indian Institute of Soil and Water Conservation (IISWC) with the facilities of mist chamber, net house chamber and other need-based tools and equipments. Currently, more than thirty thousand different Commercially viable species namely, *Bambusa bambos*, *Bambusa tulda*, *Bambusa polymorpha*, *Bambusa balcooa*, *Thryostachys olivieri*, etc.



Propagation through Rhizome

2. **Big Nursery (1 ha.):** Under the Mission, a total of one big nursery (1ha) was established in private sector with the capacity of 25000 bamboo plants per year. The first installment of subsidy amount was released to the participatory bank under credit linked back ended subsidy scheme.



3. **Small Nursery (0.5 ha.):** Out of the target of 1 small nursery in public sector the nursery was allotted to Gram Panchayat Khumti, while against the target of 1 small nursery in private sector the nursery was allotted to Mr. Purushottam Nautiyal, Village Boga, Tehri Garhwal. The both nurseries have been established the various species are being grown are *bambusa strictus*, *bambusa nutans* and ringal (*arundinaria*) species.



Small Nursery at Village Bonga Tehri Garhwal

- 4. High Density Bamboo Plantation on Govt./Panchayat/Community land including waste land:** Out of the target of 442 ha. bamboo plantation, a total of 297.515 ha. plantation was carried out under the APO, while maintenance of 482 ha. planation of previous year was done. The details of the plantation is as follows:

S. No.	Name of Candidate & Father/ Husband name	Village name	Block	District Name	Land Undertaken in (ha)
1	Panchayat- Bhatnayaaljula	Bhatnayaaljula	Hawalbag	Almora	20
2	Panchayat- Nali Talli	Nali Talli	Maisiyachhana	Almora	5
3	Panchayat- Ragadi	Ragadi	Bhilangana	Tehri Garhwal	11.101
4	Panchayat- Dangu	Dangu		Tehri Garhwal	7.784
5	Panchayat- Rotu ki beli	Rotu ki beli	Jaunpur	Tehri Garhwal	4.654
6	Panchayat- Mair	Mair	Jaunpur	Tehri Garhwal	8.843
7	Panchayat- Almas	Almas	Jaunpur	Tehri Garhwal	5
8	Panchayat- Angida	Angida	Jaunpur	Tehri Garhwal	8.174
9	Panchayat- Bhatoli	Bhatoli	Jaunpur	Tehri Garhwal	13.896
10	Panchayat- Mason	Mason	Jaunpur	Tehri Garhwal	7
11	Panchayat- Bandachak	Bandachak	Jaunpur	Tehri Garhwal	6.2
12	Panchayat- Makhdaith	Makhdaith	Jaunpur	Tehri Garhwal	4.066
13	Panchayat- Bhatoli	Bhatoli, Chamyia	Jaunpur	Tehri Garhwal	10.336
14	Panchayat- Mogi	Mogi	Jaunpur	Tehri Garhwal	8
15	Dewalsari Paryavaran sarakshan evam takniki vikas samiti Bangsil	Bangsil	Jaunpur	Tehri Garhwal	5
16	Panchayat Atmalpur Bongla	Atmalpur Bongla	Bahadarabad	Haridwar	1.5
17	Panchayat- Bachan goan	Bachan gaon	Badkot	Uttarkashi	5.106

18	Panchayat- Sarnaul	Sarnaul (Gatalgaon)	Badkot	Uttarkashi	17.377
19	Panchayat- Chaptadi	Chaptadi	Badkot	Uttarkashi	9.216
20	Panchayat- Basrali	Basrali	Badkot	Uttarkashi	6
21	Gram sabha Ghanta	Ghanta	Chakrata	Dehradun	7
22	Panchayat- Geri	Geri	Ghaat	Chamoli	2
23	Panchayat- Vaduk	Vaduk	Ghaat	Chamoli	2
24	Gram Panchayat- Basta	Basta	Jakholi	Rudraprayag	3
25	Panchayat- Boga	Boga	Bhilangana	Tehri Garhwal	8.262
26	Gram Panchayat Jayhari Talli	Jayhari Talli	Dugadda	Pauri Garhwal	10
27	Gram Panchayat Mawasa	Mawasa	Dugadda	Pauri Garhwal	10
28	Gram Panchayat Toli	Toli	Yamkeshwar	Pauri Garhwal	10
29	Gram Panchayat Juledi	Juledi	Yamkeshwar	Pauri Garhwal	05
30	Gram Panchayat Godada	Godada	Dwarikhal	Pauri Garhwal	10
31	Gram Panchayat Kutani	Kutani	Dwarikhal	Pauri Garhwal	10
32	Gram Panchayat Khumana	Khumana	Dwarikhal	Pauri Garhwal	10
33	Gram Panchayat Kimad	Kimad	Yamkeshwar	Pauri Garhwal	05
34	Gram Panchayat Sundroli	Sundroli	Rikhnikhal	Pauri Garhwal	05
35	Gram Panchayat Churani	Churani	Rikhnikhal	Pauri Garhwal	09
36	Gram Panchayat Kotnali	Kotnali	Rikhnikhal	Pauri Garhwal	10
37	Panchayat- Bhyunta	Bhyunta	Jakholi	Rudraprayag	17
Total land in Ha.					297.515

5. Block Plantation/Boundary Plantation on Farmers Field: In the last few years, awareness about bamboo planting has increased among the farmers and they want to cultivate bamboo in their fields/bunds. In 2020-21, a total of 166.35

ha. plantation was achieved and covered 118 beneficiaries as per the details given below:

S. No.	Name of Candidate & Father/ Husband name	Village name	Block	District Name	Land Undertaken in (ha)
1	Sundar Lal Joshi S/o Sh. Tulsiram Joshi	Gangar	Bhilangana	Tehri Garhwal	1.5
2	Purshotam Dutt S/o Sh. Kedar Dutt	Bonga	Bhilangana	Tehri Garhwal	3
3	Vishveshwer Prasad Joshi S/o Sh. Mukand Ram	Gangar	Bhilangana	Tehri Garhwal	2.16
4	Rai Singh S/o Sh. Madiya Singh	Mayar	Bhilangana	Tehri Garhwal	2.264
5	Murtiram Joshi S/o Sh. Syalik Ram	Gangar	Bhilangana	Tehri Garhwal	1.82
6	Prem Singh S/o Sh. Raipal Singh	Mayar	Bhilangana	Tehri Garhwal	0.663
7	Nitish Vinay Singh S/o Sh. Kiriti Singh	Dalla	Bhilangana	Tehri Garhwal	1.5
8	Mor Singh Rawat S/o Sh. Ratan Singh	Myar	Bhilangana	Tehri Garhwal	1.5
9	Prem Singh S/o Sh. Ratan Singh	Myar	Bhilangana	Tehri Garhwal	0.4
10	Darshan Singh S/o Sh. Govind Singh	Myar	Bhilangana	Tehri Garhwal	1.636
11	Chankhi devi W/o Sh. Jagdish Prasad	Boga	Bhilangana	Tehri Garhwal	2
12	Sher Singh S/o Sh. Jagannath Singh	Myar	Bhilangana	Tehri Garhwal	0.3
13	Ramesh Singh S/o Sh. Dabal Singh	Ragdi	Bhilangana	Tehri Garhwal	1.223
14	Bhagwan Singh S/o Sh. Chindiya	Myar	Bhilangana	Tehri Garhwal	1
15	Durga Dutt S/o Sh. Nagender Dutt	Dalla	Bhilangana	Tehri Garhwal	1
16	Balveer Singh S/o Sh. Chandramohan Singh	Myar	Bhilangana	Tehri Garhwal	1
17	Laxman Singh S/o Sh. Mor Singh	Ghauraka	Bhilangana	Tehri Garhwal	1.233
18	Bachan Singh S/o Sh. Kaish Singh	Myar	Bhilangana	Tehri Garhwal	0.986
19	Charan Das S/o Sh. Amar Das	Myar	Bhilangana	Tehri Garhwal	2
20	Prem Singh S/o Sh. Kaish Singh	Myar	Bhilangana	Tehri Garhwal	0.5

21	Satya Prakash S/o Sh. Sanvdas	Laudas	Bhilangana	Tehri Garhwal	0.5
22	Kamlesh Painuly S/o Sh. Tularam Painuly	Dhalwala	Jakhanidhar	Tehri Garhwal	1
23	Ramnaresh Badoni S/o Sh. Sant ram Badoni	Dhalwala	Jakhanidhar	Tehri Garhwal	1
24	Rajendra Singh Sh. Ranveer Singh	Mindath	Narender nagar	Tehri Garhwal	3
25	Vijendra Singh S/o Sh. Ranveer Singh	Sasman	Narender nagar	Tehri Garhwal	0.587
26	Kamali Devi W/o Sh. Daleep Singh	Mindath	Narender nagar	Tehri Garhwal	1.122
27	Jalam Das s/o Sh. Ratan das	Gair	Kandisaud	Tehri Garhwal	0.76
28	Surat singh Bartwal Sh. Madu Singh	Bhatoli	Jaunpur	Tehri Garhwal	0.676
29	Sabbal Singh Bartwal S/o Sh. Madu Singh	Bhatoli	Jaunpur	Tehri Garhwal	0.676
30	Prem Das S/o Sh. Jagtam Das	Mundani	Jaunpur	Tehri Garhwal	0.0925
31	Priti Tomar W/o Sh. Sarvesh Tomar	Chandpur	Kashipur	Udham singh nagar	1.5
32	Manoj Kumar Rana S/o Sh. Jagdish Prasad Rana	Chandpur	Kashipur	<u>Udham singh nagar</u>	2.4
33	Dayawati W/o Sh. Jagdish Prasad Rana	Chandpur	Kashipur	Udham singh nagar	2
34	DMC Plantation Pvt. Ltd.	Chandpur	Kashipur	Udham singh nagar	3.5
35	Laxmi Datt S/O Sh. Vishan Datt	Gunaditya	Dhauladevi	Almora	2.5
36	Shri Indradev S/o Sh. Shreekrishan	Gunaditya	Dhauladevi	Almora	3
37	Trilok Chandra S/O	Gunaditya	Dhauladevi	Almora	0.4
38	Ganesh Datt S/O Sh. Laxmi Datt	Gunaditya	Dhauladevi	Almora	1
39	Leeladhar S/o Sh. Bachidatt	Gunaditya	Dhauladevi	Almora	1
40	Pitambar Datt S/o Sh. Devi Datt	Gunaditya	Dhauladevi	Almora	1.5
41	Pitambar Datt S/o Sh. Bhairav Datt	Gunaditya	Dhauladevi	Almora	0.8
42	Ganga Dutt Sharma S/o Sh. Shishram Sharma	Bhikiyasain	Bhikiyasain	Almora	3
43	Kirti Ram S/o Sh. Chandramani	Sayanri Bhardar	Jakholi	Rudraprayag	2.5

44	Baishakhi Devi W/o Sh. Vishalmani	Sayanri Bhardar	Jakholi	Rudraprayag	6.5
45	Pyari Devi W/o Sh. Harshmani	Sayanri Bhardar	Jakholi	Rudraprayag	3
46	Ayush Sharma S/o Sh. Tribhuwan Prasad	Maykoti	Agastmuni	Rudraprayag	3
47	Shyam lal Singh S/o Sh. Gheena Singh	Nyalsu	Ukhimath	Rudraprayag	3
48	Baishakhu Lal S/o Sh. Gyadulal	Jakholi	Jakholi	Rudraprayag	1.03
49	Uttam Singh S/o Sh. Satendra Singh	Gangaou	Thailisain	Pauri Garhwal	0.32
50	Ajeet Kaur W/o Sh. Gurvinder Singh	Naukaragrnt	Bhagwanpur	Haridwar	1.2
51	Janeshwar Prasad S/o Sh. Indraraj	Alawalpur	Bhagwanpur	Haridwar	1.5
52	Brajesh Kumar S/o Sh. Gyan chand Gupta	Padali Gainda	Bhagwanpur	Haridwar	1.34
53	Saddu S/o Sh. Farjand	Hazara Grant	Bahadarabad	Haridwar	0.738
54	Surendra Kumar	Meerpur	Bahadarabad	Haridwar	0.25
55	Rajesh Kumar	Meerpur	Bahadarabad	Haridwar	0.35
56	Satish Saini	Meerpur	Bahadarabad	Haridwar	1
57	Mukesh Kumar	Meerpur	Bahadarabad	Haridwar	0.85
58	Molhad Singh	Meerpur	Bahadarabad	Haridwar	1.25
59	Aman Kumar	Meerpur	Bahadarabad	Haridwar	0.5
60	Satpal Saini	Meerpur	Bahadarabad	Haridwar	0.6
61	Sarajul	Hazara Grant	Bahadarabad	Haridwar	1
62	Amarjeet Kaur	Tanda Banjara	Bahadarabad	Haridwar	0.5
63	Suresh Kumar	Tanda Banjara	Bahadarabad	Haridwar	0.25
64	Mintar Singh	Tanda Banjara	Bahadarabad	Haridwar	0.3
65	Surendra Singh	Tanda Banjara	Bahadarabad	Haridwar	0.5
66	Jogendra Singh	Meerpur	Bahadarabad	Haridwar	0.5
67	Amarpal	Meerpur	Bahadarabad	Haridwar	1.5
68	Rajendra Singh	Meerpur	Bahadarabad	Haridwar	0.5
69	Kuldeep Kour	Tanda Banjara	Bahadarabad	Haridwar	0.25
70	Rameswar	Tanda Banjara	Bahadarabad	Haridwar	0.25
71	Kartar Singh	Tanda Banjara	Bahadarabad	Haridwar	0.25
72	Dr. Yugender Kumar Singh	Khedi Sikohpur	Bhagwanpur	Haridwar	1
73	Shalender Singh S/o Sh. Jagat Singh	Khaladi	Purola	Uttarkashi	1

74	Shashi Bhooshan S/o Sh. Kamaleshver Prasad	Gundiyatgaon	Purola	Uttarkashi	1
75	Deepchand S/o Sh. Nauniyal Chand	Netri	Purola	Uttarkashi	1
76	Ranajor Singh S/o Sh. Kundan Singh	Thaduga Hudali	Purola	uttarkashi	1
77	Govind Singh S/o Sh. Girvan Singh	Nori	Purola	Uttarkashi	3
78	Gyanendra Singh S/o Sh. Jot Singh	Mansasu	Naogoan	Uttarkashi	1.801
79	Manveer Singh Rawat S/o Sh. Soban Singh Rawat	Sarnaul Gadalgaoan	Naogoan	Uttarkashi	3.21
80	Bhagat Singh S/o Sh. Shurvir Singh	Nalld (Banal)	Naogoan	Uttarkashi	3.205
81	Hari Krishan S/p Sh. Tara Dutt	Sarnaul	Naogoan	Uttarkashi	0.657
82	Arjun Singh Rawat S/o Sh. Vijay Pal Singh Rawat	Karnali	Naogoan	Uttarkashi	2.8022
83	Puran Singh S/o Sh. Shyam Singh	Koti	Naogoan	Uttarkashi	2.02
84	Ranveer Singh S/o Sh. Jaypal Singh	Byali	Naogoan	Uttarkashi	3.0246
85	Kuldeep Singh S/o Sh. Darmyan Singh	Sarnaul	Naogoan	Uttarkashi	1.426
86	Survir Singh Rawat S/o Sh. Vikram singh Rawat	Sarnaul	Naogoan	Uttarkashi	2.5
87	Basanti Devi W/o Sh. Gabar singh Rawat	Bigradi	Naogoan	Uttarkashi	1.155
88	Kula Devi W/o Sh. Keshar Singh	Kharsali	Naogoan	Uttarkashi	3.282
89	Vidhyadutt Semwal S/o Sh. Nagdutt Semwal	Sarnaul	Naogoan	Uttarkashi	2.18
90	Jeetpal Singh S/o Sh. Vikram singh Rawat	Sarnaul	Naogoan	Uttarkashi	0.8
91	Ramkrishan S/o Sh. Ishwari Dutt Nautiyal	Guladi (Banal)	Naogoan	Uttarkashi	2.6
92	Suman Prasad S/o Sh. Gyananand Bahuguna	Monada	Naogoan	Uttarkashi	1
93	Kishan Singh S/o Sh. Rajendra Singh	Sarnaul Kudika	Naogoan	Uttarkashi	2.5
94	Badar Singh S/o Sh. Hari Singh	Sunara	Naogoan	Uttarkashi	0.758

95	Chain Singh S/o Sh. Pratap Singh	Koti Banal	Naugoan	Uttarkashi	0.393
96	Prajapati Semwal S/o Sh. Nagdutt	Netri	Naugoan	Uttarkashi	0.274
97	Sohan Lal S/o Sh. Bholashah	Guniyatgaon	Purola	Uttarkashi	0.09
98	Vinod Prasad S/o Sh. Ramashri	Gundiyat Gaon	Purola	Uttarkashi	2.279
99	Gulabya S/o Sh. Doilatu	Guniyatgaon	Purola	Uttarkashi	2.668
100	Vinod Kumar S/o Sh. Kunkya Lal	Halna	Naugoan	Uttarkashi	0.973
101	Mamlesh Prasad S/o Sh. Ramprasad Semwal	Sarnaul	Naugoan	Uttarkashi	1.513
102	Sanku S/o Sh. Nainiya	Sarnaul	Naugaon	Uttarkashi	1.8
103	Gyan Singh S/o Sh. Kamal Singh	Sarnaul	Naugaon	Uttarkashi	2.2
104	Smt. Bhanmati W/o Sh. Janeshwar Prasad	Mauja Kyarkuli Bhatta	Pargana Pachwadun	Dehradun	2.5
105	Kalam Singh S/o Sh. Sunnu	Ghanta	Chakrata	Dehradun	0.9
106	Teekam Singh S/o Sh. Sunnu Singh	Ghanta	Chakrata	Dehradun	1
107	Bhagat Singh S/o Sh. Mohan Lal	Pudiya	Naugoan	Dehradun	0.9
108	Rajnish Kumar S/o Sh. Janeshwar Prasad`	Mauja Kyarkuli Bhatta	Pargana Pachwadun	Dehradun	1.67
109	Jeet Singh S/o Sh. Uday Ram	Ghanta	Chakrata	Dehradun	1
110	Sandeep Bhardwaj S/o Sh. Dhyan Singh	Dudhai	Sahaspur	Dehradun	0.43
111	Sultan Singh Panwar S/o Sh. Prem Singh	Kunna	Chakrata	Dehradun	1
112	Dinesh Kumar Gupta S/o Sh. Krishanlal Gupta	East Hopetown, Pachwadun	Sahaspur	Dehradun	3.82
113	Darbar Shri Gururam Rai Jhanda sahib	Goodrich & Udiyabag	Vikasnagar	Dehradun	4
114	Amar Singh S/o Sh. Padam Singh	Talla Khumti	Dharchula	Pithoragarh	0.8
115	Trilok Singh S/o Sh. Padam Singh	Talla Khumti	Dharchula	Pithoragarh	0.8
116	Dev Singh S/o Sh. Narpal Singh	Talla Khumti	Dharchula	Pithoragarh	1.2

117	Har Singh S/o Sh. Pratap Singh	Khumti	Dharchula	Pithoragarh	0.8
118	Rukam Ram S/o Sh. Gyani Ram	Talli Bajani	Dharchula	Pithoragarh	0.8
				Total	166.35



Mr. Gurvinder Singh with his bamboo plantation (B.nutans and B. Balcoa) at Buggawala

Establishment of Livelihood Business Incubation: Out of the target of 1 livelihood business incubation center in public sector, the center was allotted to Chakrata Forest Division. The aforesaid center is being established at Rampur Mandi under Chakrata Forest Division, which will provide opportunity for holistic development of bamboo entrepreneurs of Uttarakhand through practical training and making them realize their full potential by building up their capacities.

C. Product Development and Processing:

1. **Establishment of Processing units for value addition of bamboo:** Out of the target of one processing center in public sector and four in private sector, one processing unit for value addition was allotted in private sector. The unit is being established at village Good Rich, Vikas Nagar, Dehradun, by M/S Shiva Enterprises and the first installment of Rs. 7.5 lakhs has been released. Moreover, one unit which was allotted to M/s Jash Manufacture Industry Ltd. Dehradun in 2019-20 has also been completed and released the second installment to the beneficiaries.



Women group making bamboo chopstick at Jash Manufacture Industry Ltd.

2. **Management of Bamboo Waste in Primary Processing Unit:** Out of the target of one unit in public sector and four in primary sector no proposals were received, however one unit which was allotted in 2019-20 was completed and released second installment of Rs. 6.26 after joint inspection of the unit.

3. **Bamboo Handicrafts/ Cottage Industry:** Under the APO 2020-21, two units were established in public sector. This includes a unit at Farsula Forest Campus under Lansdown Forest Division and another unit at Arvind Nagar, Shaktifarm, Sitarganj, Udham Singh Nagar established by Uttarakhand Bamboo and Fiber Development Board. the unit which is being at Farsula in under construction while, Arvind Nagar unit has come into business existence. In addition to this, one unit was established in private sector at Rajpur Road Dehradun by M/s Him Shakti and subsidy amount of Rs. 7.5 lakhs has been released to the implementing agencies.



- Bamboo Furniture Making:** Out of the target of two unit in public sector and two in primary sector no proposals were received, however one unit which was allotted to Mr. Tarun Pant, Ballupur Dehradun in 2019-20 was completed and released second installment of Rs. 6.26 to the participating bank after joint inspection of the unit.



Furniture unit established by Mr. Tarun Pant in the name of Bamboozz

4. **Fabric/Jewellery Making:** Under the APO 2020-21, one jewellery making unit was allotted to M/s Him Shakti Rajpur Road Dehradun and an amount of Rs. 3.75 was released as the first installment to the participating bank.

5. **Common Facility Center:** Out of the target four CFCs in public sector and two CFCs in private sector, one proposal was received under public sector from Gram Panchayat Dunad of Almora District. The proposal was sectioned and released the first installment of Rs. 12.50 Lakhs to the aforesaid Gram Panchyat.

D. Product Development and Processing:

1. **Establishment of Bamboo Depot and Godowns:** Out of the target of 1 depot and godown in private sector, no proposal was received under the APO 2020-21, however second installment of Rs. 39.4 was released against the one depot/godown allotted in 2019-20 to Uttarakhand Bamboo and Fiber Development Board.
2. **Rural Haat:** To bridge the gap between rural craftsmen and urban affluent consumers four rural haats were allotted. This includes one at Birahi, under Badrinath Forest Division Chamoli, second at Nadhaur Gate under forest division Haldwani, third at Kakrali Gate Champawat under Forest Division Haldwani and the fourth one at Rampur Mandi under Chakrata forest division. The requisite amount has been transferred to the respective implementing agencies.
3. **Bamboo Bazar:** To showcase/sell/promote of bamboo products developed by the artisans groups and cooperatives, mechanism like bamboo bazaars have been created. Under APO 2020-21 a total of two bamboo bazaar were established in public sector. This includes one bamboo bazaar was established at Farsula, Pauri Garhwal under Lansdown Forest Division Kotdwar and another at Rajpur Road Dehradun in collaboration with Khadi Ghar Dehradun under a rent MoU executed for the same. The requisite amount has been transferred to the respective implementing agencies.



Bamboo outlet at Rajpur Road Dehadun in collaboration with Khadi Haat



State Agriculture Minister Mr. Subodh Uniyal Visiting Khadi Haat

E. Development of Tools, Equipment and Machinery:

- 1. Technological enhancement of indigenous tools, equipment and machinery:** Under the activity, tool kits with ergonomic tools/equipments were distributed to the artisans and covered 70 artisans of Dehradun and Uttarkashi districts.

Skill development and awareness campaign:

- 1. Training of Farmers/Artisans:** Under the activity, imparted 4 training & workshops, to the artisans/farmers and empowered through mobilization/capacity building and skill up-gradation. The training aimed at improving existing skill of the artisans in bamboo and ringal based handicrafts. Under the training programmes a total of 150 artisans were trained and developed 10 new designs and refined existing products which are being routinely tested in local and national trade fairs and exhibitions.



Artisans participating in the training programme

- 2. Participation in Domestic Trade Fairs:** The UBFDB participated in 3 exhibitions, one at Dilli Haat, INA, New Delhi organized by National Bamboo Mission, Govt. Of India, one at Rajbhavan, Dehradun during the Spring Festival and one at Kishan Bhawan, Dehradun organized by Bhartiya Gramoththan Sanstha, Rishikesh in association with DC (H). The bamboo and natural fibers products developed by artisans/weavers were showcased displayed/sold/ in the exhibitions and took feedback from the consumers and visitors to further improvement in quality and design.



Hon. Governor Uttarakhand visiting Bamboo Stall during the Spring Festival

G- Other Activities:

1. Demonstration plots to exhibit best practice to farmers:

One demonstration plot is being developed in Pandali Gainda village of Bhagwanpur block of Haridwar District *Thryostachys olivieri* is being demonstrated by a progressive farmer Mr. Brijesh Kumar. The plantation of *Bambusa balcooa* is being managed with Miyawaki methods and being monitored by the beneficiary with the technical support of UBFDB.

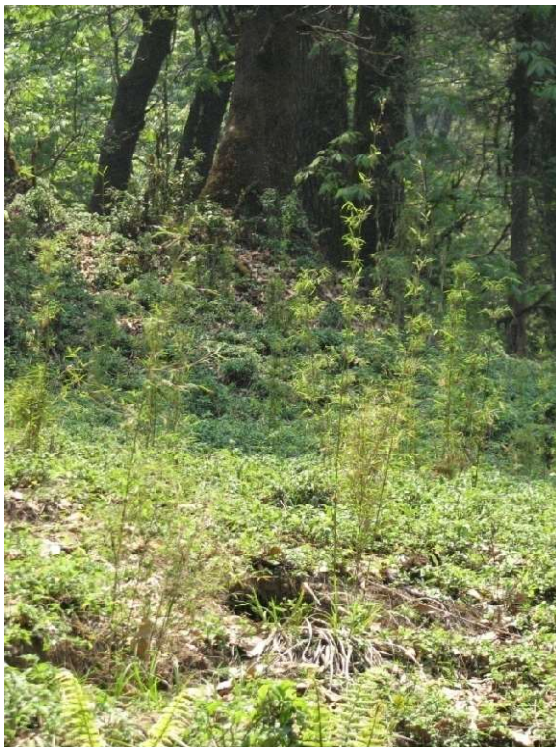


Demonstration plot at village Pandali Gaiinda Bhagwanpur Haridwar

Project: Bamboo Resource Development Project
Sponsored by: State Govt.
Status: In Progress

To create bamboo resource in key bamboo growing area a project entitled Bamboo Resource Development Project is being implemented by Uttarakhand Bamboo and Fiber Development Board with the financial support of State Government. In year 2020-21, a total of 117 ha bamboo plantation was under taken while 156 ha advance soil work was carried out through the different forest division as per the details given below:

Name of forest divisions		Bamboo plantation in ha.		Advance Soil Work in ha	
		Grant- 27	Grant-30	Grant- 27	Grant-30
Forest Division Dehradun		47	0	0	0
Forest Division Uttarkashi		40	30	89	0
Soil Conservation Forest Division Uttarkashi		0	0	17	05
Forest Division Tehri Dam-II		0	0	45	0
Total		87	30	151	05



Bamboo Plantation in Uttarkashi Forest Division

**Project: Himalayan Nettle Fiber Processing and
Standardisation**
Sponsored by: UNDB under Secure Himalaya Project
Status: Completed:

Himalayan Giant Nettles (*Girardinia Diversifolia/heterophylla*) are abundantly available from Uttarakhand to Sikkim of North East Region of India. It is a wild bast fibre and grown at a particular temperature and altitude. The nettle fibre is still being used locally by the villagers near the available area to produce hand made products by very old traditional methods. Not much scientific work has been carried out to explore the possibilities of this fibre to develop textile grade products. Hence only a few literatures are available on this fibre which reveal that nettle has good strength, fineness and more flexibility than linen (Flax) but no data is available. Existing fiber extraction and processing techniques for Himalayan nettle were very tedious and labour intensive. For starters, simply harvesting the plant is difficult due to the presence of stinging hair on the plant. Then the retting and degumming stages are extremely laborious and strenuous.

To overcome these problems, a research and development study was carried out by the Uttarakhand Bamboo and Fiber Development Board in technical association with Department of Clothing and Textiles, College of Home Science, G.B. Pant University of Agri. and Tech. Pantnagar, Uttarakhand with a financial support of UNDP under SECURE Himalaya project. This proposed project explored the scopes and prospects of nettle fibre with the development of suitable processes by optimizing various fibre and process parameters. In order to obtain maximum yield and quality fibres, retting process needs to be improved which can save time, energy and resources. Attempts were made to improve the spinnability of nettle (bast fibre) by developing suitable softening treatment. Due to development of suitable retting and softening process, it was expected that quality spinnable fibres would be obtained for production of finer yarns. The main objectives of the project were to:

- study the properties like physical, chemical as well as medicinal of available nettle fibres in order to characterize nettle for identifying suitable products out of nettle.
- develop suitable method and time of collecting of nettle bark and retting process for quality nettle fibre production with maximum fibre yield

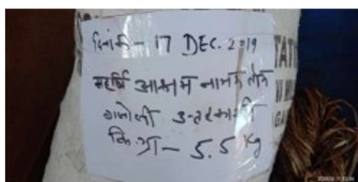
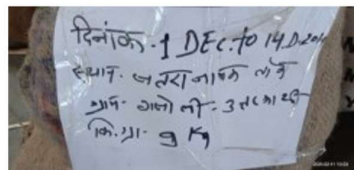
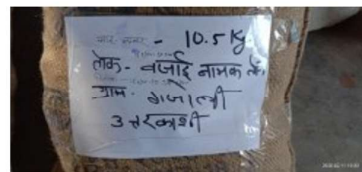
Methodology

Collection of nettle ribbon of different growth periods for extraction of fiber

Optimization and standardization of nettle fiber retting methods

Whitening and softening of fibers through different treatments

Analysis of different properties



Suggestions and Recommendation

Research has been conducted on Himalayan nettle fibre which is found in foothills of whole Himalayan belt. The aim of the study was to extract fibres with minimum usage of energy and resources. Keeping this in mind different extraction/softening procedures were tested and applied on the ribbons of Himalayan nettle fibre. In the present study all the experiments were conducted at laboratory level in which wastage of raw material is comparatively more so it could be expected that when the same procedure will be carried out at large scale there must be reduction in chemicals and water usage and yield of processed fibre will be more. After analyzing the results of the study some suggestions and recommendations has been listed below:

- In present project concept of reuse and recycling has been applied in which bath was reused and chemicals were recycled. Similar procedure can be adopted while processing the fibre in bulk in all the retting/softening procedure. It would be time, energy and resource saving.
- In the present study, enzymes were used for softening of the fibre although use of enzymes has given good result but it has increased the cost of processing, so further work can be carried out on substitution of the enzymes.
- By adopting the concept of reuse and recycling a step can be forwarded in the direction of reduction in environmental pollution because textile processing is one of the major cause for environmental pollution.
- The procedure which were applied for the processing of Himalayan nettle fibre can be implemented for the processing of other unconventional fibres.
- Value addition of treated fibre can be done. Value addition such as dyeing of treated fibres using natural dyes can be done for the development of ecofriendly products.
- Training can be imparted to the local people/NGO/SHG in the optimized fibre processing procedures.
- The yield of the fibres obtained through hand combing was around 50% - 60% of ribbons. The yield can be further enhanced by using proper machinery for carding and combing of these bast fibres.
- Fibres from batch belonging to early December were the best. It can be seen from visual observations and the testing of mechanical properties.

Internship and Industrial Attachment:

In the last few years, the interest of researchers, students, entrepreneurs and designers have increased in the field of bamboo and natural fiber-based activities, for which their first choice has been the bamboo board. In 2020-21, a total of 11 students and designers from different college/institutes took training in bamboo and natural fiber-based products design development and forestry related activities being executed by UBFDB. The details of the student are given below:

Ms. Nivedita Kala: Ms. Nivedita kala a student of B.des. 3rd year from Amity School of Fashion Technology, Jaipur, Rajasthan undertook four months internship with Uttarakhand Bamboo and Fiber Development Board from December 7th, 2020 to April 7th, 2021. During the internship programme she undertook exposure visit to common facility center Mangroli (Chamoli), AFC, Pipalkoti (Chamoli) and Natural Fiber Center, Rishikesh. She has also developed many market focused products in nettle fiber blended with wool and silk.

Mr. Utpal Tripathi: Mr. Utpal Tripathi being student of student of B.des. 3rd year from Amity School of Fashion Technology, Jaipur, Rajasthan undertook four months internship with Uttarakhand Bamboo and Fiber Development Board from December 7th, 2020 to April 7th, 2021. During the internship programme he undertook exposure visit to common facility center Mangroli (Chamoli), AFC, Pipalkoti (Chamoli) and Natural Fiber Center, Rishikesh. He has also developed natural fiber products inspired with Aipan art of Uttarakhand.

Mr. Achishek Lamba: Mr. Abhishek Lamba being a student of B.Sc. Forestry, Uttaranchal Collage of Science and Technology Dehradun, has completed 28 days (four weeks) industrial attachment with Uttarakhand Bamboo and Fiber Development Board from 01 to 28 March 2021. During the attachment, He undertook exposure visit to CFC Kotdwar, Ladpur Nursery Dehradun and learned identification of bamboo species, bamboo storage and treatment methods, handling tools and machines and product development. He also carried out market survey of the artisans and shopkeepers who deals in bamboo based activities in Dehradun area.

Mr. Sagar Debbarma: Mr. Sagar Debbarma being a student of B.Sc. Forestry, Uttaranchal Collage of Science and Technology Dehradun, has completed 28 days (four weeks) industrial attachment with Uttarakhand Bamboo and Fiber Development Board from 01 to 28 March 2021. During the attachment, He undertook exposure visit to CFC Kotdwar, Ladpur Nursery Dehradun and learned identification of bamboo species, bamboo storage and treatment methods, handling tools and machines and product development.

Mr. Vishal Debbarma: Mr. Sagar Debbarma being a student of B.Sc. Forestry, Uttaranchal Collage of Science and Technology Dehradun, has completed 28 days (four weeks) industrial attachment with Uttarakhand Bamboo and Fiber Development Board from 01 to 28 March 2021. During the attachment, He undertook exposure visit to CFC Kotdwar, Ladpur Nursery Dehradun and learned identification of bamboo species, bamboo storage and treatment methods, handling tools and machines and product development.

Mr. Gaijuk Ronmei: Mr. Gaijuk Rongmei student of B.Sc. Forestry, Uttaranchal Collage of Science and Technology Dehradun, has completed 28 days (four weeks) industrial attachment with Uttarakhand Bamboo and Fiber Development Board from 01 to 28 March 2021. During the attachment, He undertook exposure visit to CFC Kotdwar, Ladpur Nursery Dehradun and learned identification of bamboo species, bamboo storage and treatment methods, handling tools and machines and product development.

Mr. Abhishek Singh: Mr. Abhishek Singh student of B.Sc. Forestry, Uttaranchal Collage of Science and Technology Dehradun, has completed 28 days (four weeks) industrial attachment with Uttarakhand Bamboo and Fiber Development Board from 01 to 28 March 2021. During the attachment, He undertook exposure visit to CFC Kotdwar, Ladpur Nursery Dehradun and learned identification of bamboo species, bamboo storage and treatment methods, handling tools and machines and product development.

Ms. Hema Latha : Ms. Hema Latha being student of B.Sc. Forestry, Doon (P.G.) Collage of Agriculture Science Technology and Education, Selaqui Dehradun has completed fourteen days industrial attachment with Uttarakhand Bamboo and Fiber Development Board from 05 January 2021 to 18 January 2021. During the attachment, she undertook exposure visit to FRI Dehradun, Ladpur Nursery Dehradun and learned identification of bamboo species, bamboo storage and treatment methods, handling tools and machines and product development etc.

Ms. Bhavna Bisht : Ms. Bhawana Bisht student of B.Sc. Forestry 4th year (7th semester), Uttaranchal (P.G.) Collage of Bio-Medical Sciences and Hospital Dehradun has completed 14 days industrial attachment with Uttarakhand Bamboo and Fiber Development Board from 28 December 2020 to 10 January, 2021. During the attachment, she undertook exposure visit to Kotdwar Bamboo CFC, FRI Dehradun, Ladpur Nursery Dehradun and learned identification of bamboo species, bamboo storage and treatment methods, handling tools and machines and product development etc.

Ms. Anjana Singh: Ms. Anjana Singh student of B.Sc. Forestry 4th year (7th semester), Uttaranchal (P.G.) Collage of Bio-Medical Sciences and Hospital Dehradun has completed 14 days industrial attachment with Uttarakhand Bamboo and Fiber Development Board from 28 December 2020 to 10 January, 2021. During the attachment, she undertook exposure visit to Kotdwar Bamboo CFC, FRI Dehradun, Ladpur Nursery Dehradun and learned identification of bamboo species, bamboo storage and treatment methods, handling tools and machines and product development etc.

Ms. Tanvi Sharma: Ms. Tanvi Sharma student of B.Sc. Forestry 4th year (7th semester), Uttaranchal (P.G.) Collage of Bio-Medical Sciences and Hospital Dehradun has completed 14 days industrial attachment with Uttarakhand Bamboo and Fiber Development Board from 28 December 2020 to 10 January, 2021. During the attachment, she undertook exposure visit to Kotdwar Bamboo CFC, FRI Dehradun, Ladpur Nursery Dehradun and learned identification of bamboo species, bamboo storage and treatment methods, handling tools and machines and product development etc.

Ms. Akansha Dev: Ms. Akansha Dev student of B.Sc. Forestry 4th year (7th semester), Uttarakhand (P.G.) Collage of Bio-Medical Sciences and Hospital Dehradun has completed 14 days industrial attachment with Uttarakhand Bamboo and Fiber Development Board from 28 December 2020 to 10 January, 2021. During the attachment, she undertook exposure visit to Kotdwar Bamboo CFC, FRI Dehradun, Ladpur Nursery Dehradun and learned identification of bamboo species, bamboo storage and treatment methods, handling tools and machines and product development etc.

Mr. Shravan Subba: Mr. Shravan Subba being a student of B.Sc. Forestry 4th year (7th semester), Uttarakhand (P.G.) Collage of Bio-Medical Sciences and Hospital Dehradun has completed 14 days industrial attachment with Uttarakhand Bamboo and Fiber Development Board from 28 December 2020 to 10 January, 2021. During the attachment, he undertook exposure visit to Kotdwar Bamboo CFC, FRI Dehradun, Ladpur Nursery Dehradun and learned identification of bamboo species, bamboo storage and treatment methods, handling tools and machines and product development etc.

Mr. Birun Camder Nyare: Mr. Birun Camder Nyare being a student of B.Sc. Forestry 4th year (7th semester), Uttarakhand (P.G.) Collage of Bio-Medical Sciences and Hospital Dehradun has completed 14 days industrial attachment with Uttarakhand Bamboo and Fiber Development Board from 28 December 2020 to 10 January, 2021. During the attachment, he undertook exposure visit to Kotdwar Bamboo CFC, FRI Dehradun, Ladpur Nursery Dehradun and learned identification of bamboo species, bamboo storage and treatment methods, handling tools and machines and product development etc.

Mr. Kushal Chakma: Mr. Kushal Chakma being a student of B.Sc. Forestry 4th year (7th semester), Uttarakhand (P.G.) Collage of Bio-Medical Sciences and Hospital Dehradun has completed 14 days industrial attachment with Uttarakhand Bamboo and Fiber Development Board from 28 December 2020 to 10 January, 2021. During the attachment, he undertook exposure visit to Kotdwar Bamboo CFC, FRI Dehradun, Ladpur Nursery Dehradun and learned identification of bamboo species, bamboo storage and treatment methods, handling tools and machines and product development etc.

Mr. Prashant Priyaranjan: Mr. Prashant Priyaranjan being a student of B.Sc. Forestry 4th year (7th semester), Uttarakhand (P.G.) Collage of Bio-Medical Sciences and Hospital Dehradun has completed 14 days industrial attachment with Uttarakhand Bamboo and Fiber Development Board from 28 December 2020 to 10 January, 2021. During the attachment, he undertook exposure visit to Kotdwar Bamboo CFC, FRI Dehradun, Ladpur Nursery Dehradun and learned identification of bamboo species, bamboo storage and treatment methods, handling tools and machines and product development etc.

Mr. Remas Debbarma: Mr. Remas Debbarma being a student of B.Sc. Forestry 4th year (7th semester), Uttarakhand (P.G.) Collage of Bio-Medical Sciences and Hospital

Dehradun has completed 14 days industrial attachment with Uttarakhand Bamboo and Fiber Development Board from 28 December 2020 to 10 January, 2021. During the attachment, he undertook exposure visit to Kotdwar Bamboo CFC, FRI Dehradun, Ladpur Nursery Dehradun and learned identification of bamboo species, bamboo storage and treatment methods, handling tools and machines and product development etc.

Mr. Sojem Bellai: Mr. Sojem Bellai being a student of B.Sc. Forestry 4th year (7th semester), Uttaranchal (P.G.) Collage of Bio-Medical Sciences and Hospital Dehradun has completed 14 days industrial attachment with Uttarakhand Bamboo and Fiber Development Board from 28 December 2020 to 10 January, 2021. During the attachment, he undertook exposure visit to Kotdwar Bamboo CFC, FRI Dehradun, Ladpur Nursery Dehradun and learned identification of bamboo species, bamboo storage and treatment methods, handling tools and machines and product development etc.

Mr. Ghanshyam: Mr. Ghanshyam being student of M.Sc. programme in Wood Science and Technology, FRI Deemed to be University, Dehradun has duly completed fifteen days "Industrial Attachment" with Uttarakhand Bamboo and Fiber Development Board from 10th February, 2021 to 25th February, 2021. During the attachment, he undertook exposure visit to common facility centre Paniyali Kotdwar District Pauri, and learnt about bamboo preservation, bamboo charcoal-based products, design development and bamboo applications in different uses.

Mr. Aayush Goonta: Mr. Aayush Goonta being student of M.Sc. programme in Wood Science and Technology, FRI Deemed to be University, Dehradun has duly completed fifteen days "Industrial Attachment" with Uttarakhand Bamboo and Fiber Development Board from 10th February, 2021 to 25th February, 2021. During the attachment, he undertook exposure visit to common facility centre Paniyali Kotdwar District Pauri, and learnt about bamboo preservation, bamboo charcoal-based products, design development and bamboo applications in different uses.

Mr. Amit Kumar: Mr. Amit Kumar being student of M.Sc. programme in Wood Science and Technology, FRI Deemed to be University, Dehradun has duly completed fifteen days "Industrial Attachment" with Uttarakhand Bamboo and Fiber Development Board from 10th February, 2021 to 25th February, 2021. During the attachment, he undertook exposure visit to common facility centre Paniyali Kotdwar District Pauri, and learnt about bamboo preservation, bamboo charcoal-based products, design development and bamboo applications in different uses.

Ms. Priyanka Ghale: Ms. Priyank Ghale student of M.Sc. programme in Wood Science and Technology, FRI Deemed to be University, Dehradun has duly completed fifteen days "Industrial Attachment" with Uttarakhand Bamboo and Fiber Development Board from 10th February, 2021 to 25th February, 2021. During the attachment, she undertook exposure visit to common facility centre Paniyali Kotdwar District Pauri, and learnt about bamboo preservation, bamboo charcoal-based products, design development and bamboo applications in different uses.

Other Prominent Activities:

1. Bamboo Cultural Operation:

From the point of view of improvement and management of bamboo forest, cultural operation in a bamboo plantation of around 15 ha conducted early this year (2020-21) during winters which yielded about 80000 culms (1000 tones) of bamboos belonging to *Dendrocalamus strictus* and *Bambusa bambos*. Under this activity, about 2000 man-days were created for 40 Van Gujjars during the Covid-19 Pandemic.



Harvested Bamboo at Arcadia Grant, Dehradun Forest Division