

Template/Pro forma for Submission

NMHS-Himalayan Institutional Project Grant

**NMHS-FINAL TECHNICAL REPORT (FTR)**

Demand-Driven Action Research and Demonstrations

<b>NMHS Grant Ref. No.:</b>	
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<b>Date of Submission:</b>	1	0	0	8	2	0	2	3
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**PROJECT TITLE (IN CAPITAL)**

**INCOME GENERATION PROGRAMME FOR RURAL WOMEN FARMERS THROUGH COMMERCIAL PRODUCTION OF SOME PROMISING MEDICINAL AND AROMATIC PLANTS IN GARHWAL AND KUMAON REGIONS OF UTTARAKHAND.**

**Project Duration:** *from* (23.**08.2019**) *to* (31.**03.2023**).

**Submitted to:**

Er. Kireet Kumar

Scientist 'G' and Nodal Officer, NMHS-PMU

National Mission on Himalayan Studies, GBP NIHE HQs

Ministry of Environment, Forest &amp; Climate Change (MoEF&amp;CC), New Delhi

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**Submitted by:**

Girdhar Sharma

On behalf of

[Dr Narayan Singh]

Left TERI on 10 July 2023

[The Energy and Resources Institute, TRISHA, Regional Centre Village –Supi, Post- Sadbunga, Nainital, Uttarakhand]

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## GENERAL INSTRUCTIONS:

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1. The Final Technical Report (FTR) has to commence from the start date of the Project (as mentioned in the Sanction Order issued by NMHS-PMU) till completion of the project duration. Each detail has to comply with the NMHS Sanction Order.
2. The FTR should be neatly typed (in Arial with font size 11 with 1.5 spacing between the lines) with all details as per the enclosed format for direct reproduction by photo-offset printing. Colored Photographs (high resolution photographs), tables and graphs should be accommodated within the report or annexed with captions. Sketches and diagrammatic illustrations may also be given detailing about the step-by-step methodology adopted for technology development/ transfer and/ or dissemination. Any correction or rewriting should be avoided. Please provide all information under each head in serial order.
3. Any supporting materials like Training/ Capacity Building Manuals (with detailed contents about training programme, technical details and techniques involved) or any such display material related to project activities along with slides, charts, photographs should be brought at the venue of the Annual Monitoring & Evaluation (M&E) Workshop and submitted to the NMHS-PMU, GBP NIHE HQs, Kosi-Katarmal, Almora 263643, Uttarakhand. In all Knowledge Products, the Grant/ Fund support of the NMHS should be duly acknowledged.
4. The FTR Format is in sync with many other essential requirements and norms desired by the Govt. of India time-to-time, so each section of the NMHS-FTR needs to be duly filled by the proponent and verified by the Head of the Lead Implementing Organization/ Institution/ University.
5. Five (5) hard-bound copies of the Project Final Technical Report (FTR) and a soft copy of the same should be submitted to the **Nodal Officer, NMHS-PMU, GBP NIHE HQs, Kosi-Katarmal, Almora, Uttarakhand.**

The FTR is to be submitted into following two (02) parts:

**Part A – Project Summary Report**

**Part B –Detailed Project Report**

In addition, the Financial and other necessary documents/certificates need to be submitted along with the Final Technical Report (FTR) as follows:

**Annexure I**            **Consolidated and Audited Utilization Certificate (UC) & Statement of Expenditure (SE)**, including the interest earned for the last Fiscal year and the duly filled GFR-19A (with year-wise break-up).

**Annexure II**           **Consolidated Interest Earned Certificate**

**Annexure III**         **Consolidated Assets Certificate** showing the cost of the equipment in

Foreign/ Indian currency, Date of Purchase, etc. (with break-up as per the NMHS Sanction Order and year wise).

**Annexure IV** **List of all the equipment, assets and peripherals** purchased through the NMHS grant with current status of use, including location of deployment.

**Annexure V** **Transfer of Equipment** through Letter of Head of Institution/Department confirming the final status of equipment purchased under the Project.

**Annexure VI** **Details, Declaration and Refund of any Unspent Balance transferred through Real-Time Gross System (RTGS)/ PFMS in favor of NMHS GIA General**

# NMHS-Final Technical Report (FTR) *template*

## Demand-Driven Action Research Project

DSL: Date of Sanction Letter

DPC: Date of Project Completion

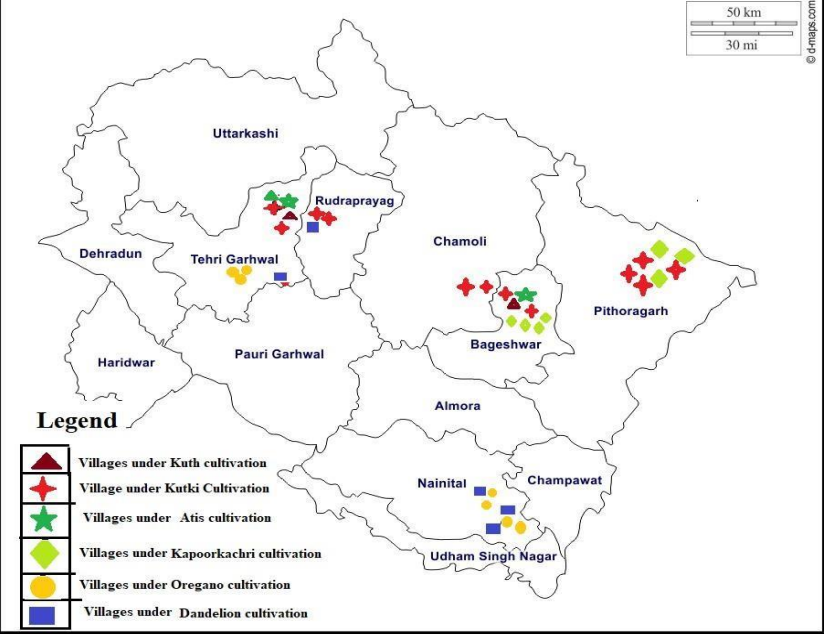
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### Part A: Project Summary Report

#### 1. Project Description

i.	Project Grant Ref. No.:						
ii.	Project Category:	Small Grant	<input checked="" type="checkbox"/>	Medium Grant		Large Grant	
iii.	Project Title:	<b>Income Generation Programme for Rural Women Farmers through Commercial Production of Some Promising Medicinal and Aromatic Plants in Garhwal and Kumaon Regions of Uttarakhand</b>					

iv.	Project Sites (IHR States/ UTs covered) <i>(Location Maps attached):</i>	 <p style="text-align: center;"><b>MAP OF PROJECT AREA AND CROPS</b></p>				
v.	Scale of Project Operation:	Local		Regional	✓	Pan-Himalayan
vi.	Total Budget:	0.33968 (in Cr)				
vii.	Lead Agency:	The Energy and Resources Institute				
	Lead PI/ Proponent:	Dr. Narayan Singh				
	Co-PI/ Proponent:	Dr. J.S. Bhutola				
viii.	Implementing Partners:	HUMAN INDIA				
	Key Persons (Contact Details, Ph. No., E-mail):	Dr J.S. Butola, HUMAN INDIA Lata Bhawan, VPO- Srikot Ganganali, Srinagar Garhwal- 246178, Distt. Pauri				

## 2. Project Outcomes

### 2.1. Abstract/ Summary (not more than 250-300 words)

**Objectives/Aim:** *The aim of the project is to increase the income of women farmers through production (nursery development, cultivation, processing, and value addition) and marketing of the selected medicinal plants apart from that capacity building, skill development, interaction program and buyer seller meet are the other proposed activities. ToTs (Transfer of Technologies) through publications of booklets, brochure, etc. for the stakeholders is also proposed.*

**Methodology:** In order to select the right beneficiaries, a proper screening system was adopted consisting of socio-economic vulnerability indicators (such as levels of income, women headed households, type of shelter the beneficiary currently lives in, past history regarding availing Govt. schemes, etc.) but the major criteria was land availability and rational distribution pattern. The beneficiaries having their lands in the form of a patch of more than 0.2 acre were selected for the project. Production of the selected medicinal plants (*Atis*, *Dandelion*, *Kapoorkachri*, *Kuth*, *Kutki* and *Oregano*) was initiated in cluster basis by distributing QPM (Quality Planting Material) amongst the farmers for commercial production. For processing and value addition of the produce, two primary processing facilities in the selected clusters were established to develop value added products for income augmentation of the farmers. For Capacity building and Skill development, training and awareness creation programs were organized for growers. Standard technologies on Good Agricultural, Harvesting and Post Harvesting Practices on the selected Medicinal Plants (MPs) developed by various R&D institutions was transferred to the farmers. The entire programme was linked with MNREGA (Mahatma Gandhi National Rural Employment Guarantee Act) to ensure easy adoption of MAPs cultivation in compliance with the purpose of employment guarantee scheme. There is a plan to formulate primary level grower societies of medicinal plants for post project sustainability of the clusters. During the project period, the technology will be upgraded as per farmers needs and that will be documented and published as a '*knowledge product*' for future reference and replications.

**Approach:** Cluster approach will be adopted for mass scale production and marketing of the selected crops. Proper technical back up and long-term handholding during all steps from production to market will be provided to the beneficiaries

**Results:** The Program was implemented successfully in 06 selected districts namely Chamoli, Rudraprayag and Tehri from Garhwal region and Bageshwar, Nainital and Pithoragarh from Kumaon region of Uttarakhand. As a major achievement of the project in Kumaon region 280 farmers from 05 blocks covering 18 villages and in Garhwal region 384 farmers from 06 blocks covering 25 villages were included as major beneficiaries. In both regions *i.e.* (Garhwal and Kumaon) 664 farmers from 11 blocks and 43 villages covered 24.15 ha area for the cultivation of *Atis*, *Dandelion*, *Kapoorkachri*, *Kuth*, *Kutki* and *Oregano*. Out of the total production area (11.78 ha) in Garhwal region, a total of 6.56 area in Tehri, 4.81 Chamoli and 0.41 ha in Rudraprayag were brought under the cultivation of *Kuth*, *Kutki*, *Dandelion* and *Oregano*. As a direct impact of the project, 456 farmers (68.67%; total farmers 664) started their income under the project. Moreover, 349 farmers in Garhwal region have started their income through selling the produce to the companies identified and collaborated under the project. In this agreement, 8140 kg of *Oregano* (Villages: Sendul, Gangar, Siliyara, Nauli, Bhelunta, Dalla, Jakhnyali, Kastal, Kireth, Kurmar gaon, Mandar, Sema, Semalth, Semya, Sunar gaon and Sunherigaad) worth Rs.122100/-, 3056 kg *Dandelion* (Dharpanyakoti and Pindi Gaun villages) worth Rs. 611200/- and 4835 kg *Kutki* (Ghes and Himani villages) worth Rs. 6769000/- were sold. In case of Ghes and Himani, the total income reflected about only 10% increment due to the project as most of the farmers were already in to cultivation of *Kutki* by the due support of different institutions.

In case of Kumaon region, 8.14 ha area in Bageshwar, 3.1 ha in Pithoragarh and 1.13 ha in

HUMAN India has developed various value- added products viz., “*Dandelion Herbal Tea*’, ‘*Oregano Herbal Tea*’, Herbal churn (Kuth, Kutki, etc.) under the name of ‘H-SHG Products’ are being sold in the local market.

In district Tehri, cultivation of *Dandelion* and *Oregano* was linked with MNREGA Programme in which the farmers got benefits of daily wages for cultivation work. Three PoPs for production and processing technology of *Kuth*, *Kapoorkachri* and *Oregano* were prepared as a ‘*Knowledge products*’.

**Conclusion:** The project was implemented very successfully as per objectives and work plan as 100% targets were achieved within time frame.

**Recommendations:** There is a need to replicate the strategy and procedure of the project in other areas in Uttarakhand and other hilly states so that the cultivation of medicinal plants for livelihood security and conservation could be ensured.

## 2.2. Objective-wise Major Achievements

S#	Objectives	Major achievements (in bullets points)
1.	<p><b><u>Production of Raw material</u></b></p> <ul style="list-style-type: none"> <li>The Program has been implemented successfully in 06 selected districts namely Chamoli, Rudraprayag and Tehri from Garhwal region and Bageshwar, Nainital and Pithoragarh from Kumaon region of Uttarakhand.</li> <li>280 farmers from 05 blocks and 18 villages in Kumaon region and 384 from 06 blocks and 25 villages in Garhwal region covered as project beneficiaries. In both regions, 664 farmers from 11 blocks and 43 villages selected for the production of raw materials in (24.15 ha) area for <i>Atis</i>, <i>Dandelion</i>, <i>Kapoorkachri</i>, <i>Kuth</i>, <i>Kutki</i> and <i>Oregano</i>.</li> <li>Out of the total production area (11.78 ha) in Garhwal region, a total of 6.56 area in Tehri, 4.81 Chamoli and 0.41 ha in Rudraprayag were brought under <i>Kuth</i>, <i>Kutki</i>, <i>Dandelion</i> and <i>Oregano</i>.</li> <li>Out of the total production area (12.37 ha) in Kumaon region, 8.14 ha area in Bageshwar, 3.1 ha in Pithoragarh and 1.13 ha in Nainital were brought under <i>Kuth</i>, <i>Kapoorkachri</i>, <i>Kutki</i> and <i>Oregano</i>.</li> </ul>	<p>Total no. of farmers: 664</p> <p>Total no. of crops: 06</p> <p>Land under cultivation (ha): 24.15</p> <p><b>Annexure –I</b></p>



<p>2.</p>	<p><b><u>Establishment of processing facilities</u></b></p> <ul style="list-style-type: none"> <li>• 02 processing and value addition facilities established for long term use and trainings at Supi, Nainital (TERI Centre) and Jakholi (HUMAN India Centre), Rudraprayag are functioning sucessfully. The raw materials particularly of Oregano from the farmers is being processed in to various products.</li> <li>• Solar drying facility was used to maintain optimum moisture, color, aroma and taste of the product. Herb pulverizer was used to prepare homogenous sized materials. Final products (dry leaves and flowers) were packed using vacuum pouch machine to increase shelf-life of the product and to enhance acceptability of customers.</li> </ul>	<p>Total no. of processing facilities established: 02</p> <p>Total no. of crops processed: 06</p> <p>Income generated: 91,24,420 /-</p> <p><b>Annexure –II</b></p>
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3. **Harvesting, value addition of raw materials and Income generation**

- 456 farmers (68.67%; total farmers 664) started their income under the project.
- 349 farmers in Garhwal region started earnings through selling the produce to the companies identified and collaborated under the project. In this agreement, 8140kg of *Oregano* from *Sendul, Gangar, Siliyara, Nauli, Bhelunta, Dalla, Jakhnyali, Kastal, Kireth, Kurmar gaon, Mandar, Sema, Semalth, Semya, Sunar gaon and Sunherigaad* villages income worth Rs.122100/-, 3056 kg *Dandelion* (Dharpanyakoti and Pindi Gaun), worth Rs. 611200/- and 4835 kg *Kutki* (Ghes and Himani villages) worth Rs. 6769000/- were sold.
- In Tehri district, 14 farmers started cultivation of *Kuth* in Bhilangna Block (Anthwalgaon) covering 0.29 ha.
- In Jakholi block of Rudraprayag district, 05 farmers of Village Uचना started *Kuth* crop cultivation in 0.09 ha.; 16 farmers of village Uroli started *Kutki* cultivation in 0.32ha.
- In Kumaon region, 107 farmers have started their income through selling the produce to the companies identified and collaborated under the project. In this regard, total revenue of Rs. 16.22 Lakh earned by the farmers of Bageshwar, Pithoragarh and Nainital through cultivation of *Kuth, Kutki, Kapoorkachri* and *Oregano*.
- Out of the total income (Rs. 91,24,420) generated during the project, 70% were from the sale of *Kutki*. As most of the farmers were already engaged in to cultivation of *Kutki* in Ghes and Himani by the due support of different institutions, we estimated about 10% increment in the income due to the project activities.

<p>4.</p>	<p><b><u>Capacity building and Skill development</u></b></p> <ul style="list-style-type: none"> <li>For capacity building and skill development, a total of 25 training programs for 776 farmers were organized. 12 programs for 384 farmers in Garhwal region and 13 training programs for 392 farmers were conducted in Kumaon region.</li> <li>Training on processing and value addition were conducted for the master trainers (15) from the beneficiaries.</li> <li>Out of the total programs, 15 Hands-on field-based trainings on Good Agriculture and Harvesting Practices of the selected crops were specially organized. Emphasis was given on the trainings of seed treatment, soil preparation, fertilization, crop care and protection, etc.</li> </ul>	<p>Total no. of trainings organized: 25</p> <p>Total no. of farmers trained: 776</p> <p><b>Annexure –III</b></p>
<p>5.</p>	<p><b><u>Market Linkages developed</u></b></p> <ul style="list-style-type: none"> <li>Marketing linkages were developed during the 1<sup>st</sup> year of the project. Value added materials of <i>Dandelion</i> were sold to a firm HM Agro Tech, Dehradun; <i>Kutki</i> to the QCS Herbals, Sonipat; <i>Kapoorkachri</i> to the Dabur India Ltd., Sahibabad; <i>Oregano</i> by Flex Food Ltd., Haridwar and Bhilangna Valley Farmers Producers Company Ltd., Ghansali.</li> </ul>	
<p>6.</p>	<p><b><u>Legal registration of the farmers</u></b></p> <ul style="list-style-type: none"> <li>As a project mandate, 83 farmers of <i>Kutki</i>, 05 farmers of <i>Kuth</i>, 08 farmers of <i>Dandelion</i> with HRDI, Chamoli and 12 farmers of <i>Oregano</i> were registered with CAP, Dehradun. However, in Kumaon region, 79 farmers were registered under HRDI for <i>Kuth</i>, <i>Kutki</i> and <i>Kapoorkachri</i>.</li> </ul>	
<p>7.</p>	<p><b><u>Project linked with MNREGA Programme</u></b></p> <ul style="list-style-type: none"> <li>In district Tehri, Cultivation of <i>Oregano</i> and <i>Dandelion</i> was linked with MNREGA Programme in which the farmers got benefits of daily wages for cultivation work.</li> </ul>	

8.	<p><b><u>Formation or linkages with grower society</u></b></p> <ul style="list-style-type: none"> <li>In district Tehri, all <i>Dandelion</i> farmers were registered with Dharkhetra Vikas Samiti, Dharpanyakoti and <i>Oregano</i> farmers with Jadi Buti Swayat Sakhari Samiti Limited, Semaltidhar and Bhilangna Farmer Producer Company Ltd, Ghansali.</li> <li>In district Bageshwar, all <i>Kapoorkachri</i> farmers were registered with Surkunda Jadi Buti utpadan Samiti Ltd, Kapkot.</li> <li>In district Chamoli, all <i>Kutki</i> farmers were linked to a NGO namely Himalayan Union for Man and Nature (HUMAN), registered in district Rudraprayag.</li> </ul>	Farmers from each district is being linked with the grower societies for long term hand holding and sustainability of the project
9.	<p><b><u>Knowledge products and Publication of PoPs</u></b></p> <ul style="list-style-type: none"> <li>Package of Practices (PoP) of Kuth, Kapoorkachri and Oregano were developed by HUMAN India (Copy enclosed)</li> <li>Article of Kuth production Published (Copy enclosed)</li> </ul>	<b>Annexure IV</b>

Note: Further details may be summarized in DPR Part-B, Section-5. Supporting materials may be enclosed as annexure/ appendix separately to the FTR.

### 2.3. Outputs in terms of Quantifiable Deliverables\*

S#	Quantifiable Deliverables*	Monitoring Indicators*	Quantified Output/ Outcome achieved	Deviations, if any, & Remarks thereof:
1	<p><b>To develop/ arrange QPM (Quality Planting Material) of the selected MAPs and distribute for commercial production under</b></p>	<p>Establishment of Six (06) demonstration model on new MAPs Production of raw materials of 06 high value rare crops for Pharmaceutical Industries</p>	<p>All 06 crops were bought under production in order to develop demonstration models. 100% targets with respect to the development of QPM (Kuth, Kutki, Kapoorkachri, Oregano and Dandelion);</p>	<p>Target of 600 (664 achieved) beneficiaries will be achieved completely during the third year.</p>

	<b>Cluster approach</b>		Number of the farmers, trainings Were achieved successfully.	
2	<b>To establish primary processing facilities in the selected clusters to develop value added products for income augmentation of the farmers.</b>	Increase in income and/ or new employment generation for 600 farmers.  Establishment of 02 processing and value addition facilities for longterm use and trainings in Garhwaland Kumaon region of the State	Out of the total 664 farmers, 456 farmers (68.67%) started their income under the project.  02 processing and value addition Facilities were developed and start functioning under the project.  06 Value added products were developed as Herbal Tea, Herbal Churan, Herbal Masala, etc.	Processing units are not only being used for processing but also for capacity building of different stakeholders in processing and quality management of Raw materials.
3	<b>Capacity building and Skill development of different stakeholders including growers and collectors for Transfer of Technology (ToT) on Good Agricultural, Harvesting and Post Harvesting</b>	Capacity building and Skill development of 600 women farmers	776 farmers trained under 25 training programs on the production, processing, value addition and marketing of the selected crops.	As a result of the training programs, the beneficiaries were selected 456 started their income.

	<b>Practices on the selected MPs.</b>			
4	<b>Linkage of the farmers with MNREGA (Mahatma Gandhi National Rural Employment Guarantee Act) to ensure easy adoption of MAPs cultivation in compliance with the purpose of employment guarantee scheme.</b>	Linking 600 new farmers in mainstream through their registration in HRDI (Government of	In district Tehri, Cultivation of Oregon and Dandelion was linked with MNREGA Programme in which the farmers got benefits of daily wages for cultivation work even for work in their own cultivation fields.  This model is being replicated in District Bageshwar.	Proper linkages of the farmers to the various Government schemes is also one of the tasks to be achieved for sustainability of the project.
5	<b>To develop market linkages of the farmers for the selected crops.</b>	Market linkages are to be developed.	Marketing linkages were developed with 04 companies for purchase of the selected crops on best market prices. An agreement was done in this regard.	Kutki, Oregon, Dandelion and Kapoorkachri have already been purchased by the companies from Beneficiaries.
6	<b>To formulate primary level grower societies of medicinal plants society act for post project sustainability of the clusters.</b>	Linkages of the farmers with grower societies	In district Tehri, all dandelion farmers were registered with Dharkhetra Vikas Samiti, Dharpanyakoti and Oregon farmers with Jadi Buti Swayat Sahkari Samiti Limited, Semaltidhar and Bhilangna Farmer Producer Company Ltd.	All the farmers will be registered and organized with grower societies.

			Ghansali. In district Bageshwar, all Kapoorkachri farmers were registered with Surkunda Jadi Buti utpadan Samiti Ltd, Kapkot	
7	<b>Conservation and sustainable utilization of high value native, endemic and RET species of global importance</b>	Conservation and sustainable utilization of high value native, endemic and RET species of global importance (03 Nos.)	Kuth, Kutki and Atis are amongst the RET species. Planting material was raised and distributed for mass multiplication.	Mass scale planting materials, cultivation and production technology were developed under the project.
8	<b>Develop knowledge products: Policy, manual document, publications in well reputed journal</b>	Develop 3 knowledge products: 01 Policy, 01 manual document 1 publications in well reputed journal	03 PoP (Package of Practice) was documented for Kuth, Kapoorkachri and Oregano	PoPs can be directly applied in the farmers fields

\*As stated in the Sanction Letter issued by the NMHS-PMU.

#### 2.4. Strategic Steps with respect to Outcomes (in bullets)

S#	Particulars	Number/ Brief Details	Remarks/ Attachment
1.	New Methodology/ Technology developed, <i>if any.</i>	03	Technological improvement to improve productivity and quality of the produce especially Dandelion, Oregano, Kuth and Kapoorkachri is under progress.

S#	Particulars	Number/ Brief Details	Remarks/ Attachment
2.	<i>IHR States Covered</i>	01	Project was implemented in Uttarakhand. Map and coordinates of the project area given.
3.	<i>Project Site/ Field Stations Developed:</i>	02	02 Processing and value addition units established. Related photographs are given.
4.	<i>No. of Patents filed (Description):</i>	-	-
5.	<i>Article/ Review/ Research Paper/ Publication:</i>	01	An article on <i>Kuth</i> production and processing published in Vigyan Pragati Magazine.
6	<i>New Methods/ Modellings Developed (description in 250 words):</i>	03	Technological improvement to improve productivity and quality of the produce especially Dandelion, Oregano, Kuth and Kapoorkachri is under progress.
7	No. of Trainings (No. of Beneficiaries):	24 (774)	744 farmers trained under 24 training programs organized.
8.	<i>Workshop:</i>	-	-
9	<i>Demonstration Models (Site):</i>	02	Photographs are given



S#	Particulars	Number/ Brief Details	Remarks/ Attachment
10	<i>Livelihood Options:</i>	02	Medicinal plants farming particularly <i>Kutki</i> , <i>Oregano</i> and farming particularly <i>Kutki</i> , <i>Oregano</i> and <i>andelion</i> have shown high potential to be one of the livelihood options under agriculture
11	<i>Training Manuals:</i>	02	Training material on <i>Kuth</i> , <i>Kapoorkachri</i> and <i>Oregano</i> production and processing were developed.
12	<i>Processing Units:</i>	02	Photographs are given
13	<i>Species Collection:</i>	06	<i>Oregano</i> , <i>Dandelion</i> , <i>Kapoorkachri</i> , <i>Kuth</i> , <i>Kutki</i> and <i>Atis</i> .
14	<i>Species identified:</i>	-	-
15	<i>Database (Numeric/Images/GIS Maps, etc.):</i>	06	Database in the form of text, numeric and Images have been developed.

Note: Further details may be summarized in DPR Part-B, Section-5. Supporting materials may be enclosed as annexure/ appendix separately to the FTR.

S#	New Data Details	Status of Existing Baseline	Addition and Utilisation New data

*Note:* Further details may be summarized in DPR Part-B. Database files in the requisite formats (Excel) may be enclosed as annexure/ appendix separately to the soft copy of FTR.

#### 4. Demonstrative Skill Development and Capacity Building/ Manpower Trained

S#	Type of Activities	Details with number	Activity Intended for	Participants/Trained			
				SC	ST	Women	Total
1.	Workshops	-					-
2.	On-Field Trainings	24					774
3.	Skill Development					600	776
4.	Academic Supports						
	Others (if any)						

*Note:* Further details may be summarized in DPR Part-B. Supporting materials may be enclosed as annexure/ appendix separately to the FTR.

#### 5. Linkages with Regional & National Priorities (SDGs, INDC, etc.)/ Collaborations

S#	Linkages /collaborations	Detail of activities (No. of Events Held)*	No. of Beneficiaries
1.	Sustainable Development Goals (SDGs)/ Climate Change/INDC targets addressed	-	-
2.	Any other:	-	-

*Note:* Further details may be summarized in DPR Part-B, Section-6. Supporting materials may be enclosed as annexure/ appendix separately to the FTR.

#### 6. Project Stakeholders/ Beneficiaries and Impacts

S#	Stakeholders	Support Activities	Impacts in terms of income

			generated/green skills built
1.	Line Agencies/ Gram Panchayats:		
2.	Govt Departments (Agriculture/ Forest/ Water):		
3.	Villagers/ Farmers:		
4.	SC Community:		
5.	ST Community:		
6.	Women Group:		
	Others, <i>if any</i> :		

*Note:* Further details may be summarized in DPR Part-B, Section-6. Supporting materials may be enclosed as annexure/ appendix separately to the FTR.

## 7. Financial Summary (Cumulative)

Please attach the consolidated and audited Utilization Certificate (UC) and Year-wise Statement of Expenditure (SE) separately, *ref. Annexure I.*

## 8. Major Equipment/ Peripherals Procured under the Project\*\* (*if any*)

S#	Name of Equipment	Quantity	Cost (INR)	Utilisation of the Equipment after project
1.	02 – Herb Grinder/Pulverizer, Heavy Duty, Automation Grade	02	98454.00	Currently working

2.	02- Vaccum Packing Machine, Vol220-380V/50-60HZ: Pump Power(Kw/Hp) 0.75 Heat Sealing Power(Kw) 1.0; Lowest Absolute Pressure(Kpa) 1.33; Volume of Vacumm Case (mm) 525x525x100; Sealing Strip Size (mm) 500x100; heater-02 Nos; Exhaustment of vacuum pump m3/h) (Eq03886	02	294882.00	Currently working
3	Chips Cutter Machine, Cutting Capacity 200 kg/hr with Heavy duty 02 blades separately, 1050 mmx 410 mm x 1120 ht; Weight 55 Kg. Approx; Power Source Electric; Voltage 220-415 V: Motor Power 1.5 HP with accessories- Pressure washer and mesh basket (EQ03887)	01	105934.00	Currently working

02 -Solar Dryer, Capacity 500 Kg, Capacity 500 Kg Material Poly Carbonate, Drying Time 08 hrs, Electric Motor No Operating Temperature 650 C, Size/Dimension 5, Voltage 12 kv, Wt 200 kg, Automation Grade I, Cover Material Poly Carbonate, Power Source Solar (EQ03888)	02	388422.00	Currently working
02 -Mini Dryer, Capacity 30 Kg, Dryer no of trays-05 Single phase Electricity (EQ03889)	02	69826.00	Currently working

\*\*Details should be provided in details (ref. Annexure III &IV).

## 9. Quantification of Overall Project Progress

S. No.	Parameters	Total (Numeric)	Remarks/ Attachments/ Soft copies of documents
1.	IHR States/ UTs covered:	01	Project was implemented in Uttarakhand. Map and coordinates of the project area given.
2.	Project Sites/ Field Stations Developed:	02	02 Processing and value addition units established. Related photographs are given.
3.	Scientific Manpower Developed (PhD/M.Sc./JRF/SRF/ RA):	-	-
4.	Livelihood Options promoted	02	Medicinal plants

			farming particularly <i>Kutki</i> , <i>Oregano</i> and
5.	Technical/ Training Manuals prepared	02	Training material on <i>Kuth</i> , <i>Kapoorkachri</i> and <i>Oregano</i> production and processing were developed.
6.	Processing Units established, if any	02	Photographs are given
7.	No. of Species Collected, if any	06	<i>Oregano</i> , <i>Da ndelion</i> , <i>Kapoorkachri</i> , <i>Kuth</i> , <i>Kutki</i> an d <i>Atis</i> .
8.	No. of New Species identified, if any	-	-
9.	New Database generated (Types):	06	Database in the form of text, numeric and Images have been developed.
	Others (if any)		

*Note:* Further details may be summarized in DPR Part-B. Supporting materials may be enclosed as annexure/ appendix separately to the FTR.

#### 11. Knowledge Products and Publications:

S#	Publication/ Knowledge Products	Number		Total Impact Factor	Remarks/ Enclosures
		National	International		
1.	Journal – Research Articles/ Special Issue:	1			
2.	Book – Chapter(s)/ Monograph/ Contributed:	-			
3.	Technical Reports:	-			

S#	Publication/ Knowledge Products	Number		Total Impact Factor	Remarks/ Enclosures
		National	International		
4.	Training Manual (Skill Development/ Capacity Building):	03			PoPs can be directly applied in the farmers fields
5.	Papers presented in Conferences/Seminars:	01			Vigyan pragati
6.	Policy Drafts/Papers:				
7.	Others, if any:				

**Note:** Please append the list of KPs/ publications (with impact factor, DOI, and further details) with due Acknowledgement to NMHS. Supporting materials may be enclosed as annexure/ appendix separately to the FTR.

## 12. Recommendation on Utility of Project Findings, Replicability and Exit Strategy

Particulars	Recommendations
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<p>Utility of the Project Findings:</p>	<p>Marketing linkages were developed with 04 companies for purchase of the selected crops on best market prices. An agreement was done in this regard.</p>
	<p>In district Tehri, all dandelion farmers were registered with Dharkhetra Vikas Samiti, Dharpanyakoti and Oregano farmers with Jadi Buti Swayat Sahkari Samiti Limited, Semaltidhar and Bhilangna Farmer Producer Company Ltd. Ghansali. In district Bageshwar, all Kapoorkachri farmers were registered with Surkunda Jadi Buti utpadan Samiti Ltd, Kapkot</p>
	<p>Kuth, Kutki and Atis are amongst the RET species. Planting material was raised and distributed for mass multiplication.</p>
	<p>03 PoP (Package of Practice) was documented for Kuth, Kapoorkachri and Oregano</p>



<p>Replicability of Project/ Way Forward:</p>	<p>Existence of human depends on nature and plants availability. Agriculture play important role in chronological development of MAP's. Medicinal plants plays an important role since ancient time for curing and relieving the life of human and animals. Now requirement of MAP's is increasing day by day in domestic and international market.</p> <p>now a days commercial cultivation seems to be more profitable than traditional crops. if we have to sustain the beneficial properties of the medicinal plants than we go for organic cultivation, and its cultivation should always be away from dangerous chemical.</p> <p>Now, necessary requirement is to cultivate important medicinal. Demonstrate package and practice of selected MAP's in other blocks and villages in each districts, as per suitability of medicinal plants on cluster basis, cultivation of selected medicinal plant and its proper processing i.e. post harvest managemnt followed by maketing channel. MOU with pharmacy and pharma industries, so that village should recognize with its medicinal plant growing in mass scale, increasing certain and regular income of the farmers family.</p>
<p>Exit Strategy:</p>	<ol style="list-style-type: none"> <li>1. Small processing equipment like grinder sieves, low cost dehydrator should be provided at village level for reducing handling and transport expenses of the farmers.</li> <li>2. Scaling up of the medicinal crop introduced to farmers in the project span.</li> <li>3. Storage technology &amp; know how should be provided to farmers for minimize losses and increase quality of product.</li> </ol>

**(PROJECT PROPONENT/ COORDINATOR)**

**(Signed and Stamped)**

**(HEAD OF THE INSTITUTION)**

**(Signed and Stamped)**

**Place:** .....

**Date:** ...../...../.....

## PART B: DETAILED PROJECT REPORT

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### 1 National Mission on Himalayan Studies (NMHS)

#### Progress Report

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(Period from 01 April 2022 to 31 March 2023)

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#### 1. Project Information

<b>Project ID:</b>		<b>Sanction Date:</b>	23 <sup>rd</sup> August, 2019
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<b>Project Title:</b>	<b>Income Generation Programme for Rural Women Farmers through Commercial Production of Some Promising Medicinal and Aromatic Plants in Garhwal and Kumaon Regions of Uttarakhand.</b>
<b>BTG:</b>	

<b>PI and Affiliation (Institution):</b>	Dr Narayan Singh, The Energy and Resources Institute, TRISHA, Regional Centre Village –Supi, Post- Sadbunga, Nainital, Uttarakhand
<b>Name &amp; Address of the Co-PI, if any:</b>	Dr J. S. Butola, HUMAN INDIA, Lata Bhawan, Opp. Base Hospital, VPO Srikot, Ganganali, SrinagarGarhwal, Distt. Pauri Garhwal, Uttarakhand, India – 246178

<b>Structured Abstract - detailing the current year progress [Word Limit 250 words]:</b>	<i>Background:</i> The project has been implemented by TERI in partnership with HUMAN India for income generation of 600 women farmers through medicinal plants' production, processing, value addition and marketing in 06 districts (Bageshwar, Pithoragarh, Nainital, Chamoli, Rudraprayag, Tehri) of Kumaon and Garhwal regions in Uttarakhand.
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	<p><b>Objectives/Aim:</b> <i>The aim of the project is to increase the income of women farmers through production (nursery development, cultivation, processing, and value addition) and marketing of the selected medicinal plants apart from that capacity building, skill development, interaction program and buyer seller meet are the other proposed activities. ToTs (Transfer of Technologies) through publications of booklets, brochure, etc. for the stakeholders is also proposed.</i></p>
	<p><b>Methodology:</b> In order to select the right beneficiaries, a proper screening system was adopted consisting of socio-economic vulnerability indicators (such as levels of income, women headed households, type of shelter the beneficiary currently lives in, past history regarding availing Govt. schemes, etc.) but the major criteria was land availability and rational distribution pattern. The beneficiaries having their lands in the form of a patch of more than 0.2 acre were selected for the project. Production of the selected medicinal plants (<i>Atis, Dendelion, Kapoorkachri, Kuth, Kutki and Oregano</i>) was initiated in cluster basis by distributing QPM (Quality Planting Material) amongst the farmers for commercial production. For processing and value addition of the produce, two primary processing facilities in the selected clusters were established to develop value added products for income augmentation of the farmers. For Capacity building and Skill development, training and awareness creation programs were organized for growers. Standard technologies on Good Agricultural, Harvesting and Post Harvesting Practices on the selected Medicinal Plants (MPs) developed by various R&amp;D institutions was transferred to the farmers. The entire programme was linked with MNREGA (Mahatma Gandhi National Rural</p>

Employment Guarantee Act) to ensure easy adoption of MAPs cultivation in compliance with the purpose of employment guarantee scheme. There is a plan to formulate primary level grower societies of medicinal plants for post project sustainability of the clusters. During the project period, the technology will be upgraded as per farmers needs and that will be documented and published as a '*knowledge product*' for future reference and replications.

**Approach:** *Cluster approach will be adopted for mass scale production and marketing of the selected crops. Proper technical back up and long-term handholding during all steps from production to market will be provided to the beneficiaries.*

**Results:** The Program was implemented successfully in 06 selected districts namely Chamoli, Rudraprayag and Tehri from Garhwal region and Bageshwar, Nainital and Pithoragarh from Kumaon region of Uttarakhand. As a major achievement of the project in Kumaon region 280 farmers from 05 blocks covering 18 villages and in Garhwal region 384 farmers from 06 blocks covering 25 villages were included as major beneficiaries. In both regions *i.e.* (Garhwal and Kumaon) 664 farmers from 11 blocks and 43 villages covered 24.15 ha area for the cultivation of *Atis, Dandelion, Kapoorkachri, Kuth, Kutki* and *Oregano*. Out of the total production area (11.78 ha) in Garhwal region, a total of 6.56 area in Tehri, 4.81 Chamoli and 0.41 ha in Rudraprayag were brought under the cultivation of *Kuth, Kutki, Dandelion* and *Oregano*. As a direct impact of the project, 456 farmers (68.67%; total farmers 664) started their income under the project. Moreover, 349 farmers in Garhwal region have started their income through selling the produce to the companies identified and collaborated under the project. In this agreement, 8140 kg of *Oregano* (Villages: Sendul, Gangar, Siliyara, Nauli, Bhelunta, Dalla, Jakhnyali, Kastal, Kireth, Kurmar gaon, Mandar, Sema, Semalth, Semya, Sunar gaon and Sunherigaad) worth Rs.122100/-, 3056 kg *Dandelion* (Dharpanyakoti and Pindi Gaun villages) worth Rs. 611200/- and 4835 kg *Kutki* (Ghes and Himani villages) worth Rs. 6769000/- were sold. In case of Ghes and Himani, the total income reflected about only 10% increment due to the project as most of the farmers were already in to cultivation of *Kutki* by the due support of different institutions.

In case of Kumaon region, 8.14 ha area in Bageshwar, 3.1 ha in Pithoragarh and

1.13 ha in Nainital were brought under *Kapoorkachri*, *Kuth*, *Kutki* and *Oregano*, out of the total production area (12.37 ha). In which, 107 farmers have started their income through selling the produce to the companies. In this regard, total revenue of Rs. 16.22 Lakh earned by the farmers of Bageshwar, Nainital and Pithoragarh through cultivation of *Kapoorkachri*, *Kuth*, *Kutki* and *Oregano*.

The direct contribution of the project is training and developing market network for the farmers. For capacity building and skill development, a total of 25 training programs for 776 farmers were organized. 12 programs for 384 farmers in Garhwal region and 13 training programs for 392 farmers were organized in Kumaon region. As a project mandate, 83 farmers of *Kutki*, 05 farmers of *Kuth*, 08 farmers of *Dandelion* with HRDI, Chamoli and 12 farmers of *Oregano* were registered with CAP, Dehradun. However, in Kumaon region, 79 farmers were registered under HRDI for *Kuth*, *Kutki* and *Kapoorkachri*.

For value addition, Herbal Tea and Herbal masala mix were prepared and

being sold locally. TERI is also marketing the processed products under a brand name "SupiSugandh" by various marketing on-line and off-line tools. As cluster

approach TERI is also promoting and extending project activities as co-operative model. Moreover, TERI has established a Farmer Producer Organization (FPO)

	<p>for the promotion of NMHS activities and cultivation of selected crops with the help and support of NABARD. HUMAN India has developed various value-added products viz., “<i>Dandelion Herbal Tea</i>’, ‘<i>Oregano Herbal Tea</i>’, Herbal churn (Kuth, Kutki, etc.) under the name of ‘H-SHG Products’ are being sold in the local market.</p> <p>In district Tehri, cultivation of <i>Dandelion</i> and <i>Oregano</i> was linked with MNREGA Programme in which the farmers got benefits of daily wages for cultivation work. Three PoPs for production and processing technology of <i>Kuth</i>, <i>Kapoorkachri</i> and <i>Oregano</i> were prepared as a ‘<i>Knowledge products</i>’.</p> <p><b>Conclusion:</b> The project was implemented very successfully as per objectives and work plan as 100% targets were achieved within time frame.</p> <p><b>Recommendations:</b> There is a need to replicate the strategy and procedure of the project in other areas in Uttarakhand and other hilly states so that the cultivation of medicinal plants for livelihood security and conservation could be ensured.</p>
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Project Partner Name	Affiliations	Role & Responsibilities
Partner 1	Dr J.S. Butola, HUMAN INDIA  Lata Bhawan, VPO- Srikot Ganganali, Srinagar Garhwal- 246178, Distt. Pauri	Co-PI  Project implementation in 03 districts (Tehri, Rudraprayag and Chamoli) in Garhwal Region

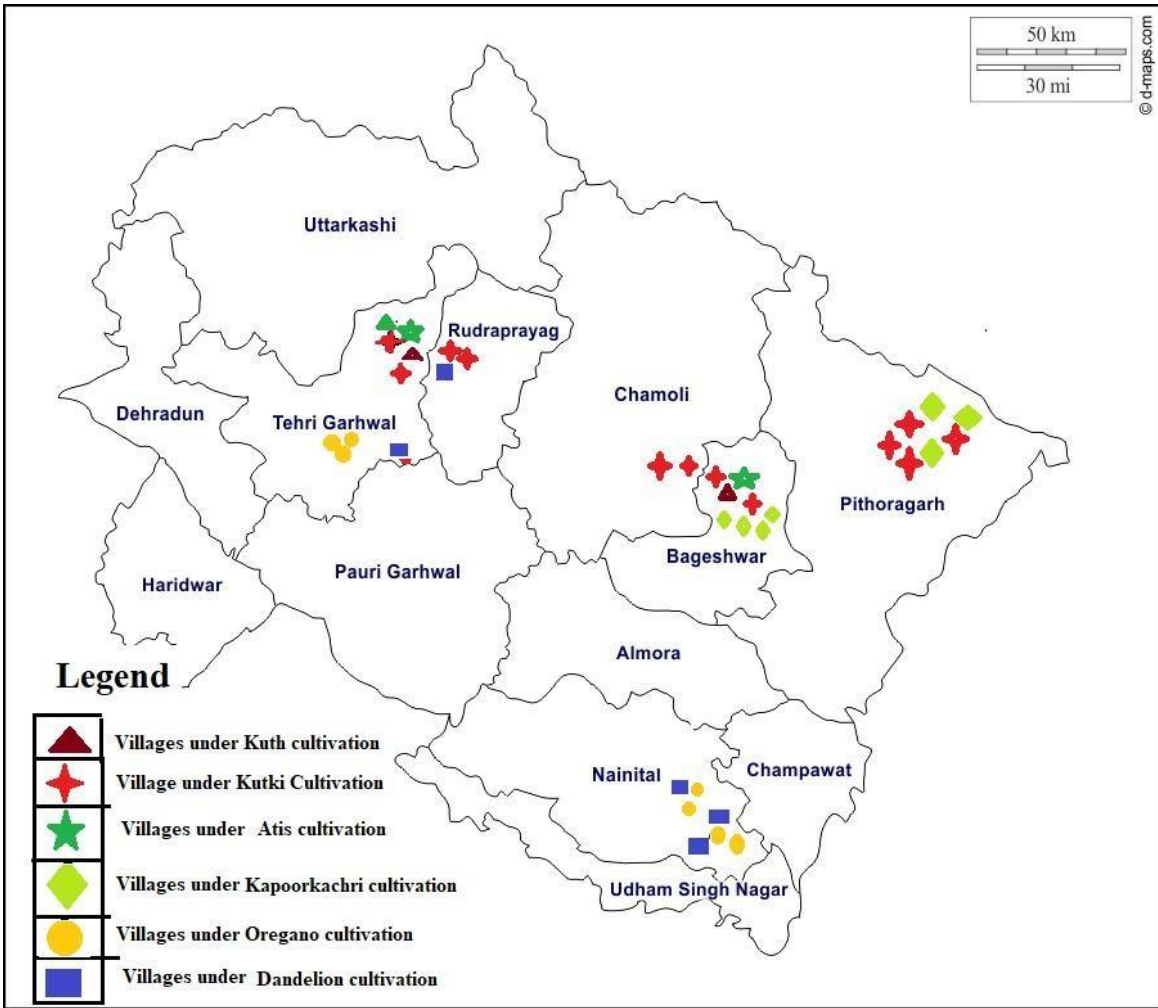
## 2. Project Site Details

Project Site:	<p>The project sites are as follows in Uttarakhand:</p> <p><b>KUMAON REGION</b></p> <ul style="list-style-type: none"> <li>• Bageshwar: (Block- Kapkot)</li> <li>• Pithoragarh: (Block- Dharchula)</li> <li>• Nainital: (Blocks- Dhari, Ramgarh, Okhalkanda)</li> </ul> <p><b>GARHWAL REGION</b></p> <ul style="list-style-type: none"> <li>• Chamoli: (Block- Dewal)</li> <li>• Rudraprayag: (Block- Jakholi)</li> </ul>
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	<ul style="list-style-type: none"> <li>Tehri: (Blocks- Bhilangna, Pratapnagar, Kirtinagar and Jakhnidhar)</li> </ul>
IHR States Covered:	Uttarakhand
Long. & Lat.:	<p><b>Nainital</b> Latitude- 29.380304 Longitude- 79.463570</p> <p><b>Bageshwar</b> Latitude- 29.510.00 Longitude- 80.218185</p> <p><b>Pithoragarh</b> Latitude- 30.293461 Longitude- 78.524094</p> <p><b>Chamoli</b> Latitude- 30.2512.00 Longitude- 79.1948.00</p> <p><b>Rudrapryag</b> Latitude- 30.284414 Longitude- 78.981140 <b>Tehri</b> Latitude- 30.3739 Longitude- 78.4325</p>
Site Maps* (No.):	01
Site Photographs* (No.):	17

\*Attach a separate Descriptive Annexure/ Files (.JPG, .TIFF, etc.).





**1.1.1 MAP OF PROJECT AREA AND CROPS**

### 3. Project Activities Chart w.r.t. Timeframe [Gantt or PERT]

PROJECT ACTIVITIES	DESCRIPTION OF WORK UNDERTAKEN (YEAR 2019-2020 & 2020-2021)	QUANTIFIABLE OUTPUTS
Project Activity 1	<p><b><u>Production of Raw material</u></b></p> <ul style="list-style-type: none"> <li>The Program has been implemented successfully in 06 selected districts namely Chamoli, Rudraprayag and Tehri from Garhwal region and Bageshwar, Nainital and Pithoragarh from Kumaon region of Uttarakhand.</li> <li>280 farmers from 05 blocks and 18 villages in Kumaon region and 384 from 06 blocks and 25 villages in Garhwal region covered as project beneficiaries. In both regions, 664 farmers from 11 blocks and 43 villages selected for the production of raw materials in (24.15 ha) area for Atis, Dandelion, Kapoorkachri, Kuth, Kutki and Oregano.</li> <li>Out of the total production area (11.78 ha) in Garhwal region, a total of 6.56 area in Tehri, 4.81 Chamoli and 0.41 ha in Rudraprayag were brought under Kuth, Kutki, Danelion and Oregano.</li> <li>Out of the total production area (12.37 ha) in Kumaon region, 8.14 ha area in Bageshwar, 3.1 ha in Pithoragarh and 1.13 ha in Nainital were brought under <i>Kuth, Kapoorkachri, Kutki and Oregano.</i></li> </ul>	<p>Total no. of farmers: 664</p> <p>Total no. of crops: 06</p> <p>Land under cultivation (ha): 24.15</p> <p><b>Annexure –I</b></p>
Project Activity 2	<p><b><u>Establishment of processing facilities</u></b></p> <ul style="list-style-type: none"> <li>02 processing and value addition facilities established for long term use and trainings at Supi, Nainital (TERI Centre) and Jakholi (HUMAN India Centre), Rudraprayag are functioning sucessfully. The raw materials particularly of Oregano from the farmers is being processed in to various products.</li> <li>Solar drying facility was used to maintain optimum moisture, color, aroma and taste of the product. Herb pulverizer was used to prepare homogenous sized</li> </ul>	<p>Total no. of processing facilities established: 02</p> <p>Total no. of crops processed: 06</p> <p>Income generated:</p>

	<p>materials. Final products (dry leaves and flowers) were packed using vacuum pouch machine to increase shelf-life of the product and to enhance acceptability of customers.</p>	<p>91,24,420 /-</p> <p><b>Annexure –II</b></p>
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**Project Activity 3****Harvesting, value addition of raw materials and  
Income generation**

- 456 farmers (68.67%; total farmers 664) started their income under the project.
- 349 farmers in Garhwal region started earnings through selling the produce to the companies identified and collaborated under the project. In this agreement, 8140kg of *Oregano* from *Sendul, Gangar, Siliyara, Nauli, Bhelunta, Dalla, Jakhnyali, Kastal, Kireth, Kurmar gaon, Mandar, Sema, Semalth, Semya, Sunar gaon and Sunherigaad* villages income worth Rs.122100/-, 3056 kg *Dandelion* (Dharpanyakoti and Pindi Gaun), worth Rs. 611200/- and 4835 kg *Kutki* (Ghes and Himani villages) worth Rs. 6769000/- were sold.
- In Tehri district, 14 farmers started cultivation of *Kuth* in Bhilangna Block (Anthwalgaon) covering 0.29 ha.
- In Jakholi block of Rudraprayag district, 05 farmers of Village Uचना started *Kuth* crop cultivation in 0.09 ha.; 16 farmers of village Uroli started *Kutki* cultivation in 0.32ha.
- In Kumaon region, 107 farmers have started their income through selling the produce to the companies identified and collaborated under the project. In this regard, total revenue of Rs. 16.22 Lakh earned by the farmers of Bageshwar, Pithoragarh and Nainital through cultivation of *Kuth, Kutki, Kapoorkachri* and *Oregano*.
- Out of the total income (Rs. 91,24,420) generated during the project, 70% were from the sale of *Kutki*. As most of the farmers were already engaged in to cultivation of *Kutki* in Ghes and Himani by the due support of different institutions, we estimated about 10% increment in the income due to the project activities.

<b>Project Activity 4</b>	<p><b><u>Capacity building and Skill development</u></b></p> <ul style="list-style-type: none"> <li>• For capacity building and skill development, a total of 25 training programs for 776 farmers were organized. 12 programs for 384 farmers in Garhwal region and 13 training programs for 392 farmers were conducted in Kumaon region.</li> <li>• Training on processing and value addition were conducted for the master trainers (15) from the beneficiaries.</li> <li>• Out of the total programs, 15 Hands-on field-based trainings on Good Agriculture and Harvesting Practices of the selected crops were specially organized. Emphasis was given on the trainings of seed treatment, soil preparation, fertilization, crop care and protection, etc.</li> </ul>	<p>Total no. of trainings organized: 25</p> <p>Total no. of farmers trained: 776</p> <p><b>Annexure –III</b></p>
<b>Project Activity 5</b>	<p><b><u>Market Linkages developed</u></b></p> <ul style="list-style-type: none"> <li>• Marketing linkages were developed during the 1<sup>st</sup> year of the project. Value added materials of <i>Dandelion</i> were sold to a firm HM Agro Tech, Dehradun; <i>Kutki</i> to the QCS Herbals, Sonipat; <i>Kapoorkachri</i> to the Dabur India Ltd., Sahibabad; <i>Oregano</i> by Flex Food Ltd., Haridwar and Bhilangna Valley Farmers Producers Company Ltd., Ghansali.</li> </ul>	

Project Activity 6	<p><b><u>Legal registration of the farmers</u></b></p> <ul style="list-style-type: none"> <li>As a project mandate, 83 farmers of <i>Kutki</i>, 05 farmers of <i>Kuth</i>, 08 farmers of <i>Dandelion</i> with HRDI, Chamoli and 12 farmers of <i>Oregano</i> were registered with CAP, Dehradun. However, in Kumaon region, 79 farmers were registered under HRDI for <i>Kuth</i>, <i>Kutki</i> and <i>Kapoorkachri</i>.</li> </ul>	
Project Activity 7	<p><b><u>Project linked with MNREGA Programme</u></b></p> <ul style="list-style-type: none"> <li>In district Tehri, Cultivation of <i>Oregano</i> and <i>Dandelion</i> was linked with MNREGA Programme in which the farmers got benefits of daily wages for cultivation work.</li> </ul>	
Project Activity 8	<p><b><u>Formation or linkages with grower society</u></b></p> <ul style="list-style-type: none"> <li>In district Tehri, all <i>Dandelion</i> farmers were registered with Dharkhetra Vikas Samiti, Dharpanyakoti and <i>Oregano</i> farmers with Jadi Buti Swayat Sahkari Samiti Limited, Semaltidhar and Bhilangna Farmer Producer Company Ltd, Ghansali.</li> <li>In district Bageshwar, all <i>Kapoorkachri</i> farmers were registered with Surkunda Jadi Buti utpandan Samiti Ltd, Kapkot.</li> <li>In district Chamoli, all <i>Kutki</i> farmers were linked to a NGO namely Himalayan Union for Man and Nature (HUMAN), registered in district Rudraprayag.</li> </ul>	Farmers from each district is being linked with the grower societies for long term hand holding and sustainability of the project
Project Activity 9	<p><b><u>Knowledge products and Publication of PoPs</u></b></p> <ul style="list-style-type: none"> <li>Package of Practices (PoP) of <i>Kuth</i>, <i>Kapoorkachri</i> and <i>Oregano</i> were developed by HUMAN India (Copy enclosed)</li> <li>Article of <i>Kuth</i> production Published (Copy enclosed)</li> </ul>	<b>Annexure IV</b>

#### 4. Financial and Resource Information

*Note:* A separate bank account is expected to be opened for NMHS Project as per the provision of Direct Beneficiary Account (DBA) as laid out by the Govt. of India and also facilitate the audit of accounts. The interest earned out of the NMHS project funds should be reported clearly in the utilization certificate.

Total Grant:	3396800.00	Grant Received Date:	23/08/2019
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Project Partner(s)	Affiliations/ Institution	Budget Allocated to	Work Done by each Project Partner
Partner 1	HUMAN India, Lata Bhawan, Opp BaseHospital VPO Srikot Ganganali, Srinagar Garhwal, District- Pauri Garhwal, Uttarakhand	HUMAN India	All project activities are being done as per objectives. Human India is looking after the project implementation in Garhwal Region (Tehri, Rudraprayag and Chamoli Districts).  Details are given in Annexures

### 1.1.2 Project Staff Information:

S. No.	Name	Qualification	Designation	Fellowship / Wages paid	Remarks
1.	Bachi Singh Gaira	Post-Graduate	Field Assistant	7000/Month	Looking after the project area in District Nainital and Pithoragarh
2.	Bhupal Singh Gariya	Graduate	Field Assistant	7000/month	Looking after the project area in District Bageshwar
3.	Prakash Chandra	Graduate	Field Assistant	7000/Month	Looking after the project area in District Tehri
4.	Meenaxi Rawat	Graduate	Field Assistant/ Coordinator	7000/month	Looking after in District Chamoli and Rudraprayag

## 5. Equipment and Asset Information

S. No.	Equipment Name (Qty)	Details (Make/ Model)	Cost	Date of Installation	Photographs of Equipment *	Lowest Quotation, if not purchased
Purchasing of the equipment has already done during the 1 <sup>st</sup> year of the project.						

**Note:** Attach a Descriptive Annexure/ File separately.

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## 6. Expenditure Statement and Utilization Certificate

Please update the annual Expenditure Statement and Utilization Certificate (UC) periodically.

### 2.1.1 Expenditure Information:

S. No.	Financial Position/Budget Head	Funds Sanctioned	Expenditure	% of Total cost
I	Salaries/Manpower cost	1008000	756004	75
II	Travel	120000	98247	82
III	Expendables & Consumables	0	0	
IV	Contingencies	0	0	0
V	Activities & Other Project cost	940000	572730	61
VI	Institutional Charges	308800	215726	70
VII	Equipments	1020000	1020000	100
	Total	3396800		
	Interest accrued	7729		
	<b>Grand Total</b>	<b>3404529</b>		

Period	Expenditure Statement*	Utilization Certificate (UC)*
Annual	Attached	Attached

\* Attach the descriptive Annexure/ File in the prescribed NMHS format.



### Project Beneficiary Groups

Beneficiary Groups [Capacity Building]	Target	Achieved
No. of Beneficiaries with income generation:	600 (in Three Years)	280 farmers from 05 blocks and 18 villages in Kumaon region and 384 from 06 blocks and 25 villages in Garhwal region  Income generated by 349 farmers in Garhwal region and 107 farmers in Kumaon region.
No. of capacity building Workshops/ trainings:	600 (in Three Years)	776 farmers trained under 25 training programs organized.  15 Master trainers trained.
No. of Research/ Manpower developed:	03 Knowledge Products	Package of Practices (PoP) of <i>Kuth</i> , <i>Kapoorkachri</i> and <i>Oregano</i> were developed.

### 8. Project Progress Summary\* (as applicable to the project)

Description	Total (Numeric)	Description (Name of descriptive Annexure/ File attached)*
<i>IHR States Covered</i>	01	Project was implemented in Uttarakhand. Map and

		coordinates of the project area given.
<i>Project Site/ Field Stations Developed:</i>	02	02 Processing and value addition units established. Related photographs are given.
<i>No. of Patents filed (Description):</i>	-	-
<i>Article/ Review/ Research Paper/ Publication:</i>	01	An article on <i>Kuth</i> production and processing published in Vigyan Pragati Magazine.
<i>New Methods/ Modellings Developed (description in 250 words):</i>	03	Technological improvement to improve productivity and quality of the produce especially Dandelion, Oregano, Kuth and Kapoorkachri is under progress.
<i>No. of Trainings (No. of Beneficiaries):</i>	24 (774)	744 farmers trained under 24 training programs organized.
<i>Workshop:</i>	-	-
<i>Demonstration Models (Site):</i>	02	Photographs are given
<i>Livelihood Options:</i>	02	Medicinal plants farming particularly <i>Kutki, Oregano</i> and

		<i>Dandelion</i> have shown high potential to be one of the livelihood options under agriculture.
<i>Training Manuals:</i>	02	Training material on <i>Kuth</i> , <i>Kapoorkachri</i> and <i>Oregano</i> production and processing were developed.
<i>Processing Units:</i>	02	Photographs are given
<i>Species Collection:</i>	06	<i>Oregano</i> , <i>Dandelion</i> , <i>Kapoorkachri</i> , <i>Kuth</i> , <i>Kutki</i> and <i>Atis</i> .
<i>Species identified:</i>	-	-
<i>Database (Numeric/Images/GIS Maps, etc.):</i>	06	Database in the form of text, numeric and Images have been developed.

**\*Attach a separate descriptive Annexure/ File.**

**Note:** Numeric Database should be provided in .xls format. Photos/Maps should be submitted in high quality (min. 300 dpi res.) compatible formats viz., JPEG, .JPG, .PNG, .SHP, etc. along with suitable figure legend/ caption.

## 9. Project Linkages (with concerned Institutions/ State Agencies)

S. No.	Institute/ Organization	Type of Linkages	Brief Description
1.	HM Agro, Dehradun QCS Herbals, Harayana Flex Foods Ltd. Dehradun Dabur India Ltd, Sahibabad	Marketing of the produce	Marketing of <i>Dandelion</i> , <i>Oregano</i> , <i>Kutki</i> , <i>Kapoorkachri</i> produced under the project

2.	HRDI, Chamoli	Registration of the farmers and other legalities	Registration of Kapoorkachri and Kutki has been started by HRDI. Transit Pass will be given during the transition of the materials from farmers' fields to the traders.
3.	MNREGA, Tehri	Daily wages are being paid for agriculture work particularly innovative work in agriculture like medicinal plants production.	District administration, on request of Human India granted manpower support through providing daily wages to the farmers engaged in cultivation of medicinal plants in District Tehri
4.	<p>Grower societies</p> <ol style="list-style-type: none"> <li>1. Dharkhetra Vikas Samiti, Dharpanyakoti, Tehr</li> <li>2. Jadi Buti Swayat Sahkari Samiti Limited, Semaltidhar, Tehri</li> <li>3. Surkunda Jadi Buti utpadan Samiti Ltd, Kapkot, Bageshwar</li> <li>4. Bhilangna Farmer Producer Company Ltd., Ghansali</li> <li>5. Lohakham Krishak</li> </ol>	Facilitate the farmers to provide them all kind of helps particularly to be aware about Govt. schemes, source of QPMs, trainings and marketing of the produce.	All these societies are registered under the Govt. of Uttarakhand and working in the area of medicinal and aromatic plants.

Swatya Sahkarita, Okhalkanda, Nainital		
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**Note:** Attach a separate, descriptive Annexure/ File.

## 10. Knowledge Products – Publication, recommendations, etc.

Time Period	Hindi article on 'Production technology of Kuth'
One year	Package of Practices (PoP) of Kuth, Kapoorkachri and Oregano production and processing technology developed (Copy enclosed)

**Note:** Attach a separate, descriptive Annexure/ File.

## 11. Project Concluding Remarks

Kindly update the following Progress Parameters for the Reporting Period:

Project Objectives	Quantifiable Output against each objective	Progress made against Monitoring Indicators (specified in Sanction Letter)	Remarks
1. To develop/ arrange QPM (Quality Planting Material) of the selected MAPs and distribute for commercial production under Cluster approach	Establishment of Six (06) demonstration model on new MAPs  Production of raw materials of 06 high value rare crops for	All 06 crops were bought under production in order to develop demonstration models.  100% targets with respect to the development of QPM	Target of 600 (664 achieved) beneficiaries will be achieved completely during the third year.

	Pharmaceutical Industries	(Kuth, Kutki, Kapoorkachri, Oregano and Dandelion); Number of the farmers, trainings were achieved successfully.	
<b>2. To establish primary processing facilities in the selected clusters to develop value added products for income augmentation of the farmers.</b>	<p>Increase in income and/ or new employment generation for 600 farmers.</p> <p>Establishment of 02 processing and value addition facilities for long term use and trainings in Garhwaland Kumaon region of the State</p>	<p>Out of the total 664 farmers, 456 farmers (68.67% ) started their income under the project.</p> <p>02 processing and value addition Facilities were developed and start functioning under the project.</p> <p>06 Value added products were developed as Herbal Tea, Herbal Churan, Herbal Masala, etc.</p>	<p>Processing units are not only being used for processing but also for capacity building of different stakeholders in processing and quality management of Raw materials.</p>

<p><b>3. Capacity building and Skill development of different stakeholders including growers and collectors for Transfer of Technology (ToT) on Good Agricultural, Harvesting and Post Harvesting Practices on the selected MPs.</b></p>	<p>Capacity building and Skill development of 600 women farmers</p>	<p>776 farmers trained under 25 training programs on the production, processing, value addition and marketing of the selected crops.</p>	<p>As a result of the training programs, the beneficiaries were selected 456 started their income.</p>
<p><b>4. Linkage of the farmers with MNREGA (Mahatma Gandhi National Rural Employment Guarantee Act) to ensure easy adoption of MAPs cultivation in compliance with the purpose of employment guarantee scheme.</b></p>	<p>Linking 600 new farmers in mainstream through their registration in HRDI (Government of Uttarakhand) to make them eligible for various schemes of the State and Centre government.</p>	<p>In district Tehri, Cultivation of Oregon and Dandelion was linked with MNREGA Programme in which the farmers got benefits of daily wages for cultivation work even for work in their own cultivation fields.  This model is being replicated in District Bageshwar.</p>	<p>Proper linkages of the farmers to the various Government schemes is also one of the tasks to be achieved for sustainability of the project.</p>
<p><b>5. To develop market linkages of the farmers for the selected crops.</b></p>	<p>Market linkages are to be developed.</p>	<p>Marketing linkages were developed with 04 companies for purchase of the selected crops on best market prices. An agreement was done in this regard.</p>	<p>Kutki, Oregon, Dandelion and Kapoorkachri have already been purchased by the</p>

			companies from the project beneficiaries.
<b>6. To formulate primary level grower societies of medicinal plants society act for post project sustainability of the clusters.</b>	Linkages of the farmers with growers societies	In district Tehri, all dandelion farmers were registered with Dharkhetra Vikas Samiti, Dharpanyakoti and Oregano farmers with Jadi Buti Swayat Sahkari Samiti Limited, Semaltidhar and Bhilangna Farmer Producer Company Ltd. Ghansali. In district Bageshwar, all Kapoorkachri farmers were registered with Surkunda Jadi Buti utpadan Samiti Ltd, Kapkot	All the farmers will be registered and organized with grower societies.
<b>7. Conservation and sustainable utilization of high value native, endemic and RET species of global importance</b>	Conservation and sustainable utilization of high value native, endemic and RET species of global importance (03 Nos.)	Kuth, Kutki and Atis are amongst the RET species. Planting material was raised and distributed for mass multiplication.	Mass scale planting materials, cultivation and production technology were developed under the project.



<b>8. Develop knowledge products: Policy, manual document, publications in well reputed journal</b>	Develop 3 knowledge products: 01 Policy, 01 manual document 1 publications in well reputed journal	03 PoP (Package of Practice) was documented for Kuth, Kapoorkachri and Oregano	PoPs can be directly applied in the farmers fields
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<b>Methodology (in brief):</b>	<ul style="list-style-type: none"> <li>• Select the most relevant beneficiaries; a proper screening system was adopted.</li> <li>• The beneficiaries having their lands in the form of a patch of not less than 05 Nali (0.1ha) were selected for the project.</li> <li>• Production of the selected medicinal plants was initiated in cluster basis by distributing QPM (Quality Planting Material) amongst the farmers for commercial production.</li> <li>• For processing and value addition of the produce, two primary processing facilities in the selected clusters were established.</li> <li>• For capacity building and Skill development, training and awareness creation programs were organized for growers.</li> <li>• Standard technologies on Good Agricultural, Harvesting and Post Harvesting Practices on the selected Medicinal Plants (MPs) developed by various R&amp;D institutions was transferred to the farmers.</li> <li>• The entire programme was linked with MNREGA (Mahatma Gandhi National Rural Employment Guarantee Act) to ensure easy adoption of MAPs cultivation in compliance with the purpose of employment guarantee scheme.</li> <li>• Farmers were linked with the grower societies of medicinal plants for post project sustainability of the clusters.</li> <li>• During the project period, the technology is being upgraded as per farmers needs and that will be documented and published as a '<i>knowledge product</i>' for future reference and</li> </ul>
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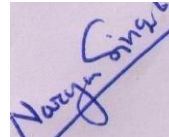
	replications.
Major Research Achievements :	<ul style="list-style-type: none"> <li>• Three 3 PoPs of Kuth, Kapoorkachri and Oregano production and processing developed.</li> </ul>
Brief Conclusion - the current year progress – during the reporting period (point-wise):	<ul style="list-style-type: none"> <li>• In this year i.e. 2022-23 60 farmers started cultivation of <i>Oregano</i> crop.</li> <li>• The programme has been implemented in three blocks (Jakhnidhar, Bhilangana and Partapnagar) covered 15 villages of district Tehri Garhwal.</li> </ul>
	<ul style="list-style-type: none"> <li>• A total of 1.75 hac land were brought under cultivation of Oregano. Initial result is very encouraging and are under observation for its commercial viability.</li> </ul>
	<ul style="list-style-type: none"> <li>• Out of the total target to develop primary processing units (02), 02</li> <li>• (100%) processing and value addition Facilities were developed</li> <li>• and started functioning under the project.</li> </ul>

	<ul style="list-style-type: none"> <li>•</li> </ul>
	<ul style="list-style-type: none"> <li>• Of the total farmers adopted cultivation (664), 456 farmers (68.67%) started their income under the project.</li> <li>• Out of the total farmer targeted from trainings (776), 580 farmers (74.74%) were trained under 25 training programs conducted.</li> <li>• Of the total 187 farmers registered with HRDI and CAP, 108 farmers belong to Garhwal region and 79 farmers to Kumaon region.</li> <li>• In district Tehri, Cultivation of Oregano and Dandelion was linked with MNREGA Programme in which the farmers got benefits of daily wages for cultivation work even for work in their own cultivation fields. This model is being replicated in District Bageshwar for Kapoorkachri.</li> <li>• Marketing linkages were developed with 04 companies for purchase of the selected crops on best market prices. An agreement was done in this regard.</li> <li>• Growers were linked with 04 growers societies for long term support in all respects.</li> <li>• 02 PoPs (Package of practice) was documented for Kuth and Kapoorkachri.</li> </ul>
Progress Achieved (%):	<ul style="list-style-type: none"> <li>• More than 80% targets of the project have already been achieved.</li> </ul>

Remaining work to be done:

- 32 farmers are to be selected during the third year and the crops
- will be harvested, processed and supplied to the identified companies for income generation.
- Calculations will be made for actual increase in income of the beneficiaries.

**Kindly attach the descriptive Annexure/ Files separately for the segments marked for the detailed description required.** Please fill the NMHS Progress Report pro forma as applicable with respect to time and other requirements and return via post/ e-mail at: [nmhspmu2016@gmail.com](mailto:nmhspmu2016@gmail.com)



**Submitted to:**

Nodal Officer, NMHS-PMU

**Submitted by:**

National Mission on Himalayan

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Institution (Seal):  
Dated (dd/mm/yy):

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Summary of the selected villages, beneficiaries and the crops under NMHS project						
GARHWAL AND KUMAON REGION						
S. No	No. of Block covered	Name of Block	Number of Villages Covered	Name of the Village/Tok	No. of Beneficiaries	Name of Crop
KUMAON REGION						
<b>Nainital</b>	1	Dhari	1	Sunkiya	21	Oregano
			1	Salyakote	18	Oregano & Dandelion
	1	Okhalkanda	1	Jhadgaon Talla	22	Dandelion
	1	Ramgarh	1	Darima	20	Oregano & Dandelion
			1	Meora	20	Oregano
<b>Total</b>	<b>3</b>		<b>5</b>		<b>101</b>	
<b>Pithoragarh</b>	1	Dharchula	1	Chilmachilasho	10	Kutki, Kapoorkachri, Atis
			1	Jaykote	15	Kutki & Kapoorkachri
			1	Sirdang	21	Kutki & Kapoorkachri
			1	Himkhoa	8	Kapoorkachri
			1	Sosa-Neyong	12	Kutki
			1	Pashti	13	Kutki
<b>Total</b>	<b>1</b>		<b>6</b>		<b>79</b>	
<b>Bageshwar</b>	1	Kapkot	1	Jhuni	20	Kuth, Kutki
			1	Keemu	30	Kutki
			1	Karmi	10	Kapoorkachri

			1	Baghar	3	Kapoorkachri
			1	Malkhdongarcha	9	Kapoorkachri
			1	Gogeena	16	Kapoorkachri
			1	Toli	12	Kapoorkachri
<b>Total</b>	<b>1</b>		<b>7</b>		<b>100</b>	

<b>Sub Total</b>	<b>5</b>		<b>18</b>		<b>280</b>	
<b>GARHWAL REGION</b>						
<b>Chamoli</b>	1	Dewal	1	Himani	27	Kutki
			1	Ghes	56	Kutki
<b>Total</b>	<b>1</b>		<b>2</b>		<b>83</b>	
<b>Rudraprayag</b>	1	Jakholi	1	Ucchna	5	Kuth
			1	Uroli	16	Kutki
<b>Total</b>	<b>1</b>		<b>2</b>		<b>21</b>	
<b>Tehri</b>	1	Bhilangna	1	Anthwalgaon	14	Kuth
			1	Dalla	1	Oregano
			1	Jakhnyali	2	Oregano
			1	Sunar gaon	1	Oregano
			1	Gangi	2	Oregano
			1	Semalth	10	Oregano
<b>Total</b>			<b>6</b>		<b>30</b>	
	<b>1</b>	<b>Pratapnagar</b>		Bhelunta	1	Oregano
	1	Kirtinagar	1	Dharpanyakoti	72	Dandelion
			1	Pindi Gaun	68	Dandelion
<b>Total</b>			<b>2</b>		<b>140</b>	
	1	Jakhnidhar	1	Sendul	10	Oregano
			1	Gangar	45	Oregano
			1	Silyara	4	Oregano
			1	Mandar	4	Oregano
			1	Nauli	8	Oregano



			1	Kireth	1	Oregano
			1	Sema	4	Oregano
			1	Kastal	<b>20</b>	Oregano
			1	Kumar Gaon	<b>2</b>	Oregano
			1	Sewri	<b>3</b>	Oregano
			1	Sunherigaad	7	Oregano
			1	Semya	1	Oregano
			12		109	
<b>Total</b>	<b>6</b>		<b>25</b>		<b>384</b>	
<b>Sub Total</b>	<b>5</b>		<b>18</b>		<b>280</b>	
<b>GRAND TOTAL</b>	<b>11</b>		<b>43</b>		<b>664</b>	

Crop wise Production and income details of the crops under NMHS project (Garhwal region)

Sr. No.	Name of Crop	No. of farmers	Quantity harvested (Kg)	Income generated (Rs.)
1	Oregano (Rs. 1500 per Qtl. fresh)	126	8,140.00	1,22,100.00
2	Dandelion (Rs. 200 per kg)	140	3,056.00	6,11,200.00
3	Kutki (Rs. 1400 per kg)	83	4,835.00	67,69,000.00
	<b>Total</b>	<b>349</b>	<b>16,031.00</b>	<b>75,02,300.00</b>

Crop wise total Area under cultivation in Garhwal region

S.N.	Crop	Garhwal region (ha)
1.	Kuth	0.38
2.	Kutki	5.13
3.	Oregano	3.70
4.	Dandelion	2.57
	<b>Total</b>	<b>11.78</b>

District wise area under cultivation Garhwal region

District	Area under cultivation (ha)	No. of Farmers income generated
Tehri	6.56	266
Chamoli	4.81	83
Rudraprayag	0.41	
<b>Total</b>	<b>11.78</b>	<b>349</b>

District wise area under cultivation under NMHS

District	Area under cultivation (ha)
Tehri	6.56
Chamoli	4.81
Rudraprayag	0.41
Bageshwar	8.14
Pithoragarh	3.1
Nainital	1.13
<b>Total</b>	<b>24.15</b>

District wise area under cultivation and income Kumaon region

<b>District</b>	<b>Area cultivation ha</b>	<b>Income generated Rs.</b>	<b>No. of Farmers income generated</b>
Bageshwar	8.14	1,104,600	34
Pithoragarh	3.1	447,000	48
Nainital	1.13	70,520	25
<b>Total</b>	<b>12.37</b>	<b>1,622,120</b>	<b>107</b>

Total area under cultivation and income in Garhwal and Kumaon region

Area	<b>24.15</b>
Income	<b>91,24,420</b>
Farmers income generated	<b>456</b>

### 3.1.1 Annexure -III

#### Capacity building and Skill development programs organized under NMHS project

S. No	District	Name of Block	Name of the Village/Tok	Date of training	No. of Participants
<b>Kumaon Region</b>					
1	Nainital	Okhalkanda	Jhadgaon Talla	20/11/2021	25
			Jhadgaon Malla	12-04-2021	30
			Jhadgaon Malla	14/06/2021	40
			Lohakham Krishak Swatya Sahkarita	24/08/2021	50
		Ramgarh	Mukteshwar	20/09/2021	66
			Trisha	20/09/2021	34
	<b>Total</b>				<b>245</b>
2	Pithoragarh	Dharchula	Chilmachilasho	21/01/2021	11
			Jaykote	21/01/2021	15
			Sirdang	21/01/2021	21
			Pashti	21/01/2021	13
			Balwakote	03-11-2021	15
	<b>Total</b>				<b>75</b>
3	Bageshwar	Kapkote	Cheerabagad	08-04-2021	40
			Toli	21-02-2023	32
					<b>72</b>
	<b>Sub Total</b>			<b>13</b>	<b>392</b>

<b>Garhwal Region</b>					
4	Chamoli	Dewal	Himani	11-07-2021	27
			Ghes	12-07-2021	56
	<b>Total</b>				<b>83</b>
5	Rudraprayag	Jakholi	Uroli	27-03-2022	16

			Ucchna	28-03-2022	5
	<b>Total</b>				<b>21</b>
6	Tehri	Bhilangna	Anthwalgaon	10-09-2021	14
		Kirtinagar	Dharpanyakoti	24-09-2021	72
			Pindi Gaon	25-09-2021	68
		Jakhnidhar	Sendul	21-01-2022	10
			Gangar	02-02-2022	45
			Silyara	13-08-2021	3
			Nauli	13-08-2021	8
			Sunerigaad	09-10-2022	32
			Kastal, Semalth	28-01-2023	28
	<b>Total</b>				<b>384</b>
	<b>Sub Total</b>			<b>12</b>	<b>392</b>
	<b>Grand Total</b>			<b>25</b>	<b>776</b>

GAP- PoP for Kapurkachri (*Hedychium spicatum* Ham.ex Smith)

1. Name of medicinal plant

a) Scientific name - *Hedychium spicatum* Ham.ex Smith (family- Zingiberaceae)

b) Pharmacopoeial name of the medicinal plant – Kapoorkachri/ Kapurkachri

c) Local name (specify language)

Hindi: Kapur kachri, Sitruti, Kachoor

Sanskrit: Gandhashati

Assamese: Katuri, Sati

Kashmiri: Kapurkachra

Punjabi: Kachoor, Khor

Gujrati: Kapurkachali

Telegu: Gandha Kachuralu

Bengali: Shati, Kachri

Malayalam: Katcholam

Tamil: Poolakhizhangu, Kicilikhizhangu

Marathi: Gabla kachari

Kannada: Gandhasati, Seenakachora, Kachora, Kacchura

Odiya: Gandha Sunthi

2. Part to be employed as the medicinal plant material (Description of the part of the plant used for medicinal purposes): Rhizomes and essential oil from rhizomes.

Its rhizomes have strong aromatic odour and bitter camphoraceous taste. Chips of the rhizomes are whitish, starchy, and fragrant within due to presence of essential oil. Rhizome bark is rough, reddish-brown with few deep-seated fibrous rootlets. It has high medicinal value as carminative, stomachic, expectorant, anti-asthmatic, antiseptic, and anti-inflammatory. It has insect repellent properties, and is also used as a dye and perfume.

3. Characteristics of the medicinal plant (Describe the agro-morphological characters including the key character following standard descriptors and descriptor state.)

# उच्चशिखरीय क्षेत्रों की एक महत्वपूर्ण औषधीय फसल: कूठ (साँस्सुरिया कॉस्टस (फाल्क.) लिप्शा.) उत्पादन एवं प्रसंस्करण तकनीक

डा० जे० एस० बुटोला<sup>1</sup>, डा० राजीव कुमार वशिष्ठ<sup>2</sup> एवं डा० नारायण सिंह<sup>2</sup>

<sup>1</sup>वानिकी एवं प्राकृतिक संसाधन विभाग, हे०न०ब० गढ़वाल विश्वविद्यालय, श्रीनगर गढ़वाल, उत्तराखण्ड  
<sup>2</sup>ह्यूमन (हिमालयन युनियन फॉर मैन एवं नेचर), श्रीकोट गंगानाली, श्रीनगर गढ़वाल, उत्तराखण्ड  
<sup>3</sup>टेरी (द एनर्जी एवं रिसोर्स इन्सटिट्यूट), सूपी, मुक्तेश्वर, नैनीताल, उत्तराखण्ड

पत्राचार के लिए: drbutolajs@gmail.com; 09456370562

आभार: हम नेशनल मिशन ऑन हिमालय स्टडीज, गो०ब० पन्त राष्ट्रीय हिमालयी पर्यावरण संस्थान, अल्मोड़ा का वित्तीय सहायता के लिए आभार प्रकट करते हैं।

## परिचय

वैज्ञानिक नाम	सस्सुरिया लापा (ऑकलेडिया लापा)
देशी नाम	कूठ, कुथ, कुटू
संस्कृत नाम	कुष्ठ
चाइनीज नाम	म्यु-जियांग, युन-म्यु-जियांग, ग्युआंग-म्यु-जियांग
व्यापारिक नाम	कुथ, कूठ, कॉस्टस
कुल	एस्टरेसी (तारक कुल)
वर्तमान स्थिति	दुर्लभ/संकटापन्न
शक्तिमत्ता	क्लीव, मधुर सुरभिगन्धी, स्वाद में कड़वा
प्रयुक्त होने वाले भाग	शिफास्तम्भ, जड़
अनुमानित मूल्य	रु० 300-350 प्रति किलोग्राम

## वानस्पतिक स्वरूप

कूठ 1.0-1.5 मीटर लम्बा, बहुवर्षीय, उदग्र शाक है। इसका तना दृढ़ तथा रेशेदार होता है, वृन्त लम्बा एवं किनारे पंखनुमा पत्तियां जालिकावत, लम्बी तथा पत्तियों की लम्बाई उचित कृषिकरण परिस्थितियों में 0.5 से 1 मीटर तक भी हो सकती है। पत्तों के डठल सपक्ष होते हैं। पत्तों के आधार पर दो पालि होती है जो पौधे के तने से लिपटी होती है। पुष्प लगभग 2 सेमी० लंबे, नीले-वैंगनी या काले रंग के होते हैं। और गोल पुष्प पुंजों के लगते हैं। इस प्रजाति के पुष्प एवं पुष्पक्रम के आधार पर ही अन्य प्रजाति आर्किटम लापा में विभेद किया जा सकता है। कूठ के बीजों पर बाल स्वरूप तन्तु होते हैं और गोलपुंज रुई के गोल सरीखे दिखते हैं। जड़ें मजबूत, गाजर सदृश, 40-60 सेमी. तक लम्बी एवं सुगन्धित होती हैं। इनमें लीसाभ (रेजिनायड), सुगन्धित तेल, क्षाराम, स्थिर रहने वाला तेल और कुछ अन्य गौण संघटक जैसे टैनिन और शर्करा होते हैं। जड़ों का रंग कटमैला, आकार सीधा मूसलाकार एवं लम्बाई 1 से 2 फुट तक सामान्यता होती है। जड़े ही इस पादप की मुख्यतः उपयोग किये जाने वाले पादप भाग हैं। वनौषधि बाजार में कूठ की सूखी जड़ें 2 से 4 इंच के टुकड़ों में उपलब्ध होती हैं। कूठ अन्तर्राष्ट्रीय बाजार में कॉस्टस के नाम से जाना जाता है, लेकिन इसका वानस्पतिक जीनस कास्टस से कोई सम्बन्ध नहीं है।

## प्राकृतिक आवास

यह पौधा हिमाद्री क्षेत्रों की जल धाराओं के किनारे नम स्थानों पर प्राकृतिक रूप में पाया जाता है। प्रकृति में दोहन तथा प्राकृतिक विनाश की वृद्धि से यह प्रजाति संकटापन्न घोषित की जा चुकी है। अतः भारत सरकार एवं साइटिस द्वारा भी इसके प्रकृति से विदोहन पर पूर्णतः पाबन्दी घोषित की जा चुकी है। यह कश्मीर में किशनगंगा और चिनाब घाटियों में पाया जाने





**Training Programme on Oregano Farming from District Tehri**



**3.1.2 Cultivation of Oregano in open fields**



**Kutki Production in Ghes, Dewal, District Chamoli**



**Grinding & Chip Making Machine**



**Multipurpose Food Processing Machine**



**Solar Dryer**



**Drying of Oregano Leaves under Solar room**



### 3.2 Drying of Kuth Roots



**Processing of Kutki**



**Dried Roots of Kutki**



**Grading and Sorting Unit for Herbal Raw Materials**





Dry Leaves of Oregano and Dandelion



Herbal Tea



**Roots Dry Powder**

**Value Added Products from Different Species**



### 3.3 Kapookachri Cultivation at District Bageshwar



### Kutki Cultivation at District Bageshwar and Pithoragarh District



**Villagers Meeting at Block Dharchula, District, Pithoragarh**



**Farmer Training Program at TERI, Latybunga District Nainital**



**Direct Purchase of Oregano from Farmers Mukteshwar, Nainital, Uttarakhand**



**Stakeholder Meet and Exposure to Kumaon Vani Community Radio**



Promotion of NMHS Project Activities through Kumaon Vani Community Radio



NABARD Officers Visit at TRISHA Mukteshwar to know about NMHS Project Activities



### 3.3.1 TERI's Oregano Products under NMHS Project

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