

Template/Pro forma for Submission

NMHS-FINAL TECHNICAL REPORT (FTR)
Demand-Driven Action Research Project Grant

NMHS Reference No.: NMHS/2015-16/SG16/05

Date of Submission:	0	3	0	7	2	0	2	0
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PROJECT TITLE (IN CAPITAL)

**PROMOTING OF HIGH VALUE-LOW VOLUME CROPS BASED
ENTERPRISES IN HIGHER HIMALAYAS OF UTTARAKHAND**

Project Duration: from (01.04.2017) to (31.03.2020).

Submitted to:

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NMHS-Final Technical Report (FTR) template
Demand-Driven Action Research Project

DSL: Date of Sanction Letter

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d	d	m	m	y	y	y	y

DPC: Date of Project Completion

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Part A: Project Summary Report

1. Project Description

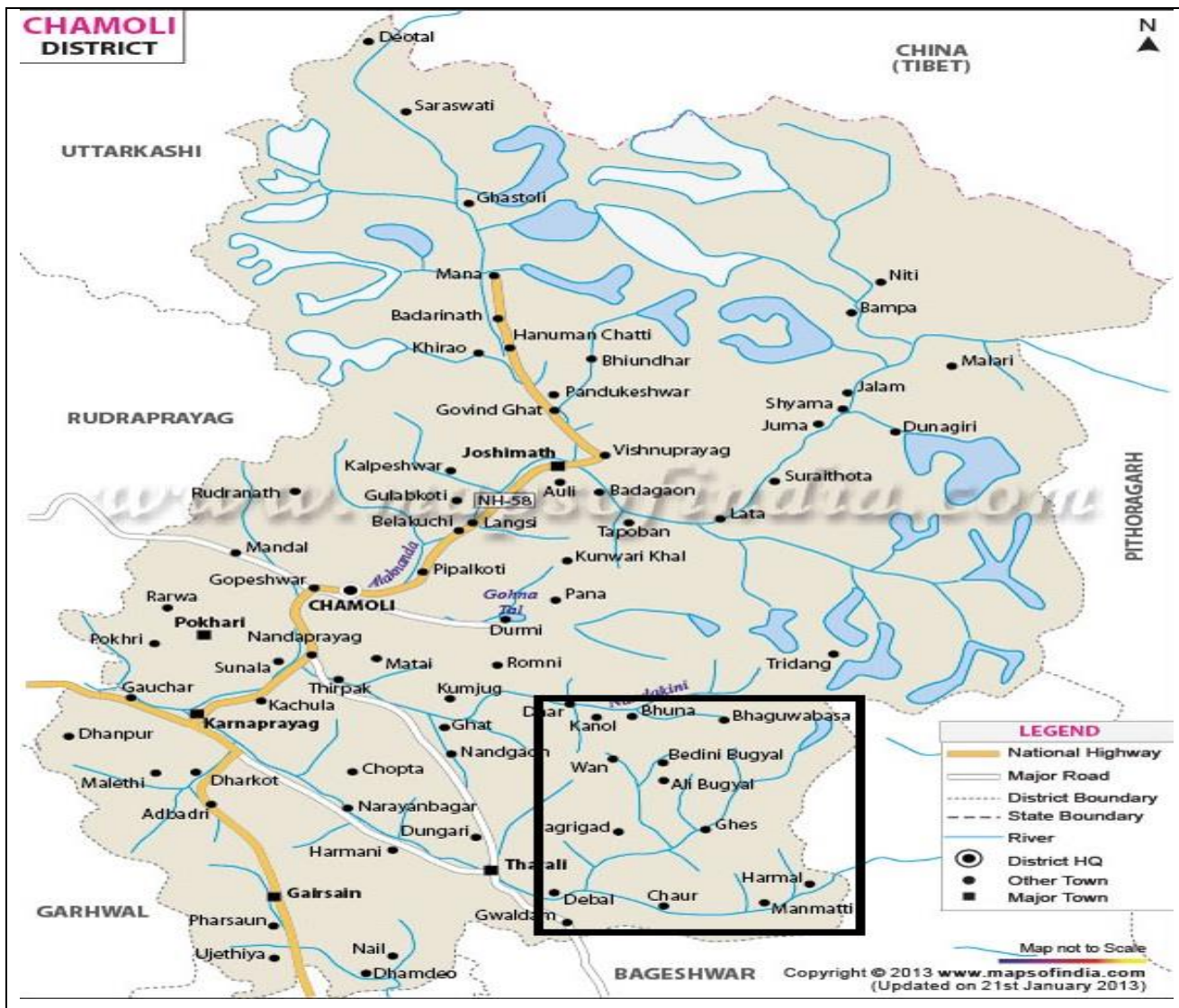
i.	Project Reference No.	NMHS/2015-16/SG16/05		
ii.	Type of Project	Small Grant	Medium Grant	Large Grant
iii.	Project Title	Promotion of High Value-Low volume crops based enterprises in Higher Himalayas of Uttarakhand		
iv.	State under which Project is Sanctioned	Banduri, Devsthali, Malla, Kail, Gwela, Haat-Kalyani, Mundoli, Sawad - 8 revenue villages in 5 Gram Panchayats of Dewal Block of Chamoli district in Uttarakhand		
v.	Project Sites (IHR States covered) (Maps to be attached)	Dewal block in Chamoli district of Uttarakhand in India For Map see overleaf		
vi.	Scale of Project Operation	Local	Regional	Pan-Himalayan
vii.	Total Budget/ Outlay of the Project	Rs 27,94,200.00 (in Lakh)		
viii.	Lead Agency	Society for Integrated Management of All Resources Village- Haat Kalyani, Post Office: Dewal Uttarakhand		
	Principal Investigator (PI)	B.M. Kandpal		
	Co-Principal Investigator (Co-PI)	N/A		
ix.	Project Implementing Partners	N/A		
	Key Persons / Point of Contacts with Contact Details, Ph. No, E-mail	B.M. Kandpal 9412034447 kandpalbm@gmail.com		

2. Project Outcome

2.1. Abstract (not more than 500 words)

Background: SIMAR, in 2007, conducted a study on “Contribution of sub-alpine and alpine pastures in ecology and economy of higher Himalayan regions of Uttarakhand”, which revealed vast potential for diversification of livelihood options so as to wean people away from low value-high volume cash crops to high value-low volume cash crops.

Objectives/ Aim: “Promote high value-low volume cash crops so as to diversify livelihood enterprises leading to strengthening of the livelihoods of farming communities of remote / marginalized villages of Dewal block of Chamoli district of Uttarakhand.”



Methodology

- Feasibility studies and business planning
- Mobilize women producer community through vocational trainings
- Building up of entrepreneurs and service providers
- Delivery of Agri-Business Development Services
- Build competency of Lakshya Cooperative

Approach

The project was built upon “value chain upgrading” and “economy of scope”

Results

The three year project has successfully trained 1300+ producers out of which 300+ farmers were engaged in cultivation of Kutki (*Picrorhiza kurroa*), kapur Kachri (*Hedychium spicatum*), Tagar (*Valeriana jatamansi*), Rosemary (*Salvia Rosmarinus*), Tulsi (*Ocimum tenuiflorum*) in 11.85 hectare area. Cumulative production of the four crops is estimated to be about 20 tonne of dry roots and green herbage worth Rs 46 to 68 lakh that would fetch an average income of Rs 45 to 68 Thousand per annum per farmer. Project has successfully demonstrated that medicinal and aromatic plants promoted in the project were **Socially acceptable**,

Technically feasible, Economically viable, Environment and industry friendly. The project has effectively shown that medicinal plants under the aegis of MGNREGA could effectively be used to rejuvenate cultivable wastelands and thus create livelihood asset.

Conclusion

- Any medicinal plants project targeting livelihood promotion shall focus on promotion of a judicious mix of 10 to 20 medicinal plants to diversify risk in high return but high gestation crops and better negotiate market dynamics.
- Marketing strategy based on sound market research shall be in place before the project starts cultivation of medicinal plants.
- Establishment of village and cluster level processing units is must during the project life itself so as to effectively negotiate with market dynamics and achieve economy of scale in time bound manner.
- To achieve economy of scale villages, farmers and production sites shall be selected in same geographical cluster and route.
- The good agricultural practices for medicinal plants shall be field validated, customized and documented in form of training manuals.
- Farmer's led institution need to be strengthened to negotiate with market dynamics to climb up the value chain

Recommendations

- Medicinal plants will become sustainable livelihood option for farmers and their collectives only if it is seen from market led approach that focus on improving the rural-tribal poor and women access to markets and seeks ways to effectively increase the market share of the rural poor and improve the terms of trades in which they participate in markets, achieve greater market access at national, regional and international levels.
- Medicinal plants which are wild life resistant, require less monetary and labour investment with good market demand and better price realization are very effective platform to utilize marginal and cultivable wastelands.

2.2. Objective-wise Major Achievements

No.	Objectives	Major achievements (in bullets points)
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1	Enhance the income of 100 producers through farm based enterprises.	<p>300+ farmers are now intensively engaged in cultivation of Kutki, Kapur Kachri, Rosemary and Tulsi in 11.85 hectare area.</p> <p>Cumulative production of the four crops is estimated to be about 20 tonne of dry roots and green herbage worth Rs 46 to 68 lakh</p> <p>Average income per farmer would be Rs 45 to 68 Thousand per annum</p> <p>Dovetailing with MNREGA was facilitated in 6 revenue villages which generated 540 man days of employment and helped to rejuvenate 3 hectare of cultivable wasteland for cultivation of medicinal plants</p> <p>156 farmers of 5 revenue have been registered with HRDI</p> <p>Trials conducted to establish herbal nursery of Saffron, Chamomile, Ashwagandha, Akarkara, Milk thistle and Shatawar</p>
2	Build knowledge, Attitude and skills of 200 producers to manage farm based enterprises	<p>Out of 1322 farmers sensitized and trained to adopt cultivation of medicinal plants</p> <p>Two block level workshops organized where more than 200 farmers shared their learning and experiences to scale up production of medicinal plants</p> <p>30 farmers participated in exposure cum study tour to HAPPRC, TERI, CIMAP, Dabur</p> <p>4 service providers imparted training for agronomic practices, primary value addition and usage of Tulsi, Rosemary, Kapoor Kachri and Kutki.</p>
3	Build capacity of Lakshya Cooperative to operate and manage farm based enterprises	<p>Regular monthly meetings with board members conducted to plan, track and review the business and statutory compliance</p> <p>Average turnover in last 3 financial years was Rs 14 Lakh. About 35% of revenue has been contributed by medicinal plants through supply of planting material, procurement and sale of medicinal plants</p> <p>Distributed micro-loan worth Rs 1,20,00 to 7 women SHG members</p>

2.3. Outputs in terms of Quantifiable Deliverables*

No.	Quantifiable Deliverables*	Monitoring Indicators*	Quantified Output/ Outcome achieved	Deviations made, if any, and Reason thereof:
1.	No of producers engaged in production	At least 60% of trained women (1000) are able to increase their income by at least 25% from	About 1322 farmers trained on medicinal plants production but only 323 farmers i.e. 33% against the target could increase their income from medicinal plants cultivation	Lack of budget and poor dovetailing with MNREGA and HRDI to

		the baseline income-2013		access quality planting material hampered the scaling up of medicinal plants with 600 farmers
2.	Quantum of inputs sold to improve the crop yields	Productivity of all targeted crops enhanced by 20% from the baseline production level	About 6 hectare out of 11.85 hectare land brought under 4 medicinal plants Kutki, Kapur Kachri, Rosemary and Tulsi were marginal and cultivable wastelands.	
		At least 25% of targeted inputs are sourced and distributed	Quality planting material was arranged for 4 medicinal plants Kutki, Kapur Kachri, Rosemary and Tulsi for 11.85 hectare of area	
3.	Quantum of farm produce aggregated & marketed (Qtl)	Sale Price of crops increases by at least 20% from the conventional sales	Per nail average sale of Medicinal plants has fetched more than 200 % higher rates (Rs. 2,500) than conventional crops of same area (Rs. 1,200)	
		At least 25% of targeted sales achieved	1876 kg of Tulsi, 2000 kg of Kapoor Kachri, 64 kg of Rosemary was sold to market	
4.	Quantum of farm produce value added (Qtl)	Sale Price of crops increases by at least 20% from the conventional sales	Per nail average sale of Medicinal plants has fetched more than 200 % higher rates (Rs. 2,500) than conventional crops of same area (Rs. 1,200)	
		At least 25% of targeted quantity is added value	1876 kg of Tulsi, 2000 kg of Kapoor Kachri,76 kg of Rosemary was dried, packed and sold to market as value added product	
5.	Women producers to be imparted GMTs (No)	At least 90% of women (1000) attend GMTs	1322 women attended GMTs	
6.	Women	At least 90% of target	1322 women attended SETs	

	producers to be imparted SETs for products and services (No)	1000 women attend SETs		
		Productivity of all targeted crops enhanced by 20% from the baseline production level	About 6 hectare out of 11.85 hectare land brought under 4 medicinal plants Kutki, Kapur Kachri, Rosemary and Tulsi were marginal and cultivable wastelands.	
7.	Working Capital for Lakshya Cooperative (Rs)	At least 50% of funds for working capital target of 20 Lakhs arranged	Rs.12 lakh arranged for working capital of cooperative	
8.	Credit disbursed worth Rs 5 Lakh	At least 25% of women producers are disbursed cheap loans worth Rs 5 Lakh	Rs. 1.2 lakh of loan disbursed to 7 women cooperative members	
		At least 50% of loan are being utilised for agril investments	Rs. 74000 thousand of loan disbursed has been utilised for agri based operations	

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

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

No.	Particulars	Number and Brief Details	Details of Attachment/ Supporting Document
1.	New Methodology developed:	No	
2.	New Models/ Process/ Strategy developed:	Rejuvenation of 3 hectare cultivable wastelands in 6 revenue villages to grow medicinal plants under MGNREGA	Appendix 1
3.	New Species identified:	No	
4.	New Database established:	No	
5.	New Patent, if any:	No	
	I. Filed (Indian/ International)		
	II. Granted (Indian/ International)		
	III. Technology Transfer(if any)		

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

No.	Linkages /collaborations	Details	No. of Publications/ Events Held	Beneficiaries
1.	Sustainable Development Goal (SDG)	Project achievements align with Goal 1. No Poverty Goal 2. Zero Hunger Goal 5. Gender equality Goal 8: Decent work and economic growth Goal 15: Life on land;	Trainings, handholding support, market linkages and dovetailing with MNREGA	Out of 1322 farmers trained 300+ farmers adopted medicinal Plants on 11.85 hectare area as an additional and new cash crops thereby increasing the income by more than 50%.
2.	Climate Change/INDC targets			
3.	International Commitments			
4.	Bilateral engagements			
5.	National Policies	Flagship scheme MGNREGA (rural employment guarantee) leveraged for rejuvenation of 3 hectare cultivable wastelands in 6 revenue villages to grow medicinal plants and thereby creating long term livelihood assets		540 man days of employment in 6 revenue villages
6.	Others collaborations			

7. Project Stakeholders/ Beneficiaries and Impacts

No.	Stakeholders	Support Activities	Impacts
1.	Gram Panchayats	MGNREGA Khulli Baithak medicinal plants cultivation Recommendations	MGNREGA works on wastelands for medicinal plants cultivation 540 Person days of labor generated worth Rs.97200
2.	Govt Departments (Agriculture/ Forest)	Field visits by Forest Department and HRDI Meeting and Training by HRDI and Forest Departments on medicinal plants	Registration of Medicinal plants farmers Plant saplings support and distribution by HRDI encouraging 25 farmers for Kutki Cultivation

3.	Villagers	Meetings, trainings, field visits at critical crop stages medicinal plants cultivation	40 meetings and trainings conducted with 17 revenue villages 11.85 ha land brought under cultivation of medicinal plants
4.	SC Community	Same as above	53 farmers adopted medicinal plants cultivation
5.	ST Community		
6.	Women Group	34 meetings and awareness regarding medicinal plants cultivation held with support of women SHG groups	300+ farmers are now intensively engaged in cultivation of Kutki, Kapur Kachri, Rosemary and Tulsi in 11.85 hectare area. Cumulative production of the four crops is estimated to be about 20 tonne of dry roots and green herbage worth Rs 46 to 68 lakh Average income per farmer would be Rs 45 to 68 Thousand per annum
	Others (if any)		

8. Financial Summary (Cumulative)

S. No.	Financial Position/Budget Head	Funds Received	Expenditure/ Utilized	% of Total cost
I.	Salaries/Manpower cost	6,09,000.00	6,29,536.00	103.37
II.	Travel	2,08,800.00	2,16,528.00	103.70
III.	Expendables & Consumables	NIL	NIL	NIL
IV.	Contingencies	1,27,328.00	1,50,288.00	118.03
V.	Activities & Other Project cost	17,31,925.00	17,98,976.00	103.87
VI.	Institutional Charges	NIL	NIL	NIL
VII.	Equipments	NIL	NIL	NIL
	Total	26,77,053.00	27,95,328.00	104.42
	Interest earned	31,522.00		
	Grand Total	27,08,575.00		

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

9. Major Equipment/ Peripherals Procured under the Project** (if any)

S. No.	Name of Equipment	Cost (INR)	Utilisation of the Equipment after project
1.	One Dryer (5*2 "fit (70 kg Iron) with 4 Trey	6,391	Locally manufactured and used for drying of green herbage of tulsi, rosemary, lemongrass
2.	One Laptop (HP)	24,500	Used for documentation and communication

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

10. Quantification of Overall Project Progress

No.	Parameters	Total (Numeric)	Details of Attachments/ Supporting Documents
1.	IHR States Covered	1	Uttarakhand
2.	Project Site/ Field Stations Developed	1	Dewal block in Chamoli district
3.	New Methods/ Modeling Developed	1	Medicinal plants cultivation in cultivable wastelands
4.	No. of Trainings arranged	59	Village level
5.	No of beneficiaries attended trainings	1832	17 revenue villages
6.	Scientific Manpower Developed (Phd/M.Sc./JRF/SRF/ RA):	NA	
7.	SC stakeholders benefited	53	
8.	ST stakeholders benefited	0	
9.	Women Empowered	1322	Women trained
10.	No of Workshops Arranged along with level of participation	2	Block level
11.	On-field Demonstration Models initiated	50	Crop demonstrations in Kutki, Kapur Kachri, Tagar, Rosemary, Saffron, Milk thistle, Mint, lemon grass (Appendix 3 and 5)
12.	Livelihood Options promoted	1	Medicinal plants cultivation using marginal and cultivable wastelands (Appendix 3 and 5)
13.	Technical/ Training Manuals prepared	1	
14.	Processing Units established	1	AT SIMAR Office in Dewal
15.	No of Species Collected	4	Kutki, Kapur Kachri, Rosemary, Tulsi
16.	New Species identified	N/A	
17.	New Database generated (Types):	N/A	
	Others (if any)		

11. Knowledge Products (KPs) and Publications

No.	Knowledge Products (KPs)/ Publication	Number		Total Impact Factor	Remarks/ Enclosures
		National	International		
1.	Journal Research Articles/ Special Issue:	NA			
2.	Book Chapter(s)/ Books:	NA			
3.	Technical Reports	NA			

No.	Knowledge Products (KPs)/ Publication	Number		Total Impact Factor	Remarks/ Enclosures
		National	International		
4.	Training Manual (Skill Development/ Capacity Building) for Crops;Kutki, Kapur Kachri, Tagar, Rosemary, Tulsi, Lemon grass, mint etc	5		Shared with 1300+ farmers	Manuals were used as training tool at village level meetings and block level workshop (Appendix 3 and 5)
5.	Papers presented in Conferences/Seminars	2			PPTs presented in NMHS Monitoring workshop
6.	Policy Drafts/Papers	NA			
7.	Others:				

*Please append the list of KPs/ publications (with impact factor and further details) with due Acknowledgement to NMHS.

12.1. Success Model(s)/ Best Practice(s) under the Project:

Parameters	Description	Supporting documents
(1) Adaptability of the Technology:	Good Agricultural practices for Kutki, Kapur Kachri, Tagar, Rosemary, Tulsi were collected from relevant institutions (HRDI, HAPPRC, CIMAP, TERI) and validated at farmers field in different slope aspects, soil type and altitude. These were documented in form of training manuals.	Training manuals and SoPs (Appendix 3 and 5)
(2) Acceptability (interest of the local people):	Farming community especially women showed keen interest to try out medicinal plants as these were wild life resistant, required less monetary and labour investment and had market demand. This resulted in adoption of crops by 300+ farmers in 11.85 hectare area	Appendix 1
(3) Improvement in Ecological Variables:	The project helped to rejuvenate 3 hectare cultivable wastelands and utilise 3 hectare of marginal lands in 17 revenue villages to grow medicinal plants and thereby creating long term livelihood assets	Appendix 1
(4) Baseline Data and Comparison with the Controlled Data:		
(5) Outcomes of the Scientific Publications, Knowledge Products:	Trainings manuals extensively used for sensitization of farmers to grow medicinal plants	Appendix 3 and 5

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

Particulars	Recommendations
<p>Utility of the Project Findings:</p>	<p>The description in Section 4, 5, 6 above suggests that promotion and strengthening of medicinal and aromatic plants has positive influence on the following;</p> <ul style="list-style-type: none"> • Developing an alternate farm based sustainable and environment friendly livelihood base • Rejuvenation of cultivable wastelands leveraging government schemes such as MGNREGA • Conservation of wild habitats against extraction of medicinal plants • Economy of scale and scope in coming years will be addressed systematically thereby holding potential to generate significant income and motivating youth to adopt the crops and thus prevent migration. • The women led cooperative ensured and will ensure in coming years that the income from sale of these crops go to the hand of women thereby helping her to have and access and control the cash leading to better decision making space in the family. • Alignment with SDGs: The value chain development interventions for medicinal and aromatic plants are in complete sync to achieve the SDGs Goal 1. No poverty, Goal 2. Zero Hunger, Goal 5. Gender Equality, Goal 8. Decent work and economic growth and Goal 15. Life on land.
<p>Replicability of Project:</p>	<p>The approach and strategy adopted in the project to promote and strengthen Medicinal and aromatic plants value chain is highly replicable, albeit with some customizations keeping in view the socio-cultural and economic aspects of the region, in all the physiographic zones of Uttarakhand as well as Indian Himalayan range. Nonetheless, the projects or programs may keep following mechanisms in place;</p> <ul style="list-style-type: none"> • Due diligence of implementing partners or consortium • Scoping and diagnostic studies may be conducted to design, customize and execute project interventions to screen and select suitable Medicinal plants, competent implementing agencies and compatible government programs, • Preparation of Value chain development business plan The information generated from above studies shall be used for preparation of a short (3 year), medium (5years) and long term (10 years) business plan that detail out interventions mentioned below. • Building capacity of grassroot stakeholders for productivity enhancement, achieving economy of scale and scope to ensure financial viability, better operational margins and better negotiation skills to ensure sustainability of the systems and processes created to strengthen Medicinal and Aromatic Plants Value Chain. • Promote Cultivation of Medicinal plants through women farmers and their institutions • Establish and manage village and cluster level processing unit of Medicinal plants • Market Linkages and marketing; To diversify the risk in marketing linkages may be made with multiple market players at various locations such as Dabur, Emami, Patanjali, Zandu etc for assured markets • Convergence and dovetailing with government schemes • Strengthen Knowledge management system; Looking at the geographical spread, nature of pro-poor value chain and diverse type of stakeholder Information and communication technology (ICT) based system may be designed to help key stakeholders to take suitable programmatic and business decisions.

Exit Strategy:	<p>SIMAR will continue to implement the learning and experiences mentioned below to strengthen the medicinal plants value chain to improve the quality of life of the farming community and economically empower women;</p> <ul style="list-style-type: none"> • Medicinal plants will become sustainable livelihood option for farmers and their collectives only if it is seen from market led approach that focus on improving the rural-tribal poor and women access to markets and seeks ways to effectively increase the market share of the rural poor and improve the terms of trades in which they participate in markets, achieve greater market access at national, regional and international levels. The Medicinal plants market is driven both by economy of scale ad scope. Hence, the producer and supplier who have multiple Medicinal plants will be in better position to engage multiple buyers. • Any medicinal plants project targeting livelihood promotion shall focus on promotion of a judicious mix of 10 to 20 medicinal plants to diversify risk in high return but high gestation crops, better negotiate market dynamics (that prefer vendors/suppliers who deal in multiple medicinal plants) and capture significant market share. These crops shall be selected on the basis of economic viability (market demand, prices, and returns), technical feasibility (suitability to the agro-climate) and their social acceptability (wild life resistance, less monetary and labour investment). • Medicinal plants which are wild life resistant, require less monetary and labour investment with good market demand and better price realization are very effective platform to utilize marginal and cultivable wastelands by dovetailing with MNREGA (for land preparation) and HRDI, HAPPRC & CIMAP(for quality planting materials). • Marketing strategy based on sound market research shall be in place before the project starts cultivation of Medicinal plants. • To achieve economy of scale villages, farmers and production sites shall be selected in same geographical cluster and route with better proximity to each other. • The good agricultural practices for medicinal plants shall be field validated and documented in form of training manuals so that they can be customized for similar agro-micro-climatic zones in high altitude regions of Uttarakhand. • Establishment of village level collection centre and cluster level processing units are must during the project life itself so as to effectively negotiate with market dynamics and achieve economy of scale in time bound manner. • Farmer's led institution need to be strengthened to achieve economy of scale in production, dovetailing with government schemes, understand and negotiate with market dynamics and players to climb up the value chain • It will be very important to ensure that farmers collective are able to manage and run systems and processes that help in track and trace the source of planting material used for cultivation of herbs. This will help farmers to compete and better negotiate with market dynamics and tap export market.
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(PROJECT PROPONENT/ COORDINATOR)

(Signed and Stamped)

(HEAD OF THE INSTITUTION)

(Signed and Stamped)

Place: Shantipuri

Date: 03/07/2020