

Annual Report 2020-21



Heading towards food security, socio-economic security and promotion of rural livelihood for sustainable development of mountain community

LIST OF CONTENTS

Message from the Secretary’s desk	3
CORE VALUE OF HARC	4
ABOUT HARC	5
AREAS OF OUR INTERVENTION	6
OUR REACH	6
HARC BY NUMBERS	7
ANNUAL OVERVIEW	8
OUR PROJECTS	8
Integrated Agriculture Development For Food And Economic Security Of Remote Villages In Pindar Valley (THF-IVDP, Bageshwar).....	10
Promoting Livelihoods By Innovation In Temperate Horticulture Crops In Garhwal And Kumaun Regions Of Uttarakhand.....	16
Uttarakhand Cooperative Development Project (UKCDP)- Cooperative cluster farming.....	21
Promoting livelihood by flower cultivation and marketing with 200 farmers of Kalsi block of district Dehradun.....	25
Livelihood Enhancement for Mountain Rural Women farmers through value chain promotion of selected crops. (Basil, Rosemary & Chamomile) in Uttarakhand.....	29
Partner for Resilience (PFR).....	32
Uttarakhand Forest Resource Management Project (UFRMP).....	35
Monitoring and Evaluation of the work executed under Centre sponsored scheme “forest fire preventions and management - 2019-20.....	38
HARC INITIATIVES AGAINST COVID-19	39
GOVERNING BODY	41
OUR MEMBERSHIP AT STATE AND NATIONAL LEVEL	44
KNOWLEDGE PARTNERS	45
OUR LEGAL STATUS	45
BALANCE SHEET	46

Message from the Secretary's desk



Dear all

2020-21 was extremely exhausting year for entire world and emerged as the nightmare for every individual. COVID -19 crises not only affected the entire process but also led to restriction in field activity and in- person meetings and trainings.

Under such circumstances we focused more on learning, revaluation, scientific strengthening, challenges, regional ownership and our accountability among various stakeholders. In spite of the hard situation HARC continued its efforts towards introducing and developing transformative approaches for betterment of rural marginal settlements of Uttarakhand. Under these circumstances, I hope that our collective and individual efforts to stand against pandemic crises will allow us the courage and motivation to build back better. This year also we tried to focus on knowledge gaps more through digital media by strengthening the capabilities of the marginal farmers and livelihood collectives for sustainable approach. In future more efforts will be made for sustaining livelihood and reverse migration in hilly terrain by developing self reliant community

Dr. Mahendra Singh Kunwar
Secretary and Chief Functionary
Himalayan Action Research Centre

CORE VALUE OF HARC

VISION

- *Holistic, integrated and sustainable development of the mountain people based on their cultural values, traditions and resources.*
- *Empowering poor people to take their development decisions themselves and build a stable society that is free of social, economic and gender inequity.*

MISSION

- *To create and empower community based organizations and institutions, which may provide a collective voice to the people ensuring that the developmental plans and policies are sustainable and people oriented.*
- *To regenerate the local eco-system and restore the environmental balance with the help of the local people*

APPROACH

- *Livelihood Promotion through Self Help Approach*
- *Promoting Good Governance*
- *Institution Building and strengthening*
- *Enterprise development and market linkage*



ABOUT HARC

Himalayan Action Research Centre (HARC) has been serving the cause of people-centered, people-managed and people-owned development process. It was established in 1988 with the mission of *“Empowering Human Resources of the Himalayan Region to Sustain the Development Process”*.

We firmly believe that sustainable development and good governance can be ensured only by active and effective involvement of the local community, irrespective of caste, class or gender.

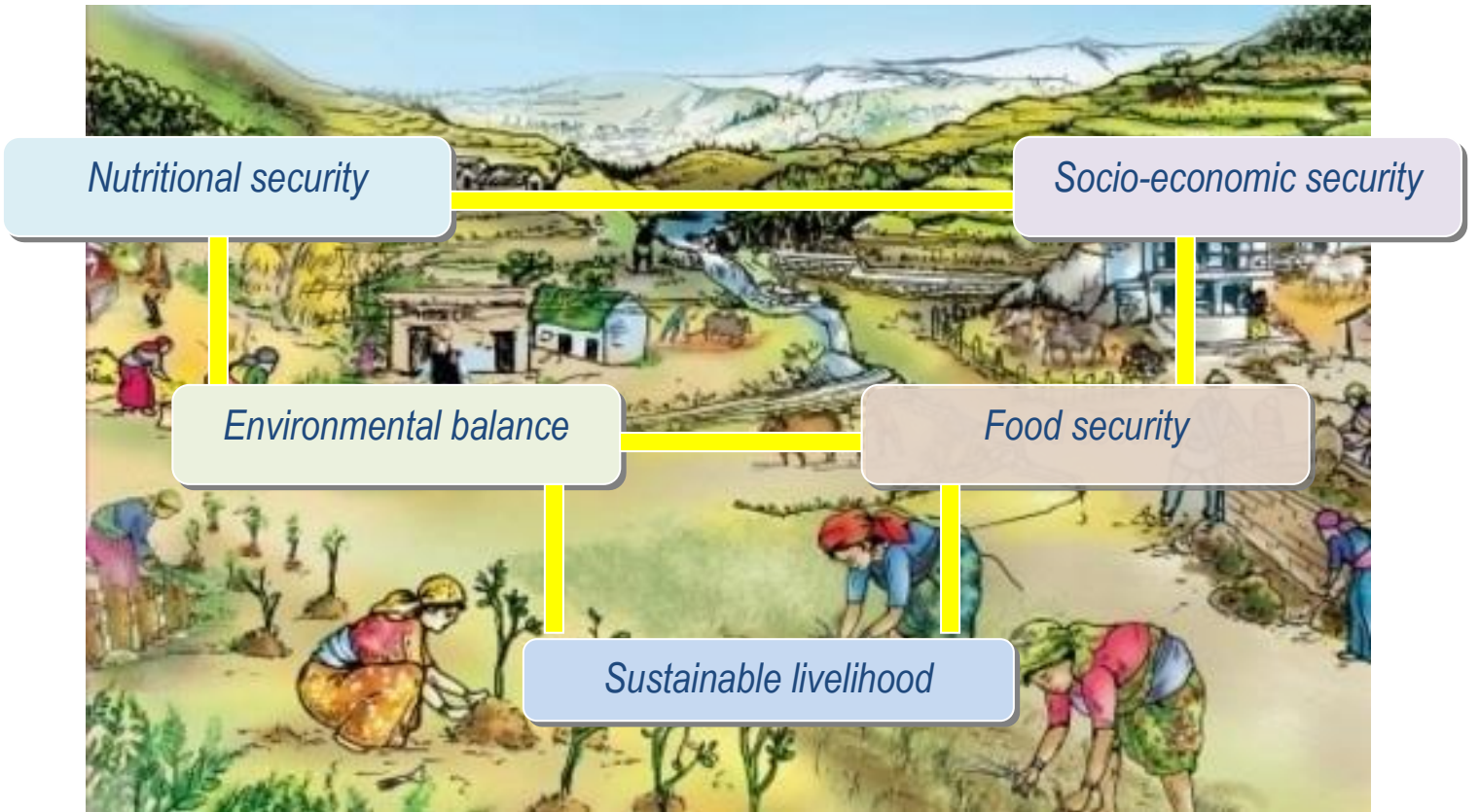
HARC is working effectively in almost all districts of Uttarakhand since 32 years, for sustainable livelihood of the mountain marginal community. The core objective of the organization is to ensure food security, economic security and social security of rural people by promoting agri/horti based business activities and facilitating the market linkages. Focusing on Sustainable Development Goals (SDGs), HARC has successfully promoted and strengthened more than 35+ producer’s organizations to successfully produce and market diverse products like staple crops, fruits, vegetables and value added products ensuring zero hunger and no poverty. Through association with these institutions, more than 50,000 growers (directly & indirectly) are capable of earning their own livelihood and have proper food security. HARC by social inclusion has promoted & supported more than 5000 self help groups for livelihood promotion and build capacity of 45,000 Panchayati Raj Representatives by involving 70 civil Society Organizations

To mitigate the adverse effects of climate change, HARC has introduced diversification of the crops, inclusion of scientific knowledge, several technical interventions in agricultural/horticultural operations and also created awareness among the farming community towards better package of practices. HARC continuously supporting marginal farmers of Uttarakhand in development of skills and capacities on crop management, harvesting, grading, sorting, aggregation, logistic, certification, branding, product development, e-commerce, market linkages and business plan.

We strongly believe that livelihood based collective approach with eco-friendly scientific practices can mitigate the adverse effect of climate change assuring conservation in biodiversity as well as reducing the migration in mountains.

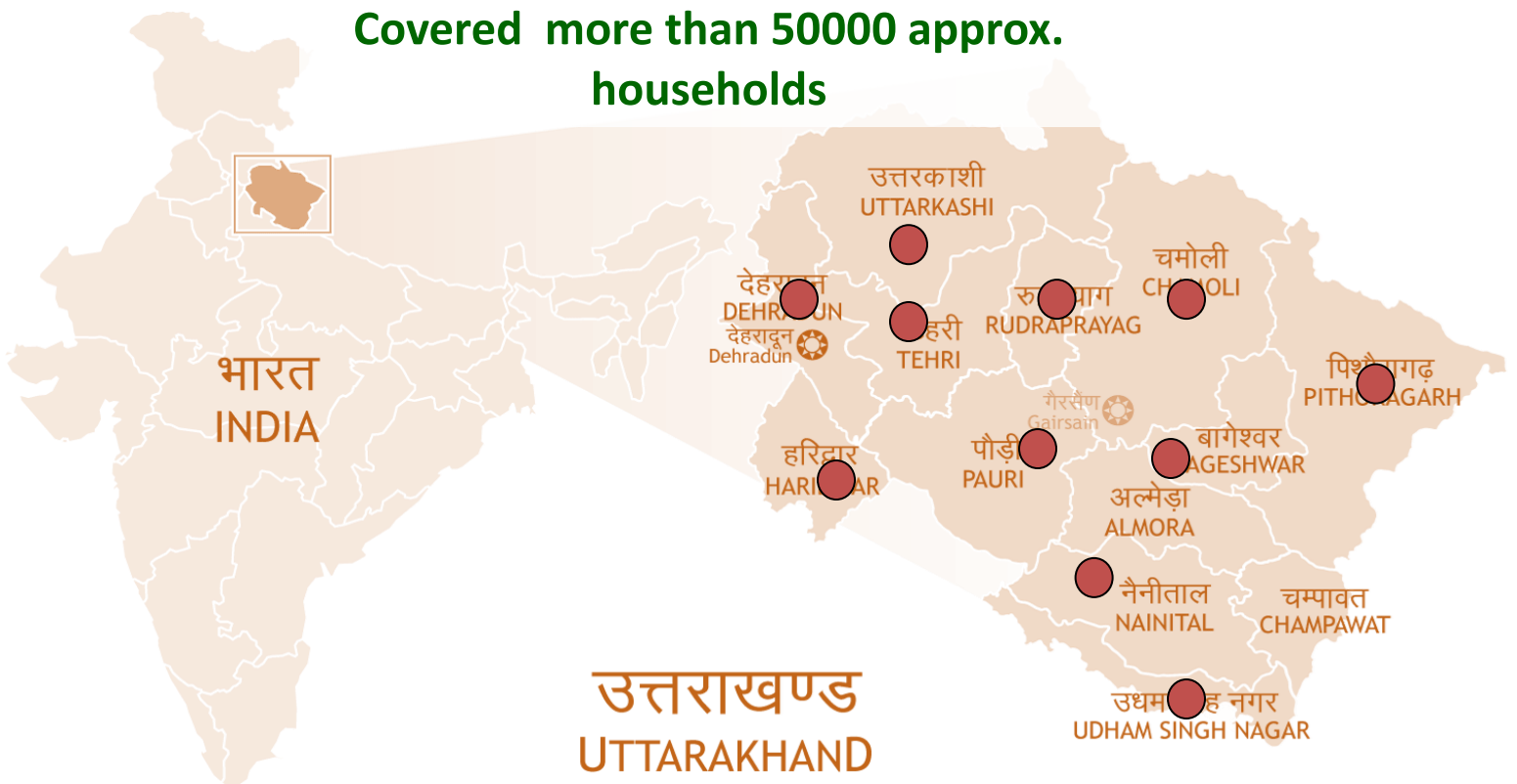


AREAS OF OUR INTERVENTION



OUR REACH

Covered more than 50000 approx. households



HARC BY NUMBERS

Horti- based Demonstration with **3221** Farmers of Uttarakhand

Knowledge building of more than **8729** farmers

More than **11,000** apple plants were provided to farmers

1 research paper published in Special edition of Current Science Journal

More than **237** Awareness generation activities held

43 IEC and knowledge material developed

ANNUAL OVERVIEW

HARC is promoting climate resilient green technologies for sustaining mountain livelihood. Such adaptation was promoted through various actions that were targeted for developing eco-friendly sustainable approach assuring food and economic security of poor and marginal farmers.

In continuity this year also HARC has put efforts in promoting and adapting eco friendly agriculture practices for climate change adaptation by promoting improved climate resilient varieties of horti/agri crops and eco-friendly techniques, improving soil health, irrigation practices and deriving value added products from local produce involving women cooperatives. Keeping the trends of erratic behavior of climate change in perspective, it is equally important to enhance knowledge and skills of the marginal farmers so that they can courageously adapt against the fluctuating nature of climate. Action research that increased households' incomes with their adoption of climate resilient technologies, and enhanced abilities of community groups in managing their resources, harnessing funds from local agencies, and forging business partnerships. We focused on amplifying positive change through improved human and institutional capacity. Our ongoing work to mobilize farmers and ensure their participation in the development of organic farming at a commercial scale strengthens institutions such as FIGs, cooperatives, Self help groups, producers groups and public-private partnerships to improve access to finance and market. We continue to focus on a supportive policy environment for aggregation, branding, investment, and market development and to promote public-private partnerships for socially responsible production and benefit sharing with local communities.

When whole world was fighting with the brutal pandemic, HARC also gave its little contribution to society for coping with the fatal corona virus.

OUR PROJECTS





INTEGRATED AGRICULTURE DEVELOPMENT FOR FOOD AND ECONOMIC SECURITY OF REMOTE VILLAGES IN PINDAR VALLEY (THF-IVDP, BAGESHWAR)

PROJECT BACKGROUND

Villagers of Pindar valley of Kapkot block have farming as their primary economic activity that has a major contribution in the overall economy of the village. Topographically, project area is characterized by hilly terrain, rugged mountains, valleys, high peaks and rivulets lined with scattered habitations. Limited availability of cultivatable land, low productivity, and poor condition of roads are the major drawbacks of the area, which are

restricting the development of agriculture. These factors along with other regional limitations like short agricultural season, low temperatures, high altitude and perpetual problem of soil erosion caused by steep gradients are the major inhibitors to growth of agriculture in the area. The main crops grown as Kharif crops are paddy, small millets and potato, while to addressing existing constraints and resolved it through integrated agriculture development approach, project intervention is being carried out in seven selected villages i.e. Khati a Waccham, Sorag, Dola, Teek, Kilpara & Badiyakot of Pindar valley, as a cluster these villages are located within a radius of 2 to 18 kms. Under project intervention major thrust on improved

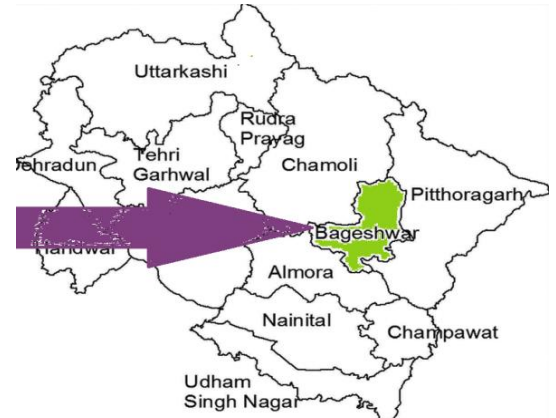
horticulture and transformation of best agriculture practices e.g.- fields preparation, Manuring, irrigation, Nursery management, insect-pest & disease Management, promotions of protected cultivations through introducing poly houses, introduction of low cost vermin bed, introduced improved varieties of vegetable crops and strengthen the capacity of farmers to adapt climate resilience practices are other major interventions to improve existing agriculture system. The project further aims to approach these technical Interventions through the incorporation of cluster/group level approach (through Formation/strengthening of Producers Groups (PGs) & Cooperative and market led interventions so that farmers would able to sustain their livelihood.



GEOGRAPHICAL COVERAGE:

Focusing majorly on backward and marginal farmer of 7 villages of **Kapkot block** of Bageshwar district from Uttarakhand was selected for the interventions. More than **1000 farmers** were covered as major beneficiaries of the program (planting material, agriculture demonstration, bee-keeping management, training, value addition, and knowledge management, etc.)

State - Uttarakhand
District - Bageshwar
Block - Kapkot
Villages (Nos.) - 7



OBJECTIVE

- *To provide diverse income generation options for sustained livelihood through self-help promotion system, smart technical interventions and supply chain development.*
- *To establish climate smart agriculture practices for food, economic and nutritional security of the region.*

MAJOR ACTION TAKEN

HORTICULTURE EXPANSION TO SUSTAINING LIVELIHOOD OF MARGINAL MOUNTAIN COMMUNITY IN PINDAR VALLEY

- Pindar valley has enormous potential for commercial cultivation of temperate horticulture crop, but there were still many areas where farmers weren't aware about the technical know-how to cultivate commercial farming.
- This year also efforts were made to expand the temperate horticulture crop by demonstration of 5,000 rootstock low chilling dwarf variety of apple plantlets along with farmers of seven villages of the valley, in March 2020. Among the main varieties such as Scarlet Spur, Super Chief, Red Velox, Jeromine and Pollinator varieties are Gale gala, Pink Lady, Washington, etc. Presently, more than 450 farmers are engaged in horticulture work.
- Over 485 farmers have been given 15 field level training on horticulture (apple) management (includes sampling plantation methods, Training-Pruning, , Artificial Fruit setting methods, IPNM Spray schedules, anti hail net demonstration) during the year 2020.

Anti hail net demonstration in apple orchards

Anti hail net demonstration, growth & survival status follow-up in apple orchards has been done with targeted 42 farmers at Badiyakote, Sorag and Waccham villages. The major objective of the demonstration was to provide knowledge about the apple crop protection from hail storm, wild birds & animals. 35 farmers from wachham, sorag & Badiyakot villages participated in the knowledge cum demonstration of anti hail net. During the demonstration the agri/horti expert had given thrust on the installation process or steps of anti hail net. The current survival % of apple plants is about 82% & about 1 metric ton production of apple fruit samples is estimated by field level assessment.



PROTECTED FARMING AS CLIMATE ELEGANT APPROACH

Pindar valley depends on neighboring region/districts for its vegetables requirements during Rainy season & snow fall period due to heavy rain, snow fall & unfavorable weather conditions. Therefore there was a crucial need of protected farming technology, which can helps the farmers to grow vegetables round the year & generate diversified source of income. Considering these factors, 12 polyhouses with 12 farmers in agriculture were demonstrated with drip irrigation system in year 2020. Over all 92 polyhouses demonstrated from last 4 years with 92 farmers at seven Villages(Wachham, Khati, Sorag , Kilpara, Dola, Teek & Badiyakot) in project area, Pindar valley (Bageshwar). Winter season vegetables like Broccoli & cauliflower, introduced for the first time in the valley, it performs more than expectations. Realizing the success of protected cultivation, more farmers in the valley decided to adopt the technology. The total production of capsicum, Tomato & cucumber is 13.8 Metric Ton production recorded by field level assessment in year 2020.



Crop growth status in farmers' poly-houses in June 2020



PROMOTION OF COLLECTIVE PRODUCTION, MARKETING & GOOD GOVERNANCE SYSTEM (INSTITUTION BUILDING)

The concept of promoting good governance, Collective Production & marketing approach is that the institutions should be strengthened in such a way, that they could actively act as in democratic body & articulate their voices for their concerns and developments issues. Therefore making institution (PGs and their apex body cooperative) as vibrant community institution, the project intervention initiated with Capacity strengthening of cooperative member's on good governance, collective production, marketing approach and supply chain management, during the year 2020, five cluster levels training cum orientations was organized at 7 selected villages of IVDP project area.



During training 650 producer members belong to PGs as well as cooperative were orientated on their role & responsibilities. Besides, members also briefed on collective production, marketing approach, internal management system like Record keeping, Inventory management and systemic process of organizing monthly meeting. Thrust during training was also given majorly on basic planning capacity to formulate strategies to strengthening pro- poor and market led supply chain.

Establishment of common facility cum collection centre

In order to organize the farmers, 40 production groups and "Pindari Multipurpose Autonomous Cooperatives" were formed by HARC in the project area. Various activities are being executed through these producer groups. Due to not being organized, the marginal farmer had to face many kinds of difficulties. But now there are discussions and exchange of ideas through the group on the solution of the problems.

The Pindari Multipurpose Autonomous Cooperative Community Facilitation and Storage Centre has been set up by HARC. Farmers associated with the cooperative will be able to earn income by selling the local products of Pindari valley in the regional markets.



Producers' engagement with Community Facilitation Centre:

To explore alternative agro-based livelihood options, Common facility cum collection centre Inaugurated at uniya (sorag) by cooperative members & Project staff on 25th September 2020. Besides this, 8 clusters level Skill training on preservation & processing was organised at collection cum Community Facilitation Center (uniya, sorag) of project area. The main objective of this activity was to develop the skill of Producer Group members on processing & packaging of value added products. During this training two recipe of garlic & liguda pickle was demonstrated with practical session. The main thrust was given on improved practices of quality parameters of processing & packaging with hygienic techniques.



Hand hold skill trainings at CFC centre, Sorag (Uniya)
STRENGTHENING PRO POOR AND MARKET LED SUPPLY CHAIN

Stream line supply chain of cash crop

For Strengthening pro poor and market led supply chain, HARC, facilitate to explore new market & product opportunity for the target farmers at local and regional level. Under project intervention with intend to introduce improved variety of vegetables seed, French bean demonstrated with 350 farmers in 5 hectare from selected five villages of Project area. French bean 8.10 quintal @30 rupee, tomato 1.2 quintal @ 30 rupee, cucumber 18 quintal @ 30 rupee, 4.8 quintal apple sample @ 100 rupee, 7 MT Potato @ 25 was marketed & facilitate by demand forecasting at local level mandi (Baradi & kapkote) till now.



KNOWLEDGE ENHANCEMENT OF FARMERS FOR OPTIMISING LIVELIHOOD

Demonstration of improved variety Pea GS10 in Line sowing cultivation



Sudden change in average weather conditions has perilously affected traditional agriculture that also constitutes the mainstay of rural economy. There is a critical need to explore alternative agro-based livelihood options to ensure security of “food, nutrition & livelihood”. Considering these factors, improved variety of Pea GS-10 has been introduced with targeted farmers of Pindar valley. based on past experience and farmers feedback reside in upper hills of Uttarakhand it has notices that GS10 variety is well suited, adaptive and market led crop for commercial farming . Thus 350 kg seed of pea were demonstrated with 350 farmers in 5 hectare of 7 Villages respectively. The Training was carried out between 13/08/2020 to 22/08/2020 at Khati, Wachham, Sorag, Teek, Dola, Badiyakot and Kilpara Villages in Pindari valley. For transfer better package of practices, line sowing technique were carried out with 243 farmers at 7 villages during live demonstration.



IPNM application in Capsicum, Tomato, Cucumber, Broccoli & Cauliflower Crops in Poly house

Farmers of Pindar valley are growing few cash crop since traditionally, but farmer yet not much aware on appropriate techniques of applying IPNM, manuring schedule, Staking, earthing up and use of organic fungicide and insecticide. Therefore, for transfer integrated plant nutrition management (IPNM) in Capsicum, Tomato & Cucumber crops, 14 days field level training with 86 farmers was carried out in 2020. During the training major thrust were given on the Use healthy, certified and weed free seeds, planting overlapping, removal of infected plant and applied organic matter in the form of farm yard manure (FYM), vermi-compost, crop residue which enhance below ground biodiversity of beneficial microbes and insects.



ACHIEVEMENTS

- ❖ More than 500 farmers covered under apple plantation & 82% survival rate is recorded of 15,000 plants which were transplanted in year 2017, 2018 & 2020. 15% fruit Sample recorded on apple plant of year 2017 & 2018
- ❖ Adaptation of commercial crop planning, Cadre of 12 skill persons.
- ❖ In the five project villages, 72 percent of the households (30 percent higher than the non-project areas) have more than four sources of gaining income from horticulture and agriculture crops. Food security increases by 40% self consumption of cash crop, Increased volume by 55 % in compare to previous year.
- ❖ There has been an increase of 40 percent usage of solar based all weather irrigation system for irrigation at lean period. More than 2 hectare non- irrigated land covered under this irrigation system.
- ❖ Use of organic pesticides and organic insecticides is increased significantly villages by 32 percent.
- ❖ More than 75% households in project villages have applied improved Horticultural/agricultural techniques like orchard layout, pruning, spray schedule, line sowing, Raise Bed, Protected cultivation, appropriate spacing technique & mulching etc.
- ❖ For Strengthening pro poor and market led supply chain, PGs facilitated to explore new market & product opportunity for the target farmers at local and regional level in last year. There supply chain of kidney bean ,potato
- ❖ More than 1000 marginal farmers belonging to backward classes were targeted for sustained livelihood by better knowledge management, package of practices and quality planting material

Success through Initiatives and appropriate technique
Considering climate factors & having apple cultivation potential



PROMOTING LIVELIHOODS BY INNOVATION IN TEMPERATE HORTICULTURE CROPS IN GARHWAL AND KUMAUN REGIONS OF UTTARAKHAND

BACKGROUND

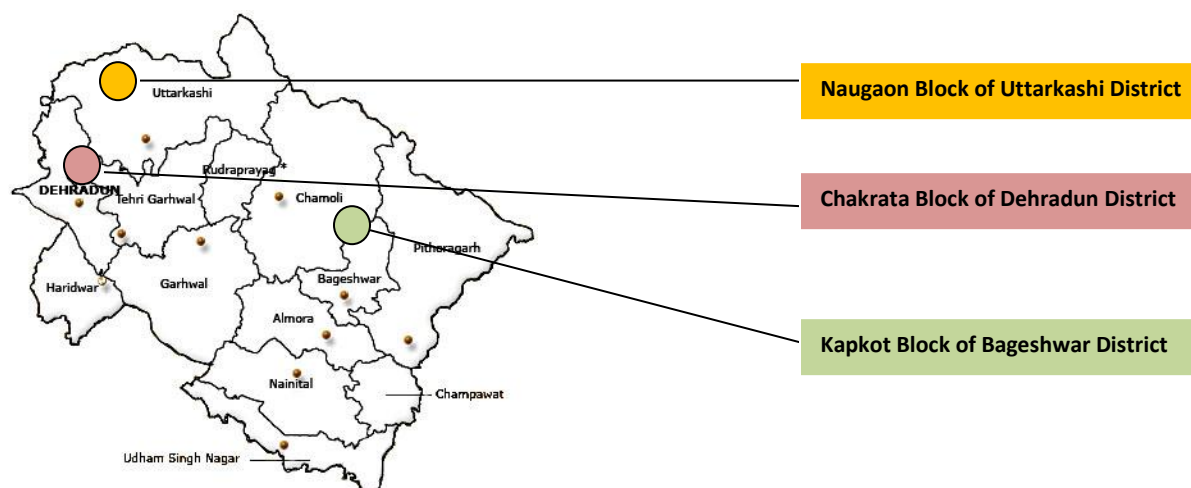
In spite of having large area for production of apple, the productivity in Uttarakhand is quite low as compared to other states (Jammu and Kashmir and Himachal) and in fact it has been declining. Having almost similar agro-climatic conditions (to states showing top production) Uttarakhand contributes only 2.54% of total production of India. Many factors and problems are responsible for the low productivity like socio-economic, agro-climatic, infrastructure, market, policy issues etc. Many of the problems of apple growers are beyond the control of apple growers themselves. But the major problem observed is lack of quality planting material. Quality planting material i.e. low chilling varieties and virus indexed nurseries are not available to fulfill the demand of new planting material.



This year also we strongly focused on the innovative livelihood promotion strategies for increasing the production of temperate horticulture fruit crops in Garhwal region of Uttarakhand. This will directly impact the livelihoods of potential progressive farmers directly and multi thousands farmers of temperate region of Uttarakhand by major planned interventions.

GEOGRAPHICAL COVERAGE

Focusing majorly on backward and marginal farmers, **3 blocks** of 3 different districts of Uttarakhand were selected for the interventions. More than **1000 farmers** were covered as major beneficiaries of the program (rejuvenation, planting material, training and knowledge management)



OBJECTIVES

- Establishing germplasm of improved climate resilient varieties of temperate fruits crops like apple, kiwi, etc. with technology transfer from ICAR-CITH, Srinagar and CISR-IHBT, Palampur.
- Rejuvenation of existing old apple orchards or development of new orchards with climate resilient temperate fruit crops cultivars like those with low-chilling requirements.
- Capacity building of stakeholder on temperate horticulture and soil management practices for increasing yield of fruits assuring livelihood of farmers.

MAJOR ACTION TAKEN

REJUVENATION OF EXISTING OLD APPLE ORCHARDS FOR BETTER QUALITY AND YIELD IN THE REGION:

After conducting baseline survey and identifying potential farmer, rejuvenation of old orchards by introduction top grafting of low chilling cultivars of temperate fruits. In the detailed status study it has been found that the region was deficit with good variety of apple and among them only 63% were fruit bearing and about 32% were able to produce quality fruit. More than **55,000** apple trees were rejuvenated by grafting them with 8 different low chilling varieties covering about **594 farmers of 81 villages of 3 blocks** viz. Naugaon, Chakrata and Bageshwar.

This intervention was conducted with the aim to strengthen the apple belt of the region and increasing the productivity by improving pollinator ratio in the old apple orchards which can be converted into sustainable mode of livelihood in future for Himalayan community/farmers

On average 75% of rejuvenated plants survived in Naugaon, Chakrata and Kapkot region. More than 20% of successful rejuvenated orchards have shown sampling in Naugaon, Chakrata and Kapkot region.



Top Grafting on old apple tree



One year later old apple tree



20% sampling in top grafted apple

TEMPERATE HORTICULTURE FRUIT NURSERY FOR QUALITY PLANTING MATERIAL:

By collaborating with State Horticulture department a temperate horticulture nursery was established at Magra in 2018. This year about **23,000 apple seedlings** were grafted with 5 different low chilling varieties of apple which have shown about **70% of survival rate**. After thorough study and various trails, in Feb 2020 about **15000 of kiwi cuttings (Haward, Alison and Tamuri)** with standard protocol were planted. This nursery aims to cater the requirement of quality temperate fruit planting material of hill community of Uttarakhand. After observing the acceptance and success of these plants in project region, this nursery can be a vital source of quality planting for the region.

Out of survived grafted plants 11,000 plants were provided to farmers and government agencies (watershed, horticulture department etc.) at nominal price.



Low chilling apple plants



Kiwi cuttings inside the polyhouse

DEVELOPMENT OF SEMI-DWARF AND DISEASES FREE

APPLE ROOTSTOCK

Tissue culture laboratory was the centre where disease free planting material was developed. For enhancing its capacity, its hardening capacity was upgraded by installation of hi-tech Hardening chamber and **semi hi-tech polyhouse** were developed. This year, **MM 111 M 793 and M9 apple rootstock** varieties were propagated in the laboratory. Due to its resistivity towards disease and better yield, maximum progressive farmers preferred grafted rootstock over grafted seedling. Such need of the state can be contributed by the laboratory which will reduce the dependency of state on other state for planting material.

Totally 1, 00,000 apple rootstocks were multiplied and rooted in vitro condition of lab and 9,139 developed apple rootstock were transplanted in the field of HARC Nurseries.



Tissue culture



Primary hardening in hardening chamber

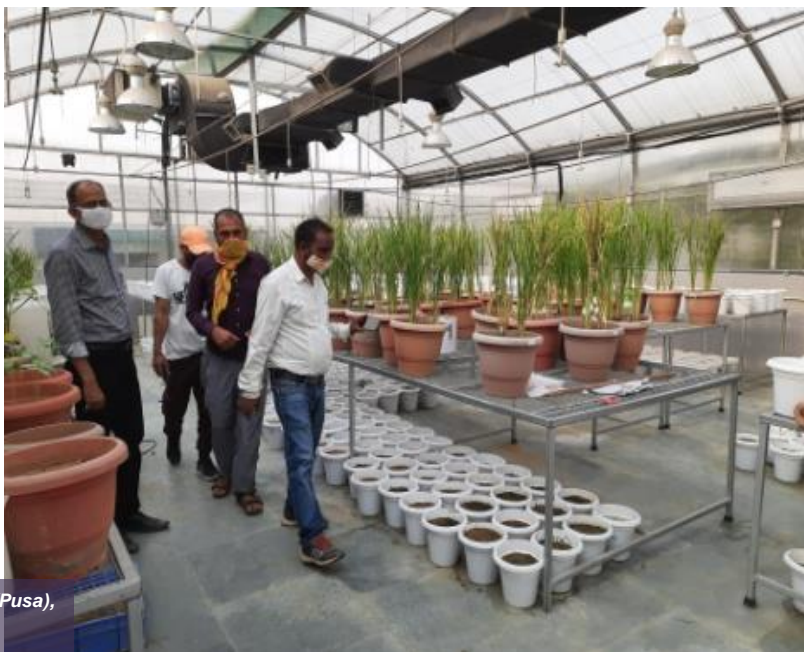


Secondary Hardening in Polyhouse

CAPACITY BUILDING OF STAKEHOLDERS ON TEMPERATE HORTICULTURE CROPS:

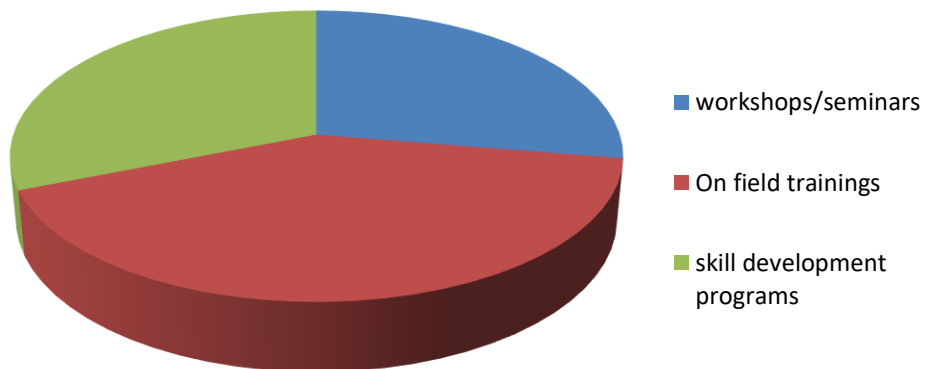
To sustain the intervention, capacity building of stakeholder on temperate horticulture and soil management practices. 8 Capacity building programs and trainings/workshops (farmers and staff members) including workshops, on field demonstrations and skill development activities were conducted. With respect to current scenario of pandemic, series of webinar was initiated for knowledge management of farmers in which **3 webinars** were successfully accomplished involving **51 stakeholders**. Better package of practices were provided by dissemination of several IEC material, which were designed for the knowledge management. Thorough study related to status of apple cultivation in the selected region was also conducted which is documented in for of apple status report.

About 1000 farmers were the beneficiaries (direct and indirect) of the program (rejuvenation, planting material, training and knowledge management).



We promoted innovative livelihood strategies for increasing the production of temperate horticulture fruit crops in Garhwal region of Uttarakhand. These innovations will surely lead to production of marketable quality fruit for future in the state and will also provide the path for future strategy.

Actions related to capacity building





ACHIEVEMENTS

- ❖ Through rejuvenation program the fruit bearing apple trees were increased from 33 to 67% targeting orchards of less than 15 years old.
- ❖ Through this pollinator ratio of about 20% of fruit bearing apple orchards were increased from 23 to 40%.
- ❖ More than 1000 marginal farmers belonging to backward classes were targeted for sustained livelihood by better knowledge management, package of practices and quality planting material.
- ❖ By focusing on the improvement of apple belt in the region, in terms of fruit quality and yield, food and nutritional security of the mountain community was strengthened under the project.
- ❖ Apple plant production capacity through tissue culture was increased which will be beneficial for somewhat fulfilling the future demand of quality planting material (rootstocks) for mountain farmers of the Uttarakhand state.
- ❖ Through knowledge enhancement of farmers focusing on soil health and water management, eco friendly practices were promoted for mitigating the harsh effects of climate change.
- ❖ **7 knowledge partnership** with scientific institutions (**CITH, IHBT, KVK, YSPUHF, UHB, ILSP-UGVS etc.**)
- ❖ **1 Apple status report** describing current status and gaps in apple cultivation in **2 blocks (Chakrata and Naugaon)** of Uttarakhand.
- ❖ **5 folders, 3 POP calendars** and **three videos** were developed for better understanding among different stakeholders
- ❖ **1 research paper** was developed on morphological difference between clonal and tissue cultured rootstock.





UTTARAKHAND COOPERATIVE DEVELOPMENT PROJECT (UKCDP)- COOPERATIVE CLUSTER FARMING

BACKGROUND:

Uttarakhand, being the hilly state facing major challenges of livelihood and migration. Land-holding of the farmers is very scattered, small and being hilly state, land cannot be irrigated easily. Cost of cultivation is very high and most of time farmers are not in position to use agriculture. Multi-pronged approach through integrated cooperative cluster farming, which is being implemented through Department of Cooperative with project titled Uttarakhand Cooperative Development Project “UKCDP” in the state through financial support of NDC. Project goal is to create livelihood opportunities as well as support in reverse migration. Besides of this also improve financial condition of cooperative societies. Collective Cooperative farming is the major activity which is being initiated through MPACS for the upliftment of the rural population. Under project Himalayan Action Research Centre “HARC” is acting as a technical agency to plan, mobilize and execute project interventions as ground level. Under project interventions 3 major value chain i.e. vegetable & spices, beekeeping and Mushroom cultivation has been plan to carried out with target farmers (Member of Multipurpose Primary Agriculture Cooperative Society “MPACS”) in Garhwal region of Uttarakhand. Under specified value chain financial support under **Pandit Din Dayal Upadhyay Scheme** is being provided to targeted beneficiary at 0% interest rate, besides provision of capacity building and skill development through technical agency. HARC is providing hand holding support for technical services in Garhwal region through Uttarakhand Cooperative Development Project (UKCDP). The project aims to scale-up the livelihood activities by cooperative development through pre-existed PACS societies.

GEOGRAPHICAL/COVERAGE:

HARC implementing Uttarakhand Cooperative Development Project (UKCDP), in 6 Districts (Uttarkashi, Tehri, Chamoli, Rudraprayag, Pauri, Dehradun), 17 Development blocks (1- Bhatwari, 2-Naugaon, 3-Purola, 4- Jaunpur, 5- Pokhri, 6-Joshimath, 7-Dasoli, 8-Tharali, 9-Ukhimath, 10-Agastymuni, 11-Khirsu, 12-Pabo, 13-Thalisain, 14-Kalsi, 15-Chakrata, 16-Raipur, 17-Doiwala), 25 PACS societies of Garhwal region. In 6 district total 9,300 farmers has been targeted for cooperative cluster farming, out of total 2300 belong to schedule tribes , 1700 OBC and remain are general & SC category. Following table briefed about target cluster and MPACs wise coverage:



OBJECTIVES:

- *Scale-up the livelihood activities by cooperative development through pre-existed PACS societies.*
- *To promote the cooperative cluster farming among community through PACS societies. Which is fundamental entity at cluster level to sustain the project activities with target beneficiaries of project villages.*

MAJOR INTERVENTIONS:

BASILINE SURVEY:

To assess the actual situation of the project area, target beneficiaries, baseline survey have been conducted in selected project area. Under baseline survey profiling of the beneficiaries have been accomplished with members of the PACS societies or new farmers, who was willing to registered as member in concern PACS societies. Thus, under baseline survey, 9300- (Vegetable & Spice- 7300, . Bee keeping- 1000, Mushroom- 1000) were survey which includes 6800 in Vegetable & Spice, 900 in Bee Keeping and 1000- in Mushroom producer's..



PREPARATION OF MPACS WISE MICRO PLAN :

"**MICRO PLAN**" in the context of UKCDP project is a guiding document for MPAs for management of cooperative cluster farming activity. Under micro plan considering to capacity, capability and land resource of respective MPACS round the year activity has been prepared. Micro Plans are prepared through Participatory process by engaging MPACS governing board and their MPACS members of respective MPACS area. Thus total 23 MPACS wise micro plan prepared considering to specific value chain such as vegetable & Spice Mushroom and Bee Keeping. Under micro plan described the brief financial and social detail of MPACS. It is a round the year business plan of MPACS defined the selected activity of MPACS, input cost, income, MPACS margin under specific value chain, per individual income by engaged activities and other infrastructure support by project.



VALUE CHAIN WISE INTERVENTION:

Vegetable & spice value chain:

- **Pea Production-** Pea G.S. 10 variety sowing activity executed in 3 PACS (Kerad, Manjgaon, Kumalda) with 900 farmers in 5 hac. Land. Similarly, in the month of July, 2021, coming season, Pea sowing is planned with 1850 of 9 MPACS.
- **Potato Production-** Potato- Tumri and Kufri Jyoti seed variety sowing have been done with 910 members of 6 MPACS (Bhatwari, Barsu, Saura, Uchadhungi, Masoli, Gadoli) in 110 hac. Land area. The germination of Potato crop recorded as 70-80%.
- **French Bean Production-**French bean- O.P.-Pencil variety sowing activity executed in 5 MPACS (Makhti, Kumalda, Chandeli, Gadoli, Khrisu) with 350 HH in 7 hac. Land area.



Beekeeping value chain:

Bee Keeping has been a traditional practice in the mountain hills for a long time, but it has not been developed as a commercially activity in spite of the scope and potential that exist in the mountain. The most suitable bee to rear in mountain is the *Apis Indica* so the project envisages promoting the indica bee in order to develop the bee keeping as business activities through cluster based approach. Under project, A vision has been created to produce at least 120 MT honey per annum which will not only generate enormous amount of marginal producers income but also contribute to increase productivity of crops. Under project intervention, over three years 1000 households in 4 districts of Uttarakhand has been target, hence in first phase total 500 producers has been identified in Dehradun, Uttarkashi & Chamoli district by applying cluster approach. Under project decentralized production of honey in targeted production zone, collection & storage will be done at decentralized manner in production cluster zone while processing and product development process will be carried out at centralized manner at DCDF premises, Besides, monitoring, marketing & branding of Himalayan organic honey will be done with centralize manner through UCF . MPACs” will provide loans to beekeepers to purchase beekeeping equipment’s as well as procurement support.

Mushroom value chain :

Farmers of Uttarakhand have limited agricultural land and have limited livelihood option. Therefore, Mushroom production could be one of the key non-farm business approaches for livelihood generation of the community. Under project intervention over three years 1000 households in 3 blocks of Dehradun district of Uttarakhand has been targeted. In 1st phase of 1st years total 500 farmers has been plan to target for mushroom cultivation, during the period 400 farmers belongs to Kalsi, Doiwal and Raipur has been identified which will be further supported in financing as a loan product by MPACs, facilitation by augmenting of Infrastructure, technical, managerial, marketing in an organized manner will be provided jointly by HARC and Uttarakhand Cooperative Development Federation “UCF” .

PROJECT ORIENTATION/REVIEW AND SYNERGY MEETING:

To sensitize farmers on project objectives and project orientation workshop carried out with 25 selected MPACS of 6 districts. During workshop input on clarity on role of stakeholder, cluster cooperative farming concept, financing process through MAPACs delivered to targeted beneficiary. During the meeting Govt. officials of MPACS – ADO, PACS secretary and selected member of MPACs took participation.

For the implementation and updating day to day progress of project, during the period total 10 meeting held with Project Management Unit (PMU). Which intend was to resolve project issue and promote effective collaboration and coordination among various stakeholders engaged in project implementation. .



ACHIEVEMENTS

- ❖ 7300 producers have been selected in vegetable and spice value chain out of total 5300 in Potato, 3200 in Pea, 3000 in French Bean and 2600 in Garlic crops.
- ❖ Total 1324-hectare land area will cover under V&S value chain - Potato- 424 ha, French bean-360 hac., Pea- 384 ha. and 156 ha. In Garlic.
- ❖ In primary phase vegetable and spice value chain initiated as - Potato crop production with 1050 producers in 110 hac land area, Pea- 150 producers in 9 ha., French bean- 100 producers in 2 ha.
- ❖ In 1ST Phase 500 producers were identified and targeted for beekeeping promotion belongs to Chamoli, Rudraprayag and Uttarkashi districts.
- ❖ Total 1000 producers have been targeted for mushroom production in 1st years, out of which in 1st Phase 400 producers has been identified for Button and Oyster mushroom production.
- ❖ To meet out the short fall in coverage of target beneficiaries 250 new farmer members facilitated to registered in MPACS.
- ❖ Planning process now has been streamlined by performing selection of targeted beneficiary with loan availing criteria though MPACS, Besides orientation on project objectives and implementation strategy has been carried out with target stakeholders, now in next phase which is already going on, project output will be reflected more qualitative and quantitative manner. .

PROMOTING LIVELIHOOD BY FLOWER CULTIVATION AND MARKETING WITH 200 FARMERS OF KALSİ BLOCK OF DISTRICT DEHRADUN

BACKGROUND

The Kalsi block of district Dehradun is one of the tribal areas of Uttarakhand state. As majority of area is rain fed and under small and marginal holdings, which results input cost per unit of output is higher. In addition to this Uttarakhand is also very fragile state with reference to disaster and climate change. Due to Climate change, changes in seasons and global warming, horticulture products are recording low production and productivity trends, which further, reduces the revenue of the farmers. In rural Uttarakhand, the participation rate of Uttarakhand women farmer in the economy through agriculture is much higher than several states and also the national average. Also it is well know that in Uttarakhand state, women play a pivotal role in agricultural development and allied fields, including crop production, livestock, horticulture, post-harvest operations, fisheries etc. Woman usually works for 16.49 hours on a daily basis, and work related to agriculture and livestock consumes 29.35 per cent of her time in the form of Collection of fuel, fodder and water which increase tasks of drudgery for a woman. To overcome of all these challenges, it was found, that there is tremendous need to introduce hardy, short duration and high economic value climate resilient cash crop like floriculture. Introduction of floriculture in this area will diversify the income of farmers, it is a short duration crops, which can minimize the risk of dependency of farmers on few crops for their livelihood also it's a less labor intensive crop and give higher returns as compare to other cash crop.



OBJECTIVES:

- *To enhance knowledge and skills of farmers towards commercial flower cultivation*
- *Mass propagation of chrysanthemum and liliium ensure germplasm for future.*
- *Development of flower supply chain from Kalsi to local and national market.*

GEOGRAPHICAL COVERAGE

22 villages (Kota, Dimau, Kothi Bhondu Bagna, Nehra, Boshan, Bhalnu, Thaina, Kaha, Gadetha, Gothan, Kuitha, Khatar, Kulhada, Sundraya, Kofti, Smaya, Bhoda, Utail, Punah) of Kalsi block, District Dehradun



MAJOR ACTION TAKEN

DEMONSTRATION OF GLADIOLUS WITH 25 FARMERS-

First intervention on introduction of floriculture is commercial cultivation of Gladiolus, introduced with 25 women farmer of tribal community of Kalsi Block. Total 20000 corm of Gladiolus was procured from Sheel biotech, New Delhi. In the month of March, 2020 and were transplanted in area of 12.5 Nali (800 plantlets per farmer per .5 Nali) at two village Kota and Dimau. An exposure of staff was conducted to Gladiolus farm, Biharigarh, to understand and learn the new and innovative designs practised for the crops of Gladiolus where Mr. Ravi Mohan took a lecture on crop propagation techniques of Gladiolus. Unfortunately due to COVID-19 lockdown farmers faced a lot of problem in marketing of flowers. Hence to overcome this situation HARC collaborates with buyer of Dehradun and they purchased the entire gladiolus from field only and pay an average of Rs. 4 per stick. With introduction of Glad farmers earn an average household income of Rs. 4739 from .001 hectare of land in 90 days which was huge in comparison of other crop. Other than crop production seed are also developed for future sustainability. In Between this 3 month a study was also conducted to identify market pockets in Dehradun, Mussoorie, Delhi, Chandigarh, etc for three high value crops of chrysanthemum, Liliium and Gladiolus. Comprehensive surveys for collecting information as the optimum market time, quantity requirement at various markets, suitable varieties, etc. It also highlights the buyer's expectation from the growers such as advance intimation, projections regarding produce to be sold, frequency of landing the produce to markets, etc. It also details area wise expectations and dynamics of flower markets.



DEMONSTRATION OF CLIMATE RESILIENT AGRICULTURE PRACTICES AND LIVELIHOOD PROMOTION THROUGH CULTIVATION OF CHRYSANTHEMUM CROP

2nd Demonstration under the project was commercial cultivation of chrysanthemum. In which total 120000 plantlets was procured from Nursery of Himachal Pradesh and Uttarakhand. 12000 plantlets were transplanted in area of 150 Nali (800 plantlets per farmer per Nali) . The planted cuttings were regularly monitored for crop health and inter-cultural operations like pinching, staking, etc were efficiently carried out with the help of on-field trainings. All beneficiaries harvested chrysanthemum in November & December tapping bumper rates of almost Rs 90-100per kg owing to Diwali markets. Chrysanthemum received a good market and beneficiaries have received an average rate of Rs 80 per kg. The market boom was well capitalized by the



beneficiaries with an average profit of Rs 4500 from the 50 sq m area and 800 cuttings along with the extra minimum benefit of around Rs 5500 from the cuttings to be prepared from these mother plants for next season. 2 day training have been provided for layout, plantation, pinching, staking and other inter-cultural operations each by the HARC staff, to be performed on the chrysanthemum crop. A 2-day training in villages on how to pluck/ cut chrysanthemum at proper length so that in case of loose flowers the stalk doesn't remain attached to the

flower, its packaging in a carton and how to prepare bills, seal the carton, label it with the beneficiary and vendor's name, address and phone number was provided by the HARC staff to the beneficiaries.



HARC played the role of mediator between the producers and florists. After developing a network with market men, the community carried out sale of the chrysanthemum on their own. Also one of the positive aspect was that buyer from Dehradun itself went to villages for collection of flowers due to which transportation charges of farmers was saved.

For packing Lilium, special cartons of dimension 90cmx 25cmx 25cm were ordered and 8 cartons each were distributed to all the beneficiaries. These cartons are single corrugated.

DEMONSTRATION OF NET SHEDS WITH TARGET FARMERS FOR LILLIUM CROP-

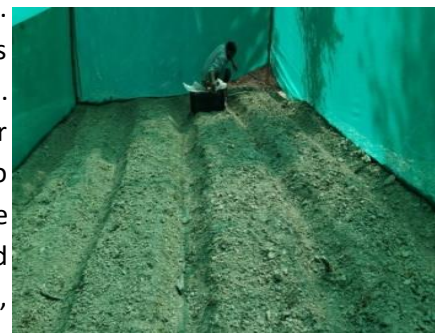
Third Intervention under the project was demonstration of Net shed with 25 farmers for lillium demonstration. Twenty Five low cost Bamboo net houses of 40 square metres each have been setup for Twenty five beneficiaries from the villages of Kota and Dimau..

These net sheds depart from the traditional style in which gives the crop protection from winter rains and frosts. The net house can thus also be utilized to take a short duration vegetable crop during the fallow seasons. Also the traditional iron angles have been replaced with bamboo support which reduces its establishment cost and increases affordability. The 25 bamboo net houses stand firmly and the shade has favoured in bright colour development in the buds of Lily. Trainings on each of the operations as bed preparation, bulb plantation, support and staking of Lilium carried out for base net weaving and supervised upon by HARC staff holding expertise in Lilium cultivation, from selection of support sticks (Poles of 4ft height and sufficiently thick), to how to tie the ropes.



DEMONSTRATION OF HIGH VALUE FLORICULTURE CROP LILIUM FOR LIVELIHOOD ENHANCEMENT-

4th Intervention was demonstration of high value lillium crop. 800 Lilium bulbs each were planted with 25 beneficiaries inside the net shed. A total of 20000 bulbs were planted with beneficiaries. These seeds will be transferred to the beneficiaries as soon as their low cost net shed is setup. This crop responded well to the climatic conditions and showed rapid growth. Exactly, three months from plantation, the buds of the crop has started developing color and is gradually readying up for market. Almost 16 bunch of Lily flowers from two beneficiaries have already been sent to the Dehradun markets. Training on harvesting the crop of Lilium was also carried out with all the beneficiaries. This training included information on the proper stage of harvest keeping in mind that the buds do not open, harvest length, bunch formation, wrapping and packing.

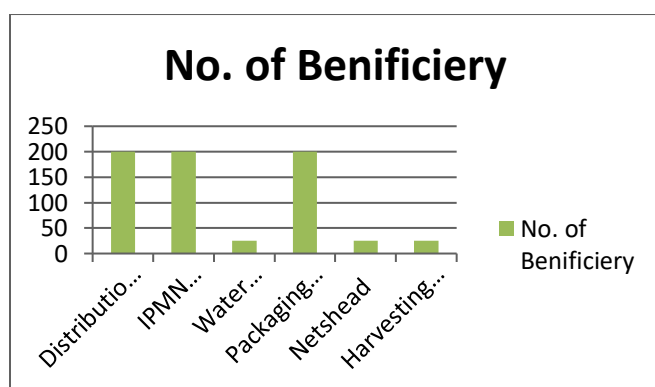


Buyer - seller meet of farmers on significance of high value demonstrated products-

Due to COVID-19 an exposure which was planned to Gazipur and Dehradun flower markets for assessing the potential of demand for flowers (Lilium & chrysanthemum and others flowers) and packaging practices of the lilium and chrysanthemum was cancelled but we tried to arrange the buyer seller meet at village itself. Farmers also learnt about seasonality and a host of factors which affect the price of flower especially in case of Lilium. By demo of this high value crop an average range of Rs. 11000 to Rs. 24000 was earned by farmer from 40sqm of land.



They also collected contacts of transporters and suppliers who supply flower from Dehradun to Gazipur. As per market analysis in this exposure farmer federation will decide to supply their produce in Gazipur market in near future. Besides preharvest management beneficiaries was also got trained in post harvest management. Harvesting of seed, treatment, grading and storage of bulb was also introduced by HARC staff to the beneficiaries. These stored bulb will preserved as a germplasm for future sustainability.



Distribution of material under the project

ACHIEVEMENTS

- ❖ Through demonstration of floriculture income of farmers are diversified from traditional crop to short duration high value crop.
- ❖ Chrysanthemum is a tailored plant and the planting date was exactly tailored to meet the markets for Diwali which provided bumper rates. Smart changes like use of early maturing varieties for cereal crops helped minimize the damage caused to the standing crops due to lack of rains.
- ❖ Total 126 farmers including 54 women farmer are trained in different techniques used in commercial cultivation of lilium, chrysanthemum and Gladiolus like pinching, line sowing, seed development, packaging etc.
- ❖ It is learned that the experiment of promoting floriculture was a successful project as it has several positive features such as Less labor requirements, No man Animal Conflict, No risks, No pesticides/ Insecticides needed, Time saving compared to other crops and utilization of unutilized lands.
- ❖ Germplasm in the terms of 4 mother orchard of chrysanthemum, corm and cormlet of gladiolus and seed of lilium is preserved within farmers for future cultivation.
- ❖ Out of the total 150 farmers, 51 farmers used barren land for cultivation of Chrysanthemum. This is a good development in terms of utilization of the barren/ uncultivated land.
- ❖ There have been cases wherein (Khatar village) the cultivation was done jointly by the Group. All the value chain activities were undertaken collectively starting from preparation of the field for sowing up to marketing of produce.
- ❖ In Bhadraraj Devata VPG, joint initiative of cultivating flowers was taken up. In first lot, VPG earned Rs. 2650 and in second Rs. 1950. The group earned a total of Rs. 4600. It is important to note that barren land which was unutilized earlier was used in floriculture.

LIVELIHOOD ENHANCEMENT FOR MOUNTAIN RURAL WOMEN FARMERS THROUGH VALUE CHAIN PROMOTION OF SELECTED CROPS. (BASIL, ROSEMARY & CHAMOMILE) IN UTTARAKHAND

BACKGROUND

Hill Agriculture is predominantly the cornerstone of livelihood of over 80% of rural population of Uttarakhand region. More than 90% farmers in the hill and mountain areas are marginal with small & scattered land-holding families, cultivating less than one hectare of land each. The encroachment and destruction of crops by wild animals like monkeys, wild boar, etc further adds to their woes. Herewith, the project proposes to upscale adoption of such agricultural crop which not only has the capability to withstand the vagaries of climate but also the capacity to provide alternate income to the marginal farmers of the Himalayan region. It is well known that Poverty issue cannot be addressed without the economic development of rural areas. Rural producers can only overcome poverty if they develop a sustainable economic base with links to urban and export markets. Medicinal and Aromatic plants (MAPs) are an integral component of the rich biodiversity of Uttarakhand. This is gaining attention from development planners and environmentalists due to their multiple functions and potential to contribute to improving the livelihoods of rural and marginalized communities. Hence under project 3 major crops i.e. Rosemary, Tulsi (Ocimum) and Chamomile are promoted for cultivation along with applying value chain development approach so that economic status of rural poor could be improved. In the past, HARC had already conducted successful trial of MAPs cultivation in Chamoli district as well. Seeing its positive impact with rural poor community, need was evolved to upscale MAPs crops with other area of the Chamoli districts. The 2 years project (Nov. 2019 to Sep. 2020) designed and implemented with value chain development approach for Tulsi, Rosemary and Chamomile so that by increase in large scale production and value addition food & economic security for rural community could be improved. Under 2 years project intervention were focused on selected crops nursery development, followed by cultivation on large scale; stakeholders based value chain development, community skill & capacity building for post harvest management and ensure access to markets by linking producers with livelihood collectives and other potential market channels



GEOGRAPHIC COVERAGE

The 2 years project is carried out in Ghat block of district Chamoli, Uttarakhand. It is one of the 10 blocks of the boarder district Chamoli. The block has 97 villages and a total of 7673 families. The target area of the project is Ghat block in district Chamoli of Uttarakhand. Ghat is one of the most backward and remote block of Chamoli district. The remote rural area comprises over 3 villages (viz Kandai, Gandasu and Banala) and belongs to 553 households with most of the villages are 1 to 3 km far from the road heads.

OBJECTIVES

- *To develop stakeholders based value chain of Himalayan high value products like Tulsi, Rosemary and Chamomile for economic up-liftment of rural community in selected pockets of Uttarakhand*
- *To build village level institutions, and develop farmers (women) skills & capacity on cultivation, harvesting, drying, post- harvest management, and value addition stages through improved package of practices of selected climate resilient crops*
- *To establish value chains of above crops for enhanced socio-economic benefits of marginal farmers primarily women as well as for environmentally sustainable and socially sound MAP management practices (with particular focus on value chain establishment, up-gradation and sustainable management practices of above selected crops)*
- *To ensure market availability and assured prices for producers along with development of long term partnership with various value chains stakeholders.*

ADAPTATION OF VALUE CHAIN APPROACH AND ITS ECONOMIC IMPACT WITH MARGINAL FARMERS

Under project value chain of Tulsi, Rosemary & Chamomile was planned, organized and promoted with the target producers in such a way that for each and every strategic activity of chain such as production, plucking of leaves, drying, processing, packaging, and labeling etc. more and more Producers could be associated and provided with benefits. As a result of this, 150 producers cultivated Tulsi, Rosemary & Chamomile in minimum of 0.02 hectare of land and getting an income of Rs. 3-4 thousand (by selling fresh green leaves) in a season (3 months crop cycle) . In addition, 40 women are now engaged in value addition activity such as cleaning, packaging, blending and labeling. The value added products like Tulsi Tea, Rosemary& Chamomile tea are now being marketed at 150+ retail store at local and national level market.



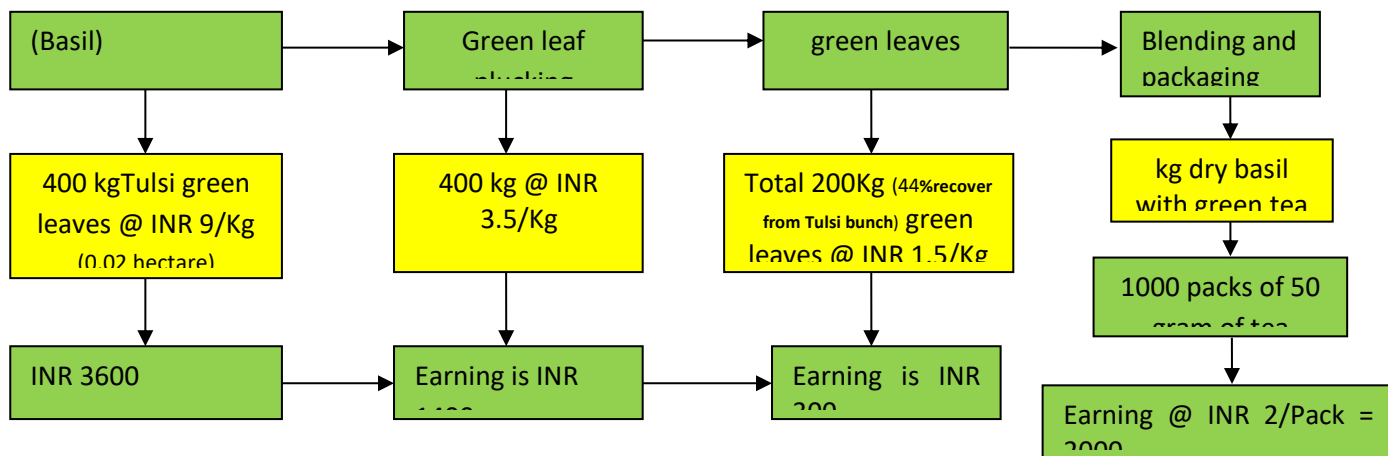
VIABLE ALTERNATIVE SOURCE OF LIVELIHOOD.



Based on production acceptance of selected MAPs crops, it is revealed that Tulsi& Chamomile with is short duration crops, gives higher rate of returns than cereal crop farming. While cereal crops provide limited income opportunity to marginal Producers, basil cultivation provides more income opportunities across its value chain such as leaf plucking, drying, blending and packaging.

It is clearly indicative from the above table that Producers incur a net loss of INR 1400 with the cultivation of paddy in 0.02 hectares, whereas they gain a net profit of INR 2050 with the cultivation of Tulsi in the same proportion of land, and that within a period of three to four months.

. The following figure depicts how value addition of Tulsi along its value chain helps in enhancement of earning as well as increase likelihood of income generating opportunities for poor and smallholder Producers, especially women. Through Producers' self-help groups, pro-poor value chain development is initiated by targeting production, processing and marketing through community based enterprise development. An overview of various stages under Tulsi value chain development and increased income generation:



ACHIEVEMENTS

- ❖ Through demonstration of floriculture income of farmers are diversified from traditional crop to short duration high
- ❖ Total 10 techniques pertaining to crop production, harvesting & post-harvest management for germination testing & scientific techniques for preparation of nursery beds/ transplanting, irrigation, weeding, hoeing, plucking, pinching, harvesting & post-harvest management (drying, storage, and blending). Soil sample collection and Analysis was done. Shivansh manure technique was shared to the beneficiaries.
- ❖ Skilled cadres of 8 Farmers were developed on soil sample collection and importance of recommended dose of manure and Shivans manure preparation.
- ❖ Women producers are now well trained in seed production and able to produce Tulsi seed for further extension through cooperative.
- ❖ Adaptation of production technology by 150 famers on MAPs crops production and post-harvest management.
- ❖ By capacitate 150 households on collective production and marketing, within the project cycle target producers sold 76.70 MT worth of INR 14,75,000/- basil, Chamomile & Rosemary produces to the cooperative and gain income range minimum 7,000 to 9,800 per season.
- ❖ Develop 3 high value products bail tea variant through demonstrated variety of basil. Rosemary & Chamomile
- ❖ It also finds that paddy, wheat and finger millet are the three most vulnerable crops in the project areas. Tulsi, Rosemary is the first most preferred alternative crop to major crops as these crops suffered from depredation by wild animals and pest infestation which is a primary concern of mountain farmer.
- ❖ Blending of tea under value addition process created an opportunity for farmer & its apex body i.e., cooperative to create by-product development & Income Avenue. Effective use of pinching techniques improved per plant production by 20%.
- ❖ Basil, Rosemary & chamomile was introduced 1st time under agricultural production system with project beneficiaries so contribution of these crops in beneficiaries agricultural income previously was 0 % while due to intervention maps crop contributed about 20% additional income
- ❖ Crop depredation by wild animals, water scarcity for cultivation and pest diseases are the three most frequent threats. On an average, each farming household incurs damage of INR 66 in 7000 as a result of crop depredation by wild animals.
- ❖ Develop cadre of 40 women in drying, blending and packaging of basil value added products.
- ❖ **Relevant/Addressing to which SDG goal**

PARTNER FOR RESILIENCE (PFR)

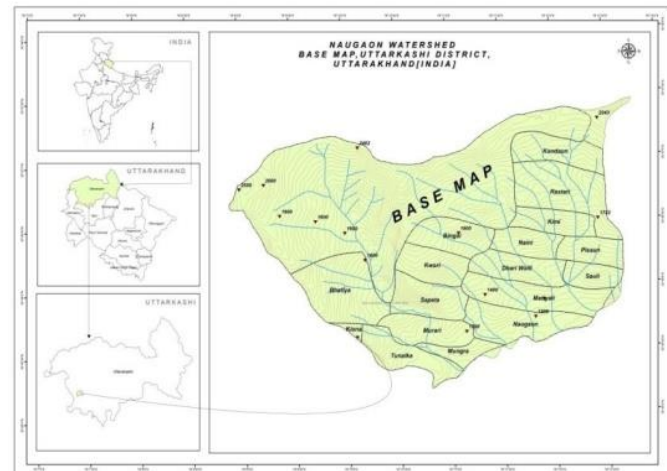
BACKGROUND



The Indian Himalayan region (IHR) is a rich repository of natural resources and houses more than 40 million people. But over few decades, it has been facing threats derived from global warming and resulting repercussions of climate change on its fragile ecosystem. Protracted breaks in summer monsoon cause severe drought in this region. When followed by incessant rainfall events during monsoon season, it puts the region highly amenable to natural disasters such as erratic incessant rainfalls, landslides, flash floods and hailstorms, etc. The aftermath of catastrophe thus create big vacuum and series of challenges for the restoration of livelihood activities. Most affected among all is hill agriculture, which is the livelihood activity for over 80% of rural population with more than 90% communities in hill and mountain areas are marginal with small and scattered land-holdings.

It is a reality that people's perceptions about climate change are not derived from any direct climate measurements, but from the way climate affect their immediate surroundings and livelihood. Climate change is making extreme climate events more frequent and the incidences of landslide, flash flood and droughts are on the rise. Uttarakhand with its peculiar fragile eco-system is no aloof from this change. In the long run, it is supposed to undisputedly affect water, agriculture, livestock, forest, human health & energy sectors, etc and impede sustainable development of people and region.

Himalayan Action Research Centre (HARC), an organization is registered under Society Act in 1989 at Uttarakhand state of India. It was established and works with an aim to empower people so that they take their own developmental decisions and build a stable society that is free of social, economic and gender inequity. Since last 25 years, HARC have been working with marginal farmers, primarily women of the Himalayan region and have formed self help groups, cooperatives, farmers' income groups, federations covering more than 20,000 farmers. Across all these farmer apex bodies, annual turnover is generated to the tune of Rs 457 million. Over the years and to enhance the economic security, HARC has also developed supply chains of spices, vegetable, floriculture, horticulture and other value added products with these farmers' agencies.



GEOGRAPHICAL COVERAGE

Naugaon Watershed: The region comprises of 10 village Panchayats covering 18 villages and 1 Nagar Panchayat. Total population: 8,889, Area covered: 26.7sq km

OBJECTIVES

- *To establish Climate Smart Agriculture practices for food, economic security and climate change*
- *To enhance scientific temper of vulnerable communities and help them take strategic decisions and enhance resilience against climate*
- *To establish dynamic and working model of CMDRR and develop preparedness among vulnerable communities.*

MAJOR ACTION TAKEN

POLICY: IRM APPROACHES ARE INTEGRATED IN DISTRICT DISASTER MANAGEMENT PLANS (DDMP) WITHIN TARGET DISTRICTS AND COMMUNITY SCALE RISK REDUCTION PLANS

Under this trajectory participatory Rural Appraisal exercise with villagers of Bingsi had done with an objective of integrating integrated risk management components into village development plan which will address the issues of the area through vulnerability lens. No village panchayat ever considered risks that are emerging from changing weather pattern, degraded ecosystems and multiple hazards in their development planning earlier; and this intervention provided them an opportunity to look for the activities that could address these issues in an integrated way, and could be mainstreamed in planning. For this reason a formal meetings with Panchayat members,



government officials at block level was held with newly elected gram Pradhans of respective 10 Gram Panchayats. DDMP Uttarkashi mainly have Disaster response measures along with SOP for departments, but mainstreaming climate adaptation and ecosystem based risk reductions measures based on watershed mgt approach which will build the resilience of hill districts, as this also mandates departments to work convergent for risk informed development interventions. Therefore regular engagement with District/State Disaster Management Authority in Jan/April/June/Aug and Sept 2020 has done which led for the endorsement of DDMP.



PRACTICE: ECOSYSTEM BASED DRR OPTIONS IDENTIFIED AND IMPLEMENTED

Due to shift in weather crop cycle in the watershed seemed to be change also, people believe that there are crops which can be grown as high productivity due to increase in temperature but marketing facilities are absent for some produce. Hence with those alternative crops farmers choose to continue to grow some traditional crops but different varieties that are giving them good returns in terms of income and also reducing losses. Survey was conducted by HARC with farmers of Naugaun watershed who were part of trainings/demonstrations/exposure visits/workshops on climate resilient farming practices during the Project period. Approx 3011 farmers of Naugaun watershed has adopted climate resilient farming practices which include organize manure, use of poly tank and geo tanks, thermal resistant and disease control varieties of approx 36 varieties of fruits/pulses/vegetables crop, and crops that are efficient for carbon storage like potato, ginger, sweet potato etc, and apple low chilling varieties.



INVESTMENT- RISK REDUCTION PLANS ARE IMPLEMENTED WITH RESOURCES LEVERAGED FROM ONGOING DEVELOPMENTAL PROGRAMMES-

Regular meetings with in-line departments, PRIs and community members are held with an objective of Risk reduction interventions in Naugaun watershed are implemented from leveraged resources through on-going development programs, which ensures no development work in the watershed negatively affecting the ecosystems or giving rise to climate induced risks.



ACHIEVEMENTS

- ❖ *In Jan-Sept 2020, an amount of Rs 2.31cr was implemented through ongoing development programmes to reduce livelihoods /ecosystem or disaster risks in Gram Panchayat of Naugaun watershed, most of the interventions are covered under MGNREGA like treatment of eroded areas, solar lights and geysers', social security schemes, water tanks, water harvesting pits, water spring rejuvenation, drip irrigation, constructing of ponds, vermi composting, solid waste mgt units, plantation*
- *Approx 3011 farmers of Naugaun watershed has adopted climate resilient farming practices which include organize manure, poly tank and geo tanks, thermal resistant and disease control varieties of approx 36 varieties of fruits/pulses/vegetables crop, and crops that are efficient for carbon storage like potato, ginger, sweet potato etc, and apple low chilling varieties.*
- *District Disaster Management Authority of Uttarkashi endorsed for revision of District Disaster Management Plan, and the proposed watershed mgt actions based on IRM approach are to be incorporated in Disaster Action Plan 2020-21.*
- *Development of Knowledge products for future reference- GIS Atlas (New version), Background Paper of DDMP Uttarkashi NBS (3rd draft), Lesson learnt document on GPDP and poster on Soil.*



UTTARAKHAND FOREST RESOURCE MANAGEMENT PROJECT (UFRMP)

BACKGROUND:

Human livelihood and conservation of environment are two crucial aspects for the survival of human species and ecosystem of the earth. The encroachment of the human efforts for their survival damaging the ecosystem of the earth. Communities in hill region of Uttarakhand have small land holding and survive at marginal level. Limited advancement in livelihood alternates and tough geographical condition, turn into higher migration and unorganized



efforts of community for survival. Educate community for organizing the sustainable alternates of livelihood with conservation of forest, Uttarakhand Forest Resource Management Project (UFRMP) funded by JICA implemented in Uttarakhand under forest dept. Project aims to increase the income of marginal producers by establishment of sustainable approach. To achieve the project aims to develop the livelihood opportunities of community through agribusiness practices by establishment and strengthening of community institutions aligned with van panchayats. Himalayan Action Research Centre (HARC) act in the project as to develop the market opportunities for cooperatives and strengthening the community institutional functioning at ground level. HARC continued the assigned job in market support for 11 cluster level cooperatives through better market linkages and sale of surplus commodities on highest negotiable price, market promotional support services (Packaging, branding, and promotional activities- exhibition, outlet promotion etc.) for apex cooperative UFRM (JICA) SRC, Ltd., institutional and supply chain strengthening at SHGs and cooperative level as well as post-harvest support services.

GEOGRAPHICAL COVERAGE:

HARC implemented the Uttarakhand Forest Resource Management Project (UFRMP), in 11 divisions of Uttarakhand. The coverage of project was Garhwal and Kumaun region. Project implemented with target beneficiaries through forest dept. division level. Under project 14 cooperatives and 134 SHGs of 11 divisions' covers with 7500 target beneficiaries of cooperatives and SHGs.

OBJECTIVES:

- *Develop the agribusiness opportunities for target beneficiaries through institutional community institutional functioning with active involvement of van panchayats.*
- *Develop the state level market system for profitable business activities through establish community cooperatives.*
- *Develop the value added products model for adoption by cooperatives through research & development.*
- *Capacity building of target beneficiaries under farm and non- farm sector interventions of the project.*

MAJOR ACTION TAKEN

COMPONENT: INSTITUTION STRENGTHENING

Field level visit in 11 divisions at SHGs and Cooperatives level for follow-up, review and facilitate good governance training at field level after ToT on Good Governance.

Introduced good governance procedures in supply chain of seasonal commodities. Review documentation at SHG/cooperative level and facilitate members for necessary improvement. Introduced ideal documentation system at cooperative level (Ranikhet, Mussoorie and Lansdown) through scheduled follow-up (review/facilitation). Assessment of defined roles & responsibility of representatives at different level and provide required facilitation. Facilitate FNGO staff, SHG members for SHG- CCL bank linkages and lead, coordinate the SHG-CCL bank linkages progress. Micro-business planning meeting with SHG members for preparation of SHGs micro-business plan for CCL utilization. Liaison with concern banks for SHG CCL linkages. Preparation of guideline for association of cluster level federation with state level apex body (UFRMP (JICA) SRC, Ltd.)



COMPONENT - SUPPLY CHAIN STRENGTHENING

Follow-up of supply chain ToT at SHGs and Cooperatives level replicate at field level by FNGO and facilitate for required improvement during field visits. Production assessment of probable surplus commodities for market sale. Review documentation process of supply chain at cooperative and SHG level and provide required inputs i.e. preparation of Challan at SHG level and production/sale records at SHG level, maintain the cooperative documents. Follow-up, coordinate and facilitate to FNGO MS for delivery of surplus commodities market linkages and market feedbacks i.e. quality, quantity, price, delivery challan, packaging and delivery time.



COMPONENT - MARKETING

Circulate market forecast demand to cluster level federation through FNGO MS. Identified new market linkages for improvised price of commodities sales. Market linkages of cluster level federation on negotiable prices. Legal registration of cluster level federation and Apex cooperative i.e. MSME registration, FSSAI, PAN card etc. Develop packaging & designing of value-added products and Apex body cooperative products. Prepared Brand Story of cluster level federation products and value-added products.

COMPONENT: POST HARVEST MANAGEMENT

Carry out product trials of some selected finalized products as walnut spread, walnut salsa, nettle tea, citrus tea, chamomile tea and pumpkin flakes. Facilitating physio-chemical testing parameters for product profiling on labels. Nutritional evaluation of Sea buckthorn tea, nettle tea, citrus herbal tea, rhododendron tea, and apple flakes, pumpkin flakes, walnut spread and walnut salsa from a certified laboratory. Altering and finalizing the cereal mix, pumpkin flakes, chakli or namkeen and energy bar products as per reviews of consumers. Prepare a module for emerging food processing enterprise for processing herbal tea, osmo-dried produce and bakery goods or millet-based products.



ACHIEVEMENTS

- ❖ Prepared guideline for association of cluster level cooperatives with "UFRMP-JICA SRC LTD."
- ❖ Progress report of SHG-CCL linkages



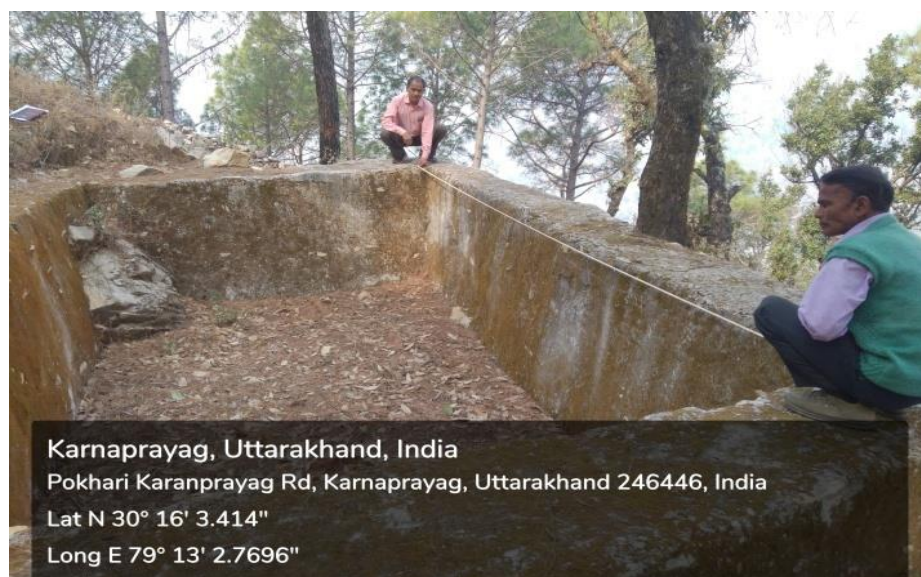
MONITORING AND EVALUATION OF THE WORK EXECUTED UNDER CENTRE SPONSORED SCHEME “FOREST FIRE PREVENTIONS AND MANAGEMENT - 2019-20

A short term monitoring and evaluation study under forest fire preventions and fire Management scheme year 2019-2020 “was carried out by Himalayan Action Research Centre “HARC” in 11 forest divisions of 3 forest circle named Yamuna, Garhwal and Nanda Devi Biosphere Reserve of Uttarakhand. Study was sponsored by CCF – forest fire and preventions wing - department of forest, Uttarakhand. The intend of the study was to carry out physical verification and status of the work done as per the criteria and order issued to each circle office under specific component e.g. fire line maintenance, Water storage tank, recruitment of forest fire watcher and hiring vehicle, etc. To carry out said assignment following strategy cum approach was adopted:



- 1- A meeting with each division all level forest office carried out with Divisional Forest official and information on activity wise details, allocated budget and expenditure status during the year (2019-20) under the fire prevention and management scheme were taken from the concern Divisional Forest Office.
- 2- Thereafter on the basis of work details, about 40 % physical verification of the structural work at on spot and 30 % verification of nonphysical work carried out by HARC team at the range level, with the presence and close coordination of forest range official.
- 3- Under physical verification, assessment of worked carried out under specific component, on the basis of four major points i.e. objective of the specific work, quality and status of the work and community perception/ feedback on the work, Simultaneously, GPS reading along with photo of the physical structure work was also taken to verify status of the work

Based on above approach a narrative report of each circle wise drafted, consolidated and submitted to office of Chief Conservator of forest fire protection and disaster management- Department of Forest, Uttarakhand.



Karnaprayag, Uttarakhand, India

Pokhari Karanprayag Rd, Karnaprayag, Uttarakhand 246446, India

Lat N 30° 16' 3.414"

Long E 79° 13' 2.7696"

HARC INITIATIVES AGAINST COVID-19



HARC recognized that the farmers are adversely affected at present due to the spread of this Pandemic COVID-19. In Himalayan regions, March to June is the peak period of crop sowing for various crops as well as harvesting period and inter-cultural operations of some standing crops like pea, apple, tomato etc. These crops contributed majorly to the livelihood of farmers as cash crops which are adversely affected due to Pandemic COVID-19. Problems related to timely un-availability of agricultural inputs and lack of knowledge on crop specific package of practices are arising to the farmers during this phase. To combat this problem, HARC initiated to make aware 2376 farmer of project area under limited available resources (through digital media) by disseminating crop specific advisory and preventing measures against COVID-19 as well as guidelines and public interest related messages disseminated by the State & Central Govt. of India. Besides this, HARC also prepared and distributed **15,000 masks** for Corona warriors and some targeted groups of their project area in collaboration with local government bodies as well as other agencies active during this phase. Along with these masks, HARC also distributed 500 **nutritious relief food packets** containing *Malta squash and Aonla pickle rich in Vitamin C, immunity boosting Tulsi Tea, Apple jam, Porridge, sugar, dates and soap for sanitization* to targeted and need poor families of project area especially pregnant women and children (3 months to 3 yrs) through coordination and collaboration of local Administrative bodies.



HARC'S INITIATION ON EXTENSION SERVICES SPECIFICALLY TO COVID-19 SITUATION :

During first phase of lockdown, HARC considered the extension services regarding preventive measures of COVID-19 and distributed/disseminated relief material and COVID -19 preventive advisory & crop specific advisory to targeted farmers of various districts of Uttarakhand. Distribution/dissemination services are as given below:

- ❖ **Relief food kit -Nutritious Food Kit.**
- ❖ **Primary Safety related information.**
- ❖ **Dissemination of State and Central Govt. messages or guidelines related to preventive measures on COVID-19.**
- ❖ **Dissemination of agricultural advisory issued by the Govt. of India.**
- ❖ **HARC's crop production and protection related advisory.**
- ❖ **Horticultural crop: Apple related crop advisory to farmers**

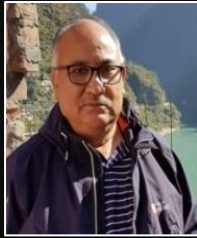


GOVERNING BODY



Ex State Director of WWF and well known social worker have great love for Himalayas and its well being. Have worked for the development of underprivileged community specially women.

PRESIDENT
Dr. Vandana Thaplyal



An environmentalist & social worker working since 38 years for the upliftment of the Himalayan people & the geography. Received an honorary doctorate - Doctor of Literature (D-Lit.) for his contribution to promote "Lab to Land" approach for sustainable livelihood. Extensively worked for Livelihood sustainability, climate-resilient agriculture practices, horticulture promotion, natural resource management, food processing, disaster management & setting market.

SECRETARY
Dr. Mahendra Singh Kunwar



Social activist since 16 years, worked intensively on women empowerment and skill development of Himalayan community.

TREASURER
Mr. Ramesh Singh



Ex Vice Chancellor, Bhundel Khand University Jhansi, environmentalist with great love for Himalayas and working for its conservation since decades.

MEMBER
Prof. Om Prakash Kandari



Retd. Professor, HNB Garhwal University, Srinagar. Brilliant knowledge related to folk tales, folk music and myths of Uttarakhand. An active member of editorial board of HNB Garhwal University. Great scholar of English literature and honored by many awards by Uttarakhand government. Published more than 20 papers and articles on folk culture and English literature.

MEMBER
Prof. Data Ram. Purohit



Successful entrepreneur worked intensively in on agri allied products. Have great affection towards development of IHR

MEMBER
Mr. Ajay Kumar Aggarwal



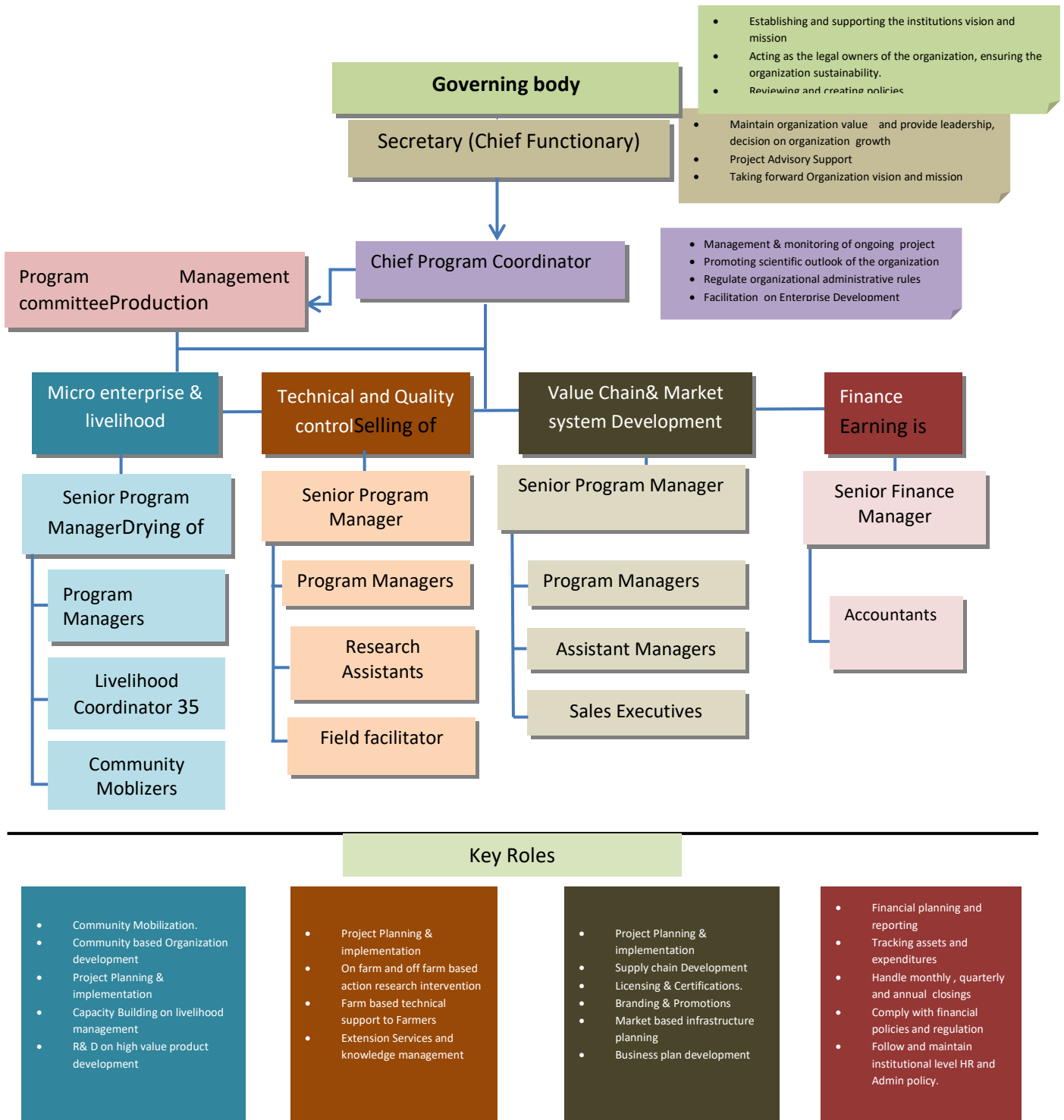
HARC Financial Consultant since 30 years. A very successful businessman.

MEMBER
Mr. Uday Shankar Gupta

CORE TEAM

#	Name & designation	Highest qualification	Specialization	Experience
1	Mr. Shailesh Panwar (Chief Program coordinator)	Masters in business Administration	Business development, Value and supply management, livelihood strategy planning, rural entrepreneurship development	16 years
2	Ms. Meenakshi Garg (Senior Program Manager- Technical)	Masters in microbiology	Food microbiology, quality assurance, analytical techniques, product development, technical expertise, project designing and planning, linkage development	8 years
3	Mr. Harish Kukreti (Senior Program Manager-Livelihood and enterprise)	MBA in agriculture business and supply chain	Expert in value chain development, Agribusiness planning and project implementation. Developing Producer's organization Level development, Markets and sector assessments	20 years
4	Mr. Harish Pandey (Program Manager)	Master of Social Work	Expertise in Social Impact assessment, Development of Community based organizations, Village level Micro Planning	12 years
5	Ms. Neha Silmana Gangoli (HR executive)	Master in Commerce, Diploma in Modern Office Management and Secretarial Practices	Documentation, HR Management, Project implementation	10 years
6	Mr. Dilber Singh Negi (Senior Program Manager- Finance)	Masters in Commerce	Finance Management, Accountancy, Budgeting and Program planning legal compliances	32 years
7	Mr. Dharam Singh Bisht (Senior Administrator)	Bachelors in Arts	Administration work and Office Management, managing assets	27 years
8	Ms. Manju Bisht (librarian)	Bachelors in Library Sciences	Documentation, Supporting project staff for knowledge source, IEC material management	30 years
9	Mr. Prakash Singh Rawat (Senior Accountant)	Bachelors in commerce	Finance Management, Accountancy, Budgeting and Program planning legal compliances	16 years
10	Ms. Hema Kashyap (Food Technologist)	Masters in Food science & technology	Post harvest technology, value addition, capacity building of CBOs.	4 years
11	Mr. Atul Prasad Nautiyal (Livelihood & enterprise expert)	Masters in business management	Logistic and supply chain management, institution building and business development	20 years
12	Mr. Rakesh Kumar (Lab Incharge)	Masters in Botany	Soil health management and advisory, capacity building of farmers, soil fertility mapping	6 years
13	Ms. Shivanjali (DRR & CC Experts)	Masters in Disaster Management	Disaster risk reduction, risk profiling and matrix, ecosystem profiling and development planning	4 years
14	Mr. Dwijendra Gairola (Nursery Incharge)	M. Phil in Environment plant biology	Nursery managements and on farm technology dissemination	2 years
15	Mr. Atul Simalti (Senior trade & business analyst Expert)	MBA in marketing with expertise in Agribusiness planning and Brand Management	Intellectual property and trade mark licensing , enterprise development, micro and mini enterprise business plan development	8 years

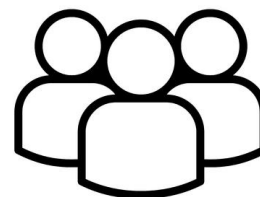
ORGANOGRAM



OUR MEMBERSHIP AT STATE AND NATIONAL LEVEL

- ❖ State Steering Committee- Uttarakhand Watershed Directorate
- ❖ NMHS Monitoring, Learning and Evaluation Mission - National Mission Of Himalayan Studies (NMHS)

- ❖ Internal Quality Assurance Cell- Hemwati Nandan Bahuguna (HNB) University, Srinagar, Uttarakhand
- ❖ Project Advisory Committee- Centre of Excellence for Forest Based Livelihood in Uttarakhand
- ❖ Member (Representative of NGOs)- Uttarakhand Livestock Board
- ❖ Compensatory Afforestation Fund Management and Planning Authority (CAMPA)
- ❖ Directorate of Panchyati Raj
- ❖ State horticulture mission
- ❖ Horticulture department, Uttarkashi
- ❖ Forest department (Research & Development), Uttarakhand
- ❖ Wild life institute of India (WII), Dehradun



KNOWLEDGE PARTNERS

- ❖ Uttarakhand council of Science and technology (UCOST), Dehradun
- ❖ Central institute of temperate horticulture (CITH), Srinagar
- ❖ Institute of Himalayan Bioresources technology (IHBT), Palampur
- ❖ YS Parmar University of horticulture and forestry (YSPUHF), Solan
- ❖ GB pant institute of Himalayan environment and development (GBPNIHESD)
- ❖ GB pant University of agriculture and technology, Pantnagar
- ❖ Indian Institute of Spice Research (IISR), Calicut
- ❖ Indian Institute of Food Processing Technology (IIFPT), Guwahati
- ❖ Indian Institute of Integrative Medicine, Jammu
- ❖ Punjab Agriculture University (PAU) Ludhiana
- ❖ Institute of Natural and Modern Cosmetech (INMC), Faridabad
- ❖ Anacon Laboratories, Nagpur
- ❖ Central potato research centre, CPRI, Shimla
- ❖ Indian Meteorological Department (IMD), Dehradun
- ❖ Uttarakhand Science Education and Research Centre (USERC)
- ❖ Directorate of Mushroom Research (DMR), Solan
- ❖ Wetland International South Asia, Delhi



OUR LEGAL STATUS

REGISTRATION	ACCREDITATION AND EMPANELMENT
<ul style="list-style-type: none"> ❖ Registered under Society Registration act, 1986 ❖ Registered under Foreign Contribution Regulation Act, 2010. ❖ Registered under 12A & 80G of Income Tax Department ❖ Registered under NGO Drapan of NITI Aayog. ❖ Registered under Ministry of Corporate affairs for CSR Activities. ❖ Registered under Employee State Insurance (ESI). ❖ Registered under Employee Provident fund. 	<ul style="list-style-type: none"> ❖ Equivalency determination (ED) for US funding ❖ Credibility Alliance, New Delhi ❖ SEWA-THDC for CSR funding ❖ Tribal Co-operative Marketing Development Federation of India (TRIFED), Ministry of Tribal Affairs, Government of India. ❖ Cooperative Department, Govt. of Uttarakhand.

BALANCE SHEET