

# ANNUAL REPORT

## 2021-22



*Promotion of rural livelihood for sustainable development of*

*Mountain community*

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## MESSAGE FROM THE SECRETARY

Dear all,

Year 2021-22, started with hope and but ended leaving us with the major challenges mankind would ever face. HARC with its small -small effort building a wide knowledge base on the region's changing ecosystems, livelihoods, food, environment, and economic security of mountain communities. The Year 2021-22 was majorly focused on new ideas and dedicated to the promotion of technically ridiculous systems with marginal communities of the Himalayan region. It is well proof that climate being the major player, plays hide and seek with communities and leaves them limited options to act upon. The challenges become more subtle to the marginal communities, especially community living in fragile ecosystem of Himalayas. HARC has been keeping its focus intact on replenishing the agriculture practices through increasing per acres crop productivity, enhancing the scientific temper of the communities, promoting environmentally friendly agri. Technique like zero carbon emission solar irrigation systems, gravity-based rope-way, wire staking etc. Year 2021-22 also marked special importance, as partnerships with corporate funding agencies were established to promote the livelihood vision and mission of HARC across the Himalayan region. With climate smart agriculture practices (CSA), the concept of farm related scientific temper, soil health management & improved package of practices, pro-poor supply chains are promoted. The journey ahead is full of challenges, but we will continue working towards creating a community where the marginal people have the right to live a quality and dignified life. We are, therefore, truly thankful to our Donors, partner knowledge institutions, resource persons, volunteers, media persons, friends of HARC who have been immensely helping us in achieving and striving hard to make the society vibrant and resilient against the backdrop of Climate Change & and Covid pandemic situation.

**Dr. Mahendra Singh Kunwar**

**Secretary**

**Himalayan Action Research Centre**

## PREFACE

The Year of 2020-21 was a challenging year for the organization. The challenges arose due to COVID-19 pandemic and changes & amendments in rules & compliances created severe setbacks in which, voluntary sector is also harshly affected. In spite of vast experience, HARC has also bared severe difficulties. This unpredictable situation also affected the operational and financial sustainability of the organization. The year was dedicated to the promotion of technically rich systems with communities of the Himalayan region. Climate being the major player, plays hide and seek with communities and leaves them limited options to act upon. HARC has been keeping its focus intact on replenishing the agriculture practices, enhancing the scientific temper of the communities, invigorating the significance of ecofriendly techniques and diversifying market supply chains. Though at large, the leap required to address the challenges and issues of communities is big. HARC managed to move some steps - helping marginal communities develop adaptation against extremes of climate. To achieve better productive and resilient agriculture practices, major shifts in the way land; water, soil, nutrients and genetic resources of crops are managed for optimum and sustainable production are required. With climate-smart agriculture practices (CSA), soil health management systems, diversification of crops, package of practices, pro-poor climate-smart supply chains are promoted. HARC organized many sensitization workshops cum training events on NTFP, Food processing and Soil and tissue plant culture technique for youths, entrepreneurs, students and farming community of Mountain Himalaya.

## PROMOTING SUSTAINABLE LIVELIHOODS BY INCLUSIVE DEVELOPMENT APPROACH AMONG THE MARGINAL COMMUNITY OF NAUGAON BLOCK OF UTTARKASHI DISTRICT

**PROJECT FOCUS AREA:** Skill training and livelihood enhancement,  
Natural Resource management



**BACKGROUND:** Under project, the Naugaon Block of Yamuna valley of District Uttarkashi has been selected for improving livelihood. Nested remotely in the high Himalayas, the Banal Ghati & Yamuna Ghati is mainly inhabited by ethnic & indigenous communities dwelling twenty-five odd scattered villages dotting the landscape. Located in the rural area of Uttarakhand,. Under project during the period of 3 years total



of 2000 marginal beneficiaries out of which 1250 directly & 750 Indirectly have been targeted to intervene. The project is being implemented with a participatory approach by ensuring participation at all levels of planning & execution. The targeted group is being strengthened majorly on livelihood and natural resource management thematic areas of HDFC Bank Ltd. Over the 3 years, period project will cover 30 villages of 2 geographic clusters, one is *Naugaon* and the other is Dhari Kafnol. Through project interventions, emphasis is being given to enhancing the livelihood of small and marginal farmers by increasing the crop production and productivity by intensification, crop diversification (among citrus fruit and vegetable varieties), area expansion (bringing the new area under horticultural crops) improving the storage infrastructure and backward and forward market linkages for improving the marketing of produce. Thus, climate-resilient improved varieties added with better water management and better soil health management practices will ensure sustainable means of livelihood among the farmers in the future. Following is the brief narrative of major interventions carried out between the project inception month December '21 to till march'22 .

### GOAL :

Empowerment of 2000 (1250 Direct & 750 Indirect) marginal farmers in Yammuna valley of Naugaon block through organizing them in Farmers Interest Groups and building their capacities for better farm-based livelihood.

## **OBJECTIVES**

- To improve the livelihoods and economic security of rural communities through farm production capacities and create a positive impact on their social and economic status.
- Strengthening planning & technical capacities of small & marginal farmers of target project areas through the introduction of eco-friendly and water-efficient technologies for livelihood improvement
- To provide diverse income generation options for sustained livelihood through self-help promotion system, smart technical interventions, and supply chain management.

## **MAJOR INTERVENTIONS:**

### **BASELINE STUDY:**

The main intend of conducting the baseline study was to determine the present socio-economic and knowledge management status of beneficiaries. It involved the systematic collection and presentation of data to give a clear picture of particular situation information on the levels of awareness, knowledge, attitude, and practices of the targeted farmers of the project area. Further, it will be helpful to set benchmark status to measure changes that have occurred over time in the characteristics that were studied before the beginning of the project's inception. To perform the study task, the following processes was adopted.

### **CONDUCTED SURVEY:**

Based on the survey format/tools, information collected through a household-level survey with targeted beneficiaries. 1250 household survey was carried out, to be covered over the period of 3 years.

### **MAJOR FINDINGS OF BASELINE SURVEY:**

1. Soil testing in the area is a required task as the farmers are unaware of the current topography of the soil they are farming and dependent on.
2. Prolonged use of the same variety of seeds like in tomato has led to disease susceptibility of the crops grown, so there is a demand for change in variety which should be climate and disease resilient.
3. Setting up of irrigation units is also one of the major milestone to achieve as farming is climate oriented and prolonged dry spells affect the production negatively.
4. Lack of knowledge regarding disease and pest management is leading to poor practices which need to be amended.

5. Unregulated nutrition management is leading to nutrient toxicity buildup in the soil leading to stunted growth of crops and a decrease in yield.
6. The involvement of the mediator and individual marketing approach under current supply chain/produce marketing, is leading to less income generation.

## **PROJECT INCEPTION WORKSHOP**

A two day (One for Naugaon and another for Dharikafnol cluster) project inception workshop was organized with the objective of effective collaboration, stakeholders role, and implementation strategy of the project on 29th and 30 January 22 at HARC agriculture extension center Naugaon – Uttarkashi. During the workshop, stake-holder was orientated on HDFC Banks' CSR mandate, project objectives, interventions, and implementation strategy as well as the concept of collective production and marketing. Workshop attended by total 88 participants belonging to 15 project villages. During the workshop, the project manager briefed on the project's major intend is to improve the livelihoods and economic security of rural communities through farm production capacities and creating a positive impact on their social and economic status. Besides strengthening planning & technical capacities through the introduction of ecofriendly and water-efficient through federating 1250 farmers of the valley into 63 farmer interest groups "FIG" would be another aspect of interventions so that collectively production and marketing model could be promoted through FIG. during workshop farmer briefed that project is majorly focusing on livelihood through the following approach :

- **Increasing the targeted farmers income** through Increased production up to 30% as compared to previous production practices and 80% of farmers will adopt cash crops as commercial farming for their livelihood development .
- **Formation of farmer interest group "FIG" & water user groups** on resource management, collective production, marketing and internal management system.
- **Natural Resource Management** convert 20 hectares of rain-fed or unirrigated land into irrigated land by taking advantage of renewable energy source through solar irrigation unit.
- **Reduce carbon foot – printing** through Installation and demonstration of Geo tank to tackle the irrigation problems and Promotion of water conservation and precise irrigation practices.



During the meeting senior advisor and secretary of HARC Dr. Mahendra Singh Kunwar briefed farmers on HARC & HDFC CSR Mandate and integration process of backward and forward linkages beside he also emphasized target group must adopt a scientific approach at pre and post-harvest level so that per acres yield and increasing income deliverable could be achieved through project interventions.

## **INSTITUTION BUILDING & NURTURING - FORMATION OF FARMERS INTEREST GROUP**

A Farmer Interest Group (FIG) is a self-managed, independent group of farmers with a shared goal and interest. The members work together to achieve this goal by pooling their existing resources, gaining better access to other resources, and sharing the resulting benefits. Farmers' Interest Group (FIG) is a group approach concept under the Farmers' Producer Organization (FPO). Community



empowerment is a vital tool to effective implementation of development activities. Thus farmers were selected to implement project activities in assigned villages. The project intervention initiated with targeted farmers, these farmers further federated into Farmer Interest Group "FIG". The primary objective of the formation of FIG is to make the ability of targeted community an informed choice, plan and manage livelihood activities in an enterprise mode. Although FIG would have two growth trajectories i.e. social development and economic growth but the project will mainly focus on the economic growth trajectory. In order to achieve this, effective mechanisms to foster democratic



decision-making, ownership, and sustainability, and to demonstrate strengths in working as groups rather than individuals FIG formation has been proposed under the project. Hence to achieve the motive during the course of time 20 FIG's & 2 water user groups were formed under 13 villages covering a total of 400 beneficiaries. The FIG were formed under the combined efforts inhouse and external resource person (institutions strengthening subject experts) that guided the villagers on FIG formation objectives, role of producers, and FIG office bearers under livelihood promotions interventions. The groups were formed on the pre-designed guideline that all the predefined norms and roles & responsibilities were fulfilled by the interested producer. Further to promote a good governance system and transparency in the process, various documents in form of a register like minutes book, producers level contribution register, and production cum income register also developed and being maintained at FIG level.

### **PROMOTION OF SOIL HEALTH MANAGEMENT SYSTEM THROUGH SOIL TESTING AND ANALYSIS**



Soil testing is an important component to improve agriculture production system. Soil testing provides appropriate manure application recommendations for improving soil health. Soil testing also allows for determining the micronutrient requirements of a specific field/crop. Without analysis report, if farmers apply too little manure in the specific crop, yields and returns could be lower but same time if applied too much it will waste time and money. Consequently,

soil testing is the best farm management tool by which farmer could increase their farm yields and reduce operating. Besides it also improved crop quality, higher tolerance to disease and pest attack, and improved plant growth. Particular in project villages' major constraint of the farmers of the region is low productivity, due to this they are not getting proper returns from their agricultural land.

Considering it, 100 soil samples were taken from different hamlets' of 10 selected villages of the project area. During Soil Sample collection, farmers were also trained on soil sample collection techniques and also orientated on the importance of soil health and testing components.



In this exercise, it is found that 70% of the test results are found same. The aim of the activity is to identify crop-specific nutrient status that are lacking in the soil, soil needed to applying balance bio fertilizer for adequate amount of micro and macro nutrients. Further analysis report, results, and recommendations were also shared with the targeted farmers as well as other FIGs members during village-level meetings and soil health cards were also provided. The card contains all the information regarding their soil and a total physical and chemical profile of the soil is defined, which helps farmers to provide precise nutrition to soil and thus increasing the productivity.



सूचक	उत्तरांक		इकाई	वर्गीकरण
	पूरी स्थिति	कुछ स्थिति		
एच (pH)	7.25		अम्ल (ACID): <6.5 क्षारी (ALKALINE): >7.5	सामान्य (NORMAL)
वैश्विक कार्बन (ORGANIC CARBON)	1.30%		बस (LOW): <0.25-0.55% उच्च (HIGH): >1%	मध्यम (MEDIUM)
नाइट्रोजन (NITROGEN)	6.30		बस (LOW): <0.04 (किग्रे/एकड़) उच्च (HIGH): >0.88 (किग्रे/एकड़)	मध्यम (MEDIUM): 0.44-0.88
फॉस्फोरस (PHOSPHOROUS)	0.224		बस (LOW): <0.04 (किग्रे/एकड़) उच्च (HIGH): >0.48 (किग्रे/एकड़)	मध्यम (MEDIUM): 0.04-0.48
पोटैशियम (POTASSIUM)	2.13		बस (LOW): <2.74 (किग्रे/एकड़) उच्च (HIGH): >6.74 (किग्रे/एकड़)	मध्यम (MEDIUM): 2.74-6.74
कैल्शियम (CALCIUM)	—		बस (LOW): उच्च मिट्टी (HIGH ACID SOIL): <0.1% उच्च (HIGH): उच्च मिट्टी (HIGH ACID SOIL): >0.4%	मध्यम (MEDIUM): 0.1-0.4%
मैग्नीशियम (MAGNESIUM)	—		बस (LOW): <0.04 (किग्रे/एकड़) उच्च (HIGH): >0.04 (किग्रे/एकड़)	मध्यम (MEDIUM): 0.04-0.08
विद्युत चालकता (ELECTRICAL CONDUCTIVITY)	0.159		सामान्य (NORMAL): 0.0-0.8 नमक संवेदनशील फसलों के लिए (CRITICAL FOR SALT SENSITIVE CROP) नमक सहनशील फसलों के लिए (CRITICAL FOR SALT TOLERANT CROP) सभी फसलों के लिए अनुकूल (SUITABLE FOR ALL CROPS)	

खर संख्या	फसल	पोषक (किग्रे/एकड़)	नाइट्रोजन (N) (किग्रे/एकड़)	फॉस्फोरस (P) (किग्रे/एकड़)	पोटैशियम (K) (किग्रे/एकड़)	उप
2022	टमाटर	3	हजारे/एकड़ (33)	100	100	

BD: BASAL DOSE (सारा पुराना) अथवा बुझाव - पत्तियों के लिए  
TD: TOP DRESSING (पत्तों में खर डालें)  
(सभी फसलों के लिए अनुकूल मिट्टी के लिए है)

## PROCUREMENT AND DEMONSTRATION OF IMPROVED VARIETIES OF TOMATO

As per the baseline survey finding it was concluded that, throughout the project area prolonged use of same variety of tomato has led to varied negative effects which in turn affect the gross productivity of the entire farming community. The use of varieties like Himsona, Rakshita, Naveen, etc. for a long period has led to disease susceptibility and in turn the use of chemicals for disease control is increasing the resistance of disease. Moreover, poor pest management strategy combined with the long-running same variety on the fields being grown have made the crop more susceptible and vulnerable to pest attacks which leads to crop damage.



Looking at the grave problem, procurement of disease and climate-resilient seeds was one of the major task to be accomplished. Hence with the consultation of various subject matter experts, soil testing finding, and desk research to introduce a suitable variety of tomato seed, two varieties Himraaj and Sahoo respectively were chosen and procured for cultivation, the selected varieties are disease resistant and adequate for the present climatic condition . Further the seeds were demonstrated with 400 farmers in 2 clusters and scientific nursery raising practices were also

demonstrated with the farmers targeted farmers. It is well known that to achieve good yield quality not only seed play an important role but IPNM practices is also of similar importance. Soil testing, showed that the soil of the given area is deficient in micro and macronutrient like calcium, boron zinc, etc, .Hence IPNM material was also procured and its usage will further applied in demonstrated crops with identified farmers, so that nutritional and disease problems could be tackled by introducing the most environment-friendly way possible, which would be cost-efficient yet solve the problem of pre and post-harvest losses. During the period following action were carried out to achieve the increase income goal of project :



- Organized field level demonstration cum technical training on nursery raising, by inviting in house and seed company technical expert at project village
- Assessing the germination percentage of nursery
- Educating farmers on appropriate line Spacing methods in crop transplantation.
- Briefed on manuring, IPNM, and irrigation scheduling in the field

- Regular monitoring of nurseries, and ensuring proper bed raising and technically sound transplantation in fields.



## PROCUREMENT AND DEMONSTRATION OF IMPROVED & MARKET LED VARIETY SEED OF FRENCH BEAN

In the region, farmers are still facing many problems like quality seed material, lack of improved package of practices, poor harvest and storage practices. It results in low productivity and less return from the crop. These problems are affecting the farmers socially as well as economically. Considering these factors, 2 improved variety of French beans i.e. Falguni as a dwarf and Moraleda as a Creeper bean and which is commonly known as pole bean planned to introduced with targeted farmers.



Thus 2400 kg seed of French bean were procured & demonstrated with 400 farmers in 24 hectares. To transfer better knowledge on a package of practices like line sowing, Nutritional and pest management, grass



mulching, staking etc. field level training was planned and carried out between 1<sup>st</sup> March onward and will be continued till May '22 with entire targeted farmers. Thus, by improved knowledge management practices and introduction of high yielding variety of French Beans will definitely contribute to the economic empowerment of marginal farmers of the project area.

## INSTALLATION OF SOLAR BASED WATER LIFTING SYSTEM FOR PROMOTION OF WATER CONSERVATION TECHNIQUE FOR FRAGILE LAND CONDITION OF PROJECT AREA

Similar as other mountain regions, in Naugaon valley more than 80% of the rains are depended upon Monsoon and confined to July and August and the rest of the rainfall is received during winter months i.e. December to February. In rest months of the year, there is always a scarcity of water to meet out agricultural requirements. It is a common phenomenon in upper hills that problem of water scarcity becomes more acute due to erratic behavior of monsoon/ winter rains i.e. early and late onset and closure of rains, which badly affects the sowing and production of crops. To address these problems, solar based water irrigation system with a distribution system was installed at Mateda hamlet at Dhari Kafnol cluster of Naugaon block. The lifted and harvested water will fulfilled the water requirement of demonstrated crops during the lean period/water scarcity period. The major objective of introducing this technique is mainly to increase irrigation area and improve the income level of farmers through producing cash crops. The intervention has targeted to increase at least 4 Hectares irrigated land of target 5 villages, the intervention would facilitate to motivate farmers for adopt commercial cash crops production like tomato, French bean, pea etc. specifically uncultivated land which was not being used due to non-availability of proper and regular irrigation facility. By installation of solar based water lifting system the targeted village have brought 4 hectare of uncultivated land under tomato and French bean cultivation. Further use of solar energy makes the installed system environment friendly and utilizing green energy.



## DEMONSTRATION OF “SHIVANSH KHAAD” TO MINIMIZE THE GAP BETWEEN SOIL AND PLANT HEALTH

Adopting eco-friendly farming to sustain the agricultural production system is the need of the hour. Therefore, under project intervention, it is proposed that decreasing gaps between soil and plant health are contained and nullified with the incorporation of low-cost organic techniques like permaculture “Shivnash Khaad. Permaculture is



a system of agricultural and social design principles centered on directly utilizing the organic biomass available in natural ecosystems. Thus to sensitization and adopting organic manure techniques “Shivansh Khaad” village level training cum demonstration on organic composting called Shivansh had organized with 25 farmers in 5 selected villages of the project area. Shivansh Khaad is so eco-

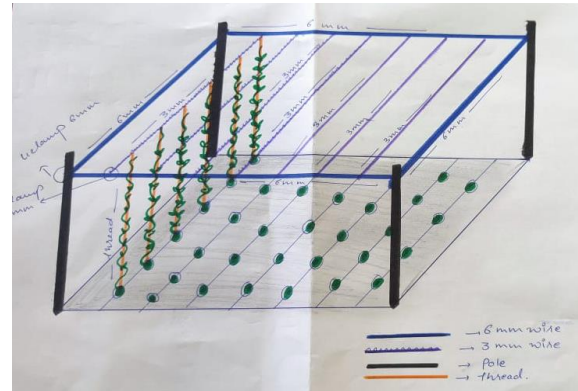
friendly and low cost organic manure preparation technique and does not require any external input so it has a higher probability to replicate fast with major mass. It was an attempt to demonstrate a sustainable way of growing food with a combination of ecology and indigenous knowledge, and to



bring people together for an exchange of ideas and ensuring ecological sustainability. The installed shivansh khaad units are being utilized by beneficiaries as organic manure for their fields and the manure being produced by the technique has high content of nitrogen, organic carbon, humus and other vital macro and micro nutrient.

## DEMONSTRATION OF WIRE STAKING – PROCUREMENT OF WIRE STAKING ACCESSORIES

Staking on tomato and other creeper plants is important to ensure the plant stays upright and is not tangled or fallen over. This will help the plant grow healthier and reach its total potential output during its productive phase of life. The improved and low-cost polymer wire staking technique primarily in climber species (cucumber & tomato) will provide a much-needed breakthrough to the farmers, traditionally farmers of the project area, are using tree bushes as a pole to support their field, especially in climber cash crops, which is a very labor-intensive and not environment-friendly practice. Thus, to eliminate this practice, low-cost polymer wire staking has a plan to demonstrate in 2-hectare land with targeted farmers mainly crops like tomato, cucumber etc. Low-cost staking techniques are not only re-usable but also significantly reduce women's drudgery and biotic pressure on forests. The production with its use is also ought to increase many folds thereby providing an adaptive opportunity to the climate change impacting rural & vulnerable families. Though the wire staking to be demonstrated in April -May month once the plant takes its appropriate height but prior to demonstrating it was quite necessary to procure and make arrangement of required items like polymer wire, J hook, clip, UV twin thread hence required material was procured during the month of March 2022.



## ORGANIZED EXPOSURE VISIT OF SELECTED FARMERS ON IMPROVING CULTIVATION AND PACKAGE OF PRACTICES

It is a common scenario that most of the mountain farmers are under marginal land holding capacity besides per acres production of crop is very less in comparison to national production average. So it is necessary to increase per acres yield by adopting appropriate package of practices. Exposure visit is an effective tool to learn by observation and sharing knowledge especially for those who are adults, it also allows farmers to interact with each other and learn successful integration of sustainable practices applied by them in their respective area. Hence, a 3 day, exposure visit was organized at recognized horticulture institutes like Krishi Vigyan Kendra and Regional Horticulture Research & Training Station, Dhaulakunwa between 26th to 27th March'22. The major objective of the exposure visit was to improve the knowledge level of target farmers on scientific farm practices so that desirable yield through the demonstrated crop could be achieved. Besides, yield, it was also focused on avail knowledge on farm-related techniques like staking, IPNM practices, improve cultivar of citrus etc. Under exposure visit, 15 selected farmers from FIGs of the project villages were took participated. The process adopted a more participatory, interactive, and need-based approach.

During the visit, farmer also interact with regional level buyers and officials of APMC market located in Vikashnagr and Dehradun to integrate backward and forward linkages. Besides Farmer also interact with the Secretary of HARC, he briefed farmers on HDFC and HARC mandates and provide their inputs on expected outcomes to be achieved through project interventions. Under follow up strategy of exposure learning, it has a plan that the knowledge and skills gained by selected farmers, learning will be shared with the rest farmers of the FIG members (farmer's interest groups) through their monthly meeting.

### **PROCUREMENT OF IPNM MATERIAL:**



During the baseline survey and interaction with targeted farmers it was found that the French bean crop of the area is highly affected by a fungal infection, powdery mildew and mosaic. Further, the pod produced was affected by aphids and thrips (pest that causes a huge loss). Similarly in tomato crop tomato, the crop is highly affected by late blight disease, bacterial stem & fruit canker, early blight, yellow leaf curl disease that causes black circular spots on leaves, stems and fruits and as wilting of leaves and shoots, White blister-like spots in the margins of leaves tan colored and rough Vascular discoloration is commonly seen in split open stems and finely damage the fruit and cause huge losses. Hence to avoid such possible threats and reduce crop losses in demonstrated crops like French bean, tomato, cucumber, IPNM material was procured. The application of IPNM material not only help to ensure minimum pre and post-harvest losses but also facilitate to promote of improved & integrated disease and pest management practices among marginal farmers to sustain their farm-based income.

### **DIVERSIFICATION IN THE SOURCE OF INCOME BY COMMERCIAL VEGETABLE CROPS CULTIVATION - PROCUREMENT OF CUCUMBER SEED**

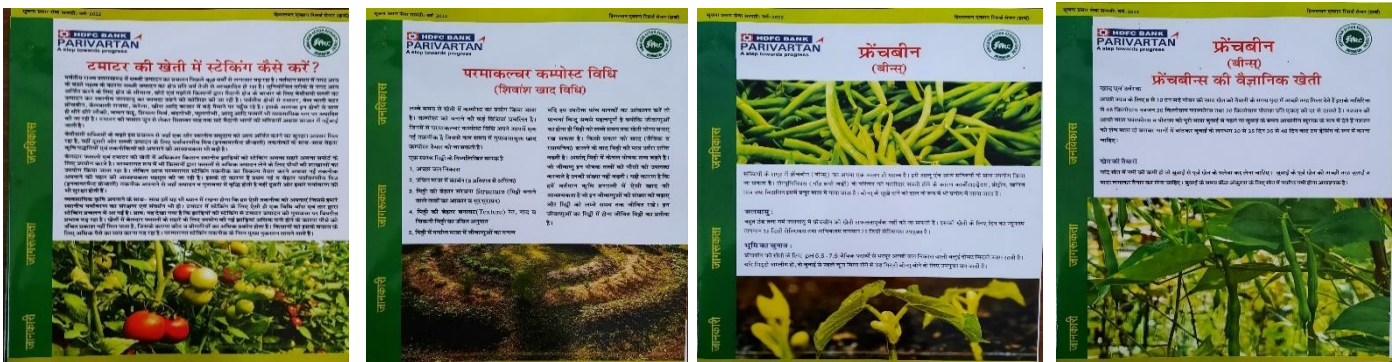
The enhanced way of promoting commercial vegetable production for sustainable income for the marginal farmers of the rain-fed, fragile ecosystem of the Himalayan region. Under the project strategically to achieve the scale of good income it has been plan that each farmer will adopt 2-3 crops cycle, Cucumber is one of them which has the plan to be cultivated minimum in .02 hectare/farmer. Thus, along with tomato and French bean, an improved variety of cucumber seed procured and will be demonstrated during the April-May, propose crop will assist farmers in



ensuring a diversified way of their farm-based livelihood. To serve the objective of increasing income cucumber seed will be demonstrated with 200 farmers in the project area. To develop a producer-owned supply chain besides of input support, experts' visit advisory services and exposure visits to technical and market related will also carry out with targeted farmers to enrich their farm skills and knowledge on promoted crops.

**IEC MATERIAL DEVELOPMENT:**

Information, education & communication materials played an important role to disseminate knowledge among large mass though various means like folders, pamphlets, flex posters, sign board, etc.. Under project various crops and techniques related to farm is being demonstrated, hence for its effective adaptation and replication it is quite necessary to explain simplest method and disseminate it to the target group in a systematic manner. Therefore total of 4 folders i.e. package of practices (POP) on dwarf and creeper variety of French bean, tomato wire staking and Shivansh khaad (permaculture technique) preparation technique were developed during the months. Besides promoting branding of HDFC bank initiatives toward sustainable growth, a signboard and 25 small size sign board for Shivansh Khaad unit were also developed and installed at the project site. Further POP material will be distributed to the farmers during village-level meetings for better knowledge management .



**PROGRAM MONITORING QUARTERLY MEETING ON PROGRAM PROGRESS AND FINDINGS**

A 2 days quarterly program review and planning meeting was organized on 27th & 28th March'31 at HARC office Dehradun. Day first project progress was presented to board members of Himalayan Action Research Centre "HARC" while day second was majorly dedicated on presenting project progress, output and changes faced during the implementation by the team to the secretary and senior advisor of the organization, After a day-long process followed by a presentation, participatory group exercise, corrective measures suggested by the secretary considering to project output and mandate, incorporated under the upcoming quarterly action plan. The process helps to track



### **Achievements:**

- Federate 400 farmers into 20 FIG & 2 water users' group.
- Covered 4 hectares of unirrigated land of 105 producer into the irrigated area through the installation of an eco-friendly solar water irrigation system.
- Covers 24 hectares of land under cash crops and vegetable cultivation which will leads to food, nutritional and economic security of marginal farmers .
- Introduced market-led French bean, tomato and Cucumber crop about 72 hectare rainfed agriculture land with 400 farmers .

## PROMOTE QUALITY SPAWN PRODUCTION AND BUILDING KNOWLEDGE OF STAKEHOLDERS IN MUSHROOM PRODUCTION

**BACKGROUND-** In India, we have somewhat achieved food security but struggle to achieve nutritional security is still the major issue. In future, continuously increasing population, depleting agricultural land, changes in climate, water scarcity and need for quality food are going to be important issues in Himalayan region. To meet these challenges and to provide food and nutritional security to our people, it is important to diversify the agricultural activities in areas like horticulture. Indian diet is primarily based on cereals (wheat, rice and maize) which are deficient in protein. Mushrooms are one such component that not only impart diversification but also help in addressing the problems of quality food, health and environment related issues. In Uttarakhand the production of edible mushroom is promoted at all level. But the major issue in the production was the availability of quality spawn in the region. After considering the issue and varietal gap, spawn production unit is proposed for development of quality spawn of different varieties. The intervention not only bridge the gap between the quality products and different varieties but also facilitate sustaining livelihood of the marginal community.



Geographical area : Uttarkashi district of Uttarakhand

### OBJECTIVES:

- To develop quality spawn of various varieties (Button, Oyster and Ganoderma) , for mushroom production in Himalayan region
- To provide the sustainable source of income and promote mushroom cultivation in the region
- To build capacity of progressive farmers, small entrepreneurs and researchers through trainings and demonstrations.

### MAJOR INTERVENTIONS:

#### PROCUREMENT OF CHEMICALS, AND GLASSWARE FOR MUSHROOM SPAWN PRODUCTION AND CULTIVATION

Mushroom is a fungus of family *Agaricaceae*, fungus with mushroom-fruiting bodies. Being a single cellular organism fungus attains growth on a substrate or medium for which a set of chemicals were

required during the course of mushroom cultivation training. Thus necessary chemicals were procured for the process of mushroom cultivation, apart of chemicals some glassware, PPK Neck ring, and an autoclavable bag which were required for basic-level quality spawn production also procured. Procured chemicals were utilized at lab in media preparation for growing mushroom on PDA (Potato dextrose agar), and further fresh cultures were used in the preparation of mother spawn for mushrooms.

### **PROCUREMENT OF REQUIRED MATERIALS AND GRAINS FOR MUSHROOM MASS MULTIPLICATION AND CULTIVATION:**

Lists of materials were required for the process of mushroom spawn production and mass multiplication. Mushroom is a single cellular eukaryotic organism that does not do photosynthesis, so rather than producing their food they attain nutrients from the substrate, the mushrooms tend to grow on cellulose and lignin based substrate, cellulose and lignin make a major part of plant cell so wheat husk, saw dust by product stands to be a rich and easily available source of the substrate of growth medium for mushroom spawn. As mushroom is a prokaryotic organism so they don't get cultivated like crops via seeds or any vegetative method, mushroom cultures are loaded on a loading material that will act as seed (spawn) for mushroom cultivation. Thus to provide hands-on technical training in systematic manner, required materials e.g. wheat straw & other necessary ingredients were also procured to carry out field-level demonstrations to target participants.

### **PRACTICAL DEMONSTRATION OF OYSTER MUSHROOM PRODUCTION:**

Practical demonstration of various variety of mushroom has set an important part of the training to transfer targeted participants under the project's capacity building interventions. Thus to serve the set objectives total two training to 49 participants belonging to Kalsi area of Dehradun were organized on mushroom cultivation though structured training. The training program was organized at Kalsi block of Dehradun which were majorly on "commercial button mushroom cultivation". During the training, subject expert skilled to targeted participants on button mushroom cultivation process & its management. The process of the substrate preparation along with the method of raw materials was disseminated through hands-on training to participants, Besides, the method of crop room construction, method of spawning, casing, cropping, harvesting and disposition of the used



substrate also demonstrate to the target beneficiaries. Trainer, briefed majorly on two components, one is composting (Preparation of substrate) & another on crop management practices (Raising of mushroom crop from the substrate) .

### **CONCLUSION & RECOMMENDATION:**

The findings of the training indicate that trainees were found to be satisfied with respect to various aspects of mushroom training program organized by Himalayan Action Research Centre “HARC”. During the training, Trainees suggested that such kind training programmers highly effective in meeting their expectations and they gained knowledge in different mushroom cultivation practices. Further it also came during the training that, problems of the non-availability of quality of spawn, lack of knowledge management institute at the local level and distance market are some challenges expressed by most of the participants. Thus government should promote the processing of mushrooms so that market prices may remain stable and remunerative for the mushroom growers. Timely market information and availability of good quality spawn may also improve the adoption of mushroom cultivation enterprise in the local level. Further participants also suggested that the training program should be long duration period so that a complete cycle of mushroom cultivation could be experienced.

#### **Achievements:**

- Knowledge management of 49 youths/ famers/ entrepreneur build on better package of practices related to mushroom cultivation.
- Systematic application of management strategies related to button and oyster mushroom farming introduced with the targeted participant.

## INTEGRATED AGRICULTURE DEVELOPMENT FOR FOOD AND ECONOMIC SECURITY OF REMOTE VILLAGES IN PINDAR VALLEY

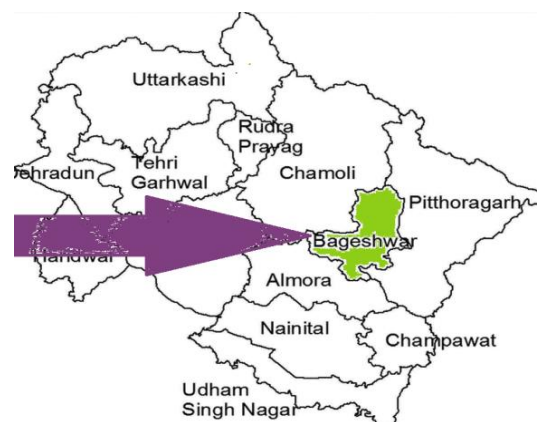
### PROJECT BACKGROUND



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. Khata 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.



**GEOGRAPHICAL COVERAGE:** 7 villages of Kapkot block of Bageshwar district of Uttarakhand which were selected for the interventions. Under project interventions more than 1000 farmers were covered as major beneficiaries of the program

## 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 INTERVENTIONS:

### **STRENGTHEN OF PINDARI AUTONOMOUS COOPERATIVE/PGS MEMBERS ON GOOD GOVERNANCE SYSTEM & SUPPLY CHAIN MANAGEMENT CAPACITY**

During the inception of project, it has decided that to overcome scattered and limited resource it is necessary to promote collective production and marketing approach among the targeted community. Thus targeted producers were federated in producers' groups and cooperative. To promote good governance and internal management system it was also necessary to reinforce these body frequently basis through meeting, training and exposure. . Therefore, making the institution (PGs and their apex body cooperative as a vibrant community institution 19 field visit was organized between April to December 2021. During the visit 650 producer members belong to PGs as well as cooperatives were orientated on documentation and re-visited each stakeholder's role & responsibilities. The major intent of these visit cum orientations event was to sensitize producer groups on streamlined group-based activity e.g. Organising regular PG monthly meeting, Selection process of farmers for demonstration, Production planning for upcoming activities, collective decision making process, supply chain and marketing related operations. Thrust during meeting was also given on basic planning capacity to formulate strategies to scale-up quality production & strengthening pro- poor market led supply chain. Besides 9 village levels meeting cum orientation program was also organized for newly selected producers in Teekh & Dola village focusing to group approach, crop sowing planning . During PGs meeting Identification and production planning in cluster approach , 600 farmers were selected for pea & garlic crop cultivation.



## **HORTICULTURE ( APPLE ) CROP MANAGEMENT AND FOLLOW-UP VISITS FOR ASSESSING THE SURVIVAL AND FRUITING STATUS.**

During the year 2021-22, 3 training program was carried out between April – September'21 at Wachham, Khati, Sorag and Badiyakot Villages in Pindari valley. During the training farmers was sensitized on major insects, and pests management practices in apple crops and their effective management by applying organic practices. Besides, farmer were also briefed on the nutrient requirement and its appropriate application in crop. Thus, training aims was improve farmers' knowledge on apple as well as other horticulture crops being cultivated in the field. Further to assess apple crop promotion's impact, visit to assess survivable status were also carried out, which showed that current survival % of apple plants is about 82% & about 1.5 metric ton of production of apple fruit samples is recorded is estimated by field level assessment.



## **DEMONSTRATION CUM TRAINING ON PEA CROP**

Hasty change in weather conditions has perilously affected traditional agriculture which constitutes the mainstay of the rural economy. Hence exploring alternative agro-based livelihood options to ensure “food, nutrition & livelihood” security of the marginal mountain community is a need of hour. Considering these factors, an improved variety of Pea GS-10 introduced with targeted farmers of Pindar valley. Demonstrated variety is the well suited, adaptive and market-led crop for commercial farming. Thus 350 kg seed of pea were demonstrated with 350 farmers in 5 hectare land of 7 project Villages. Further to transfer adequate knowledge on production, on farm training was conducted between 12<sup>th</sup> August to 18<sup>th</sup> August 2021 at Khati, Wachham, Sorag, Teek, Dola, Badiyakot and Kilpara Villages in Pindari valley. During the training better package of practices like - line sowing, weed management and grass mulching practices were transferred to targeted farmers. It was also noticed that due to rainfall in the region, occur fluctuation in temperature that results low germination rate about 60% & slowdown in crop growth as compared to normal growth.





## **FIELD LEVEL TRAINING ON INSECTS, PEST AND NUTRIENT MANAGEMENT (IPNM) IN APPLE ORCHARD**

To produce diversified and sustain source of income, HARC has introduced 15,000 plantlets of improved variety of Apple & Walnut Plant in last 3 years with 485 farmers at Selected Villages (Wachham, khati, Sorag ,Dola, Teek, kilpara & Badiyakot) in project area. Though the geography and climate of pindar valley itself a favorable for horticulture crops but other hand farmers having the very limited skill to manage horticulture crops. To upgrade the technical skills of farmers, HARC frequently conducts knowledge management activity at the field level. During the year, demonstration on IPNM Application through inviting practitioners at all apple crops field ensured, so that survivable % , growth, and sustainable crop management practices could be transferred to producers prior to project get over.



## **FOLLOW UP AND MANAGEMENT OF PROTECTED CULTIVATION CROPS IN POLY HOUSES**

To produce diversified and sustainable source of income, 90 poly-houses were introduced with 90 farmers in year 2017-18, in 5 Selected Villages (Wachham, khati Sorag , kilpara & Badiyakot) of project area. Though the geography and climate Pindar valley itself is suitable for Cole crop

production. Thus, considering to seasonality, climate and securing food & economic security of target farmer's, a demonstration of Capsicum, Broccoli, Cucumber & Tomato crops were carried out in poly-house with 90 farmers of 5 project villages. For better growth & production regular follow-up visit was carried out during July & August month. It was noticed that due to heavy rainfall in the region, occur fluctuation in temperature that results in slow growth in capsicum crop as compared to normal growth. As an outcome the total production of demonstrated crop was about 21.5 Metric Ton which has contributed significantly in the economic, food and nutritional security of marginal farmers residing in remote and adverse climate zone.



### **STREAMLINED PRO-POOR SUPPLY CHAIN :**

For Strengthening pro-poor and market-led supply chain, HARC, facilitate to explore of new market & product opportunity to producers at local and regional level. In order to achieve economic security, producers were linked with potential buyers and sold 101 quintal of various crops like French beans at local and outside mandis situated at Bageshwar and Haldwani.



## DEMONSTRATION OF IMPROVED VARIETIES OF FRENCH BEAN

In the region, farmers are still facing many problems like non availability of quality seed material, lack of proper package of practices, poor harvest and storage practices. It result low multiplication rate and low productivity of crop. These problems are affecting the farmers socially as well as economically. There is a critical need to explore alternative agro-based livelihood options to ensure security of “food, nutrition & livelihood”. Considering these factors, 300 kg seed of improved variety of French beans were demonstrated with 300 farmers in 6 hectare of 7 selected Villages of the project area. For transfer better knowledge in package of practices like line sowing, Nutritional and pest management, grass mulching etc field level training was carried out between 12th April to 16th April 2021 to targeted farmers of project area .



## HAND HOLD & SKILL TRAINING ON PROCESSING & PACKAGING TO PRODUCERS GROUPS & COOPERATIVE

To explore value addition and processing-based activity among cooperatives, two clusters level hand hold & Skill training on preservation & processing was organized between 21st April to 22nd April 2021 at Teek village of the project area. The main objective of this activity was to develop the skill of producer and their apex body “cooperative” on processing & packaging of value added products. During the training subject expert demonstrated the processing of Rhododendron squash making process with hands on practical session. The main thrust was given on improved practices of quality parameters of processing & packaging with hygienic techniques. Besides, two days cluster level hand hold & Skill training on Packaging of finished products, quality parameters of packaging and other quality measure was also organized during June 2021 at Cooperative’s collection centre.



## QUARTERLY REVIEW MEETING OF PROJECT

To envisage a progress of IVDP (Bageshwar) project, during the project period, 2 review cum planning workshop was organized at HARC office, Dehradun. During the workshop, field staff presented the project's interventions progress, output, and outcome as well as challenges faced during the activity execution.



### IMPACTS:

- ✓ More than 500 farmers covered under apple plantation & 82% survival rate is recorded of 15,000 plants that were transplanted in year 2017, 2018 & 2020. 15% fruit Sample recorded on apple plant of year 2017 & 2018 while 25% in year 2020
- ✓ Adaptation of commercial crop planning by 600 farmers & development cadre of 12 skill persons.
- ✓ In 5 years project- 72 % of the households (30 % higher than the non-project areas) have more than four sources of gaining income from horticulture and agriculture crops. Average Income per farmer from poly-house is ranging NR 5000 - 7000 per season
- ✓ Food security increases by 40% by self-consumption of cash crop, Increased volume by 55 % in comparison to previous year.
- ✓ An increase of 40 % usage of solar based all weather irrigation system for irrigation during lean period. More than 2 hectares non- irrigated land is covered under irrigation system.
- ✓ Use of organic pesticides and organic insecticides is increased significantly in the project villages by 32 percent as compared to the non-project villages. Approximately

## UTTARAKHAND COOPERATIVE DEVELOPMENT PROJECT (UKCDP)

### PROJECT BACKGROUND

Uttarakhand Cooperative Development Project “UKCDP” is being implemented by the department of cooperative “Uttarakhand” in the state through the financial support of NCDC. The overall goal of the project is to create livelihood opportunities through cooperative cluster farming & improve the financial status of Multipurpose autonomous cooperative society “MPACS” that exists in the state. Promotions of Collective Cooperative farming is one of the major interventions which is being initiated through MPACS for the upliftment of the rural population especially members associated with the MPACS. Himalayan Action Research Centre “HARC” is acting as knowledge management & technical agency to plan, mobilize and facilitate project interventions at field level. Under project interventions 3 major value chain i.e. vegetable & spices, beekeeping and Mushroom cultivation has been planned to carry out with target farmers ( Member of Multipurpose Primary Agriculture Cooperative Society “MPACS” ) in Garhwal region of Uttarakhand. Under the specified value chain financial support under Pandit Din Dayal Upadhyay Scheme is being provided to the targeted beneficiary as per the scheme’s criteria, besides the provision of capacity building and skill development through technical agency HARC is providing handholding support for technical services in Garhwal region through Uttarkhand Cooperative Development Project (UKCDP).



### 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- ri, 6-Joshimath, 7-Dasoli, 8-Tharathe, 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 off total 2300 belong to schedule tribes , 1700 OBC and remain are general & SC category.



## OBJECTIVES:

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

## MAJOR INTERVENTIONS:

### FINALIZATION OF MPACS MICRO PLAN :

Micro plan which is a pre-guided document jointly prepared with MPACS office bearers and members with facilitation of HARC in the previous year as a draft document. During the year same was re- validate and discuss with MPAC's representative as well as an official of the project directorate for finalized to it, thus total 27 micro plans focusing to MPACs are engaged or to be engaged in bee keeping, vegetables- spices and Mushroom value chain were finalized and submitted to directorate of UKCDP for further course of action. Under the micro plan, financial feasibility plan , round-the-year business activity, input cost, income and MPACS margin under a specific value chain were briefed so that concern MPAC's could follow it, for improving their business-orientated activities.



### VEGETABLE AND SPICES VALUE CHAIN :

To promote cooperative cluster farming various market-led and climate-adaptive crops have been identified under the vegetable and spice value chain. During the year, Under the Vegetables and Spice value chain production of potato, peas, garlic, and French beans demonstrated in 9 districts with total 2227 farmers. HARC as a knowledge management agency, provided facilitation support on a scientific package of practices related to sowing, IPNM and harvesting, further jointly with KPMG which is a project management unit of UKCDP, HARC also provided market linkages support through organizing interaction meet of buyer & MPACs producers in Uttarkashi, and Chamoli, especially for surplus volume commodity like potato.



Besides of above, following capacity building cum technical capacities of targeted farmers were also developed through organizing structure and field-level facilitation support as tabulated below :

#	Name of pieces of training	District	MPACS	No. of beneficiaries
1	Institutional Strengthening	6	26	1249
2	Technical training on pre and post harvesting	6	15	i
3	Marketing techniques	4	4	40
4	Spawn preparation, storage and unit operation of Button Oyester and shitake mushroom	1	400	400
5	Beekeeping management	3	7	249



### **BEEKEEPING VALUE CHAIN:**

With intend to improve the economic and social security of marginal community of mountain villages of state of Uttarakhand through the establishment of sustainable cluster-based economic activities, beekeeping value chain has been identified to promote with about 1000 HH in Garhwal region. The fundamental problem to be addressed under the project is the lack of income-generating opportunities in growth value chains that can promote the integration of poor rural honey cultivators into the mainstream economy. Specifically, assisting producers/cultivators in moving from subsistence to commercial level beekeeping /honey processing in such a way that they will have access to sustainable markets. The most suitable bee to rear in mountains is the *Apis Indica* so the project envisages promoting the indica bee in order to develop the beekeeping as business activity through a cluster approach. Under project intervention, over three years 1000 households in 4 districts has been targeted. In order to achieve it, during the year, in the first phase HARC jointly with MPACs representative identified 700 farmers in a major potential hill area Chamoli & Uttarkashi. Through, a rigorous selection and loan lending-related documentation process. As an output, a total 3189 units of bee boxes to 689 farmers belonging to Uttarkashi, Chamoli, and Rudraprayag district of Uttarakhand were distributed through MPACS . Besides, to extend the coverage and to promote beekeeping value chain larger way, 500 producers also have been identified in Dehradun, Uttarkashi & Chamoli districts of Uttarakhand.

## **MUSHROOM VALUE CHAIN :**

Cultivated mushrooms have now become popular all over the world. There are over 200 genera of macrofungi which contain species of use to people. Mushroom cultivation can directly improve livelihood through economic, nutritional, and medicinal contributions. Mushroom production has been a commercially viable practice in the mountain hills for a long time, but it has not been so popular in Himalayan region of Uttarakhand due to unawareness of the scope and lack of knowledge and advance techniques. 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 were plan to target for mushroom cultivation, During the period, 51 interested farmers belongs to Kalsi and Raipur were identified for mushroom cultivation, which will be further supported with financing as a loan product by MPACs, while augmenting of Infrastructure, technical, managerial, marketing support will be provided by District cooperative development Development Federation "DCDF" which is a nodal agency for selected value chain under the project.

### **Achievements:**

- ✓ Establish 6700 MT vegetables supply chain, valued of Rs. 101.6 lacs of potato, 66 lacs of Peas & 25.5 lacs of french beans crop through MPACs.
- ✓ 4258 farmers trained in basic management practices of crop production & improved beekeeping. techniques etc
- ✓ 3241 units of bee boxes were demonstrated with 689 farmers , besides list out and trained to 51 famers in mushroom cultivation.
- ✓ Develop 27 micro plan for 25 MPACS . exists in 6 districts of the Garhwal region Uttarakhand



## CAPACITY BUILDING CUM AWARENESS WORKSHOP ON FOREST BASED LIVELIHOODS TARGETING LOCAL COMMUNITY



Forests are the major part of sustainable development and provide us various natural services, along with that also play an important role in economy of country. The Himalayas are the important source of food, energy and wood, these resources directly contributes to the livelihood of millions of people living in Himalayan community. The majority of mountain community depends on natural resources and agriculture for their livelihoods. Non-timber forest products (NTFPs) constitute an important source of livelihood for millions of people from forest fringe communities across the Himalayas. But due to climate change mountain livelihood is severely affected, which has somehow affected their food and economic security. Furthermore, the NTFP extraction has multiplier effects on the economy by generating employment and income in downstream processing and trading activities. However, the depletion of NTFPs resources on account of indiscriminate exploitation, deforestation, and forest degradation have a major issue of concern that may affect the NTFP based livelihood and economics. HARC with the collaboration of Uttarakhand Council for Science and Technology (UCOST), conducted 1 workshop with marginal farmers of Chakrata and Kalsi block of Dehradun district . The workshop was an attempt to outline the extent, reliance and livelihood significance of NTFPs and forest based resources for forest-dependent communities and to suggest strategies for their sustainable development and utilization. The purpose of the workshops was to develop awareness among the locals about the importance of NTFP and forest based livelihood. The workshops was designed, which included guest interaction, presentation and practical session (FGD) with the participants. Invited guests Dr. S.S Negi Ex-Director General, FRI-Dehradun, Mrs. Kalyani-Divisional Forest Officer, Chakrata Division, and Secretary of HARC provided descriptive and effective ways of Utilisation & skill improvement pertaining to NTFP based livelihood as well as future perspectives. During the workshop total 68 Participants were presented. This workshop was organized to bridge up the knowledge gap between the local community and government officials. Knowledge awareness workshops definitely play a strategic role by increasing self-confidence among farmers and in undertaking small-scale value addition through NTFP based produces at household level. It also enhance the knowledge level of farmers related to NTFP and ethno-botanical practices.



## AWARENESS WORKSHOPS CUM TRAININGS OF FARMERS OF UTTARKASHI & CHAMOLI DISTRICT OF UTTARAKHAND

In Himalayan region of Uttarakhand, agriculture remains the primary source of sustenance for a majority of residents who mostly belong to the socially backward castes. Once widely known for its fertile soils, the Uttarakhand region is continuously witnessing aggravated effects of global phenomenon of climate change that has adversely affected the natural resources of the area, especially the quality of soil, thereby threatening the security of food & livelihood of the region. Deforestation, Overgrazing, and cultivation of slopes not suited to agriculture together with the farming practice that do not include conservation measures are the major causes for soil erosion in much of Uttarakhand highland areas. Good management of soils, better agri-allied activity (Mushroom cultivation) and adaptation of upgraded plant propagation techniques and local resource based food processing & value addition are essential to enhance the sustainable means of livelihood in the fragile mountain region. Adaptation of community towards scientific methodologies needs to be promoted for better productivity and income generation. Considering the potential of Himalayas and the knowledge gap among the local community, Himalayan Action Research Centre (HARC) with support of Uttarakhand Council for Science & Technology (UCOST) conducted the 5 awareness workshops cum capacity building training were organized at Chamoli districts of Uttarakhand on following subjective area :



- 1- HARC Organized 3 training (2-3 days each) to farmers, rural unemployed youths and college students at HARC Naugaon centre on “commercial mushroom cultivation & soil health management” & “Soil health management & Tissue culture technique”. The training’s aim was to develop better understanding and skill development of stakeholders for better soil health management, understanding and skill development on commercial cultivation of mushroom (Oyster, Button and Ganoderma), & plant tissue culture techniques, during the 5 training which was organised between April – December '21 total 200 Participant were participated and trained on the above-briefed subject.



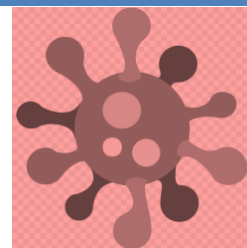
2- Apart of above, Considering the importance of value addition at local level and equal gender participation in income generation activities for improved household food security, Two workshops on “Role of Food Processing and Preservation in Women Livelihood Promotion” were organized first at GMVN -Kaleshwar- Chamoli and another at Gairsain, Chamoli. During awareness, cum knowledge management workshop input delivered related to appropriate methods of preservation of various seasonal fruits and vegetables at the household level to 250 participants by subject-specific expert . The purpose of these workshops was to create awareness among the locals especially women about the importance of value addition of fruits and vegetables to avoid wastage and to preserve them for their own use as well as an income source. Another reason was to empower the participants to embrace new methods of value addition on household level, preparation of nutritious quality bi products, preserved them for a long time as a sustainable mode of economic and food security. These workshops were designed with facilitator’s interaction, presentation and practical session with the participants, involvement and interest level of participants and targeting learning objectives during exercise.

The workshop findings and analyses have confirmed the strategic role that such types of interventions can play in rural and urban situations where women are too often marginalized in income-generation activities and decision-making processes. As a result of capacity building interventions, to enhance local skills in value addition, SHG women will able to generate substantial income and use this towards their own family welfare developments. Workshops also play a strategic role by increasing self confidence among farm women and in undertaking small scale food processing of value-added products at village level.



## HARC INITIATIVES AGAINST COVID-19

Past 2- 3 year entire world is fighting against global pandemic COVID-19, a widespread biological disaster that has not only affected the community's health but also has put the source of living under pressure. Various efforts have been done by Government and Non – Government organizations to reduce pre and post COVID-19 affects. Livelihood and economic services are also affected greatly due to COVID-19. HARC recognized that the marginal community like farmers are adversely affected at present due to pre and post-effect of Pandemic COVID-19. To overcome and mitigate to its effect, HARC initiated to make aware 2535 farmer of the project area by disseminating crop-specific guidelines and public interest-related information disseminated by the State & Central Govt. of India time to time . Besides this, HARC also distributed 30-Oximeter, 30 Infrared Thermometer, 20- PPPE Kit, 1500- Mask & 235 lit- sanitizer to PH centers volunteers, cooperative members and Corona warriors in collaboration with local government bodies as well as other agencies , especially in HARC'S project area Uttarkashi & Chamoli district of Uttarakhand.



## VISITORS/VOLUNTEERS

During 2020-21, 71 different visitors made the scheduled visits to our centers at Dehradun, Naugaon & Kaleshwar region , around 45 people from diverse background and experiences made the scheduled visits to the organization. In addition, regular networking and linkages were established with 13 other experts from various resource institutions and agencies. During the year, the organization also hosted 7 students from different universities for internship activities. During their internship with the organization, the students learned and provided their assistance in rural livelihood and role of soil and tissue culture technique in horticulture promotions, assimilating and updating schemes and policies of various governments, and other financial institutions for enriching knowledge database of the organization.

## ANNEXUARE -1 -HARC BOARD MEMBERS

#	Name	Design.	Address	Skill/ Expertise	Education Qualification
1	Dr.Vandana Thapliyal, W/O Shri Praveen Thapliyal	President	Shiv Krippa Sangam Vihar Chaura PO Kilkeshwar, Tehri Garhwal	Environment educator	D.Phil
2	Dr. Mahendra S. Kunwar, S/O Late Shri Kundan Singh Kunwar	Secretary	103, Engineers Enclave GMS Road, Dehradun	Environmentalist and livelihood development expert	D.Phil
3	Shri Ramesh Singh, S/O Shri Abbal Singh	Treasurer	Vill. Kulendu, Masauli, Chamoli, 246473	Livelihood development expert	Masters in Commerce
4	Prof. OP Kandari, S/O Shri Narain Singh Kandari	Member	C- 105, Alfa Tower, Haridwar-ISBT bypass road, Ajabpur Kalan, Dehrdun,	Rural Tourism development expert	D. Phil
5	Prof. D.R. Purohit, S/O Late Sh. Urbi Datt Purohit	Member	Vidhyadhar Shri kala, Veer Chand Garhwali Marg	Uttrakhand Tradition and culture expert	D.Phil
6	Shri. Ajay Agrawal, S/O Shr. D.L. Agrawal	Member	D-10 Tula's Garden 8 Kalidas Marg, Dehradun	Finance & Enterprise Development Expert	Masters in Commerce
7	Shri. Uday Shankar Gupta, S/O Shri A. S Gupta	Member	100, Anand Lok New Delhi	Finance Management Expert	Masters in Commerce