

Project Completion Report

2014-2022

Tribal Development Fund (TDF)

Integrated Tribal Development Project in
Rupi, Chhota Kamba and Nathpa Gram
Panchayats of Nichar Block, District
Kinnaur, Himachal Pradesh.



Hill Agriculture and Rural Development Promotion Society (HARP)

Thakur Niwas, Dudhali, Shimla-171003, Himachal Pradesh

Email: harp.sml@gmail.com ; 0177 2652144; 9816643144

Project Completion Report (PCR)

Integrated Tribal Development Project in Ruppi, Chhota Kamba and Nathpa Gram Panchayats of Nichar Block, District Kinnaur, Himachal Pradesh



Implemented under

Tribal Development Fund (TDF) of NABARD

TABLE OF CONTENTS

PARTICULARS	PAGE No(s).
I. INTRODUCTION	1
1. Background	1
2. General Feature of Project Area	2
2.1. Location	2
2.2. Topography and Elevation	4
2.3. Slope	6
2.4. Soils	6
2.5. Drainage	7
2.6. Climate	8
2.7. Land use and Land cover	8
3. Project Profile after Execution	10
II. OBJECTIVES	11
III. PROGRAMME COMPONENTS-COMPLETION	12
1. Livelihood Programme	12
1.1. Orchard based livelihood	12
1.1.1. Horticulture Development	12
1.1.1.1. Establishment of wadis	12
1.1.1.1.1. Creating awareness about the programme and sensitization of wadi farmers	14
1.1.1.1.2. Layout plan of orchards, pit digging and pit filling	14
1.1.1.1.3. Arrangement of planting material	15
1.1.1.1.4. Demonstration of method of plantation	16
1.1.1.1.5. Procurement of planting material	17
1.1.1.1.6. Distribution of plant saplings	18
1.1.1.1.7. Demonstration of method of treatment of apple plant saplings	18
1.1.1.1.8. Transportation of planting material	19
1.1.1.2. Wadi models and area coverage	19
1.1.1.3. Plants required per unit of wadi model	20
1.1.1.4. Planting material procured and distributed	21
1.1.1.5. Panchayat wise plants distributed/planted	22
1.1.1.6. Border plantation	23
1.1.1.7. Mortality analysis	24
1.1.1.8. Intercropping	25
1.1.1.9. Fertilizer and plant protection material	27
1.1.1.10. Horticulture tools provided to wadi farmers	28

1.1.1.11. Irrigation pipes provided to wadi farmers	29
1.1.1.12. Drip Irrigation	30
1.1.2. Water Resource Development (WRD)	31
1.2. Livelihood intervention for landless families	35
1.3. Wadi plus activities	36
1.3.1. Training and capacity building	36
1.3.1.1. Wadi and related trainings	36
1.3.1.1.1. Awareness camps and wadi farmers sensitization	37
1.3.1.1.2. Training to PIA Staff	38
1.3.1.1.3. Skill development trainings for wadi farmers & wadi project field staff	38
1.3.1.1.4. Farmers' exposure visits to other successful wadies within the state	40
1.3.1.1.5. Formation of Village Planning Committees (VPCs) - training & functioning	41
1.3.1.1.6. Capacity building and leadership trainings to VPCs	42
1.3.1.1.7. Training of vegetable cultivation in open field and polyhouse	42
1.3.1.1.8. Technical support of KVK/UHF	43
1.3.1.1.9. Experience sharing workshops	45
1.3.1.1.10. Printing of wadi reference materials and field brochures	46
1.3.1.1.11. Display boards	46
1.3.1.2. Micro enterprise trainings	47
1.3.1.2.1. Training on vermicomposting	48
1.3.1.2.2. Training on nursery raising and management	49
1.3.1.2.3. Capacity building workshop on animal nutrition and livestock management	50
1.3.1.3. Processing and marketing related trainings	51
1.3.1.3.1. Training of farmers on post-harvest handling (horti)	51
1.3.1.3.2. Training on apple grading and packaging	52
1.3.1.3.3. Buyer-sellers meet-cum-workshop on marketing of apple produce of Kinnaur	53
1.3.2. Women development and health	55
1.3.2.1. Women Development Interventions	55
1.3.2.1.1. Training on women and child nutrition management	55
1.3.2.1.2. Gender sensitization camps	56
1.3.2.1.3. Water purifier (demo) (one each in every Mahila Mandal)	57
1.3.2.2. Health and Sanitation Camps	58
1.3.2.2.1. Health camps for children, women and elderly	58
1.3.2.2.2. Sanitation camp	59
1.3.3. Cooperative and its functioning	60
1.3.3.1. Awareness programmes and orientation on the concept of FPO	60
1.3.3.2. Formation, registration and strengthening of FPO	61
1.3.3.3. Orientation and training programme for FPO	62

1.3.3.4. Exposure visit of FPO	63
IV. CONVERGENCE	64
V. INTERNAL & EXTERNAL MONITORING	68
VI. IMPACTS	70
1. Impact of wadi establishment	70
2. Impact on water resource development	72
3. Impact on agriculture practices	73
4. Impact on crop production	74
5. Impact on socio-economic aspect	77
VII. SUCCESS STORIES -WADI BASED	85
VIII. SUCCESS STORIES – NON-WADI BASED	111
IX. FEEDBACK OF PIA ON THE EXECUTION OF THE PROJECT	116
X. PROJECT MANAGEMENT	117
1. Accounting system under WADI Project	117
2. Details of the Project Staff employed	117
XI. FINANCIAL ACHIEVEMENTS	119

I. INTRODUCTION

1. Background

National Bank for Agriculture and Rural Development (NABARD) has been closely associated with tribal development and sustainable livelihoods through orchard-based farming systems. As an integral component of NABARD's Natural Resource Management (NRM) policy of providing sustainable livelihoods, NABARD laid special emphasis on providing support for holistic development of tribal communities with orchard establishment as the core element. Keeping in view the NABARD's Tribal Programme Policy, the Hill Agriculture and Rural Development Promotion Society (HARP) prepared and posed a horticulture-based livelihood Project under Tribal Development Fund (TDF) for Rupī, Chhota Kamba and Nathpa gram panchayats of district Kinnaur, Himachal Pradesh during the year 2014-15. This was a project which was prepared with the consent of stakeholders and implemented in participatory mode. The project area i.e., Rupī, Chhota Kamba and Nathpa gram panchayats falls in 15/20 area (revenue name) of district Kinnaur, Himachal Pradesh. The area is noticeable tribal, inaccessible and very hard.

The approved and sanctioned project was conveyed by NABARD to Hill Agriculture and Rural Development Promotion Society (HARP) which is a project implementing agency (PIA), vide their letter No. 3603/2014-15 dated 24th September, 2014 for an amount of Rs 9,44,93,000/- which comprised of Rs. 3,17,76,000/- as grant, Rs. 40,50,000/- as loan (though not conveyed through any correspondence albeit the NABARD held back this loan amount), Rs. 3,31,57,000/- as participants contribution and Rs. 2,55,10,000/- as convergence of the captioned project with the government's schemes. The period of project implementation was 7 years and total envisaged tribal households covered were 643 (578 Wadi families and 65 landless families). Thus the project size remained Rs 9,04,43,000/-.

Since, it was the first large TDF Wadi project in Himachal Pradesh prepared by HARP and funded by NABARD, therefore, good and bad experiences were faced by both the agencies during its implementation. The PIA faced so many field practical difficulties with the result the PIA had to go for several deviations in the implementation. The NABARD later on felt necessary that instead of sanctioning this deviation in piece meal, the PIA may revise the whole Project and send to NABARD for its revised approval/sanction. Accordingly the PIA had revised the project and submitted the same to NABARD. The Project sanctioning committee gave its approval on 24th September 2020 and the NABARD conveyed its sanction to PIA vide their letter No. 1406/TDF-205/2020-21 dated 29th September, 2020. Under the revised project the total project cost was revised as Rs. 5,64,21,320/-, out of which grant amount was Rs. 2,73,59,295/-, farmers contribution was Rs. 2,20,46,025/- and convergence was Rs. 70,16,000/-.

2. General Feature of Project Area

2.1. Location

The Project area falls in Rupī, Chhota Kamba & Nathpa Gram Panchayats (15/20 area, revenue name) of district Kinnaur, Himachal Pradesh. District Kinnaur is one of the twelve administrative districts of the state of Himachal Pradesh in northern India spread over 6401 km². The district is divided into three administrative/developmental blocks (Kalpa, Nichar & Pooh) and has six tehsils. The administrative headquarters of the district is at Reckong Peo. As of 2011, the total population of District Kinnaur was 84,121, out of which 46,249 male and 37,872 female. With population density of 13 persons/km² after Lahaul & Spiti district, the district Kinnaur is the least populous district of Himachal Pradesh. The sex ratio of the district is 819 females per 1000 males and literacy percentage is 80. Kinnaur is about 225 km from the state capital-Shimla, located in the northeast corner of Himachal Pradesh bordering Tibet to the east. The high mountain ranges, in this district are; Zaskar and the Himalayas, that enclose the valleys of Baspa, Satluj, and Spiti, as well as their tributaries. The old Hindustan-Tibet Road passes through the Kinnaur valley along the bank of river Sutlej and finally enters Tibet at Shipki La pass.

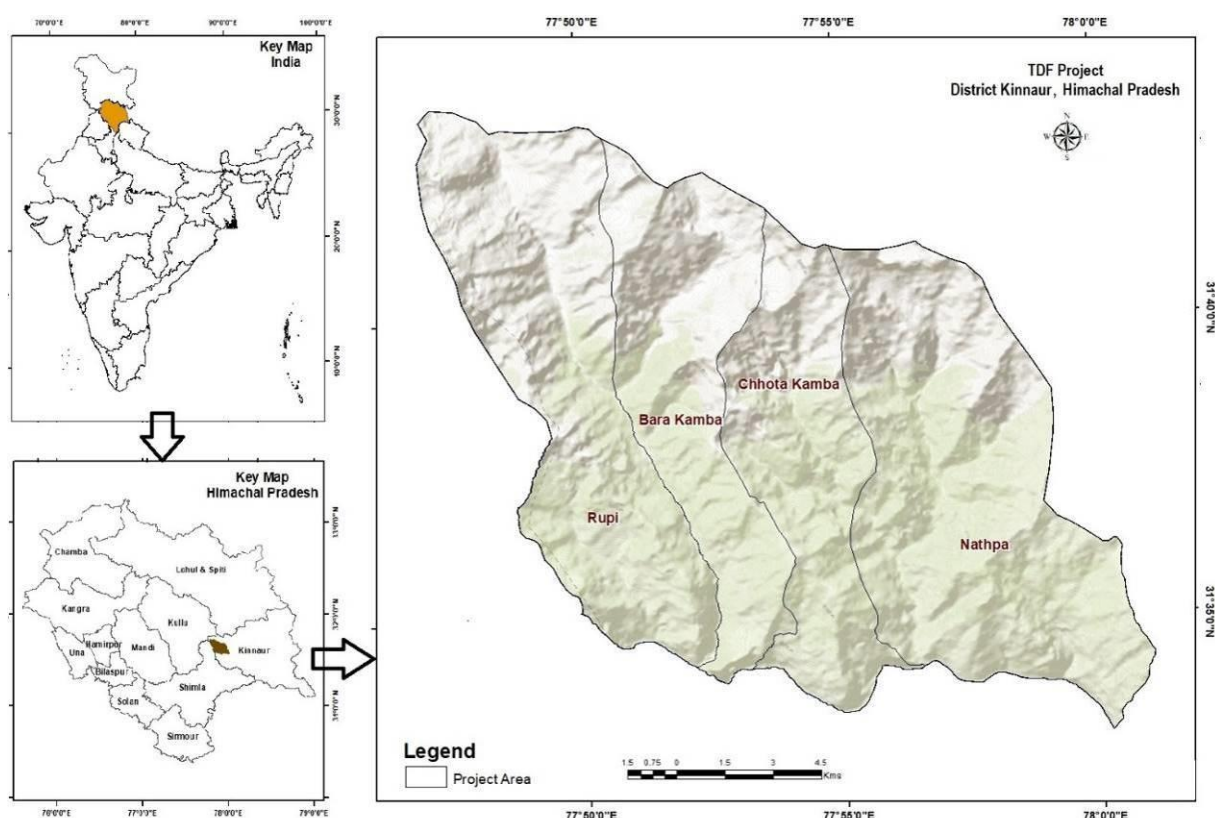


Figure 1. Location map of Project area (Rupī, Chhota Kamba and Nathpa Gram Panchayats) in Nichar Block of District Kinnaur, Himachal Pradesh.

The Project area falls in development block Nichar and covers three-gram panchayats i.e., Rupī, Chhota Kamba and Nathpa. The area lies between 31°33'01.52" North to 31°43'36.74" North

latitude and 77°46'51.97" East to 78°01'02.85" East longitude. The Project area covers three gram panchayats, is spread over 15 villages covering total 252.48 km² area. Gram panchayat Rupī covers seven villages namely, Ghurguri, Majhgaon, Naling I, Naling II, Shigarcha, Hurwa, and Dabling; gram panchayat Chhota Kamba covers four villages namely, Shorang, Bara Kamba, Chhota Kamba and Gharshu and gram panchayat Nathpa covers four villages namely, Rockchrang, Nathpa, Kachrang and Kandar (Figure 1).



Figure 2. Village Majhgaon in gram panchayat Rupī.



Figure 3. Village Bara Kamba in gram panchayat Chhota Kamba (now Bara Kamba).



Figure 4. Village & gram panchayat Chhota Kamba.

2.2. Topography and Elevation

The elevation of Project area lies between 1244 m AMSL lower reach to 5500 m upper reach (figure 5). The Project area is slopy and most of the area is facing South, South East and West direction receiving good amount of solar light (figure 6). The Project area is remote area having tough mountainous terrain and inhospitable climatic conditions thus involving high cost of infrastructural development and harsh living conditions. The inhabitation and agri-horticultural activities are restricted up to 3000 m. The permanent snowcapped areas are also there in the upper reaches. Due to tough geographical and inhospitable climatic & social conditions the Project area has not witnessed much development as compared to other regions of the district as well as state.

Table 1. Location and elevation of the gram panchayats & villages covered under the Project.

SN	Gram Panchayat(s)	Village(s)	Elevation (m)
1.	Rupī	Ghurguri	2527
		Majhgaon	2388
		Naling I	2276
		Naling II	2293
		Shigarcha	2079
		Huwa	2060
		Dabbling	2356
2.	Chhota Kamba	Shorang	2259
		Bara Kamba	2046
		Chhota Kamba	2019
		Gharshu	2190
3.	Nathpa	Rockchurang	1963
		Kachrang	1753
		Nathpa	2065
		Kandar	2164

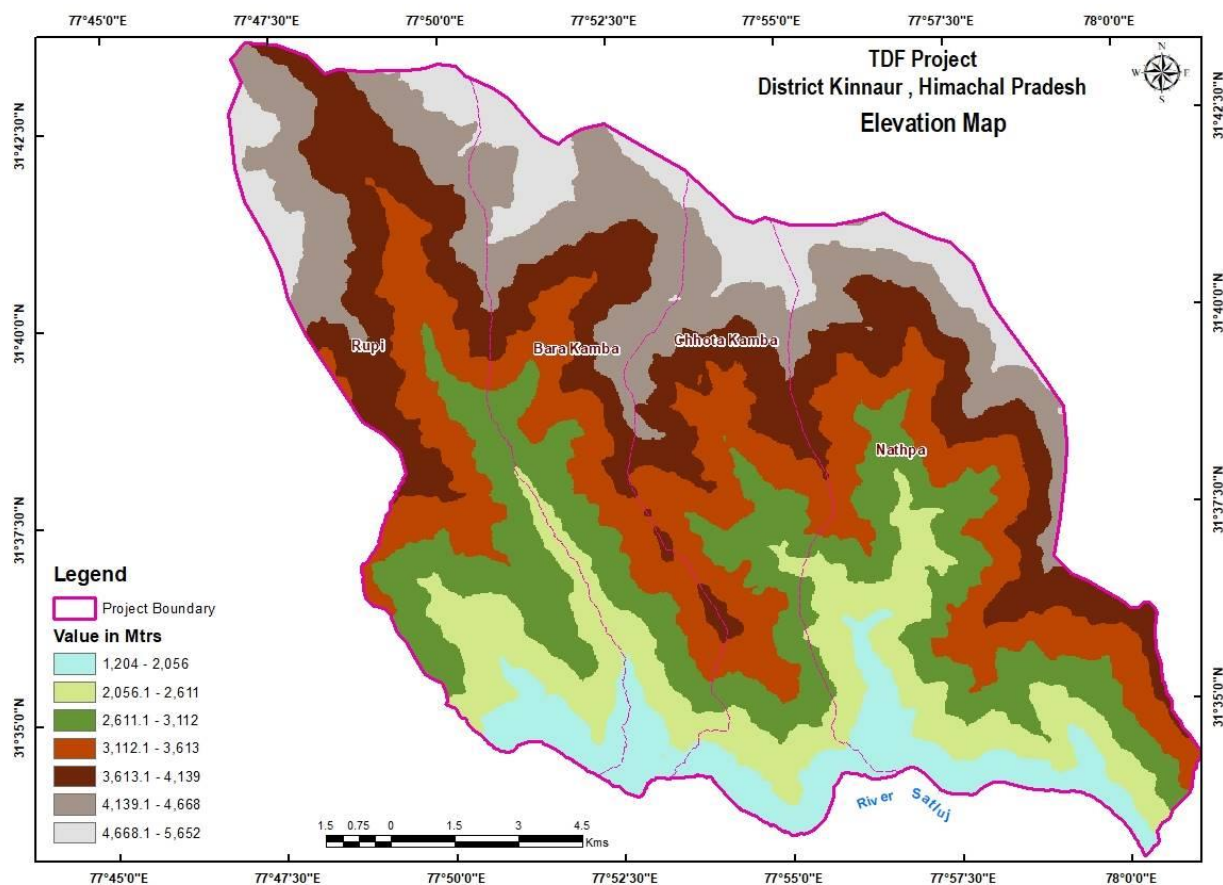


Figure 5. Elevation map of the Project area.

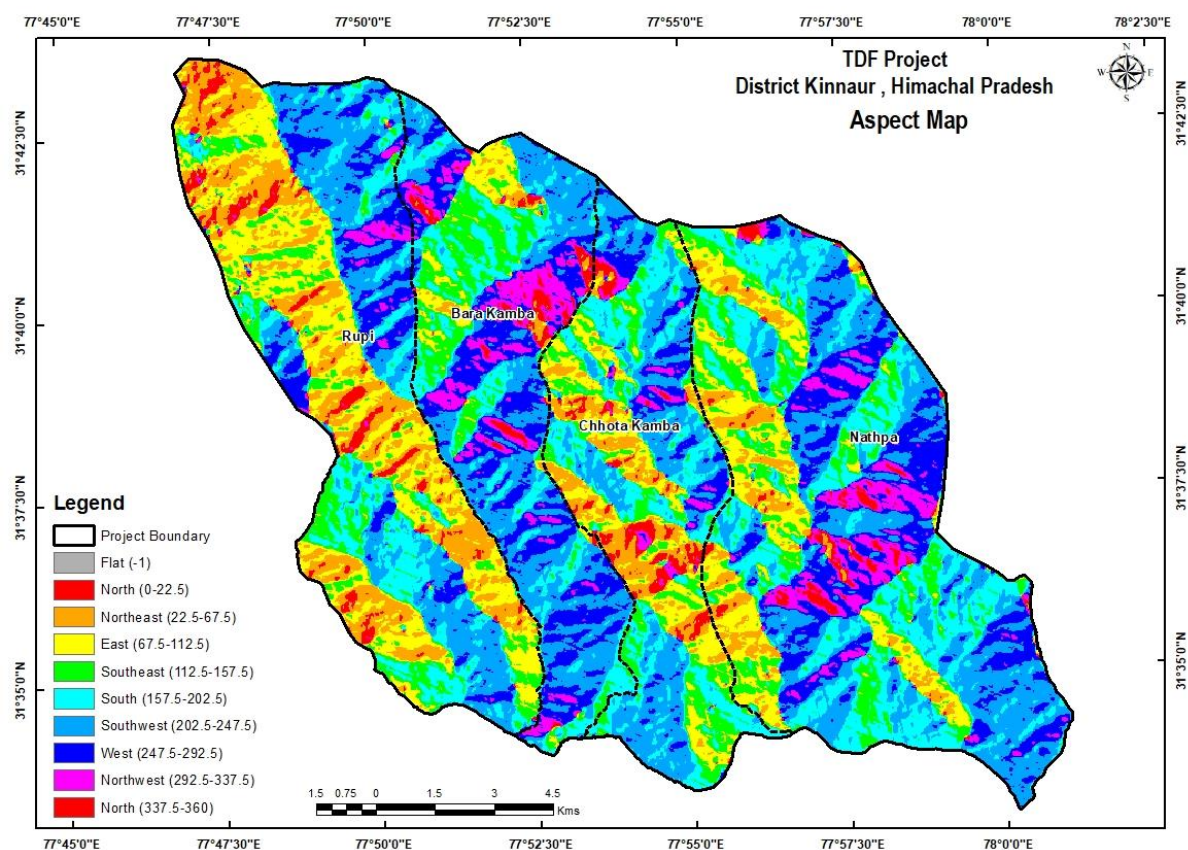


Figure 6. Aspect map of the Project area.

2.3. Slope

Total geographical area of Rupī, Chhota Kamba & Nathpa gram panchayats (Project area) is 25248 ha (62389 acre) and area covered for the establishment of apple fruit Wadis (orchards) is 177.45 ha (438.5 acre). Most of the area of these gram panchayats is having steep slope. From the map (figure 7) of the Project area showing different slope ranges of the terrain, it may be seen that the maximum area falls in the slope range of 5-35 degree (8.7%-70.02%).

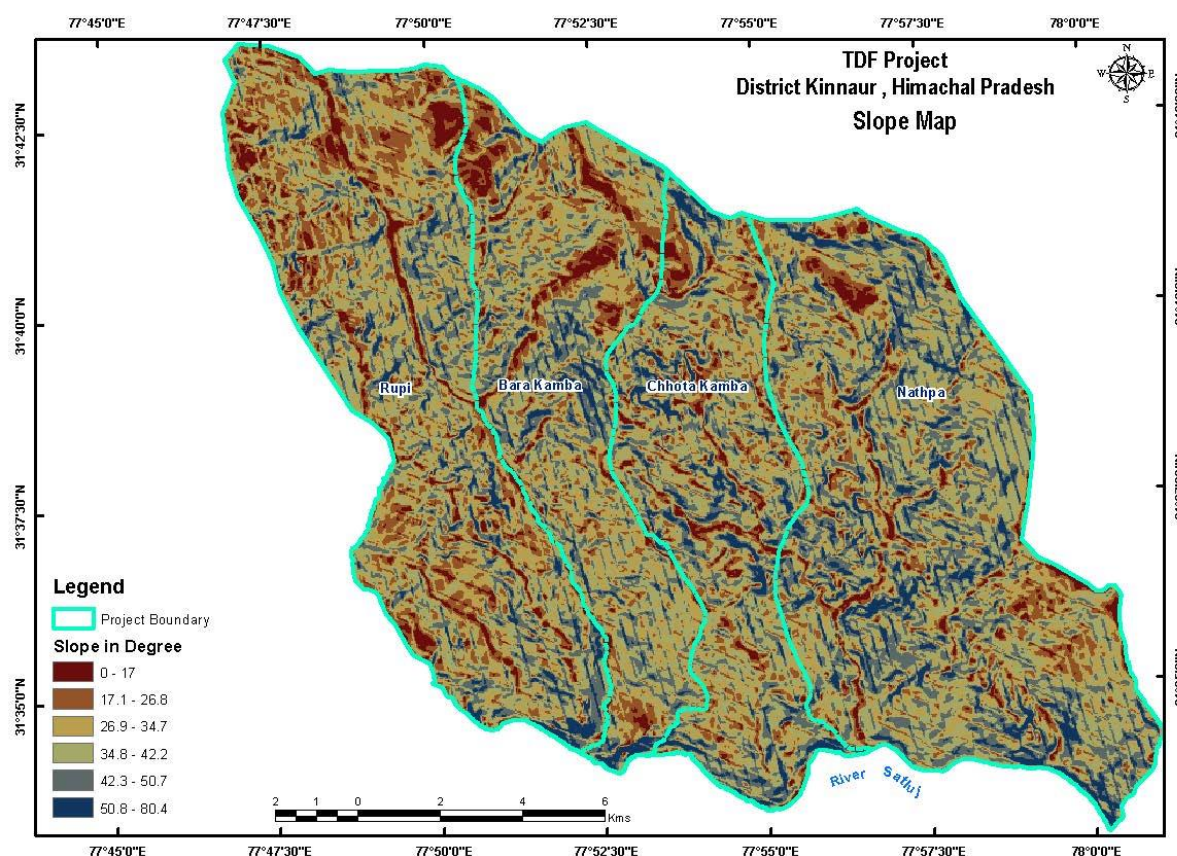


Figure 7. Slope map of the Project area.

2.4. Soils

The soil texture in the low altitude areas where maximum agricultural and horticultural activities are being done by the farmers is coarse-loamy soils with loamy surface and severe erosion with poor humus in soils due to erosion. The mid altitude areas of the project are having coarse-loamy soils with loamy surface and moderate erosion. The mid to high altitude areas of the project are having coarse-loamy soils with loamy surface severe erosion and slight stoniness. However, the high-altitude areas of the project are having loamy-skeletal soils on very steep slopes with loamy surface. Soils in project area are mostly neutral with pH ranging from 6.5 to 7.0. The soils of the Project area are medium to low in phosphorus (P) and potassium (K) contents (figure 8).

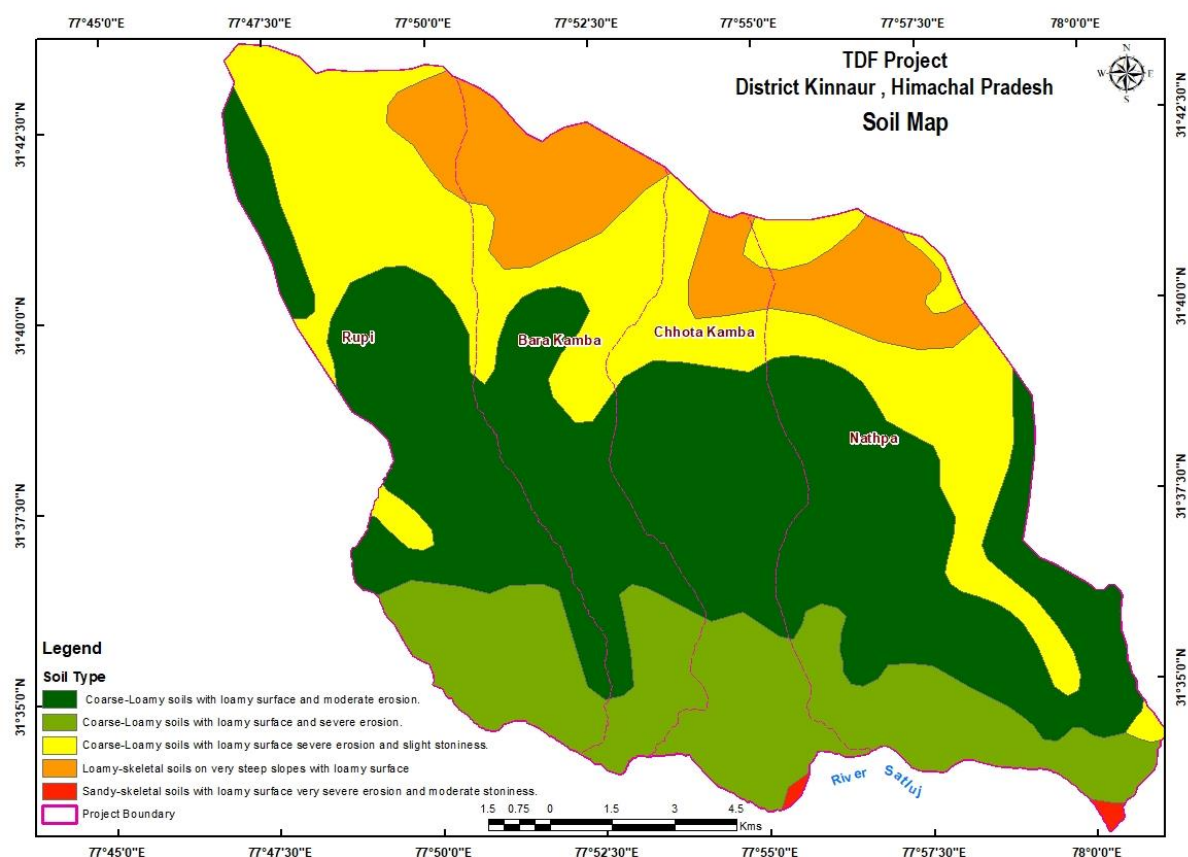


Figure 8. Soils map of the Project area.

2.5. Drainage

The Project area falls in the catchment area of Satluj River. The run off water directly drains into Satluj river through streams like *Rupī nala* and *Shorang nala* in gram panchayat Rupī, *Shorang nala*, *Khorang khad* and *Lankapuri khad* in Chhota Kamba panchayat, *Kachrang* and *Kandar nala* in Nathpa gram panchayat. The Satluj river touches the boundaries of all these three-gram panchayats. Owing to steep slopy land and course-loamy textured soil, the soil degradation and erosion is high. Most of the *nalas* and streams are running in deep gorges with the result the water of these streams is not economical for irrigating the cropped areas. The water of a few natural water sources, small rivulets and glaciers are being utilized by the farmers. However, three hydropower projects namely Nathpa Jhakri Hydropower Project (1500 MW) on Satluj, Shorang Hydropower Project (100 MW) on *Shorang nala* and Kachrang Hydropower Project (5 MW) on *Kachrang nala* are running in the Project area (figure 9).

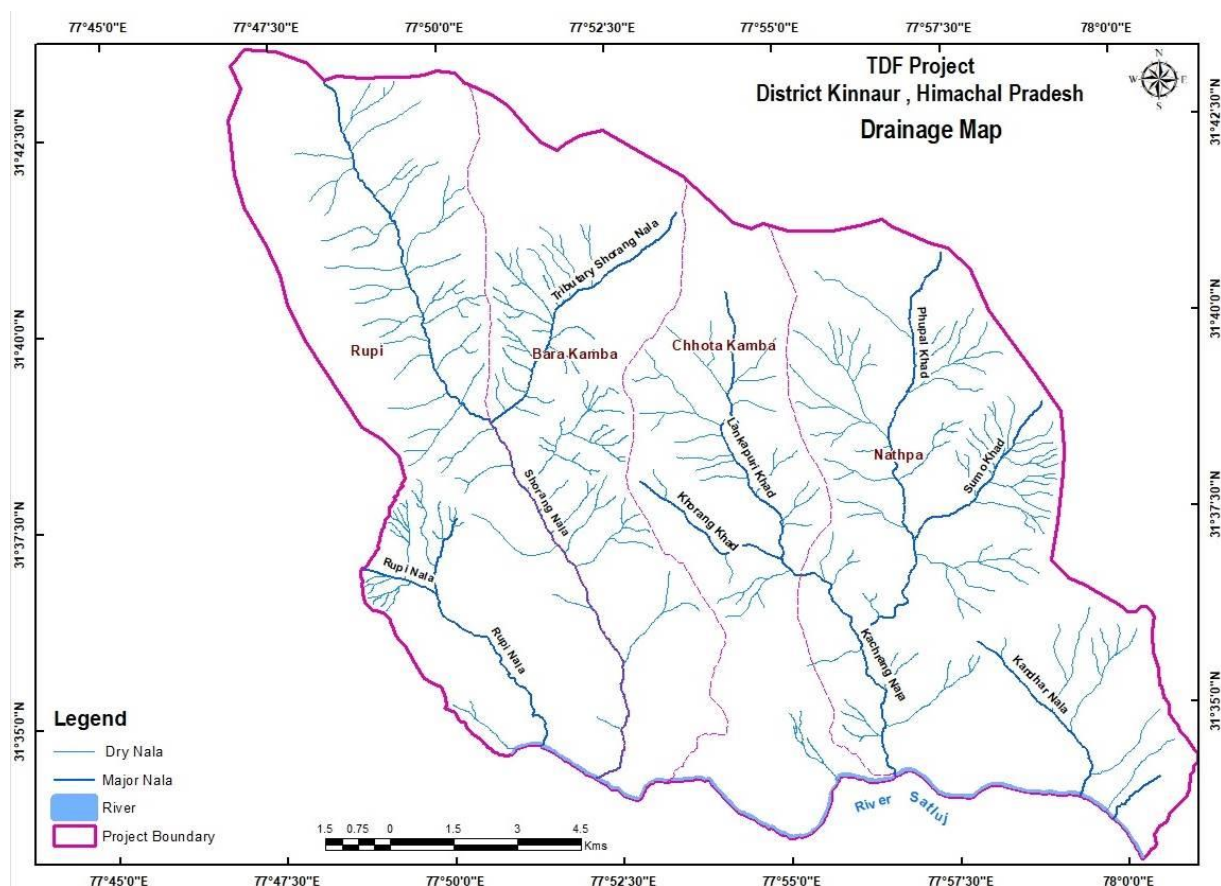


Figure 9. Drainage map of Project area.

2.6. Climate

Due to the high altitude, district Kinnaur falls under temperate dry and wet climatic zone with long winters spreading from October to May and short summers extending from June to September. The upper areas of the district fall under rain shadow area and receives less amount of rainfall and mostly the precipitation is in the form of snow. Contrary to this, the project area (Rupī, Chhota Kamba and Nathpa panchayats) falls in wet temperate agro-climatic zone is located in the lower parts of the Satluj Valley. This area receives monsoon rain during July to mid - September and snowfall during November-December to March-April due to western disturbances. During summer the temperature begins to rise from April onward. The maximum rainfall is received during the months of July and August and maximum temperature is during the months of June and July. The area is more suitable for apple and other stone fruits like pear, walnut, apricot crops etc.

2.7. Land use and Land cover

The land use is the term used to describe the human use of land. It represents horticulture area, forest, pastures, waste land, etc.

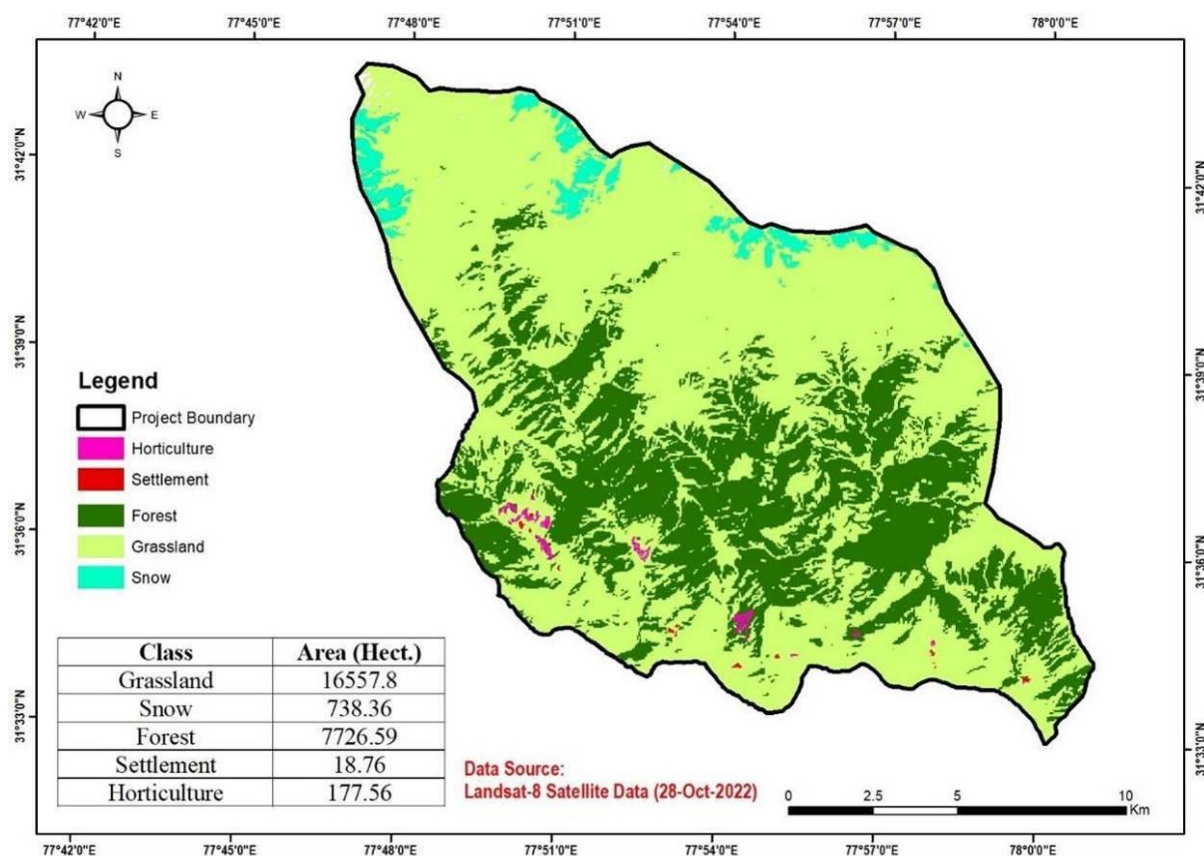


Figure 10. Land use and land cover map of the Project area.

The land use and land cover (LULC) detail after the Project area is given in table 2.

Table 2. Land use and land cover (LULC) detail of the Project area.

Sr. No.	Category of land use	Area (in ha)	Area (in %)
1.	Grassland	16557.8	65.66
2.	Snow	738.36	2.93
3.	Forest land	7726.59	30.64
4.	Settlement	18.76	0.07
5.	Horticulture	177.55	0.70
	Total	25219.06	100.00

The total geographical area of the Project area is 25219.06 ha covering Rupī, Chhota Kamba and Nathpa gram panchayats. Out of total geographical area 16557.8 ha is grassland, 738.36 ha is snow covered, 7726.59 ha is forest land, 18.76 ha is settlement area and 177.55 ha is under horticulture.

3. Project Profile after Execution

After the revision of the project, the total number of stakeholders have been reduced from 643 (578 wadi families + 65 landless families) to 607 (598 wadi families + 9 landless families). The revised Project profile is given in Table 3.

Table 3. Revised sanctioned Project Profile.

S. No	Particulars	Details
1.	Families to be supported (No.)	607 families (598 Wadi families + 9 landless families)
2.	Project area Proposed	Rupī, Chhota Kamba and Nathpa panchayats (15/20 area of Kinnaur)
	Village Covered	15 Villages namely; Hurwa, Shigarcha, Naling I, Naling II, Majhgaon, Ghurguri and Dabbling (Rupī); Gharshu, Chhota Kamba, Bara Kamba and Shorang (Chhota Kamba); Nathpa, Kachrang Rockcharang and Kandar (Nathpa)
	Block	Nichar
	District	Kinnaur
3.	Annual Rainfall (mm)	888 mm
4.	Temperature (min to max °C)	-5°C to 30°C
5.	Cultivated Area (ha)	435 ha
6.	Total Cultivable Area (Waste)	181 ha
7.	Net irrigated area and % to cultivated area	140 ha (32.2%)
8.	Cropping intensity (%)	116%
9.	Average land holding (ac)	2.33
10.	Average slope in project area (%)	20-35%
11.	Soil Type	Sandy Loam
12.	Major crops cultivated in project area	Agriculture: Maize, wheat, pulses, minor millets like amaranths, ragi, cholai, buckwheat, phaphra, ogla, etc. Horticulture: Apple, wild apricot (<i>chulli</i>), walnut, pear.
13.	Total Population in the project area	3947
14.	Tribal population in the project area and % to total population	3947 (100% tribal)
15.	Major tribes	Kinnaura

II. OBJECTIVES

The main objectives of the Project were envisaged as follows:

- To provide horticulture-based livelihood support service to the socio-economically poor tribal community.
- To build capacities and make the targeted families skillful in production & marketing of potential agricultural produce.
- To promote community-based organizations which will undertake production & marketing of agri-horticultural produce.



Figure 11. View of village and Gram Panchayat Nathpa.

III. PROGRAMME COMPONENTS-COMPLETION

1. Livelihood Programme

The tribal communities of the project area are dependent mainly on agriculture, forests and livestock for their livelihood. They are residing in inaccessible area and devoid of common infrastructure facilities such as roads, communication, health, etc. which did not allow them to absorb technological and financial facilities provided by the government.

With the NABARD funding out of TDF, the HARP (PIA) took up this hard and inaccessible area for the wadi-based livelihood programme and implemented successfully the Project namely; **“Integrated Tribal Development Project in Rupī, Chhota-Bara Kamba, and Nathpa gram panchayats of Nichar block of district Kinnaur, Himachal Pradesh”.**

1.1. Orchard based livelihood

The orchard-based livelihood programme has two components, viz; horticulture development and water resource development. Component wise work proposed, sanctioned and implemented are given in the following paragraphs:

1.1.1. Horticulture Development

The programme was targeted to cover 607 tribal families out of which 598 families were having land and were taken up under wadi programme. The remaining 9 families, having less than 0.5 acres of land or no land were covered under other livelihood interventions. Beneficiaries were selected as per the criteria given in the operational TDF guidelines of NABARD. Two wadi models, viz: model I (1 acre wadi) and model II (0.5-acre Wadi) were proposed, sanctioned and implemented under the Project. Marginal & small farmers have been given preference while selecting beneficiaries. Total 438.5 acres of land was proposed to be covered under wadi (orchard) programme. A programme was taken up in three panchayats namely Rupī, Chhota Kamba & Nathpa of district Kinnaur.

The wadi programme was sanctioned and its execution was started during the year September, 2014. The farmers of the project area were unskilled in the cultivation of apple fruit crop. They had planted some apple fruit plants in a haphazard manner as there were no intervention regarding apple plantation in a systemic manner by government as well as any other non-government agencies. The farmers had only planted those plants of apple fruit crop which they purchased from the horticulture department on subsidy under one or the other programme of the government.

1.1.1.1. Establishment of wadis

The HARP (PIA) took up TDF programme for implementation and a field implementation procedure was designed under which step wise programme was evolved wherein the wadis

(orchards) of farmers were established and their skill was developed right from layout of orchard to planting of plants.

The following steps were taken for the establishment of orchard through participatory approach.

- Creating awareness about the programme including financial details of the project.
- Layout plan of wadis
- Pit digging for planting of apple plants
- Arrangement of plant saplings
 - Selection of sources for the procurement of plant saplings
 - Nursery inspection by a team consisting wadi farmers, expert, HARP officials & DDM.
- Demonstration for plantation
- Treatment of plants including roots of the plants
- Mixing of farm yard manure (FYM) and fertilizers (MOP & SSP) in the soil
- Filling of pits
- Distribution of plants
- Ensuring the plantation of plants by wadi farmers.



Figure 12. Apple orchard at Bara Kamba village.

1.1.1.1.1. Creating awareness about the programme and sensitization of wadi farmers

After sanction of project, first activity which was carried out by the PIA was to organize awareness and sensitization camps for the project beneficiaries to sensitize them and to make aware about the components of the project. These camps were organised to make the beneficiaries comfortable to participate in the implementation of the project activities and to ensure their maximum participation in the implementation of the project. A pamphlet was also designed covering projects physical and financial details and was circulated among the beneficiaries during these awareness camps. During these camps 15 village planning committees (VPCs) were also formed and motivated to get their participation in the implementation of project.



Figure 13. Awareness camps organised at different venues in the Project area.

1.1.1.1.2. Layout plan of orchards, pit digging and pit filling

The second step was to teach the farmers regarding layout plan for planting apple fruit crop. Therefore, demonstration regarding layout plan and pit digging for the plantation of apple crop were organised from Bara Kamba village during November 2014. The layout plan trainings/demonstration were organised in all the panchayats during 2014-15 to 2016-17. The farmers were also made conversant about the size of the pit (1x1x1 meter), accordingly the pits were dug by the farmers.



Figure 14. Training on layout planning of Wadis in the Project area.

1.1.1.1.3. Arrangement of planting material

A team consisting wadi farmers, expert, HARP officials & DDM NABARD was constituted. This team was to select and inspect the private apple nurseries in district Kinnaur as well as adjoining area of district Shimla. Maximum plants of apple saplings were precured from Dr. YS Parmar University of Horticulture & Forestry, Nauni, district Solan.



Figure 15. Plants saplings of apple at UHF Nauni.



Figure 16. Inspection of apple nursery at Meeru, district Kinnaur.

1.1.1.1.4. Demonstration of method of plantation

The wadi farmers were also trained in the plantation of apple saplings by organizing demonstration camps. Every year these trainings were organized in all three-gram panchayats at different places before plantation of saplings. The farmers were also made aware about maintaining plant-to-plant distance.



Figure 17. Demonstration & training on plantation of apple plants at Rupī and Nathpa villages.

1.1.1.1.5. Procurement of planting material

Total 70381 apple plants were procured and distributed to the wadi farmers, out of which 46981 were of spur varieties plants and 23400 were of non-spur varieties plants. Out of total apple plants, 35618 apple plants (> 50%) were procured from Dr. Y.S. Parmar University of Horticulture & Forestry (UHF), Nauni, Solan, HP. Efforts were made to procure maximum planting material from UHF, Nauni. Rest of the apple planting material was procured from different private apple nursery growers of district Kinnaur and other areas. In case of border plants, the fruit plants like wild apricot (*Chulli*), walnut & pears were procured from Department of Forests, UHF Nauni and from a few private nursery growers in Kinnaur & Kullu districts.



Figure 18. Storage of planting material at Rupī and Chhota Kamba villages before distribution.

1.1.1.1.6. Distribution of plant saplings

Total 77251 plant saplings of Apple (70381), Pears (2800), Walnut (2070) and Wild Apricot (2000) were distributed to 598 wadi farmers of the project area. The apple varieties like Royal Delicious, Top Red, Golden Spur, Gibson Golden, Red Golden, Vans Delicious, Red Chief, Super Chief, Oregon Spur, Well Spur, Scarlet Spur-II, Redlum Gala and Gale Gala were provided to the wadi farmers. Out of these some of the varieties were pollinizer whereas remaining were main varieties.



Figure 19. Distribution of Apple plant saplings to the wadi farmers.

1.1.1.1.7. Demonstration of method of treatment of apple plant saplings

Before plantation of apple saplings, the wadi farmers of the project area were given demonstration on method of treatment of apple saplings with slurry of farm yard manure (FYM), Trichoderma and pesticides. During these trainings the wadi farmers were also imparted training in placement and application of FYM and fertilizers with soil. The process was repeated before distribution of planting material in all gram panchayats every year, before plantation.



Figure 20. Demonstration of method of treatment of apple plant saplings before plantation.

1.1.1.1.8. Transportation of planting material

After purchasing the planting material from different sources, the PIA transported the planting material up to the places which were connected with road and stored. Thereafter, the planting material was distributed from the place where it was stored. The farmers after receiving the planting material, carried it through mules, headload, etc. up to their Wadis.



Figure 21. Transportation of planting material on mules to Ruppi area.

1.1.1.2. Wadi models and area coverage

Total 279 wadis of 1 acre model and 319 wadis of 0.5 acre of model were sanctioned and established. The gram panchayat wise status of wadis establishment is given in table 4.

Table 4. Panchayat wise status of wadis established.

Sr. No	Panchayat	Wadis & Area					Wadi Composition
		Model I (1.0 ac)		Model II (0.5 ac)		Total Area (ac)	
		Sanctioned	Achieved	Sanctioned	Achieved		
1.	Chhota Kamba	102	102	141	141	172.5	Apple + Walnut + Intercrop
2.	Rupi	105	105	108	108	159.0	Apple + Wild Apricot+ Intercrop
3.	Nathpa	72	72	70	70	107.0	Apple + Pear + Intercrop
	Total	279	279	319	319	438.5	

**Figure 22.** Apple wadis during the initial phase of its development in the project area.

1.1.1.3. Plants required per unit of wadi model

According to the sanction, total planting material required for the wadi models is given in table 5.

Table 5. No. of plants required for per unit wadi models.

SN	Panchayat	Per unit Planting Material required/given									
		Wadi Model I (1.0 ac)					Wadi Model II (0.5 ac)				
		Apple (Spur)	Apple (Non-spur)	Border Plants	Total Plants Sanc.	Total Plants Ach.	Apple (Spur)	Apple (Non-spur)	Border Plants	Total Plants Sanc.	Total Plants Ach.
1.	Rupī	104	53	12	169	169	52	27	6	85	85
2.	Chhota Kamba	104	53	12	169	163	52	27	6	85	83
3.	Nathpa	104	53	22	179	179	52	27	11	90	90

1.1.1.4. Planting material procured and distributed

• Apple Planting Material

The planting material of apple fruit crop was procured from different sources. Total 70481 plants of apple were procured and distributed. Out of which 8940 plants in 2014-15, 32480 in 2015-16, 22903 plants in 2016-17 and 6158 plants were procured in the planting season of 2017-18. More than 50% (35618 plants) of the planting material was procured from the Dr. Y.S. Parmar University of Horticulture & Forestry, Nauni, Solan and remaining were procured from local private nurseries. The detail is given in table 6. The variety wise plants procured and distributed are given in table 7.



Figure 23. Apple plant in flowering stage (April) at village Bara Kamba.

Table 6. Sources of planting material of main fruit crop (apple).

Sr No	Name of Source/Nursery	Apple Plants Procured (Nos.)		
		Non-spur (Royal)	Spur	Total
1.	Dr. Y.S. Parmar University of Horticulture & Forestry	7368	28250	35618
2.	Registered private nurseries (local)	7060	27803	35863
	Total	14428	56053	70481

Table 7. Varieties wise apple plants procured and distributed.

Sr No	Name of Varieties	No. of Plants
1.	Royal	14428
2.	Gale Gala	5930
3.	Oregon Spur-I	3090
4.	Oregon Spur-II	1500
5.	Vance Delicious	4010
6.	Super Chief	17590
7.	Golden Spur	2103
8.	Red Gold	1790
9.	Red Chief	14700
10.	Loyal Bed	400
11.	Top Red	2100
12.	Well spur	100
13.	Golden	1790
14.	Gibson Golden	250
15.	Scarlet Spur-II	150
16.	Scarlet Spur-III	450
17.	Redlum Gala	100
	Total	70481

- **Border plantation – planting material**

The planting material of border plantation was procured from the sources as given in table 8.

Table 8. Sources of border planting material.

Sr. No.	Name of Source/Nursery	Border Plant Saplings Procured (Nos.)		
		Pear	Wild Apricot	Walnut
1.	Dr. Y.S. Parmar University of Horticulture & Forestry	-	-	150
2.	Registered private nurseries (local)	2800	-	-
3.	Forest Department	-	2070	1100
	Total	2800	2070	1150

1.1.1.5. Panchayat wise plants distributed/planted

Panchayat wise total number of plants distributed/planted are given in table 9.

Table 9. Panchayat wise number of plants planted in both the wadi models.

Name of Panchayat(s)	Apple and Border Plants Planted (Nos.)		Total Plants
	Wadi Model I (1.0 ac)	Wadi Model II (0.5 ac)	
Rupī	17085	9940	27025
Chhota Kamba	17107	11310	28417
Nathpa	13879	7110	20989
Total	48071	28360	76431



Figure 24. A view of apple wadi (during winter) developed in terraces at village Kachrang.

1.1.1.6. Border plantation

The topography of Himachal Pradesh is hilly and cultivation is being done on terraced fields. The width of the field depends on the general slope of land. More the area is slopy, lesser is the width of the terrace and vice-versa. The general slope of the project area is more; hence the width of the field is also less, moreover, the holdings of the wadi farmers are scattered, therefore, the border plantation in such areas is conceptually not border plantation in true sense as the farmers mostly demand high value fruit crops plants. The farmers have planted these border plants wherever the land was available. Moreover, the wadi farmers have given more importance to the main commercial fruit crop, i.e.; apple and less attention has been given to these border plants except pear and walnut. According to the project sanction, wild apricot (*Chulli*) in Rupī gram panchayat, walnut in Chhota Kamba panchayat and pear in Nathpa gram panchayat has been distributed & planted. Wild apricot (*Chulli*) is multipurpose plant and is grown on an area where soils are poor, generally these plants grow in wild. Therefore, the farmers do not give much attention to this fruit plant as it is available wild in plenty. Although, it is only the source of oil to the tribal community yet it is available in wild and is not generally cultivated. The total number of plants planted is given in table 10.

Table 10. Border plantation sanctioned and achieved.

Name of Panchayats	Border Plants Sectioned and Achieved (Nos.)						Total Plants Planted
	Wild apricot		Walnut		Pear		
	Sanc.	Ach.	Sanc.	Ach.	Sanc.	Ach.	
Rupi	1908	2000	-	-	-	-	2000
Chhota Kamba	-	-	2070	1150	-	-	1150
Nathpa	-	-	-	-	2354	2800	2800
Total	1908	2000	2070	1150	2354	2800	5950

From table 10 it may be seen that border plantation is short in case of walnut than sanction and it is more in case of pear than sanction. The variation is due to non-availability of planting material in case of walnut and 300 more plants of pear distributed to the wadi farmers for gap filling.



Figure 25. Border plants (wild apricot-chulli) grown with apple plants.

1.1.1.7. Mortality analysis

Apple is a very sensitive fruit crop. It is susceptible to variation in climatic conditions, insect pest attack and the maintenance of plants. These factors contribute to the survival of the apple plant saplings planted in the wadis. The survival rate goes on changing every year depending upon the factors mentioned above. The PIA during the first, second, third & fourth year of the plantation observed 93% survival rate. The plants planted during the year 2015, 2016, 2017 & 2018 and survival rate are given in table 11.

Table 11. Year wise apple and border plants planted and their survival rate.

Name of Panchayat(s)	Apple and Border Plants Planted						Mortality/Survival	
	Main Variety		Boarder Plants			Total Plants	Mortality (Nos.)	Survival (%)
	Apple (Non-Spur)	Apple (Spur)	Wild Apricot	Walnut	Pear			
1 st Year (2014-2015)								
Rupi	-	-	-		-	-	-	-
Chhota Kamba	2761	6179	-	1000	-	9940	500	94
Nathpa	-	-	-	-	-	-	-	-
Total	2761	6179	-	1000	-	9940	500	94
2 nd Year (2015-16)								
Rupi	4668	8494	-	-	-	13162	789	94
Chhota Kamba	4310	8033	-	-	-	12343	640	94
Nathpa	2950	4025	-	-	-	6975	-	-
Total			-	-	-	32480	1429	94
3 rd Year (2016-17)								
Rupi	2500	7000	2000	-	-	11500	1500	84

Name of Panchayat(s)	Apple and Border Plants Planted					Mortality/Survival		
	Main Variety		Boarder Plants			Total Plants	Mortality (Nos.)	Survival (%)
	Apple (Non-Spur)	Apple (Spur)	Wild Apricot	Walnut	Pear			
Chhota Kamba	1500	2601	-	-	-	4101	400	90
Nathpa	4100	5202	-	-	300	9602	1200	87
Total			-	-		25203	3100	86
4th Year (2017-18)								
Rupi	835	1540	-	-	-	2375	238	90
Chhota Kamba	1083	800	-	150	-	2033	204	90
Nathpa	300	1600	-	-	-	1900	96	96
Total	2218	3940	-	150	-	6308	451	95
Cumulative Total								
Rupi	8003	17034	-	-	-	27037	1775	93
Chhota Kamba	9654	17613	-	1150	-	28417	2430	91
Nathpa	7350	10827	-	-	2500	20977	1483	93
Total Plants	25007	45474	2000	1150	2800	76431	5688	93

From table 11 it may be seen that total 25007 (cumulative) plants of non-spur variety, 45474 (cumulative) plants of spur varieties and 6020 (cumulative) of border plants were planted by the wadi farmers which includes the plants distributed by PIA out of project fund according to sanction and plants planted by wadi farmers themselves. Out of these total 76431 plants planted up to 2018-19, 70743 plants were surviving up to the year 2019-20. Thus, the survival rate up to 2019 was 93% and can vary afterword as the survival/mortality depends upon the factors viz; **variation in climatic conditions, insect pest attack and maintenance of plants by the wadi farmers.**

1.1.1.8. Intercropping

In young fruit orchards, growing economic crops in interspaces of the fruit trees during first few years is referred as intercropping. It enables farmers to utilize not only the vacant space efficiently but also enable them to earn additional income from the same piece of land. They also act as a cover crop and the land benefits by the cultivation, irrigation, manuring given to the intercrop's vegetables, being short duration, shallow roots, bushy or climbing types with very low plant height makes them ideal companion of perennial large fruit trees.

Keeping in view the importance of intercropping in young fruit orchard, the wadi farmers of this project were encouraged to go for intercrops of Peas and Rajmash (Kidney Beans) and traditional crops in the wadi developed in the project. During first 3-4 years of the wadi establishment, quality seeds of Peas & Rajmash intercrops were given to the farmers out of grant. In addition to this, the wadi farmers were also encouraged to grow their traditional crops like Ragi, Amaranths, Buckwheat, Barley, Rajmash, etc.



Figure 26. Intercrops (peas, cabbage, broccoli, beans, finger millet, black gram, amaranthus & wheat) grown in wadis.

The seeds distributed during first 3-4 year out of grant fund is given in table 12.

Table 12. Intercrop seeds distributed.

Sr. No.	Name of Crops	Qty. of seeds Sanctioned (in kg)	Qty. of seeds Achieved (in kg)	Acreage
1.	Vegetables Seeds (Raj mash & Peas)	2955	2955	59 acres

Traditional crops like, amaranths, ragi, buckwheat, barley etc. are being cultivated as per their practice within the space of the apple plants. Since the project area was not connected with road network except Chhota Kamba, therefore, the farmers are having less acumen ship in marketing of agriculture produce. However, now since the people of other areas other than district Kinnaur have also started eating the produces of these crops, therefore the farmers are now selling the agriculture produce on small scale.

1.1.1.9. Fertilizer and plant protection material

In the project area all wadi farmers are having livestock with them, therefore they are having sufficient quantity of FYM to be used in cultivation of fruit crops. During plantation of plant samplings wadi farmers were trained about the use of FYM and other fertilizers to meet the requirements of nutrients in soil for proper growth of plants. Nitrogen and Potassium are very important for leaf growth, flowering and fruit set, while phosphorus is crucial for the development of a strong root system especially at the early stages of apple plant development. During the initial three years period of the project, phosphatic and potassic fertilizers like Muriate of Potash (MoP) and Single Super Phosphate (SSP) were distributed to the wadi farmers out of grant funds. The FYM was used by the farmers out of their own sources which was taken as farmers' contribution. The year wise distributions of fertilizers are given in table 13.

Table 13. Year wise distribution of fertilizers.

Sr. No.	Name of Fertilizer/Plant protection material	Quantity Distributed (qtl)	
		Sanctioned	Achieved
Fertilizer distribution in 2014-2015			
1	Muriate of Potash (MoP)	10	10
2	Single Super Phosphate (SSP)	88	88
3	Trichoderma	2	2
Fertilizer distribution in 2015-16			
1	Muriate of Potash (MoP)	66	66
2	Single Super Phosphate (SSP)	323.5	323.5
Fertilizer distribution in 2016-17			
1	Muriate of Potash (MoP)	43	43
2	Single Super Phosphate (SSP)	210	210
3	Trichoderma	5	5

Under plant protection, trichoderma has been provided to wadi farmers. Trichoderma promotes the growth of plants and limits the growth of plant pathogens. Trichoderma is effective bio-fungicides, enzymatically degrading other fungi and producing anti-microbial compounds that kill pathogenic fungi. Total 200 kg trichoderma during 1st year and 500 kg during 3rd year was provided to the wadi farmers. Before distribution of trichoderma training on its usages was provided to the wadi farmers.

1.1.1.10. Horticulture tools provided to wadi farmers

Horticulture tools like pruning shear, pruning saw and grafting knife was provided to all 598 wadi farmers of the project area. The pruning shear and pruning saw were provided to the wadi farmers to train and prune their fruit plants. The grafting knife was provided to graft the bud wood of pollinizer varieties of apple on their main apple varieties (non-spur) where they found shortage of pollinizer fruit plants to meet the requisite amount of pollinizer plants for pollination and fruit set. Before the distribution of these tools, trainings were also provided to the farmers about the use of these tools.

Table 14. Detail of horticulture tools provided to the wadi farmers under the project.

SN	Name of Horticulture Tools	Panchayat wise No. of Tools Distributed						
		Rupi		Chhota Kamba		Nathpa		Total
		Sanc.	Ach.	Sanc.	Ach.	Sanc.	Ach.	
1.	Pruning shear	213	213	243	243	142	142	598
2.	Pruning saw	213	213	243	243	142	142	598
3.	Grafting knife	213	213	243	243	142	142	598



Figure 27. Distribution of horticulture tools (Pruning Shear, Pruning Saw & Grafting Knife) to the wadi farmers of Chhota Kamba panchayat.



Figure 28. Distribution of horticulture tools (Pruning Shear, Pruning Saw & Grafting Knife) to the wadi farmers Rupri panchayat.

1.1.1.11. Irrigation pipes provided to wadi farmers

This component has been taken under horticulture development programme for taking water from the storage tanks to the plants. There are 11 irrigation schemes implemented under the project and total 26 water storage tanks have been constructed.



Figure 29. Distribution of irrigation pipes to carry water from water storage tanks to wadis.

The irrigation schemes have been executed by constructing water storage structures and connecting these water storage structures with water from the source to the tank through HDPE pipes. Additionally, there was a provision of providing 20 mm high density polyethylene (HDPE) pipe (mini 100 to max 400 m per family) to wadi farmers for taking water from distribution tank to their fields (wadis) on 50% farmers contribution and 50% grant fund. The objective behind providing these pipes was to carry water from water storage tanks to each wadis. Out of 598 wadi farmers under the project, 321 farmers came forward to take up this component and contributed 50% cost of 20 mm pipes in cash and remaining 50% cost was paid out of grant fund. The PIA purchased and provided 20 mm HDPE pipes measuring 77800 m length to these 321 farmers. Rest of the wadi farmers were having their own arrangements to irrigate their fruit plants.

1.1.1.12. Drip Irrigation

Under convergence component of the project, drip irrigation system to provide controlled irrigation to the fruit plants was also proposed to be installed with convergence of existing drip irrigation scheme of Horticulture Department.



Figure 30. Drip irrigation system installed by the wadi farmers with the convergence of the scheme of Horticulture Department.

The PIA tried its best to mobilize the wadi farmers for taking drip system of irrigation from Horticulture Department. However, all wadi farmers did not come forward to take up this component except 39 wadi farmers in the project area.

1.1.2. Water Resource Development (WRD)

Generally, the water sources in these areas are glaciers. All perennial streams are fed from glaciers located in alpine region (*Kanda*). Total 11 schemes of irrigation have been sanctioned and achieved. There are total 8 main tanks and 18 distribution tanks which have been constructed. Water in all these schemes is flowing through gravity.

The capacity of main tank and distribution tank is approximately 36000 L and 16000 L respectively. The wadi farmers are taking water to their wadis from these tanks. These tanks have been connected with HDPE pipes of different sizes. The tanks are located on an altitude ranging from 1995 m in Nathpa panchayat to 2855 m AMSL in Rupī panchayat. In Kachrang village of gram panchayat Nathpa, 8 PVC tanks of 500 liters capacity have been given to 8 wadi farmers as they are away from the cement water storage tank constructed in village Kachrang of Nathpa panchayat. The irrigation scheme wise detail of water storage tanks is given in figure 31 & 32.



Figure 31. Carriage and laying of HDPE pipes.



Figure 32. Water storage tanks constructed under the Project.

Table 15. Detail of irrigation tanks constructed under water resources development activities.

Name of Gram Panchayat	Name of Schemes	No. of Tanks Constructed				Total Capacity (in L)
		Cement Tank		Plastic Tanks (500 L each)		
		Sanctioned	Achieved	Sanctioned	Achieved	
Rupi	Tuktang, Songru Pata & Jaba Nala Schemes	8	8	-	-	188000
Chhota Kamba	Chikati, Chhalti, Shorang & Togdang	9	9	-	-	204000
Nathpa	Naga Nalah, Yankimeh, Bargar & Yaltach Scheme	9	9	8	8	227000



Figure 33. Water storage tanks constructed under the Project.

Table 16: Detail of irrigation schemes implemented under water resources development (WRD).

SN	Name of Irrigation Scheme	Type of Tank	Capacity (L)	Location of Tank			
				Latitude	Longitude	Altitude (m)	Village & Gram Panchayat (GP)
1	Songru Pata scheme	Main Tank	36000	31.613027°N	77.840003°E	2855	Village Ghurguri, GP Rupī
		Distribution tank (1 st)	16000	31.608581°N	77.834336°E	2559	Village Ghurguri, GP Rupī
		Distribution tank (2 nd)	16000	31.607770°N	77.846344°E	2550	Village Ghurguri, GP Rupī
2	Jaba Nala scheme	Main Tank	36000	31.597785°N	77.851916°E	2390	Village Hurwa GP Rupī
		Distribution tank (1 st)	16000	31.599168°N	77.848467°E	2273	Village Hurwa GP Rupī
		Distribution tank (2 nd)	16000	31.594734°N	77.852555°E	2209	Village Hurwa GP Rupī
3	Tukdang scheme	Main Tank	36000	31.595786°N	77.838900°E	2408	Village Shigarcha, GP Rupī
		Distribution tank	16000	31.591528°N	77.841775°E	2268	Village Shigarcha, GP Rupī
4	Shorang scheme	Main Tank	36000	31.584693°N	77.886615°E	2249	Village Bara Kamba, GP Chhota Kamba
		Distribution tank (1 st)	16000	31.577833°N	77.890361°E	2230	Village Bara Kamba, GP Chhota Kamba
		Distribution tank (2 nd)	16000	31.574786°N	77.885589°E	2066	Village Bara Kamba, GP Chhota Kamba
5	Chhalti scheme	Main Tank	36000	31.574240°N	77.909152°E	2337	Village & GP Chhota Kamba
		Distribution tank (1 st)	16000	31.573288°N	77.906913°E	2181	Village & GP Chhota Kamba
		Distribution tank (2 nd)	16000	31.572126°N	77.909517°E	2216	Village & GP Chhota Kamba
6	Chikati scheme	Distribution tank	16000	31.567747°N	77.909970°E	2000	Village & GP Chhota Kamba
7	Togdang scheme	Main Tank	36000	31.576495°N	77.918236°E	2379	Village Gharshu, GP Chhota Kamba
		Distribution tank (1 st)	16000	31.571935°N	77.916844°E	2290	Village Gharshu, GP Chhota Kamba
8	Yalthach scheme	Distribution tank	16000	31.577301°N	77.946399°E	2019	Village Kachrang, GP Nathpa

SN	Name of Irrigation Scheme	Type of Tank	Capacity (L)	Location of Tank			
				Latitude	Longitude	Altitude (m)	Village & Gram Panchayat (GP)
9	Naga Nalah scheme	Main Tank	36000	31.575360°N	77.966050°E	2198	Village & GP Nathpa
		Distribution tank (1 st)	16000	31.574376°N	77.966125°E	2120	Village & GP Nathpa
		Distribution tank (2 nd)	16000	31.573160°N	77.963270°E	2116	Village & GP Nathpa
10	Yankimeh scheme	Distribution tank (1 st)	16000	31.573115°N	77.965534°E	2035	Village & GP Nathpa
		Distribution tank (2 nd)	16000	31.572927°N	77.967655°E	1995	Village & GP Nathpa
11	Bargar scheme	Main Tank	75000	31.568960°N	77.999530°E	2381	Village Kandar, GP Nathpa
		Distribution tank (1 st)	16000	31.568479°N	77.998038°E	2265	Village Kandar, GP Nathpa
		Distribution tank (2 nd)	16000	31.568268°N	77.997565°E	2239	Village Kandar, GP Nathpa

Out of total 26 RCC water storage tanks constructed under the project, 8 tanks are in Rupī panchayat, 9 each in Chhota Kamba and Nathpa gram panchayat area. The location of these tanks is shown in figure 34.

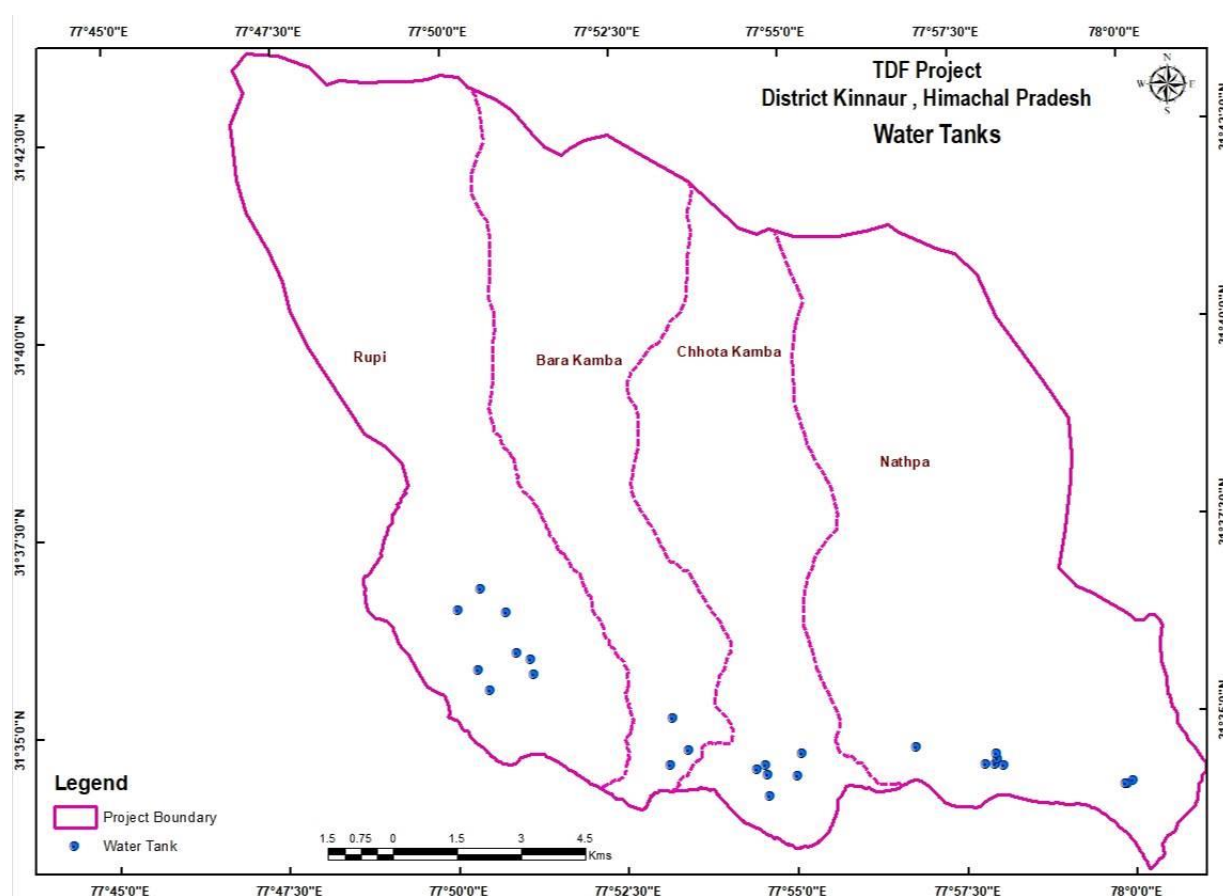


Figure 34. Map showing location of water storage tanks constructed under the Project.

1.2. Livelihood intervention for landless families

The beneficiaries who were having less than 0.5 acre of land have been considered as landless. There are about 45 such beneficiaries but only 9 beneficiaries have participated in livelihood interventions (carpentry tools) and have given their share in total cost of the interventions. These 9 beneficiaries are from Chhota-Bara Kamba and Rupī panchayats. They had opted for the following carpentry tools:

- Impact drill machine
- Angle grinder
- Power chain saw
- Wood planner
- Marble cutter
- Router

These six carpentry tools are in one kit of carpentry tools. Therefore, **9 kits of these carpentry tools one each to each beneficiary were given to the landless beneficiaries**. The total cost of one set of these tools was Rs. 30000, out of which Rs. 5000 (17%) was beneficiaries' contribution remaining Rs. 25000 (83%) was taken out of grant fund. These carpenters are skilled in wood carving works and mostly they work in local temples and other newly constructed houses. Before taking the benefits of improved tools under this project these carpenters were handicapped in the work of carving. Therefore, these tools enhanced their capability and performance in their wood work. The income generated under this activity is given in table No. 17.

Table 17. Income generated under livelihood activities.

Sr. No.	Activity	No of Families	Pre Project Income (per family) (Rs.)	Post Project Income (per family) (Rs.)	Increase in Income (%)
1	Carpentry Tools	9	13000	28000	115%



Figure 35. Carpentry and carving work done by the carpenters (landless) in the temple at Bara Kamba.

1.3. Wadi plus activities

In broader sense there were four components of the project, viz; wadi establishment, water resource development (WRD), other livelihood interventions and wadi plus activities (training & capacity building of beneficiaries). In fact, the programme has been designed in such a holistic manner that it includes all important components which are necessary to lift the livelihood of a community through sustainable horticulture development. Efforts have been made to impart in-situ trainings in the project area and institutional training away from the project area in such a manner so that the skill of wadi farmers in wadi establishment is fully built. Before taking up this project the farmers were raw hand in horticulture work but now, they are skilled in the sphere of orchard establishment and now they are increasing area under apple fruit crop every year. There were so many other trainings imparted which do not find place in the project documents but these trainings were necessary. The wadi farmers were also given relevant handouts written in hindi at the time of imparting trainings. Training is a continuous process as the farmers always in a need of technical input, therefore, the concerned departments of Agriculture & Horticulture have been requested to include these wadi farmers in their routine training programmes.

1.3.1. Training and capacity building

Farmers require continuous education to stay aware of fast paced developments in business, science, management and technology. These ongoing trainings give them a complete understanding of an array of skills, techniques, and fields (areas) that affect agriculture options. Today, there are various agricultural departments whose purpose is to consolidate agricultural research and further disseminate it to the farming community. Their initiative to increase farmer's knowledge and education in this field have significantly helped farmers to adopt various practices that are environmentally sound, generates revenue and thus contributes to the quality of life.

Keeping in view the importance of farmers training and education, three kinds of trainings were proposed, viz; wadi related trainings, micro-enterprises trainings and processing and marketing related trainings.

1.3.1.1. Wadi and related trainings

In addition to wadi establishment, the stakeholders were also trained and their skill was developed in different aspects of horticulture development for sustainability of the project. The wadi related trainings which were sanctioned & organised under the project are given in table 18.

Table 18. Wadi and related trainings sanctioned and achieved.

Sr. No.	Name of training/activity	Unit	Programme	
			Sanctioned	Achieved
1	Awareness Camps & Wadi Farmers Sensitization	Nos.	13	13
2	Training to PIA Staff	Nos.	14	14
3	Skill Development Training for Wadi Farmers & Wadi Project Field Staff	Nos.	28	28
4	Farmers exposure visits to other successful Wadis within the State	farmers	125	125
5.	Formation of Village Planning Committees (VPCs) - Training and Functioning	Nos.	15	15
6.	Capacity Building and Leadership Trainings to VPCs	Nos.	30	30
7.	Training of Vegetable Cultivation in Open Field and Polyhouse	Nos.	12	12
8.	Technical support of KVK/UHF	Nos.	14	14
9.	Experience Sharing Workshops	Nos.	9	9
10.	Printing of Wadi Reference Materials and Field Brochures	No. of Printouts	2000	2000
11.	Display Boards	Nos.	5	5

1.3.1.1.1. Awareness camps and wadi farmers sensitization

After sanction of the project, first activity done by the PIA was organizing awareness and sensitization camps for the project beneficiaries to sensitize and make them aware about the components of the project. These camps were organised to make the beneficiaries comfortable to participate in the implementation of the project activities and to ensure their maximum contribution and participation. This was a continuous process throughout the project period. A pamphlet was also designed, covering projects physical and financial details and circulated among the beneficiaries during these awareness camps so that the farmers are aware about different provisions sanctioned in the project document. During these camps 15 village planning committees (VPCs) were also formed and motivated to get their participation in the implementation of project. Such kind of awareness and sensitization camps were also organised during 2nd and 3rd years of the Project to update them about the progress made under the project and to discuss their issues related to orchards management. **More than 13 awareness and sensitization camps have been organized during the initial 4 years of the project period against 13 sanctioned camps.** The project beneficiaries have actively participated in these camps. The glimpses of awareness and sensitization camps are shown in figure 36.



Figure 36. Awareness camps and wadi farmers sensitization programmes held for wadi farmers.

1.3.1.1.2. Training to PIA Staff

On recruitment of project staff, they were imparted training on project planning & implementation, developing coordination with the beneficiaries and monitoring & evaluation of project activities. Such kind of training programmes were organized every year. During these programmes progress made under the project and issues evolved during implementation of the project were discussed with the project staff and future strategies were planned to be implemented. [More than fourteen trainings were provided to the project staff by the management of the PIA against the sanctioned 14 number of PIA staff trainings.](#)

1.3.1.1.3. Skill development trainings for wadi farmers & wadi project field staff

The skill development trainings were provided to all the wadi project beneficiaries on orchard management covering layout planning of orchards, digging & filling of pits, mixing of fertilizers & FYM in soil, treatment of the roots of planting material, planting of plants, training & pruning, intercultural operations, management of pest & insect attacks and fertility management, selection & cultivation of intercrops, etc. [Total 28 skill development training programmes against 28 sanctioned were organized for wadi farmers and wadi project field staff in all three-gram panchayats of the project area.](#) The glimpses of skill development trainings are shown in figure 37, 38 & 39.



Figure 37. Skill development in training and pruning of apple plants held at Nathpa.



Figure 38. Skill development in training and pruning of apple plants held at Bara Kamba.



Figure 39. Institutional skill development training held at KVK Sharbo, district Kinnaur.

1.3.1.1.4. Farmers' exposure visits to other successful wadies within the state

Exposure visits for wadi farmers were conducted to convince them and to provide them with an opportunity of seeing the results of new practices, demonstration of skill and to give them an idea regarding the suitability and application of these things in their own area. **Total four farmers' exposure visits were organized for 125 interested wadi farmers, representing all three gram panchayats against sanctioned exposure visits for 125 farmers of the project area.** The wadi farmers were selected in such a way so that they may gather maximum knowledge during exposures and after returning home disseminate the same among the other wadi farmers of their concerned areas. These farmers were taken to the demonstration sites of Regional Horticulture Research & Training Station (RHR&TS) and Krishi Vigyan Kendra (KVK) of Dr. Y.S. Parmar University of Horticulture and Forestry (UHF) at Sharbo, Reckong Peo, district Kinnaur, Progeny-cum-Demonstration Orchard and Khumb Khad Production Unit and Training Centre of Department of Horticulture at Dutt Nagar, district Shimla and Fruit Canning Unit of H.P. Horticulture Produce Marketing & Processing Corporation (HPMC) at Reckong Peo, district Kinnaur. During these exposure visits one apple nursery and some orchards of progressive farmers of village Powari, district Kinnaur were also visited by the Wadi farmers. The purpose of these visits were to expose the wadi farmers of project area to the best practices of orchard management, post-harvest technology of apple fruits, healthy apple nursery growing practices and

to expose them in mushroom cultivation. The glimpses of exposure visits organized during the project period are shown in figure 40.



Figure 40. Glimpses of exposure visits of wadi farmers.

1.3.1.1.5. Formation of Village Planning Committees (VPCs) - training & functioning

Before the implementation of the project, the wadi farmers were mobilized and oriented about the formation of one VPC in each village of the project area. The main purpose of constituting these VPCs was to ensure maximum participation of all beneficiary farmers in planning and implementation of the programme with the PIA. Orientation camps were organized in all villages in which VPCs were formed with selection of 5-7 members of management committees. Total 15 VPCs were formed covering all the villages of the project area. The members of VPCs were made aware about the functions of VPCs and the members of management committees were also mobilized about their role and responsibilities in their respective VPCs.

1.3.1.1.6. Capacity building and leadership trainings to VPCs

Total 15 VPCs were formed in the project area. The management committee of these VPCs were imparted training on their role and responsibilities and functions of VPCs. The trainings were also imparted in how and when to call a BODs meetings and general house meetings and how to draw minutes or write proceedings of the meetings. They were also get trained in resource mobilization, conflict management, record keeping, leadership and monitoring. During each trainings the BODs and members of the VPCs were advised to ensure their maximum participation in implementation of the activities during the project and post project period. The management committee members were also advised to make coordination with the wadi farmers.



Figure 41. Glimpses of VPCs trainings held at different venues.

Total 30 capacity building and leadership trainings against 30 sanctioned trainings were organized during the project period. The size of these committees is so small that the members generally meet every day with one or the other purposes. A few pictures of these capacity building and leadership trainings are given in figure No. 41.

1.3.1.1.7. Training of vegetable cultivation in open field and polyhouse

During initial stage of apple cultivation, the farmers were encouraged to grow commercial crops in interspaces of the fruit trees. It enables farmers to utilize not only the vacant space efficiently but also enable them to earn additional income. They also act as a cover crop and the land benefits by the cultivation, irrigation, manuring given to the vegetable crops. Being short duration, shallow roots, bushy or climbing types with very low plant height makes vegetable

crops ideal companion of perennial large fruit trees. Keeping in view the importance of vegetable crops as intercropping in young fruit orchard, the wadi farmers were encouraged to go for vegetable cultivation with cultivation of traditional crops in the wadis developed under the project. However, the wadi farmers were also encouraged to grow commercial crops in their vacant open fields and in polyhouses. The area is most suitable for growing off season indigenous and exotic vegetables. The farmers were mobilized and trained to cultivate vegetables after imparting resource persons from Department of Agriculture. Under intercrop component of the project the wadi farmers were also provided vegetable seeds by the PIA.

The farmers were also trained about the cultivation of vegetables in polyhouses. They were informed about the difference of producing vegetables in polyhouses and to produce the vegetables in open conditions. Growing of vegetables in polyhouses are more advantageous than to grow vegetables in the open conditions. The polyhouse helps farmers in growing the vegetable nursery in advance as nursery is protected from the vagaries of weather. Polyhouse conditions also control insect-pest attack to some extent. The advantages of crop rotation in polyhouses as well as open cultivation was also told to the farmers. The farmers were also informed about the different schemes being run by the department and encouraged to avail the benefits of these schemes. [Total 12 such trainings against the 12 sanctioned number were organized during the project period.](#)

1.3.1.1.8. Technical support of KVK/UHF

To solve the wadi farmers problems in-situ relating to orchards management, insect-pest attacks and other diseases in fruit plants, [the Scientists of Krishi Vigyan Kendra \(KVK\), Sharbo, district Kinnaur have made total 14 visits against 14 sanctioned visits to the project area at different stages of orchards development.](#) Along with the visits of Scientists from KVK, some retired Scientists from IARI, UHF, ICAR were also made available by the PIA to give in-situ trainings to the wadi farmers. During the visits of the scientists the wadi farmers were also trained in training & pruning, nutrition management, spray schedule, diseases management, etc. Every time, after the visits of these scientists the recommendations made by them were got implemented through the wadi farmers in their fields by the PIA. Some of the visits of Scientists in the orchards of the Wadi beneficiaries are shown in figure 42, 43 & 44.



Figure 42. Visits of KVK Scientists in the orchards of the wadi beneficiaries at Rupri.



Figure 43. Visits of KVK Scientists in the orchards of the wadi beneficiaries at Nathpa.



Figure 44. Visits of KVK Scientists in the orchards of the wadi beneficiaries at Bara Kamba.

1.3.1.1.9. Experience sharing workshops

Workshop is a period of discussion or sharing the experiences on a particular subject in which different groups of people share their knowledge or experiences. Workshops also provide chance to discuss the problems out of the experiences gained during the implementation by the PIA as well as stakeholders. Such problems are discussed with the experts to get best solutions and latest trends. The main objective behind organizing experience sharing workshops was to share the working experiences of the beneficiaries of the project area. The workshops were also aimed to review the progress made and to discuss the issues observed during the implementation of the project. During these workshops the wadi farmers had a chance to interact with the scientists of UHF Nauni, KVK Sharbo and experts from the different departments like Horticulture, Agriculture and Animal Husbandry. In these workshops the Senior Officers of NABARD were also involved to observe the progress in the implementation and clear the doubts, if any, of the project beneficiaries as well as the PIA. At the end of each workshops future strategies were made to be implemented at framers as well as at PIA level to make the project sustainable. In view of this objective, 9 such workshops were envisaged in the project and 9 were organized during the project period at different intervals of time. Some of the photographs of the experience sharing workshops organized under the project are given in figure 45.



Figure 45. Glimpses of experience sharing workshops organised at different venues.

1.3.1.1.10. Printing of wadi reference materials and field brochures

Wadi reference materials and field brochures were prepared and circulated among the wadi farmers during awareness camps, trainings and other workshops/events. Total 11 pamphlets and technical brochures were prepared and circulated by the PIA on the concepts of the project, technique to develop apple orchard, scientific management of apple orchard (schedule of activities), management of insects, post-harvest management of apple, grading, packing & storage of apple, bee keeping, vermicomposting, organic farming, animal nutrition & livestock management and cultivation of exotic vegetables, etc. The brochures were prepared in Hindi language and circulated among the farmers.

The sanctioned target of wadi reference materials and field brochures was given as 2000 print outs whereas PIA has achieved more than the envisaged targets. The funds for printing some of the wadi reference materials and field brochures were spent out of the training heads as funds under this head were meager/insufficient.

A list of brochures prepared, printed and circulated free of cost among the stakeholders during the trainings is given as below:

- i. जनजाति समुदाय विकास कार्यक्रम
- ii. सेब बगीचा लगाने की उत्तम तकनीक
- iii. वैज्ञानिक ढंग से सेब के बगीचों का प्रबंधन
- iv. सेब के नाशी कीट - पहचान, लक्षण एवं रोकथाम
- v. मधुमक्खी पालन
- vi. दुधारू पशुओं का आहार, पालन पोषण और स्वास्थ्य प्रबंधन
- vii. सेब के फलों की ग्रेडिंग, पैकिंग तथा भंडारण
- viii. सेब की फसल तुड़ान के बाद का प्रबंधन
- ix. विदेशी सब्जियां
- x. सेब के बगीचों का प्रबंधन- गतिविधियों की समय सारणी
- xi. वर्मी कम्पोस्ट कैसे तैयार करें

1.3.1.1.11. Display boards

After getting approval on the content of the display boards from NABARD, four display boards for fields and one master project board for Project Office were prepared. Three field display boards, having information about the Project and its financial details were fixed at the panchayats level. Along with this one display board was erected at the national highway (NH) 5 (near Chaura village). The photographs of the display boards are given in figure No. 46.



Figure 46. Field display boards installed at different locations in the Project area.

1.3.1.2. Micro enterprise trainings

To make the wadi farmers entrepreneur or professional they were trained in preparation of vermicomposting and nursery raising & management. The capacity building workshops on animal nutrition and livestock management was also organised for the stakeholders. **In all total 32 events on these topics were organised under the project against the sanctioned 32 trainings.** The micro enterprise trainings which were sanctioned and organised under the project are given in table 19:

Table 19. Micro-enterprise related trainings provided to Wadi farmers.

Sr. No.	Name of Training	Unit	Programme	
			Sanctioned	Achieved
1	Trainings on Preparation of Vermi-compost	Nos.	20	20
2	Trainings on Nursery Raising and Management	Nos.	6	6
3	Capacity building workshop on animal nutrition and livestock management	Nos.	6	6
	Total		32	32

1.3.1.2.1. Training on vermicomposting

Vermicomposting is a scientific method of making compost with the help of earthworms. Earthworms feed on the organic waste materials and give out excreta in the form of “vermicasts” that are rich in nitrates and minerals such as phosphorus, magnesium, calcium and potassium. These are used as fertilizers and enhance soil quality. The training programme on vermicompost preparation and its importance in horticulture especially in apple cultivation was organised for the wadi farmers of all 15 villages of the project area.



Figure 47. Training of wadi farmers on procedure and preparation of vermicomposting.

Total 20 trainings against the 20 sanctioned trainings, were organised during the project period. The main objective of these trainings was to demonstrate the method of preparation of vermicompost and to make the farmers aware about the importance of vermicompost and its significance in cultivation of apple and vegetables and other cereal crops. During these trainings wadi farmers were made aware about the soil health and informed the importance of farm yard manure (FYM) in improving soil health like its texture and structures but more emphasis was

given on vermicompost as it is better than FYM. The FYM takes more time to get ready for field application whereas the vermicompost is ready for field application within 70 to 80 days. Moreover, the vermicompost has more nitrogen percentage than FYM. It was emphasized that some of the Wadi farmers who have more cow dung available with them can prepare vermicompost for business purposes also as it is costlier than the FYM and all apple orchardist demand this manure during winter season. Therefore, all the Wadi farmers should go for the preparation of vermicompost than FYM.

During trainings method of preparation of vermicompost was explained in detail. To prepare compost, either a plastic or a concrete pit can be used. The size of the pit depends upon the availability of raw materials. The vermicompost could be made from biomass (agriculture waste) and/or from cow dung. Farmers should prepare fine bedding by adding partially decomposed cow dung, dried leaves and other biodegradable wastes collected from fields and kitchen. After adding all the bio-wastes, release the earthworm species over the mixture and cover the compost mixture with dry straw or gunny bags. Sprinkle water on a regular basis to maintain moisture content of compost. The compost area should be covered with a roof.

During trainings it was also informed to the wadi farmers that the Department of Agriculture and Horticulture is also providing subsidy for the preparation of vermicompost. Therefore, the wadi farmers should avail the facility of this subsidy. One technical bulletin on the preparation of vermicompost was also distributed free of cost among the participants.

1.3.1.2.2. Training on nursery raising and management

The training on fruit nursery raising and management was provided to interested wadi farmers of the project area. They were provided theoretical training on fruit plant nursery raising in Regional Horticulture Research & Training Station (RHR&TS) and Krishi Vigyan Kendra (KVK), Sharbo, district Kinnaur. During the training the participants were informed about preparation of nursery bed, sowing seed of the root stock plant and application of manure and fertilizer interculture operation in the nursery bed. When the seedling plants are of standard height, table grafting etc. of budwood arranged from mother plants is carried out on the seedling plants (root stock). The farmers should also control insect pest attack during the growing period so that the plant material being raised by the farmers should be of good quality and disease free. Practical demonstrations were also given to them at the nursery demonstration sites of the KVK. During trainings the farmers were also informed about the procedure of taking license of raising nursery from the Department of Horticulture. **Total 6 such trainings were provided to the interested Wadi farmers against 6 sanctioned trainings.** The purpose behind providing such trainings was to make the wadi farmers skilled in nursery raising so that they are in a position to raise the quality planting

material for meeting their future own requirements of plants and also making money by selling planting material to their peer farmers.



Figure 48. Training of selected wadi farmers on nursery raising and management at Regional Horticulture Research & Training Station (RHR&TS) and KVK, Sharbo, district Kinnaur.

1.3.1.2.3. Capacity building workshop on animal nutrition and livestock management

The main objective of these capacity building workshops on animal nutrition and livestock management was to discuss the animal clinical issue, animal nutrition, animal hygiene and status of livestock health and their management practices in district Kinnaur in general and project area in particular. In these workshops discussion was also held on animal housing & balanced feeding and common diseases of milch animals in the project area. The modern practices of animal husbandry (dairy) through visual aids like documentary film on dairy farming was also shown to the participating farmers during the workshops. Every time veterinary experts from the Department of Animal Husbandry were involved in these workshops as resource person. During the workshops medicine of de-worming was also distributed to the participating farmers free of cost. A brochure on “दुधारू पशुओं का आहार, पालन पोषण और स्वास्थ्य प्रबंधन” was also circulated among the participants of the workshops. **Total 6 capacity building workshops on animal nutrition against the sanctioned 6 workshops were organised during the project period.**



Figure 49. Capacity Building Workshop on Animal Nutrition and Livestock Management held at Smiti Hall at Bhabanagar, District Kinnaur.

1.3.1.3. Processing and marketing related trainings

Under the component - processing and marketing related trainings, the trainings of wadi farmers were organised on post-harvest handling of apple fruit crop and grading and packaging of apple. The sanction and achievements of processing and marketing related trainings provided in the project is given in table 20.

Table 20. Detail of processing and marketing related trainings

Sr. No.	Name of Training	Unit	Programme	
			Sanctioned	Achieved
1	Training of Farmers on Post-harvest handling	Nos.	10	10
2	Training on Apple Grading and Packaging	Nos.	2	2
	Total		12	12

1.3.1.3.1. Training of farmers on post-harvest handling (horti)

Producing a good quality of fruit from apple fruit crop, the farmers should be highly skilled in post-harvest handling. To take more benefits from the crop, it is important to sustain the quality of the apples until they are delivered to the end user. Best post-harvest techniques can only maintain the quality of fruit but cannot improve the quality. Keeping in view these aspects **total 10 trainings against 10 sanctioned trainings on post-harvest handling of Apple fruit crop were organized in all three gram panchayats of the project area covering the wadi beneficiaries of all villages.** The main objective of the trainings was to make the farmers aware on post-harvest handling of apple fruit crop. The trainings were also aimed to train the farmers on carrying out

different operations in apple fruit crop at the time of maturity of fruits. During these trainings the wadi farmers were also trained in fruit plucking management.



Figure 50. Training of wadi farmers on post-harvest handling held at Bara Kamba and Rupri.

Normally the wadi farmers pack their apples in carton with lids. However, some of them use plastic crates to pack and transport the apples up to market. During training farmers were advised that the packaging and transportation handling of apple fruit should be proper so that the quality of fruit is not spoiled.

During these trainings the wadi farmers were made aware about different methods of storage of apple. Apple fruits grown in the upper belts of Kinnaur where the climate is dry temperate can be stored for 90 days under ambient conditions whereas in lower belts where climate is wet temperate fruit can be stored up to 40-50 days only. For longer duration storage the controlled atmosphere (CA) storage was recommended where the sugar level and firmness of apple can be retained up to optimum level. Under CA storage recommended atmosphere is 1-2% O₂ and 2-4% CO₂. Cool chain is essential during the transport of export quality apple all the way from the farm gate to the customer. This helps in maintaining the temperature inside the box at the same low level as in the cold/CA storage. During these trainings discussions were also held on safe handling of apple during transportation for marketing.

1.3.1.3.2. Training on apple grading and packaging

The grading, packaging are the main two components which add value to the apple produce. Properly graded and packed apple fruits, if supplied in the markets, then it can fetch good price of apple fruits and benefit the farming community. Keeping in view the importance of grading and packaging of apple, the wadi farmers were imparted training on these topics. Total two trainings were organised on grading and packaging of apple under the Project. There are two types of grading being done by the wadi farmers, manual and mechanized. The mechanized grading can grade the apple fruit in 5-7 grades of apple depending upon the size and colour of apple. Sorting of apple is also important with the grading. During sorting the damaged and diseased apple can be separated. The manual grading takes more time than grading done by apple grading machine. The mechanized grading is more precise than manual grading of apple. Depending upon the final destination of the marketing of apple produce, packaging of apple can be done either in carton

with trays in different layers or in plastic crates as loose apples. The big buyers like Adani and Dev Bhumi generally prefer to purchase apple carried in plastic crates and the buyers from outside the State prefer purchasing of apple packed in carton box. The farmers were also informed that one carton box should not be packed with apple fruit weighing more than 20 kg. At present the telescopic cartons are being used for the packing of apple, although the focus should be on universal carton. PIA advised the growers that they should standardize their apple box and pack their produce after proper grading and must market the produce through FPO using the name and logo of FPO for branding of their apple so that individual farmer is not cheated in the market.



Figure 51. Training of wadi farmers on apple grading and packaging held at Bara Kamba & Karchrag.

1.3.1.3.3. Buyer–sellers meet-cum-workshop on marketing of apple produce of Kinnaur

On the demand of farmers of the project area and other progressive farmers of district Kinnaur, a buyer–sellers meet-cum-workshop for the marketing of Kinnaur apple fruit was organised by HARP on the 9th April 2021 at Rampur Bushahr, district Shimla, Himachal Pradesh. This activity was organized with the funding support of NABARD other than the project grant as it was not envisaged/sanctioned under the project. The main aim of this event was to provide a platform for the Kinnaur apple producers to interact with the potential buyers of apple fruit who are already in this business or who wants to enter into the business of buying Himachal fresh apple fruit.

Total 12 representatives of FPOs, FPCs and Farmers Groups of Kinnaur along with 9 individual progressive apple growers of Kinnaur district actively participated in the event. On the other hand 11 buyers of six corporates/companies/firms along with 6 government officials (from NABARD, APMC-Shimla & Kinnaur, Department of Horticulture, etc.), 4 representatives of HARP and 2 media personnel had also participated in the event. The following important points were forward for the discussion by the participants:

- The apple growers should try to produce qualitative apple to get maximum price in the market.
- The apple growers should not fill the box of apple more than its designed capacity so that the quality of apple may not get deteriorated during transportation.

- The harvesting of apple should be done at its natural maturity according to the variety of apples.
- In order to increase the producers' price in consumers' price of apple the market chain has to be reduced. Therefore, it was felt necessary that there should be good market infrastructure like mechanical graders and CA stores near the producing areas.
- The apple buyer companies purchasing apple outside the APMC market should buy apple near the producing areas so that farmers have choice whether to sell their crop of apple fruit to the particular buyers or he may send his crop to some other market where the price of the produce is higher than what he is getting at his farm gate.
- It was observed that the FPOs/FPCs can play a major role in reducing the market chain, therefore, these organizations may start the marketing of apple on small scale initially so that they could build confidence to handle apple produce in large quantity. Most of the buyers have shown interest to buy apple directly from FPOs/ FPCs instead of individual growers.
- The apple growers have raised demand that there should be some mechanism with the APMC to identify the identities of bidders so that the *Ahrtiyas* who give the platform of bidding may not face problems of fraud bidders and the growers may also be saved to get cheated.



Figure 52. Delegates present in the buyer–sellers meet-cum-workshop at Rampur Bushahr, district Shimla.

1.3.2. Women development and health

Following interventions were sanctioned and achieved under the women development and health component which is given in table 21.

Table 21. Trainings programmes and camps organized.

SN	Name of Training	Unit	Programme	
			Sanctioned	Achieved
A.	Women Development Interventions			
1.	Training on Women and Child Nutrition Management	Nos.	7	7
2.	Gender Sensitization Camps	Nos.	4	4
3.	Water purifier (Demo) (One each in every Mahila Mandal)	Nos.	7	7
	Sub-total			
B.	Health and Sanitation Camps			
1.	Health Camps for Children, Women & Elderly	Nos.	3	3
2.	Sanitation Camp	Nos.	-	1
	Sub-total			
	Grand Total		21	22

1.3.2.1. Women Development Interventions

1.3.2.1.1. Training on women and child nutrition management

It was generally observed that the health facilities in the project area are, poor and women are less sensitized on nutrition due to which the children are more susceptible to diseases and general health. Hence, there was a need to sensitize local women on these issues and provision of trainings was made in the project.

Trainings on women and child nutrition were organized with the objectives to make aware the farm women about different issues concerning to the health of women and children and to train the farm women about their self as well as their children hygiene and nutrition management. The participating women were made aware through power point presentations on the topics like, “Health of mother and child”, “Personal hygiene & clean environment” and “Healthy diet”.

To make the participants more awakened about the health and nutrition management, two short films, first on “Diarrhea – Dangers & Treatment” and second on “Proper nutrition for mental development – Essential for a growing child” were shown to the participating women. Two animation films first on “Hygiene - The way of life” and second on “An initiative towards clean drinking water” were also shown to the participating farm women. The participants of the programme had accepted that by and large they were unaware in many cases about women and child’s health and nutrition related issues. During these trainings the participating farm women were requested that whatever they have learnt in these training programmes, they should discuss

with their family members, relatives and other persons of the villages. Total seven such trainings were sanctioned under the project which were achieved during the project period. A few photographs of the trainings on women and child nutrition management are given in figure 53.



Figure 53. Trainings on women & child nutrition management held at Bhabanagar, district Kinnaur.

1.3.2.1.2. Gender sensitization camps

Gender sensitization is the process of creating awareness regarding gender equality issues and modifying the behavior and views that people hold about themselves and other genders. In the case of present project, gender sensitization is required because most of the farm activities are performed by the ladies in these tribal areas and they are working hard in the field as well performing domestic chores. Their participation in village planning meeting and local bodies is limited. The main objectives of these camps were to awaken farmers about gender sensitization and to make them aware about gender equality. Every work can be done by all gender, was the main focus of these gender sensitization trainings. The lectures on need of gender sensitization

and gender equality were presented through power point presentations to the participants of the camps. A video clip was shown to the participants which was focused on general issues of gender discrimination. During the programme a short film namely - “Muskaan – Animation Short Film on Gender Equality and Female Foeticide” was also shown to the participants. Both the documentaries were well taken by the participants of the programme.



Figure 54. Gender sensitization camp held at Samiti Hall, Bhabanagar, District Kinnaur.

During these camps the participants have unveiled their views on gender sensitization and accepted that there was a need to organize such kind of camps on regular basis. **Total 4 gender sensitization camps against 4 sanctioned were organized during the project period** (see figure 54).

1.3.2.1.3. Water purifier (demo) (one each in every Mahila Mandal)

During general survey for preparing DPR it was identified that there are total 7 Mahila Mandals (women organisations) in the project area. Under women development and health component of project total 7 water purifiers against 7 sanctioned were distributed to each Mahila Mandals. The water purifiers were distributed to the Mahila Mandals so that women are made aware about the importance of clean potable water in maintaining the health of their family members.



Figure 55. Distribution of water purifiers to the Mahila Mandals of the project area.

1.3.2.2. Health and Sanitation Camps

1.3.2.2.1. Health camps for children, women and elderly

Total three health camps under the project were organized in collaboration with Community Health Centre (CHC) Bhabanagar at village Rupri, Bara Kamba and Kachrang of gram panchayat Rupri, Chhota Kamba and Nathpa respectively. During these health camps the people were clinically checked by a Medical Doctor on general health in general and blood pressure, blood sugar level, etc. in particular. The patients were also given free medicines as per requirement out of grant fund. During these camps the Doctor found that most of the people of the area were suffering from lower back ache, joint pain and hypertension. Many patients were also complaining of diminished vision and dry eye. Some people were suffering from skin fungal infections. During these camps the Doctors had checked pallor in the middle age women, many of them were suffering from Anemia for which Iron Folic Acid (IFA) tablets were given. The people who came for general check-up were also given a few health tips by the Doctors.



Figure 56. Health camp organised at village Majhgaon, gram panchayat Rupri.



Figure 57. Health camp organised at village & gram panchayat Bara Kamba.



Figure 58. Health camp organised at village Kachrang, gram panchayat Nathpa.

1.3.2.2.2. Sanitation camp

On request of DDM NABARD, district Kinnaur, a sanitation camp under Swachha Bharat Abhiyan (SBA) was organised by PIA in the year 2015 at village Bara Kamba, gram panchayat Chhota Kamba (project area). In this programme around 90 participants were present in which 40 participants were farmers and around 50 were students of different villages of the project area.



Figure 59. DDM NABARD addressing the participants of sanitation camp organised under Swachh Bharat Abhiyan at Village Bara Kamba, Gram Panchayat Chhota Kamba.

During this camp participants were made aware about the Swachha Bharat Abhiyan (SBA) of government of India and its different components. A rally was also organised in the village to make the people aware of the village who were not present in this camp. The roads and surrounding areas of the village were also cleaned by the participants.

1.3.3. Cooperative and its functioning

In the project, a provision has been kept for organizing the farmers in a farmer producer organization (FPO). The main objective of this provision was to hand over the responsibilities of post project activities like, maintenance, organizing of technical refresher training courses to the farmers and tackle other farmers problems. In addition to this the FPO will also arrange input materials to the farmers and take over marketing issue of apple fruit crop.

In view of these objectives a FPO named [“The 15/20 Green Valley Fruits and Vegetable Growers Marketing cum Processing Cooperative Society Ltd.”](#) Village Bara Kamba, PO Chhota Kamba, Teh. Nichar, District Kinnaur, PIN-172101 has been formed & strengthened.

Following interventions were sanctioned and achieved under the cooperative and its functioning component of the project:

1.3.3.1. Awareness programmes and orientation on the concept of FPO

Total six awareness and orientation programmes which were sanctioned on the concept of Farmer Producer Organization (FPO) were organised by PIA for the Wadi farmers of the Project area. During these programmes the wadi farmers were made aware on concept, aims, objectives, functions/interventions and role of the FPO. While organizing the FPO, the members of the FPO opted to get registered under cooperative society act of Himachal Pradesh. The PIA facilitated the FPO in getting registered under HP Cooperative societies Act in the office of Assistant Registrar Cooperative Societies at Reckong Peo, district Kinnaur, Himachal Pradesh. While making them aware about their responsibilities, it was made clear that the FPO will ensure input supply, agri-services, credit linkages, market-oriented production, value addition, market linkages and improved returns to enhance the income of the member farmers. By this way the middlemen can be removed to get more profits, both in marketing of produce and input supply.



Figure 60. Awareness and orientation programme on Farmer Producer Organization (FPO) held for the wadi farmers at Samiti Hall, Bhabanagar.



Figure 61. Awareness and orientation programme on Farmer Producer Organization (FPO) held for the wadi farmers at Project Office, Bhabanagar.

1.3.3.2. Formation, registration and strengthening of FPO

After creating awareness among the wadi farmers about the FPO and making several efforts a FPO of the wadi farmers of the project area was formed. PIA has helped the members of FPO to form the byelaws of the FPO and prepare other mandatory documents for registration. With great efforts of PIA, the FPO could be registered with the Office of Assistant Registrar of Cooperative Societies (ARCS), District Kinnaur, Himachal Pradesh. The FPO has been registered vide registration No. HPCS-1139 dated 17/09/2022 under H.P. Cooperative Societies Act 1968 (Act No. 3 of 1968). The name and address of FPO is **“The 15/20 Green Valley Fruits and Vegetable Growers Marketing cum Processing Cooperative Society Ltd.”** Village Bara Kamba, PO Chhota Kamba, Teh. Nichar, District Kinnaur, PIN-172101. The Personal Account Number (PAN) of the

FPO is AAIAG7703P. The FPO is still being facilitated by the PIA in getting licenses for sale of agriculture inputs and other aspects of their capacity building.

1.3.3.3. Orientation and training programme for FPO

Total three training programmes were organised for the BODs, CEO and members of the FPO under the Project. In these training programmes the members of FPO were made aware about concept and need of farmer producer organizations (FPOs). They were made aware about the basic activities of FPO like aggregation & marketing of produce, supply of inputs, making provision of services to the member farmers, etc. During these trainings the BODs and CEO were also informed about their roles and responsibilities. How to set agenda items and how to conduct annual general meeting, special general meeting and board meeting was also informed to the CEO and BODs of the FPO. The procedure of preparing different licenses to purchase and sale of agri-horticulture inputs were also informed to the CEO and BODs. The discussion on preparation of business development plan of FPO was also held in these training programmes. The basics of financial management, accounting and funding arrangement in FPO were also taught to the CEO, BODs and members of FPO. The trainings on management of orchards & quality production of apple fruit, and marketing of apple were also organised for the members of FPO.



Figure 62. Trainings of BODs and members of FPO at different venues.

1.3.3.4. Exposure visit of FPO

Total two exposure visits of FPO members were sanctioned and achieved under the project. During these visits the members of FPO and other wadi farmers were taken to Dr. Y.S. Parmar University of Horticulture and Forestry (UHF), Nauni, Solan. Total 34 Wadi farmers & farm women of the project area had actively participated in these visits.

Exposure visit was conducted to convince them and provide them an opportunity of seeing and believing the results of new practices, demonstration of skill and to give them an idea regarding the suitability and application of these things in their own area. These farmers were taken to the demonstration sites of the Department of Floriculture & Landscaping, Department of Fruit Science, Department Food Science & Technology, Department of Vegetable Science and Department of Natural Farming of UHF, Nauni. The purpose of these visits were to expose the wadi farmers with the best practices of orchard management, post-harvest & processing technology of apple fruits and cultivation technologies of natural farming. The glimpses of exposure visit are shown in figure 63.



Figure 63. Exposure visits held at different demonstration sites of Dr. Y.S. Parmar University of Horticulture and Forestry (UHF), Nauni, district Solan, Himachal Pradesh.

IV. CONVERGENCE

Substantial investment are being made for strengthening of rural economy and livelihood base of the poor, especially the marginalized groups like SC/STs and women. To effectively address the issue of poverty alleviation, there is a need to optimize through inter sectoral approaches. The convergence of the different programme of government will enable better planning and effective investments in rural areas. This convergence will bring synergies between different government programmes/schemes in terms of planning, process and implementation. Convergence of funds from other sources can help in creation of durable assets. The TDF project was also taken up on this analogy. The different departments like Agriculture, Horticulture, Animal Husbandry & Rural Development are taking up their programmes in whole of the state of Himachal Pradesh in general. The incentives provided by these departments to the beneficiaries of TDF project in Kinnaur District during the project period are given in Table. 22.

Table 22. Convergence details of different departments in the project area.

SN	Village and Panchayat	Activity details under Convergence	Convergence with Department	No of Wadi farmers benefited	Amount released by Dept. (Rs.)	Present Status
1	Nathpa	Distribution of Agri Implements	Agriculture	54	48645	Tools being used by farmers
2	Nathpa	Distribution of Fertilizer/Micro nutrients	Agriculture	8	2703	-
3	Nathpa	Spray Pumps	Agriculture	138	43063	Spray Pumps being used by Farmers
4	Nathpa	Distribution seeds under different Schemes	Agriculture	54	136588	-
5	Nathpa	Training on Natural Farming	Agriculture	45	40000	-
6	Nathpa	Demonstration on different tradition crops	Agriculture	8	32000	-
7	Nathpa	Cow shed Lining	Agriculture	1	8000	-
8	Nathpa	Distribution of Power Sprayer	Horticulture	16	159256	Spray Pumps being used by Farmers
9	Nathpa	Area Expansion Normal Spacing	Horticulture	2	24240	
10	Nathpa	Area Expansion High Density	Horticulture	1	18000	
11	Nathpa	Area Expansion Vegetable open pollinated	Horticulture	1	10620	
12	Nathpa	Distribution of Vermi Compost Unit under Tribal Sub Plan	Horticulture	4	200000	
13	Nathpa	Distribution Anti Hail Net	Horticulture	8	607414	Tools being used by farmers
14	Nathpa	Distribution of Tools Krishi utpad Sanrakshan Yojna	Horticulture	4	44788	Tools being used by farmers

SN	Village and Panchayat	Activity details under Convergence	Convergence with Department	No of Wadi farmers benefited	Amount released by Dept. (Rs.)	Present Status
15	Chhota Kamba	Distribution of Agri Implements	Agriculture	89	46803	Tools being used by farmers
16	Chhota Kamba	Distribution of Fertilizer/Micro nutrients	Agriculture	16	47328	-
17	Chhota Kamba	Distribution of Spray Pumps	Agriculture	232	28320	Spray Pumps Being used by Farmers
18	Chhota Kamba	Distribution seeds under different Schemes	Agriculture	22	224927	-
19	Chhota Kamba	Training on Natural Farming	Agriculture	150	50000	-
20	Chhota Kamba	Demonstration on different tradition crops	Agriculture	7	32000	-
21	Chhota Kamba	Store for Agri Implements	Agriculture	1	10000	-
22	Chhota Kamba	Cow shed Lining	Agriculture	1	8000	-
23	Chhota Kamba	Awareness Camp about nutrition	Animal Husbandry	100	NA	
24	Chhota Kamba	Breeder Training Camp	Animal Husbandry	30	NA	
25	Chhota Kamba	NPBB Breeding Training Camp	Animal Husbandry	120	NA	
26	Chhota Kamba	Medicine distribution under different Schemes	Animal Husbandry	20	NA	
27	Chhota Kamba	Maze Seeds Distribution	Animal Husbandry	9	NA	
28	Chhota Kamba	Pregnant Cow Ration Distribution	Animal Husbandry	15	NA	
29	Chhota Kamba	Artificial Insemination	Animal Husbandry	320	NA	
30	Chhota Kamba	Distribution of Power Sprayer under Different Schemes	Horticulture	31	289373	Spray Pumps Being used by Farmers
31	Chhota Kamba	Area Expansion Normal Spacing	Horticulture	10	144468	
32	Chhota Kamba	Area Expansion Vegetable open pollinated	Horticulture	1	5400	
33	Chhota Kamba	Area Expansion Vegetable Hybrid	Horticulture	5	15000	
34	Chhota Kamba	Area Expansion Floriculture	Horticulture	1	4320	
35	Chhota Kamba	Area Expansion Spices and Rhizomatic Crops	Horticulture	4	20484	
36	Chhota Kamba	Distribution of Plastic Mulching	Horticulture	1	5840	
37	Chhota Kamba	Distribution of Vermicompost Unit under different Schemes	Horticulture	18	820000	
38	Chhota Kamba	Distribution of Power Tiller under RKVY Scheme	Horticulture	1	50000	Power Tiller being used by Farmer
39	Chhota Kamba	Distribution of Chain Saw	Horticulture	3	19735	Tools being used by farmers

SN	Village and Panchayat	Activity details under Convergence	Convergence with Department	No of Wadi farmers benefited	Amount released by Dept. (Rs.)	Present Status
40	Chhota Kamba	Distribution of Wall Hives under MMMVY Scheme	Horticulture	12	60000	
41	Chhota Kamba	Apple Rejuvenation Scheme	Horticulture	31	302186	
42	Rupī	Distribution of Agri Implements	Agriculture	63	27735	Tools being used by farmers
43	Rupī	Distribution of Fertilizer/Micro nutrients	Agriculture	5	6885	-
44	Rupī	Distribution of Spray Pumps	Agriculture	124	7859	Spray Pumps Being used by Farmers
45	Rupī	Distribution seeds under different Schemes	Agriculture	7	167436	-
46	Rupī	Training on Natural Farming	Agriculture	90	45000	-
47	Rupī	Demonstration on different tradition crops	Agriculture	9	45000	-
48	Rupī	Cow shed Lining	Agriculture	1	80000	-
49	Rupī	Awareness camp about nutrition	Animal Husbandry	93	NA	
50	Rupī	Breeder Training Camp	Animal Husbandry	20	NA	
51	Rupī	NPBB Breeding Training Camp	Animal Husbandry	100	NA	
52	Rupī	Medicine distribution under different schemes	Animal Husbandry	17	NA	
53	Rupī	Maze Seeds Distribution	Animal Husbandry	6	NA	
54	Rupī	Pregnant Cow Ration Distribution	Animal Husbandry	12	NA	
55	Rupī	Artificial Insemination	Animal Husbandry	415	NA	
56	Rupī	Distribution of Power Sprayer under MIDH Scheme	Horticulture	5	47250	Spray Pumps Being used by Farmers
57	Rupī	Apple Rejuvenation Scheme	Horticulture	1	19275	
58	Rupī	Land development, water storage tanks, cowsheds, etc. under MGNREGA	Rural Development	-	29928000	
59	Chhota Kamba	Land development, water storage tanks, cowsheds, etc. under MGNREGA	Rural Development	-	63095253	
60	Nathpa	Land development, water storage tanks, cowsheds, etc. under MGNREGA	Rural Development	-	31502280	
61	Nathpa	Medicine distribution under different schemes	Animal Husbandry	26	NA	
62	Nathpa	Pregnant Cow Ration Distribution	Animal Husbandry	12	NA	
63	Nathpa	OPD cow treated	Animal Husbandry	317	NA	
			Total		99964841	



Figure 64. Showing MGNREGA works in the Project area.



Figure 65. Stone fencing taken up by Wadi farmers themselves.

V. INTERNAL & EXTERNAL MONITORING

Project monitoring makes it possible to control the good progress of the project according to establish schedule and that the human, material and financial resources are well fixed and respected. It is a control and validation tool. Of course, project monitoring dose not avoid problem but makes not easier to detect them and react quickly in order to find and appropriate solution.

It is not enough to execute the tasks one after the other but monitoring of the tasks is also essential to maintain the quality of tasks. The benefits of the monitoring are as follow:

- Better visibility in to how the project is progressing.
- Better resource management and therefore, cost optimization.
- Reducing risk such as delivery delays, for example,
- empowerment of employees,
- better information sharing and simplified management.

In this project funding provision for internal & external monitoring has been kept under management head of the works. The following tools were adopted for monitoring at different stages of the execution of the project.

a) Review Meeting

The principle of the monitoring meetings is to discuss the progress of all project tasks with the PIA by using PPT, discussions and action plans. It is also during these meetings that the difficulties encounter are discussed. Two review meetings were conducted at NABARD, regional office level in a year.

b) Progress Reports

The PIA had been regularly submitting Quartey and annual progress reports on prescribe format to the funding agency, i.e.; NABARD

c) Monitoring by the PIA

The senior team of HARP (PIA) had been regularly visiting the project area at different intervals of time.

d) Monitoring by DDM

The District Development Manager (DDM), NABARD District Kinnaur had been visiting project area every month regularly.

e) Monitoring by Regional Office NABARD

The officers of regional office NABARD had also conducted monitoring once in a year.



Figure 66. Monitoring by CGM, DDM and other Officers from NABARD RO Shimla.

VI. IMPACTS

Impact of a project means a competitive scoring category that identifies and measures the potential social, economic and financial benefits of a project to the community. The present project is a horticulture-based livelihood programme, objective of which was to raise and make the sustainable livelihood of the tribal community by raising Wadis on the fields of small and marginal farmers. To make these wadis successful and sustainable, water resource development was also the main component of the project. In addition to this the stakeholders who were not having land were supported with other avocations which make their livelihood sustainable.

Before taking up this project, the farmers used to grow only traditional crops like ragi, barley, amaranthus (*chulai*), buck wheat, other millets, etc. which was only sufficient for their own consumption. There were no other high value crops which could fetch more money for the support of their family. The main source of their income was rearing of sheep, goat, etc. Therefore, the present wadi programme of NABARD under TDF has left lot of impact on different aspects.

1. Impact of wadi establishment

• Impact on landscape

To see the impact of wadi establishment on the landscape, land use/land cover maps of the project area were prepared from satellite images of October month of 2013 and 2022. The maps are given in figure 68 & 69. From the perusal of maps shown in figures, it may be seen that there is a difference of land use/ land cover in area under grassland and area under horticulture. The area under grassland has been reduced from 16705.8 ha in 2013 to 16557.8 ha in 2022. Similarly, the area under horticulture has increased from 29.55 ha in 2013 to 177.56 ha (according to satellite images) in 2022. Thus, the impact of wadi establishment on landscape is significantly high.



Figure 67. A view of apple wadi established at village Nathpa.

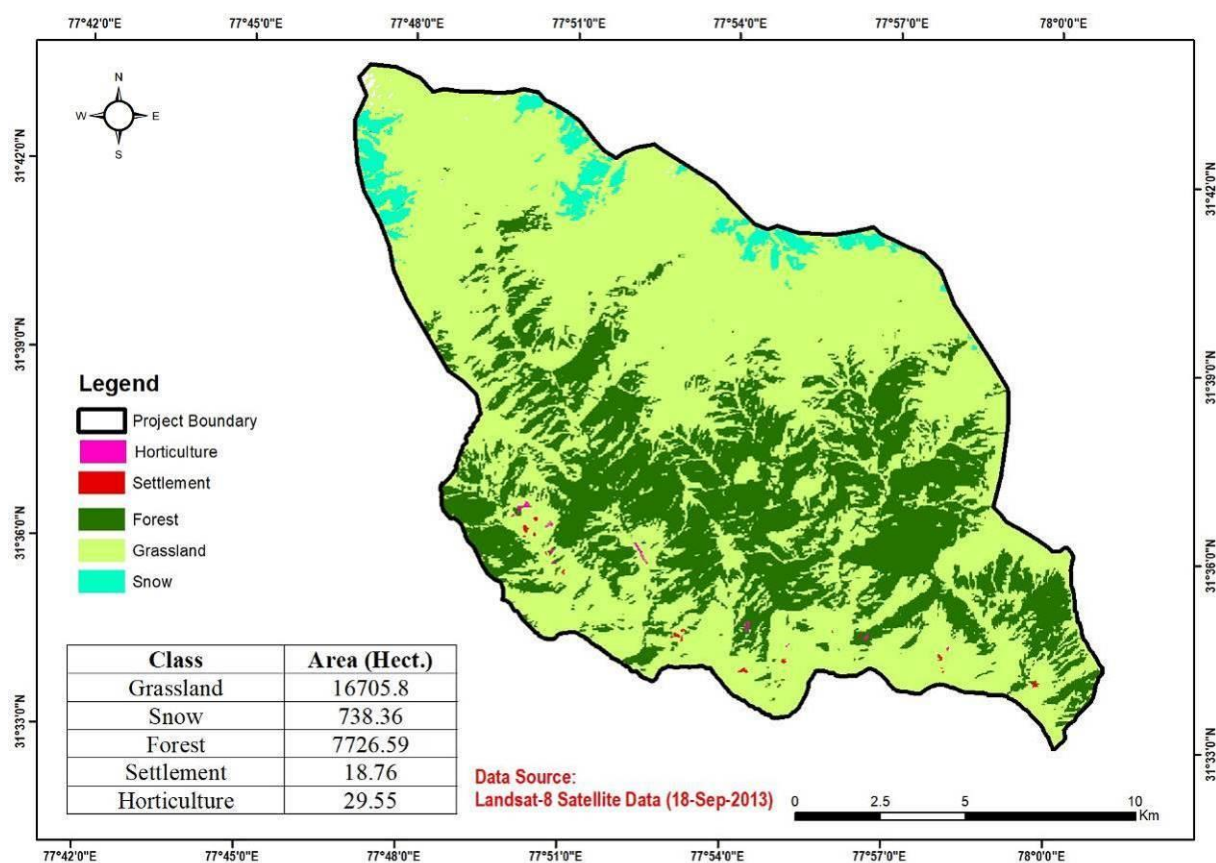


Figure 68. Land use/land cover map of pre project period.

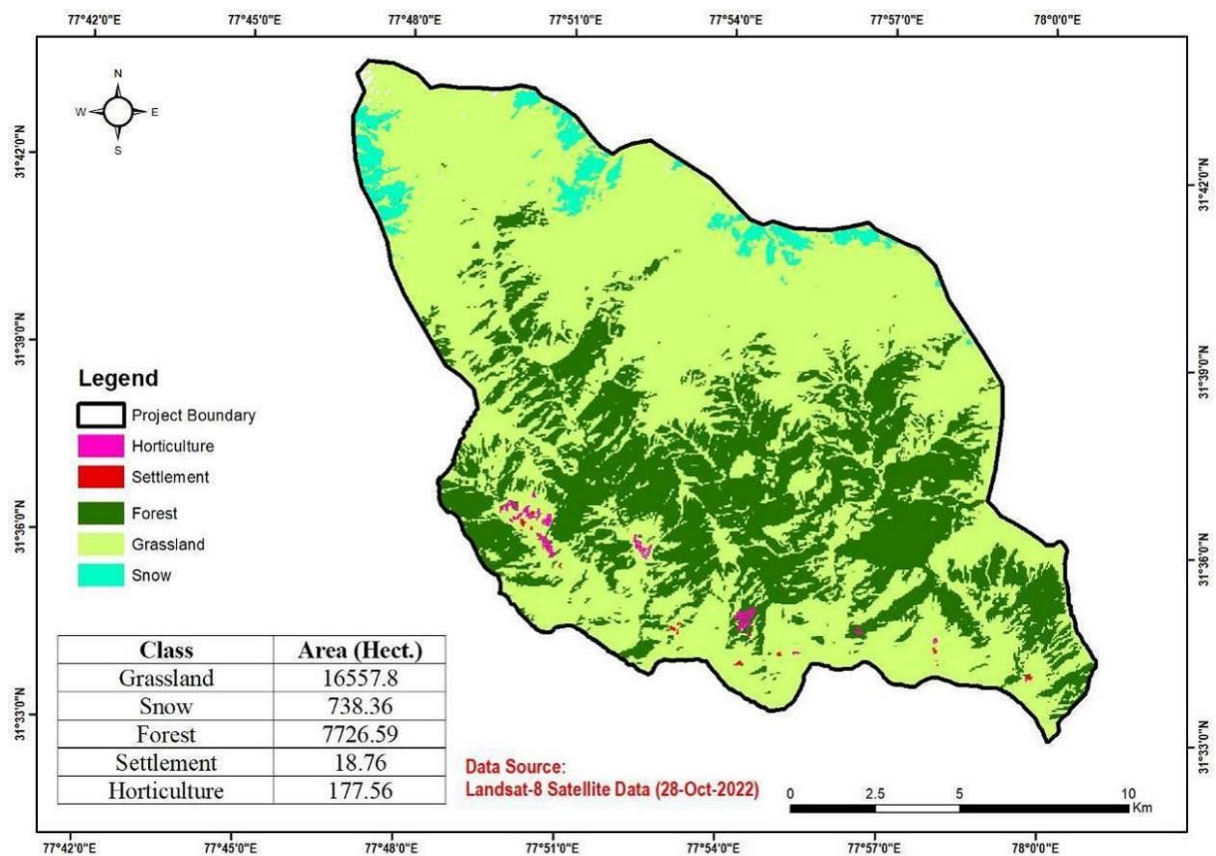


Figure 69. Land use/land cover map of post project period.

• Impact on cropping pattern

Crop wise area of the year 2014 and 2022 has been taken from Patwar Circles (revenue department) of the project area which may be seen in table 23.

Table 23. Pre project and post project area under different crops.

Sr No	Pre project period (2014-15)				Post project period (2022-23)			
	Kharif		Rabi		Kharif		Rabi	
	Name of Crop	Area (ha)	Name of Crop	Area (ha)	Name of Crop	Area (ha)	Name of Crop	Area (ha)
1	Cholai (Amaranthus)	56	Wheat	43	Cholai (Amaranthus)	28	Wheat	33
2	Koda (Ragi)	58	Barley	56	Koda (Ragi)	48	Barley	72
3	Rajmash (Kidney beans)	73		1	Rajmash (Kidney beans)	37	Peas	4
4	Potato	12			Potato	22		0
5	Ogla	23			Ogla	14		0
6	Maize	9			Maize	5		0
7	Phaphra (Buckwheat)	14			Phaphra (Buckwheat)	4		0
8	Paddy				Paddy	8		0
9	Horticulture crop (Apple)	99	Horticulture crop (Apple)	99	Horticulture crop (Apple)	180	Horticulture crop (Apple)	180
10	Fallow	89	Fallow	236	Fallow	89	Fallow	146
	Total Area	435		435		435		435

Source: Patwar Circles – Majhgaon, Shigarcha, Bara Kamba & Nathpa

From table 23 it may be seen that area under horticulture crop (apple), peas and potato has increased from the year 2014-15 to 2022-23. Whereas area under other cereal crops and millets has reduced from the year 2014-15 to 2022-23. It shows that there is a positive impact of the project as the area under apple crop has significantly increased. The table also shows that the farmers are preferring more high value cash crops (horticulture crops) like peas, potatoes and apple and they are giving less preference to the millets and other cereal crops. The department of agriculture is now giving more stress on the production of “*mota aana*”, therefore intercropping of these millets which are traditionally being grown in tribal area as it is their staple food, will be encouraged.

2. Impact on water resource development

The water resource development is one of the main components of wadi programme taken out of tribal development fund. Eleven tank irrigation schemes were taken up under the project in which total 8 main tanks and 18 distribution tanks have been constructed. In addition to this eight PVC water tanks have also been installed to irrigate the wadis of eight beneficiaries in village Kachrang, gram panchayat Nathpa. All the tanks have been connected with 32 mm and 25 mm

dia. HDPE pipes measuring 72700 m. In addition to this HDPE pipe of 20 mm dia. have also been provided to wadi farmers for taking water from main/distribution tanks upto their wadis on 50% grant. Total 39 wadi farmers have availed the benefits of horticulture scheme for installing drip irrigation system in their wadis. As per revenue records, the area under irrigation before the project was nil, hence irrigation potential on 80% area covered under wadis have been created through NABARD grant under the wadi project.

Table 24. Post project percent increase in irrigated horticulture area.

SN	Items	Unit	Pre WADI	Post WADI	Percent change (%)
1	Irrigated area in Wadi project area	ha	Nil (0%)	140 (80%)	80
2	Horticulture area	ha	99	180	82
3	Community assets / infrastructure created – (Irrigation tanks)	No.	-	26	100

3. Impact on agriculture practices

Since the project area was difficult and inaccessible, therefore, very less government schemes could reach in the area having less or no impact on the agricultural practices. The horticulture plants specifically apple fruit crops were planted in haphazard manner without having no technical knowledge regarding its cultivation method and planting of pollinizing varieties of apple crop. Thus, there was no impact on the horticulture fruit production in the project area. The detail in given in table 25.

Table 25. Impact of the WADI project on agri-horticultural practices.

SN	Items	Unit	Pre WADI	Post WADI	Percent change (%)
1	Change in cropping pattern in Wadi project area (New crop variety introduced)	-	Traditional apple fruit crop varieties were there	Improved high colour strain spur varieties have been introduced	100
2	Changes in improved agricultural practices adopted in Wadi project area	ha	No. tank irrigation system and drip irrigation system	80% coverage under tank irrigation system and 39 wadi farmers have taken drip irrigation system	80% under tank irrigation & 7 % under drip irrigation system
3	Changes in fertilizer use				
i)	Farm Yard Manure (FYM)	kg/ha	Negligible quantity being used	Sizeable quantity being used	100
ii)	Chemical fertilizer use	kg/ha	Nil	Negligible quantity being used	10

4. Impact on crop production

District Kinnaur falls in dry and wet temperate region of Himachal Pradesh. The project area falls in wet temperate region of the district. The major crops grown in this area are wheat, maize, barley, pulses, millets, vegetables and other horticulture crops like apple, walnut, wild apricot, etc. Under integrated tribal development project in Rupī, Chhota Kamba and Nathpa panchayats funded by NABARD, mostly apple, walnut, pear and wild apricot have been planted on an area of 438.5 acres in these three panchayats. The production of these fruit crops and other agriculture crops is given in table 26.

Table 26. Pre project and post project production of agriculture and horticulture crops.

Production of different crops in project area (Rupī, Chhota Kamba and Nathpa)								
Sr No	Pre-project				Post-project			
	Name of Crop	Production (qtl)	Productivity (qtl/ha)	Avg. Income per family (Rs. lakh)	Name of Crop	Production (qtl)	Productivity (qtl/ha)	Avg. Income per family (Rs. lakh)
1	Cholai (Amaranthus)	50.4	0.9	1.0-1.5	Cholai (Amaranthus)	28	1.0	2.5-3.5
2	Koda (Ragi)	58	1.0		Koda (Ragi)	57.6	1.2	
3	Rajmash (Kidney beans)	226.3	3.1		Rajmash (Kidney beans)	122.1	3.3	
4	Potato	840	70.0		Potato	1760	80	
5	Ogla	36.8	1.6		Ogla	25.2	1.8	
6	Maize	117	13.0		Maize	75	15.0	
7	Phaphra (Buckwheat)	77	5.5		Phaphra (Buckwheat)	7.2	1.8	
8	Paddy	11	5.5		Paddy	48	6.0	
9	Horticulture crop (Apple)	792	8.0		Horticulture crop (Apple)	2700	15	
10	Wheat	236.5	5.5		Wheat	198	6.0	
11	Barley	364	6.5		Barley	504	7.0	
12	Peas	-	-		Peas	160	40.0	

From table 26 it may be seen that an increase in the production and productivity of both horticulture as well as agriculture crops have been observed from pre-project period (2014-15) to post project period (2022-23). The increase in production of horticulture crops have been observed from 792 Qtl in an area of 99 ha to 2700 Qtl in an area of 180 ha. Similarly, per beneficiary average income has also been increased from Rs. 1.0-1.5 lakh to Rs. 2.5-3.5 lakh.



Figure 70. A few wadis have started bearing fruits in project area (pics are of the years 2019-2022).

The productivity of agriculture of a region is important from providing more food, prospects for growth and competitiveness on the agricultural market, income distribution and savings and labour migration. As farmers adopt new techniques and differences, the more productive farmers benefit from an increase in their welfare while farmers who are not productive enough will exist in the market to seek success elsewhere.



Figure 71. A few wadis have started bearing fruits in project area (pics are of the years 2019-2022).



Figure 72. Tradition grain storage (warehouse) house.

5. Impact on socio-economic aspect

Socio-economic impacts are typically defined as impacts to a community's self-definition, culture and customs, language and demographic characteristics; and related changes to its economic base, employment patterns and infrastructure. The socio-economic condition is a way of describing people based on their education, income and type of job. Socio-economic status is usually described as low, medium and high. People of the project area are having a lower socio-economic status as they have less access to financial, educational, social and health resources compared to other region of the district and state.

• Demographic profile

In the project area (Rupī, Chhota Kamba and Nathpa gram panchayats), as per records of gram panchayats the number of households in pre and post project periods are 1023 and 1204 households with total population of 3385 and 3947 persons. As the whole project area falls in scheduled tribe (ST) category therefore the entire population living in the project area is also in ST category. The demographic profile of the project area as given in table 27 shows increase in all variables of demographic profile:

Table 27. Pre and post project demographic profile of project area.

SN	Particular	Rupī		Chhota Kamba		Nathpa		Total	
		Pre project	Post project	Pre project	Post project	Pre project	Post project	Pre project	Post project
1.	Households	360	401	447	450	216	353	1023	1204
2.	Population	1195	1406	1398	1469	792	1072	3385	3947
i)	Male	605	715	677	703	409	517	1691	1935
ii)	Female	590	691	721	766	383	555	1694	2012
iii)	ST	1195	1406	1398	1469	792	1072	3385	3947

• Housing and living conditions

The old and traditional houses as well as new semi-modern houses are shown in figure 73 & 74. From these figures it may be seen that there is improvement in the houses and living condition of the stakeholders of the project area.



Figure 73. Traditional houses in the Project area.



Figure 74. Semi modern houses in the Project area.

- **literacy**

The children of all three-gram panchayats of the Project area are facilitated with primary, middle and high schools by the education department. There is also senior secondary school in Rupī and Chhota Kamba. For higher education children have to go to Reckong Peo and Rampur Bushahr. No vocational and technical education institutions are there in the project area. The infrastructure of a few schools is shown in figure 75.

The literacy rate of the population of the project area during pre-project period was 70 % which has increased to 77 % during post project period. The literacy rate of the project area is low as compared to the literacy rate of district Kinnaur which is 80%.

Table 28. Literacy rate of the project area.

SN	Gram Panchayat	Literacy Rate (in %)	
		Pre project	Post project
1.	Rupī	76	80
2.	Chhota Kamba	59	74
3.	Nathpa	74	76
	Total	70	77

Source: Gram Panchayat Rupī, Chhota Kamba and Nathpa.



Figure 75. Educational facilities in the Project area.

- **Worshipping places**

In District Kinnaur there is one temple in every gram panchayat/village. The people of the area are too much devoted to their *Devts*. A few fairs are also being organised regularly as a respect to the deities.



Figure 76. Village temples in the Project area.

- **Community-based organization (CBO)**

For the purpose of implementation of TDF project, 15 village planning committees (VPCs) were organized, trained and established. The village wise detail is as follows:

Table 29. No. of village planning committees (VPCs) in the project area.

SN	Name of Panchayat (villages)	Number of VPCs
1	Rupi (Hurwa, Shigarcha, Naling I, Naling II, Majhgaon, Ghurguri and Dabbling)	7
2	Nathpa (Kandar, Nathpa, Kachrang and Rokcharang)	4
3	Chhota Kamba (Gharshu, Chhota Kamba, Bara Kamba and Shorang)	4
	Total	15

In addition to VPCs, SHGs were also there in the project area. The detail is given as below:

Table 30. Status of SHGs in the project area.

Name of panchayat	No. of SHGs before project	No. of SHGs after project
Rupi	4	26
Chhota-Kamba	5	32
Nathpa	3	21
Total	12	79

During the pre-project period there were 12 SHGs comprising 4 in Rupī, 5 in Chhota Kamba and 3 in Nathpa gram panchayat. However, during the post project period there are total 79 SHGs working in the project area. Out of which 26 are in Rupī, 32 in Chhota Kamba and 21 in Nathpa panchayat. Total 16 SHGs have been promoted by PIA during the project period, further which were handed over to the office of block development officer (BDO) at Bhabanagar. Now all the SHGs are being promoted under National Rural Livelihoods Mission (NRLM)

In the project area total number of MGNREGA cardholders are 1237 (as on April 2023) out of which 419 household cardholders are from Rupī, 492 are from Chhota Kamba and 326 are from Nathpa gram panchayat. The activities like development of land, construction of water storage tanks, cowsheds construction, etc. are being undertaken under MGNREGA.

Table 31. Status of MGNREGA cardholders in the project area.

Name of panchayat	MGNREGA cardholders (Nos.)	
	Pre project	Post project
Rupī	335	419
Chhota-Kamba	389	492
Nathpa	268	326
Total	12	79

According to report from block development office, Bhabanagar, an amount of Rs. 12,45,25,533/- has been spent under MGNREGA from the FY 2014-15 to 2022-23, comprising to Rs. 2,99,28,000/-, Rs. 6,30,95,253/- and Rs. 3,15,02,280/- in Rupī, Chhota Kamba and Nathpa gram panchayats respectively.

**Figure 77.** Livelihood activity of one of the SHGs in gram panchayat Rupī.

- **Road infrastructure development**

Road connectivity is the prerequisite of development of an area. The project area has remained socio-economically backward because of the lack of road connectivity and other means of communication. After the implementation of the wadi project through NABARD intervention, the people of the area felt necessity of road connectivity. That's why these areas are now being connected with road networks on sustainable basis. When the PIA (HARP) started the implementation of this project, except Chhota Kamba and Bara Kamba villages, all other areas/villages were inaccessible and difficult to move and all the materials including plant saplings were transported on headload or through mules which costed more. Total 33.55 km of road network was observed during the pre-project period which has been increase upto 64.26 km during post project period. The pre project and post project difference in road network is shown in the maps given in figure 78 and 79.

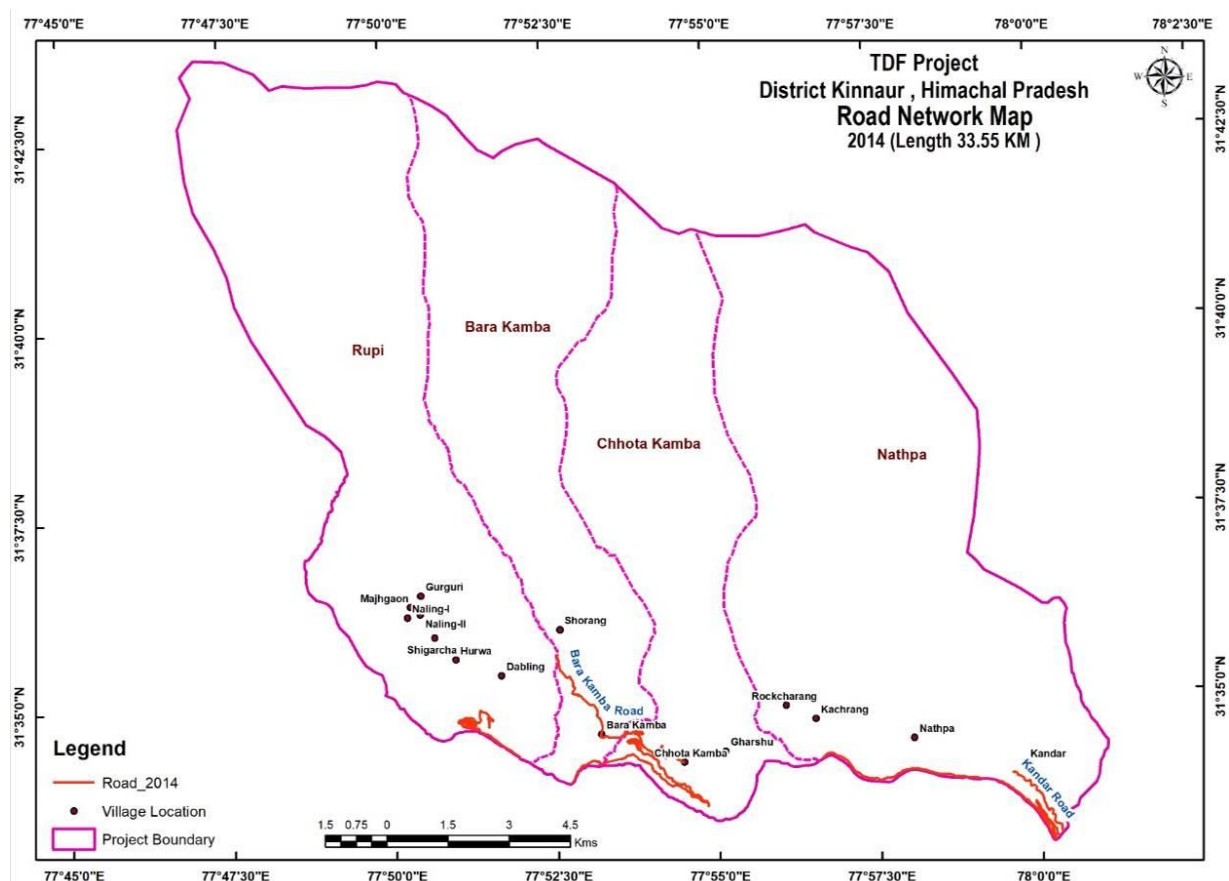


Figure 78. Road network during pre-project period (Yr 2014).

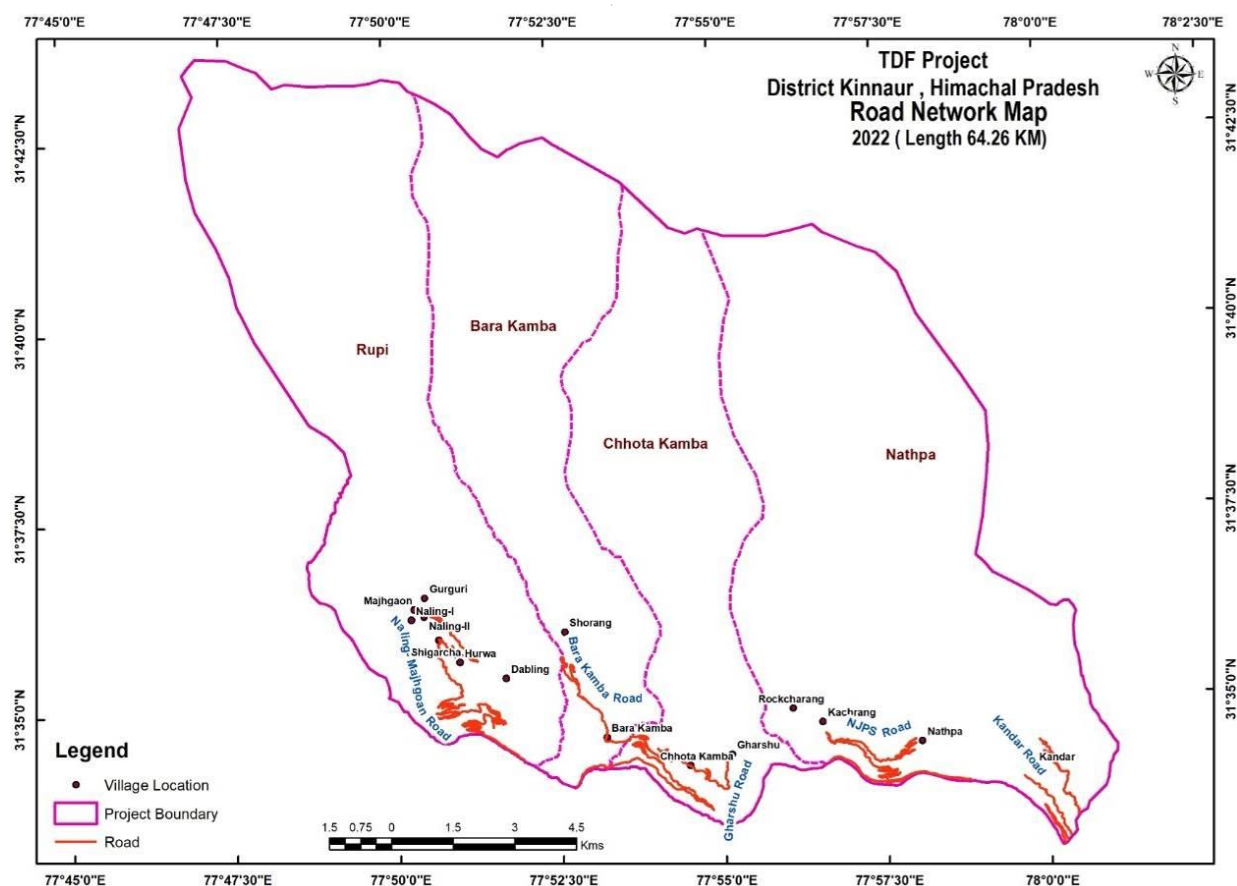


Figure 79. Road network during post-project period (Yr 2022).



Figure 80. Road network in Rupri during post project period.

- **Other socio-economic variables**

In addition to the above said socio-economic indicators, a few other variables which indicates an increase in the socio-economic status are given in table 32.

Table 32. Impact on other socio-economic variables.

SN	Items	Unit	Pre Project	Post Project	Change (in %)
1.	Dairy milk productivity	(L/per day/cattle)	1.0	1.5	50
2.	Employment generated	Man days	-	51535	100
3.	No. of SB account	No.	43	155	260
4.	SB account deposits	Rs. lakh	0.80	5.65	606
5.	No. of KCC account	No.	20	48	140
6.	KCC loans	Rs. lakh	28.0	74.0	164
7.	Total no of families benefited (ST)	No.	-	607	100
8.	Land Value	Rs. lakh/ ha	14.18	36.66	61
9.	Changes in average income per family	Rs. lakh	1.0-1.5	2.0-3.5	100
10.	Solar lights	No.	0	122	100
11.	Cylinder gas	No.	175	741	323
12.	Smokeless chullahs	No.	395	806	104
13.	Kitchen garden	No.	580	725.75	25
14.	Individual latrines	No.	333	790.9	138
15.	Television	No.	710	851	20
16.	Motorcycle	No.	10	45	350
17.	Car/Jeep/Pick ups	No.	5	90	1700



Figure 81. Additional ways of livelihood in the Project area.



Figure 82. Water mill in Shigarcha village, gram panchayat Rupri.

Form the descriptions, tables and figures given above shows that the socio-economic status have been changed from low to medium from pre-project to post project period.

VII. SUCCESS STORIES -WADI BASED

An initiative to provide farm-based livelihood options to the farmers of 15/20 areas of district Kinnaur (HP) – Success Stories

Success Story--1

Name of Farmer: Shri Chain Ram

Village: Naling-1

Gram Panchayat: Rupī

Wadi Model: 1 acre

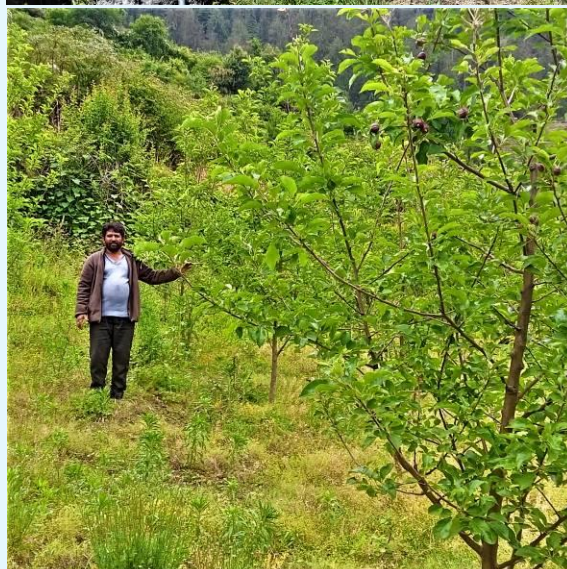
Challenge

The farmers of this area including Sh. Chain Ram were only growing minor millets like ragi & amaranthus, pseudocereals like buckwheat; barley and pulses like rajmash (kidney beans) in their fields. There were no other means of livelihood except growing these crops and rearing sheep/goats etc. Shri Chain Ram, a Wadi beneficiary of the TDF Project, living in village Naling I, gram panchayat Rupī, district Kinnaur, Himachal Pradesh was not an exceptional and was engaged in the same professional. The living standards of the

people of this area including Sh. Chain Ram was low. Therefore, the challenge was to provide other means of livelihood which could raise their/his income and improve their living standard.

Initiative

After the introduction of NABARD sponsored TDF Project in the year 2014-15 the farmers including Sh. Chain Ram and his family members were motivated about the cultivation of apple fruit crop. So many other interventions were made under the Project during its implementation. Sh. Chain Ram was made skillful about apple orchard management after giving different trainings along with other wadi beneficiaries right from orchard layout planning to pit digging, mixing of farm yard manure & fertilizers in the soil of pit, filling of pits, planting of plants, basin preparation, training & pruning,



cultivation of intercrops, insect & pest management to post-harvest management of apple orchards etc. To convince the farmers regarding apple fruit orcharding, the exposure visits to different model orchards and orchards of Horticulture Department were organized under the project to expose the farmers with the best practices being followed. In these trainings and other events Shri Chain Ram had actively participated.

Results

Under the project support Shri Chain Ram established apple orchard on 1 acre land by planting 157 apple plants and 12 boarder plants of wild apricot (*Chulli*). He already had 30 plants of his own. In addition, horticulture tools like pruning shear, pruning saw and grafting & budding knife were provided to him under the Project. Shri Chain Ram is working hard and has started taking benefits from the wadi established under the project. Now his orchard is in fruit bearing stage since 2020-21.

Impact

The production of apple fruit in the wadi of Sh. Chain Ram was started during the year 2020, the production and the value of apple fruit he received from the market in the year 2020, 2021 and 2022 is given in table as below;

Production of Apple fruit (in Boxes) (in kg)		Remuneration (in Rs. lakh)		Remarks
Before Project	After Project	Before Project	After Project	
Nil	73 (1825)	Nil	1.2983	The production and remuneration in the 2020-2022

He is so convinced with the results of his wadi that he has started expanding area under apple fruit crop orchard. He is yet to get full benefits from the wadi, albeit, he is expected to have a sea change in his living standard and his economy. In the coming 4 to 5 years when his apple orchard will be in full fruit bearing, he will be getting around Rs. 10 lakh from his apple orchard, which will entirely change the lifestyle of his family. The living standard and lifestyle of his family is also likely to improve as he is now searching for better education and health services for his children and other family members. He has also constructed new house. Thus, overall living standard of Shri Chain Ram has significantly improved with the help of this project.



Success Story-2

Name of Farmer: Shri Kavi Raj

Village: Naling-1

Gram Panchayat: Rupī

Wadi Model: 0.5 acre

Challenge

The farmers of this area including Sh. Kavi Raj were only growing minor millets like ragi & amaranthus, pseudocereals like buckwheat; barley and pulses like rajmash (kidney beans) in their fields. There were no other means of livelihood except growing these crops and rearing sheep/goats etc. Shri Chain Ram, a Wadi beneficiary of the TDF Project, living in village Naling I, gram panchayat Rupī, district



Kinnaur, Himachal Pradesh was not an exceptional and was engaged in the same professional. The living standards of the people of the area including Sh. Kavi Raj was low. Therefore, the challenge was to provide other means of livelihood which could raise their/his income & improve their living standard.

Initiative

After the introduction of NABARD sponsored TDF Project in the year 2014-15 the farmers including Sh. Kavi Raj and his family members were motivated about the cultivation of apple fruit crop. So many other interventions were made under the Project during its implementation. Sh. Kavi Raj was made skillful about apple orchard management after giving



different trainings along with other wadi beneficiaries right from orchard layout planning to pit digging, mixing of farm yard manure & fertilizers in the soil of pit, filling of pits, planting of plants, basin preparation, training & pruning, cultivation of intercrops, insect & pest management to post-harvest management of apple orchards etc. To convince the farmers regarding apple fruit orcharding, the exposure visits to different model orchards and orchards of Horticulture Department were organized under the project to expose the farmers with the best practices being followed. In these trainings and other events Shri Chain Ram had actively participated.

Results

Under the project support Shri Kavi Raj established apple orchard on 1 acre land by planting 79 apple plants and 6 boarder plants of wild apricot (*Chulli*). He already had 30 plants of his own. In addition, horticulture tools like pruning shear, pruning saw and grafting & budding knife were provided to him under the Project. Shri Kavi Raj is working hard and has started taking benefits from the wadi established under the project. Now his orchard is in fruit bearing stage since 2020-21.



Impact

The production of apple fruit in the wadi of Sh. Kavi Raj was started during the year 2020, the production and the value of apple fruit he received from the market in the year 2020, 2021 and 2022 is given in table as below;

Production of Apple fruit (in Boxes) (in kg)		Remuneration (in Rs. lakh)		Remarks
Before Project	After Project	Before Project	After Project	
Nil	51 (1275)	Nil	0.79960	The production and remuneration in the 2020-2022

He is so convinced with the results of his wadi that he has started expanding area under apple fruit crop orchard. He is yet to get full benefits from the wadi, albeit, he is expected to have a sea change in his living standard and his economy. In the coming 4 to 5 years when his apple orchard will be in full fruit bearing, he will be getting around Rs. 10 lakh from his apple orchard, which will entirely change the lifestyle of his family. The living standard and lifestyle of his family is also likely to improve as he is now searching for better education and health services for his children and other family members. He has also constructed new house. Thus, overall living standard of Sh. Kavi Raj has significantly improved with the help of this project.



Success Story-3

Name of Farmer: Shri Ram Pal

Village: Majhgaon

Gram Panchayat: Rupī

Wadi Model: 1 acre

Challenge

The farmers of this area including Sh. Ram Pal were only growing minor millets like ragi & amaranthus, pseudocereals like buckwheat; barley and pulses like rajmash (kidney beans) in their fields. There were no other means of livelihood except growing these crops and rearing sheep/goats etc. Shri Chain Ram, a Wadi beneficiary of the TDF Project, living in village Naling I, gram panchayat Rupī, district Kinnaur, Himachal Pradesh was not an exceptional and was engaged in the same professional. The living standards of the people of this area including Sh. Ram Pal was low. Therefore, the challenge was to provide other means of livelihood which could raise their/his income and improve their living standard.

Initiative

After the introduction of NABARD sponsored TDF Project in the year 2014-15 the farmers including Sh. Ram Pal and his family members were motivated about the cultivation of apple fruit crop. So many other interventions were made under the Project during its implementation. Sh. Ram Pal was made skillful about apple orchard management after giving different trainings along with other wadi beneficiaries right from orchard layout planning to pit digging, mixing of farm yard manure & fertilizers in the soil of pit, filling of pits, planting of plants, basin preparation, training & pruning, cultivation of intercrops, insect & pest management to post-harvest management of apple orchards etc. To convince the farmers regarding apple fruit orcharding, the exposure visits to different model orchards and orchards of Horticulture Department were organized under the project to expose the farmers with the best practices being followed. In these trainings and other events Shri Chain Ram had actively participated.





Results

Under the project support Shri Ram Pal established apple orchard on 1 acre land by planting 157 apple plants and 12 boarder plants of wild apricot (*Chulli*). He already had 30 plants of his own. In addition, horticulture tools like pruning shear, pruning saw and grafting & budding knife were provided to him under the Project. Shri Ram Pal is working hard and has started taking benefits from the wadi established under the project. Now his orchard is in fruit bearing stage since 2020-21.



Impact

The production of apple fruit in the wadi of Sh. Ram Pal was started during the year 2020, the production and the value of apple fruit he received from the market in the year 2020, 2021 and 2022 is given in table as below;

Production of Apple fruit (in Boxes) (in kg)		Remuneration (in Rs. lakh)		Remarks
Before Project	After Project	Before Project	After Project	
Nil	119 (2975)	Nil	1.944	The production and remuneration in the 2020-2022

He is so convinced with the results of his wadi that he has started expanding area under apple fruit crop orchard. He is yet to get full benefits from the wadi, albeit, he is expected to have a sea change in his living standard and his economy. In the coming 4 to 5 years when his apple orchard will be in full

fruit bearing, he will be getting around Rs. 10 lakh from his apple orchard, which will entirely change the lifestyle of his family. The living standard and lifestyle of his family is also likely to improve as he is now searching for better education and health services for his children and other family members. He has also constructed new house. Thus, overall living standard of Sh. Ram Pal has significantly improved with the help of this project.



Success Story-4

Name of Farmer: Shri Bhim Singh

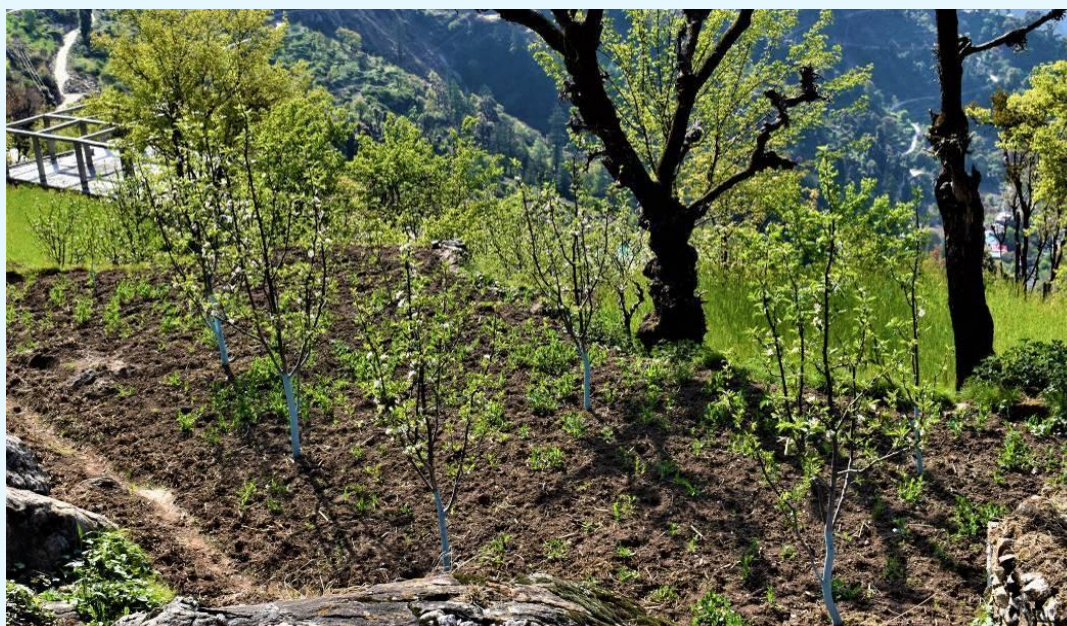
Village: Majhgaon

Gram Panchayat: Rupī

Wadi Model: 1 acre

Challenge

The farmers of this area including Sh. Bhim Singh were only growing minor millets like ragi & amaranths, pseudocereals like buckwheat; barley and pulses like rajmash (kidney beans) in their fields. There were no other means of livelihood except growing these crops and rearing sheep/goats etc. Shri Chain Ram, a Wadi beneficiary of the TDF Project, living in village Naling I, gram panchayat Rupī, district Kinnaur, Himachal Pradesh was not an exception and was engaged in the same profession. The living standards of the people of this area including Sh. Bhim Singh was low. Therefore, the challenge was to provide other means of livelihood which could raise their/his income and improve their living standard.



Initiative

After the introduction of NABARD sponsored TDF Project in the year 2014-15 the farmers including Sh. Bhim Singh and his family members were motivated about the cultivation of apple fruit crop. So many other interventions were made under the Project during its implementation. Sh. Bhim Singh was made skillful about apple orchard management after giving different trainings along with other wadi beneficiaries right from orchard layout planning to pit digging, mixing of farm yard manure &

fertilizers in the soil of pit, filling of pits, planting of plants, basin preparation, training & pruning, cultivation of intercrops, insect & pest management to post-harvest management of apple orchards etc. To convince the farmers regarding apple fruit orcharding, the exposure visits to different model orchards and orchards of Horticulture Department were organized under the project to expose the farmers with the best practices being followed. In these trainings and other events Shri Bhim Singh had actively participated.



Results

Under the project support Shri Bhim Singh established apple orchard on 1 acre land by planting 157 apple plants and 12 boarder plants of pear. He already had 30 plants of his own. In addition, horticulture tools like pruning shear, pruning saw and grafting & budding knife were provided to him under the Project. Shri Bhim Singh is working hard and has started taking benefits from the wadi established under the project. Now his orchard is in fruit bearing stage since 2020-21.

Impact

The production of apple fruit in the wadi of Sh. Bhim Singh was started during the year 2020, the production and the value of apple fruit he received from the market in the year 2020, 2021 and 2022 is given in table as below;

Production of Apple fruit in Boxes (kg)		Remuneration (in Rs. lakh)		Remarks
Before Project	After Project	Before Project	After Project	
Nil	105 (2625)	Nil	2.014	The production and remuneration in the 2020-2022

He is so convinced with the results of his wadi that he has started expanding area under apple fruit crop orchard. He is yet to get full benefits from the wadi, albeit, he is expected to have a sea change in his living standard and his economy. In the coming 4 to 5 years when his apple orchard will be in full fruit bearing, he will be getting around Rs. 10 lakh from his apple orchard, which will entirely change the lifestyle of his family. The living standard and lifestyle of his family is also likely to improve as he is now searching for better education and health services for his children and other family members. He has also constructed new house. Thus, overall living standard of Sh. Bhim Singh has significantly improved with the help of this project.



Success Story-5

Name of Farmer: Shri Chet Ram

Village: Bara Kamba

Gram Panchayat: Chhota Kamba

Wadi Model: 1 acre

Challenge

The farmers of this area including Sh. Chet Ram were only growing minor millets like ragi & amaranthus, pseudocereals like buckwheat; barley and pulses like rajmash (kidney beans) in their fields. There were no other means of livelihood except growing these crops and rearing sheep/goats etc. Shri Chain Ram, a Wadi beneficiary of the TDF Project, living in village Naling I, gram panchayat Rupī, district Kinnaur, Himachal Pradesh was not an exceptional and was engaged in the same professional. The living standards of the people of this area including Sh. Chet Ram was low. Therefore, the challenge was to provide other means of livelihood which could raise their/his income and improve their living standard.

Initiative

After the introduction of NABARD sponsored TDF Project in the year 2014-15 the farmers including Sh. Chet Ram and his family members were motivated about the cultivation of apple fruit crop. So many other interventions were made under the Project during its implementation. Sh. Chet Ram was made skillful about apple orchard management after giving different trainings along with other wadi beneficiaries right from orchard layout planning to pit digging, mixing of farm yard manure & fertilizers in the soil of pit, filling of pits, planting of plants, basin preparation, training & pruning, cultivation of intercrops, insect & pest management to post-harvest management of apple orchards etc. To convince the farmers regarding apple fruit orcharding, the exposure visits to different model orchards and orchards of Horticulture



Department were organized under the project to expose the farmers with the best practices being followed. In these trainings and other events Shri Chet Ram had actively participated.

Results

Under the project support Shri Chet Ram established apple orchard on 1 acre land by planting 157 apple plants and 12 boarder plants of walnut. He already had 30 plants of his own. In addition, horticulture tools like pruning shear, pruning saw and grafting & budding knife were provided to him under the Project. Shri Chet Ram is working hard and has started taking benefits from the wadi established under the project. Now his orchard is in fruit bearing stage since 2020-21.

Impact

The production of apple fruit in the wadi of Sh. Chet Ram was started during the year 2020, the production and the value of apple fruit he received from the market in the year 2020,2021 and 2022 is given in table as below;

Production of Apple fruit (in Boxes) (in kg)		Remuneration (in Rs. lakh)		Remarks
Before Project	After Project	Before Project	After Project	
Nil	140 (3500)	Nil	2.32560	The production and remuneration in the 2020-2022

He is so convinced with the results of his wadi that he has started expanding area under apple fruit crop orchard. He is yet to get full benefits from the wadi, albeit, he is expected to have a sea change in his living standard and his economy. In the coming 4 to 5 years when his



apple orchard will be in full fruit bearing, he will be getting around Rs. 10 lakh from his apple orchard, which will entirely change the lifestyle of his family. The living standard and lifestyle of his family is also likely to improve as he is now searching for better education and health services for his children and other family members. He has also constructed new house. Thus, overall living standard of Sh. Chet Ram has significantly improved with the help of this project.

Success Story-6

Name of Wadi Farmer: Shri Sita Ram

Village: Bara Kamba

Gram Panchayat: Bara Kamba

Wadi Model: 1 acre

Challenge

The farmers of this area including Sh. Sita Ram were only growing minor millets like ragi & amaranthus, pseudocereals like buckwheat; barley and pulses like rajmash (kidney beans) in their fields. There were no other means of livelihood except growing these crops and rearing sheep/goats etc. Shri Sita Ram, a Wadi beneficiary of the TDF Project, living in village Naling I, gram panchayat Rupī, district Kinnaur, Himachal Pradesh was not an exceptional and was engaged in the same professional. The living standards of the people of this area including Sh. Sita Ram was low. Therefore, the challenge was to provide other means of livelihood which could raise their/his income and improve their living standard.

Initiative

After the introduction of NABARD sponsored TDF Project in the year 2014-15 the farmers including Sh. Sita Ram and his family members were motivated about the cultivation of apple fruit crop. So many other interventions were made under the Project during its implementation. Sh. Sita Ram was made skillful about apple orchard management after giving different trainings along with other wadi beneficiaries right from orchard layout planning to pit digging, mixing of farm yard manure & fertilizers in the soil of pit, filling of pits, planting of plants, basin preparation, training & pruning, cultivation of intercrops, insect & pest management to post-harvest management of apple orchards etc. To convince the farmers regarding apple fruit orcharding, the exposure visits to different model



orchards and orchards of Horticulture Department were organized under the project to expose the farmers with the best practices being followed. In these trainings and other events Shri Sita Ram had actively participated.

Results

Under the project support Shri Sita Ram established apple orchard on 1 acre land by planting 157 apple plants and 12 boarder plants of pear. He already had 30 plants of his own. In addition, horticulture tools like pruning shear, pruning saw and grafting & budding knife were provided to him under the Project. Shri Sita Ram is working hard and has started taking benefits from the wadi established under the project. Now his orchard is in fruit bearing stage since 2020-21.

Impact

The production of apple fruit in the wadi of Sh. Sita Ram was started during the year 2020, the production and the value of apple fruit he received from the market in the year 2020, 2021 and 2022 is given in table as below;

Production of Apple fruit (in Boxes) (in kg)		Remuneration (in Rs. lakh)		Remarks
Before Project	After Project	Before Project	After Project	
Nil	69 (1725)	Nil	1.24680	The production and remuneration are for the 2020-2022

He is so convinced with the results of his wadi that he has started expanding area under apple fruit crop orchard. He is yet to get full benefits from the wadi, albeit, he is expected to have a sea change in his living standard and his economy. In the coming 4 to 5 years when his apple orchard will be in full fruit



bearing, he will be getting around Rs. 10 lakh from his apple orchard, which will entirely change the lifestyle of his family. The living standard and lifestyle of his family is also likely to improve as he is now searching for better education and health services for his children and other family members. He has also constructed new house. Thus, overall living standard of Sh. Sita Ram has significantly improved with the help of this project.

Success Story-7

Name of Farmer: Shri Harman Singh

Village: Bara Kamba

Gram Panchayat: Bara Kamba

Wadi Model: 1 acre

Challenge

The farmers of this area including Sh. Harman Singh were only growing minor millets like ragi & amaranthus, pseudocereals like buckwheat; barley and pulses like rajmash (kidney beans) in their fields. There were no other means of livelihood except growing these crops and rearing sheep/goats etc. Shri Harman Singh, a Wadi beneficiary of the TDF Project, living in village Naling I, gram panchayat Rupī, district Kinnaur, Himachal Pradesh was not an exceptional and was engaged in the same professional. The living standards of the people of this area including Sh. Harman Singh was low. Therefore, the challenge was to provide other means of livelihood which could raise their/his income and improve their living standard.

Initiative

After the introduction of NABARD sponsored TDF Project in the year 2014-15 the farmers including Sh. Harman Singh and his family members were motivated about the cultivation of apple fruit crop. So many other interventions were made under the Project during its implementation. Sh. Harman Singh was made skillful about apple orchard management after giving different trainings along with other wadi beneficiaries right from orchard layout planning to pit digging, mixing of farm yard manure & fertilizers in the soil of pit, filling of pits, planting of plants, basin preparation, training & pruning, cultivation of intercrops, insect & pest management to post-harvest management of apple orchards etc. To convince the farmers regarding apple fruit



orcharding, the exposure visits to different model orchards and orchards of Horticulture Department

were organized under the project to expose the farmers with the best practices being followed. In these trainings and other events Shri Harman Singh had actively participated.

Results

Under the project support Shri Harman Singh established apple orchard on 1 acre land by planting 157 apple plants and 12 boarder plants of pear. He already had 30 plants of his own. In addition, horticulture tools like pruning shear, pruning saw and grafting & budding knife were provided to him under the Project. Shri Harman Singh is working hard and has started taking benefits from the wadi established under the project. Now his orchard is in fruit bearing stage since 2020-21.



Impact

The production of apple fruit in the wadi of Sh. Harman Singh was started during the year 2020, the production and the value of apple fruit he received from the market in the year 2020, 2021 and 2022 is given in table as below;

Production of Apple fruit (in Boxes) (in kg)		Remuneration (in Rs. lakh)		Remarks
Before Project	After Project	Before Project	After Project	
Nil	72 (1800)	Nil	1.31960	The production and remuneration are for the 2020-2022

He is so convinced with the results of his wadi that he has started expanding area under apple fruit crop orchard. He is yet to get full benefits from the wadi, albeit, he is expected to have a sea change in his living standard and his economy. In the coming 4 to 5 years when his apple orchard will be in full fruit bearing, he will be getting around Rs. 10 lakh from his apple



orchard, which will entirely change the lifestyle of his family. The living standard and lifestyle of his family is also likely to improve as he is now searching for better education and health services for his children and other family members. He has also constructed new house. Thus, overall living standard of Sh. Harman Singh has significantly improved with the help of this project.

Success Story-8

Name of Farmer: Shri Jasman Singh

Village: Bara Kamba

Gram Panchayat: Bara Kamba

Wadi Model: 1 acre

Challenge

The farmers of this area including Sh. Jasman Singh were only growing minor millets like ragi & amaranthus, pseudocereals like buckwheat; barley and pulses like rajmash (kidney beans) in their fields. There were no other means of livelihood except growing these crops and rearing sheep/goats etc. Shri Jasman Singh, a Wadi beneficiary of the TDF Project, living in village Naling I, gram panchayat Rupī, district Kinnaur, Himachal Pradesh was not an exceptional and was engaged in the same professional. The living standards of the people of this area including Sh. Jasman Singh was low. Therefore, the challenge was to provide other means of livelihood which could raise their/his income and improve their living standard.



Initiative

After the introduction of NABARD sponsored TDF Project in the year 2014-15 the farmers including Sh. Jasman Singh and his family members were motivated about the cultivation of apple fruit crop. So many other interventions were made under the Project during its implementation. Sh. Jasman Singh was made skillful about apple orchard management after giving different trainings along with other wadi beneficiaries right from orchard layout planning to pit digging, mixing of farm yard manure & fertilizers in the soil of pit, filling of pits, planting of plants, basin preparation, training & pruning, cultivation of intercrops, insect & pest management to post-harvest management of apple orchards etc. To convince the farmers regarding apple fruit orcharding, the exposure visits to different model orchards and orchards of Horticulture



Department were organized under the project to expose the farmers with the best practices being followed. In these trainings and other events Shri Jasman Singh had actively participated.

Results

Under the project support Shri Jasman Singh established apple orchard on 1 acre land by planting 157 apple plants and 12 boarder plants of pear. He already had 30 plants of his own. In addition, horticulture tools like pruning shear, pruning saw and grafting & budding knife were provided to him under the Project. Shri Jasman Singh is working hard and has started taking benefits from the wadi established under the project. Now his orchard is in fruit bearing stage since 2020-21.



Impact

The production of apple fruit in the wadi of Sh. Jasman Singh was started during the year 2020, the production and the value of apple fruit he received from the market in the year 2020, 2021 and 2022 is given in table as below;

Production of Apple fruit (in Boxes) (in kg)		Remuneration (in Rs. lakh)		Remarks
Before Project	After Project	Before Project	After Project	
Nil	76 (1900)	Nil	1.40650	The production and remuneration are for the 2020-2022

He is so convinced with the results of his wadi that he has started expanding area under apple fruit crop orchard. He is yet to get full benefits from the wadi, albeit, he is expected to have a sea change in his living standard and his economy. In the coming 4 to 5 years when his apple orchard will be in full fruit bearing, he will be getting around Rs. 10 lakh



from his apple orchard, which will entirely change the lifestyle of his family. The living standard and lifestyle of his family is also likely to improve as he is now searching for better education and health services for his children and other family members. He has also constructed new house. Thus, overall living standard of Sh. Jasman Singh has significantly improved with the help of this project.

Success Story-9

Name of Farmer: Shri Mahaveer Singh

Village: Nathpa

Gram Panchayat: Nathpa

Wadi Model: 1 acre

Challenge

The farmers of this area including Sh. Mahaveer Singh were only growing minor millets like ragi & amaranthus, pseudocereals like buckwheat; barley and pulses like rajmash (kidney beans) in their fields. There were no other means of livelihood except growing these crops and rearing



sheep/goats etc. Shri Mahaveer Singh, a Wadi beneficiary of the TDF Project, living in village Naling I, gram panchayat Rupri, district Kinnaur, Himachal Pradesh was not an exceptional and was engaged in the same professional. The living standards of the people of this area including Sh. Mahaveer Singh was low. Therefore, the challenge was to provide other means of livelihood which could raise their/his income and improve their living standard.



Initiative

After the introduction of NABARD sponsored TDF Project in the year 2014-15 the farmers including Sh.

Mahaveer Singh and his family members were motivated about the cultivation of apple fruit crop. So many other interventions were made under the Project during its implementation. Sh. Mahaveer Singh was made skillful about apple orchard management after giving different trainings along with other wadi beneficiaries right from orchard layout planning to pit digging, mixing of farm yard manure &

fertilizers in the soil of pit, filling of pits, planting of plants, basin preparation, training & pruning, cultivation of intercrops, insect & pest management to post-harvest management of apple orchards etc. To convince the farmers regarding apple fruit orcharding, the exposure visits to different model orchards and orchards of Horticulture Department were organized under the project to expose the farmers with the best practices being followed. In these trainings and other events Shri Mahaveer Singh had actively participated.

Results

Under the project support Shri Mahaveer Singh established apple orchard on 1 acre land by planting 157 apple plants and 12 boarder plants of pear. He already had 30 plants of his own. In addition, horticulture tools like pruning shear, pruning saw and grafting & budding knife were provided to him under the Project. Shri Mahaveer Singh is working hard and has started taking benefits from the wadi established under the project. Now his orchard is in fruit bearing stage since 2020-21.

Impact

The production of apple fruit in the wadi of Sh. Mahaveer Singh was started during the year 2020, the production and the value of apple fruit he received from the market in the year 2020, 2021 and 2022 is given in table as below;

Production of Apple fruit (in Boxes) (in kg)		Remuneration (in Rs. lakh)		Remarks
Before Project	After Project	Before Project	After Project	
Nil	58(1450)	Nil	1.02400	The production and remuneration are for the 2020-2022

He is so convinced with the results of his wadi that he has started expanding area under apple fruit crop orchard. He is yet to get full benefits from the wadi, albeit, he is expected to have a sea change in his living standard and his economy. In the coming 4 to 5 years when his apple orchard will be in full fruit bearing, he will be getting around Rs. 10 lakh



from his apple orchard, which will entirely change the lifestyle of his family. The living standard and lifestyle of his family is also likely to improve as he is now searching for better education and health services for his children and other family members. He has also constructed new house. Thus, overall living standard of Sh. Mahaveer Singh has significantly improved with the help of this project.

Success Story-10

Name of Farmer: Shri Govind Singh

Village: Kachrang

Gram Panchayat: Nathpa

Wadi Model: 0.5 acre

Challenge

The farmers of this area including Sh. Govind Singh were only growing minor millets like ragi & amaranthus, pseudocereals like buckwheat; barley and pulses like rajmash (kidney beans) in their fields. There were no other means of livelihood except growing these crops and rearing sheep/goats etc. Shri Govind Singh, a Wadi beneficiary of the TDF Project, living in village Naling I, gram panchayat Rupri, district Kinnaur, Himachal Pradesh was not an exceptional and was engaged in the same professional. The living standards of the people of this area including Sh. Govind Singh was low. Therefore, the challenge was to provide other means of livelihood which could raise their/his income and improve their living standard.

Initiative

After the introduction of NABARD sponsored TDF Project in the year 2014-15 the farmers including Sh. Govind Singh and his family members were motivated about the cultivation of apple fruit crop. So many other interventions were made under the Project during its implementation. Sh. Govind Singh was made skillful about apple orchard management after giving different trainings along with other wadi beneficiaries right from orchard layout planning to pit digging, mixing of farm yard manure & fertilizers in the soil of pit, filling of pits, planting of plants, basin preparation, training & pruning, cultivation of intercrops, insect & pest management to post-harvest management of apple orchards etc. To convince the farmers regarding apple fruit orcharding, the exposure visits to different model orchards and orchards of Horticulture



Department were organized under the project to expose the farmers with the best practices being followed. In these trainings and other events Shri Govind Singh had actively participated.

Results

Under the project support Shri Govind Singh established apple orchard on 1 acre land by planting 79 apple plants and 11 boarder plants of pear. He already had 25 plants of his own. In addition, horticulture tools like pruning shear, pruning saw and grafting & budding knife were provided to him under the Project. Shri Govind Singh is working hard and has started taking benefits from the wadi established under the project. Now his orchard is in fruit bearing stage since 2020-21.

Impact

The production of apple fruit in the wadi of Sh. Govind Singh was started during the year 2020, the production and the value of apple fruit he received from the market in the year 2020,2021 and 2022 is given in table as below;

Production of Apple fruit (in Boxes) (in kg)		Remuneration (in Rs. lakh)		Remarks
Before Project	After Project	Before Project	After Project	
Nil	59 (1475)	Nil	1.05800	The production and remuneration are for the 2020-2022

He is so convinced with the results of his wadi that he has started expanding area under apple fruit crop orchard. He is yet to get full benefits from the wadi, albeit, he is expected to have a sea change in his living standard and his economy. In the coming 4 to 5 years when his apple orchard will be in full fruit bearing, he will be getting around Rs. 10 lakh from his apple orchard, which will entirely change the lifestyle of his family. The living standard and lifestyle of his family is also likely to improve as he is now searching for better education and health services for his children and other family members. He has also constructed new house. Thus, overall living standard of Sh. Govind Singh has significantly improved with the help of this project.

Success Story-11

Name of Farmer: Shri Padam Singh

Village: Kachrang

Gram Panchayat: Nathpa

Wadi Model: 0.5 acre

Challenge

The farmers of this area including Sh. Padam Singh were only growing minor millets like ragi & amaranthus, pseudocereals like buckwheat; barley and pulses like rajmash (kidney beans) in their fields. There were no other means of livelihood except growing these crops and rearing sheep/goats etc. Sh. Padam Singh, a Wadi beneficiary of the TDF Project, living in village Naling I, gram panchayat Rupī, district Kinnaur, Himachal Pradesh was not an exceptional and was engaged in the same professional. The living standards of the people of this area including Sh. Padam Singh was low. Therefore, the challenge was to provide other means of livelihood which could raise their/his income and improve their living standard.

Initiative

After the introduction of NABARD sponsored TDF Project in the year 2014-15 the farmers including Sh. Padam Singh and his family members were motivated about the cultivation of apple fruit crop. So many other interventions were made under the Project during its implementation. Sh. Padam Singh was made skillful about apple orchard management after giving different trainings along with other wadi beneficiaries right from orchard layout planning to pit digging, mixing of farm yard manure & fertilizers in the soil of pit, filling of pits, planting of plants, basin preparation, training & pruning, cultivation of intercrops, insect & pest management to post-harvest management of apple orchards etc. To convince the farmers regarding apple fruit orcharding, the



exposure visits to different model orchards and orchards of Horticulture Department were organized under the project to expose the farmers with the best practices being followed. In these trainings and other events Shri Padam Singh had actively participated.

Results

Under the project support Shri Padam Singh established apple orchard on 1 acre land by planting 79 apple plants and 11 boarder plants of pear. He already had 25 plants of his own. In addition, horticulture tools like pruning shear, pruning saw and grafting & budding knife were provided to him under the Project. Shri Padam Singh is working hard and has started taking benefits from the wadi established under the project. Now his orchard is in fruit bearing stage since 2020-21.

Impact

The production of apple fruit in the wadi of Sh. Padam Singh was started during the year 2020, the production and the value of apple fruit he received from the market in the year 2020,2021 and 2022 is given in table as below;

Production of Apple fruit (in Boxes) (in kg)		Remuneration (in Rs. lakh)		Remarks
Before Project	After Project	Before Project	After Project	
Nil	68 (1700)	Nil	1.21250	The production and remuneration are for the 2020-2022

He is so convinced with the results of his wadi that he has started expanding area under apple fruit crop orchard. He is yet to get full benefits from the wadi, albeit, he is expected to have a sea change in his living standard and his economy. In the coming 4 to 5 years when his apple orchard will be in full fruit bearing, he will be getting



around Rs. 10 lakh from his apple orchard, which will entirely change the lifestyle of his family. The living standard and lifestyle of his family is also likely to improve as he is now searching for better education and health services for his children and other family members. He has also constructed new house. Thus, overall living standard of Sh. Padam Singh has significantly improved with the help of this project.

Success Story-12

Name of Farmer: Shri Vinod Kumar

Village: Kachrang

Gram Panchayat: Nathpa

Wadi Model: 0.5 acre

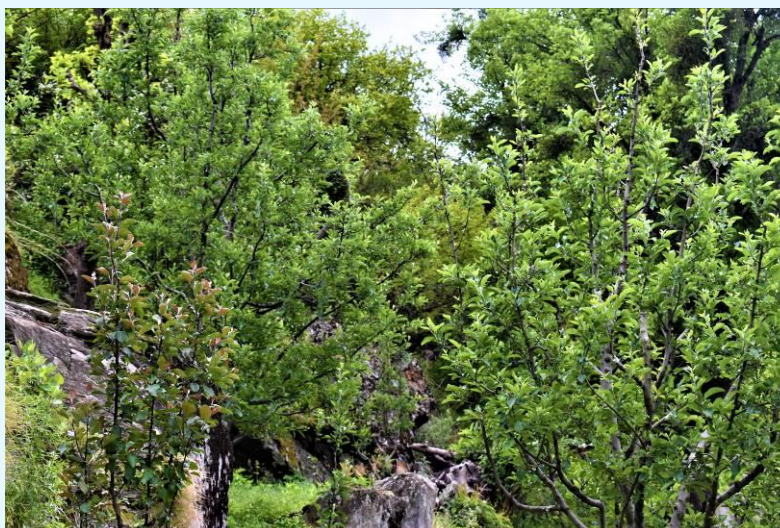
Challenge

The farmers of this area including Sh. Vinod Kumar were only growing minor millets like ragi & amaranthus, pseudocereals like buckwheat; barley and pulses like rajmash (kidney beans) in their fields. There were no other means of livelihood except growing these crops and rearing sheep/goats etc. Shri Vinod Kumar, a Wadi beneficiary of the TDF Project, living in village Naling I, gram panchayat Rupī, district Kinnaur, Himachal Pradesh was not an exceptional and was engaged in the same professional. The living standards of the people of this area including Sh. Vinod Kumar was low. Therefore, the challenge was to provide other means of livelihood which could raise their/his income and improve their living standard.



Initiative

After introduction of NABARD sponsored Project in 2014-15 the farmers including Sh. Vinod Kumar and his family members were motivated about the cultivation of apple. So many other interventions were made



under the Project during its implementation. Sh. Vinod Kumar was made skillful about apple orchard management after giving different trainings along with other wadi beneficiaries right from orchard layout planning to pit digging, mixing of farm yard manure & fertilizers in the soil of pit, filling of pits, planting of plants, basin preparation, training & pruning, cultivation of intercrops, insect & pest management to post-harvest management of apple orchards etc. To convince the farmers regarding

apple fruit orcharding, the exposure visits to different model orchards and orchards of Horticulture Department were organized under the project to expose the farmers with the best practices being followed. In these trainings and other events Shri Vinod Kumar had actively participated.

Results

Under the project support Shri Vinod Kumar established apple orchard on 1 acre land by planting 79 apple plants and 11 boarder plants of pear. He already had 30 plants of his own. In addition, horticulture tools like pruning shear, pruning saw and grafting & budding knife were provided to him under the Project. Shri Vinod Kumar is working hard and has started taking benefits from the wadi established under the project. Now his orchard is in fruit bearing stage since 2020-21.

Impact

The production of apple fruit in the wadi of Sh. Vinod Kumar was started during the year 2020, the production and the value of apple fruit he received from the market in the year 2020,2021 and 2022 is given in table as below;

Production of Apple fruit (in Boxes) (in kg)		Remuneration (in Rs. lakh)		Remarks
Before Project	After Project	Before Project	After Project	
Nil	62 (1550)	Nil	1.11600	The production and remuneration are for the 2020-2022

He is so convinced with the results of his wadi that he has started expanding area under apple fruit crop orchard. He is yet to get full benefits from the wadi, albeit, he is expected to have a sea change in his living standard and his economy. In the coming 4 to 5 years when his apple orchard will be in full fruit



bearing, he will be getting around Rs. 10 lakh from his apple orchard, which will entirely change the lifestyle of his family. The living standard and lifestyle of his family is also likely to improve as he is now searching for better education and health services for his children and other family members. He has also constructed new house. Thus, overall living standard of Sh. Vinod Kumar has significantly improved with the help of this project.

VIII. SUCCESS STORIES – NON-WADI BASED

An initiative to boost the carpentry & wood carving avocation of landless families – Success Stories

Success Story-1

Name of beneficiary: Mr. Sanjeev Kumar

Village: Bara Kamba

Gram Panchayat: Bara Kamba (Chhota Kamba)

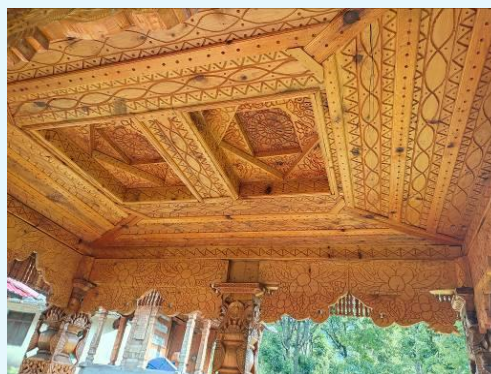
Livelihood: Carpentry & carving

Challenge

Mr. Sanjeev Kumar is an experienced carpenter who got training from his father and was doing carpentry and wood carving work in houses of district in general and village temples in particular. He is also well versed in stone carving. Due to shortage of funds Mr. Sanjeev Kumar was not in a position to purchase modern tools which could boost his profession.

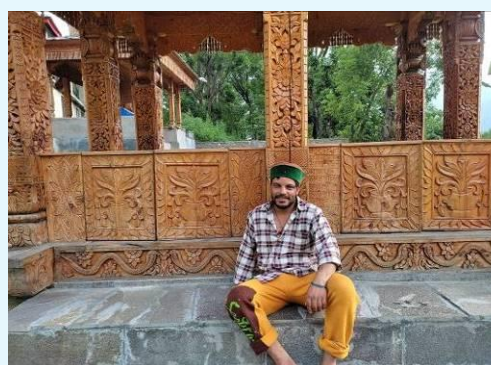
Initiative

As Mr. Sanjeev Kumar is landless but skillful in carpentry and wood & stone carving works, received modern tools, like impact drill machine, wooden planner, angle grinder, marble cutter, power chain saw and router under NABARD TDF Project. He was supported with project grant funds worth Rs. 30,000/- which includes 17% his own contribution i.e.; Rs. 5,000/-. He has also been motivated to popularize his micro enterprise to get more work and remuneration.



Results

Before getting support under the Project Mr. Sanjeev Kumar was getting work only in his village, but when he got strengthened after getting carpentry and carving tools under the Project, now, he is getting work in the far-flung villages of the District Kinnaur. He has been specifically called for carving works in the temples of local deities. Before getting support under the project,



his income was around Rs. 15,000 which has gone as high as Rs. 30,000/- per month. Thus his income has been doubled with the support he got under the Project. Keeping in view the demand of his work, it is expected that in the coming days he will be getting more remuneration from his micro enterprise.

Impact

The support provided under the TDF Project of NABARD to Mr. Sanjeev Kumar has changed the economy and life style of his family. Now he is earning handsome amount from his micro enterprise. The demand of this work has increased greatly in his village and surrounding other villages. Now since Mr. Sanjeev Kumar has realized the economic benefits of carpentry and carving work, has planned to boost his profession. Now he is giving training to his fellows so that in future he may get more work with his team. In the recent past he also has purchased some more tools to boost his micro enterprise. He is now planning to construct cement concrete house. The overall living standard of the family of Mr. Sanjeev Kumar has significantly improved.



Success Story-2

Name of beneficiary: Mr. Rajeev Kumar

Village: Bara Kamba

Gram Panchayat: Bara Kamba (Chhota Kamba)

Livelihood: Carpentry & carving

Challenge

Mr. Rajeev Kumar is an experienced carpenter who got training from his father and was doing carpentry and wood carving work in houses of district in general and village temples in particular. He is also well versed in stone carving. Due to shortage of funds Mr. Rajeev Kumar was not in a position to purchase modern tools which could boost his profession.

Initiative

As Mr. Rajeev Kumar is landless but skillful in carpentry and wood & stone carving works, received modern tools, like impact drill machine, wooden planner, angle grinder, marble cutter, power chain saw and router under NABARD TDF Project. He was supported with project grant funds worth Rs. 30,000/- which includes 17% his own contribution i.e.; Rs. 5,000/-. He has also been motivated to popularize his micro enterprise to get more work and remuneration.



Results

Before getting support under the Project Mr. Rajeev Kumar was getting work only in his village, but when he got strengthened after getting carpentry and carving tools under the Project, now, he is getting work in the far-flung villages of the District Kinnaur. He has been specifically called for carving works in the temples of local deities. Before getting support under the project, his income was around Rs. 15,000 which has gone as high as Rs. 30,000/- per month. Thus his income has been doubled with the support he got under the Project. Keeping in view the demand of his work, it is expected that in the coming days he will be getting more remuneration from his micro enterprise.



Impact

The support provided under the TDF Project of NABARD to Mr. Rajeev Kumar has changed the economy and life style of his family. Now he is earning handsome amount from his micro enterprise. The demand of this work has increased greatly in his village and surrounding other villages. Now since Mr. Rajeev Kumar has realized the economic benefits of carpentry and carving work, has planned to boost his profession. Now he is giving training to his fellows so that in future he may get more work with his team. In the recent past he also has purchased some more tools to boost his micro enterprise. He is now planning to construct cement concrete house. The overall living standard of the family of Mr. Rajeev Kumar has significantly improved.



IX. FEEDBACK OF PIA ON THE EXECUTION OF THE PROJECT

The feedback of execution team of PIA in the implementation of project, “Integrated Tribal Development programme (TDF) in Rupī, Chhota Kamba and Nathpa Gram Panchayats, District Kinnaur” is as follows:

- In the project there were three financial patterns, viz; grant, convergence and farmer’s contribution (in cash & kind). The grant component was tagged either with the convergence (Govt. Schemes) or with the farmer’s contribution (in cash) or all three together in different ratios. Except cost of plants, it was very difficult to utilize the grant component because, the Govt. scheme subsidy was not available to the project as a whole and the farmers were also not ready to contribute in cash. This arrangement of funding was not practically feasible, hence many deviations had to be taken up.
- Trainings imparted in-situ were not found effective as the farmers attendance in all such camps used to be very less. However, trainings imparted in institutions or in some training halls away from the project were found more affective but the funding provided under wadi plus component was not sufficient.
- The stakeholders took lot of time in getting oriented and motivated. It is very difficult to motivate the tribal farmers as they are very rigid to their customs and sometimes do not cooperate with the external agencies.
- It has been generally observed that the heavy doses of subsidies to the farmers have made them more dependent on the government that is why they are not ready to contribute in cash.
- Due to inaccessibility of the areas the visits of the experts and the government departments were very less with the result these areas remained devoid of government schemes/interventions/facilities.

X. PROJECT MANAGEMENT

1. Accounting system under WADI Project

➤ Use of Tally software for accounting of TDF Project

Tally Prime software with double entry system was used for accounting of TDF Project. The ledger reports have been generated by tally software and are in office of HARP.

➤ Manual system: (details of books of account maintained)

- i. Appropriate bills and vouchers
- ii. Stock issue / Stock consumption register
- iii. Payment register

2. Details of the Project Staff employed

Table 33. Details of the Project Staff employed.

SN	Name of the person	Qualification	Period of Employment	Designation assigned	Experience	Nature of work entrusted
1.	Mr. Parmeshwar Singh	Post Graduate	Sep 2014 to Mar 2017	Project Coordinator	Experience of handling UPNRM, Formation of FPOs & SHGs and other project management works, trainings etc.	Implementation of Project activities
2.	Mr. Sangya Sain	B.Sc. (Hon.) Horticulture	Nov 2014 to Aug 2015	Technical Officer (Horticulture)	Associated in Experiential Learning Programme under Commercial Horticulture at UHF Nauni	Implementation of Wadi related activities
3.	Mr. Surender Kumar	Diploma in Engineering	June 2017 to Jul 2021	Project Coordinator	Experience of handling the TDF Project as Technical Expert on contract basis	Implementation of Project activities
4.	Mr. Sandeep Sharma	Senior Secondary	Feb 2018 to Nov 2020	Project Coordinator	Experience of handling the Organic Farming and Organic certification Project in HARP	Implementation of TDF Project activities

SN	Name of the person	Qualification	Period of Employment	Designation assigned	Experience	Nature of work entrusted
5.	Mr. Bhupesh Kumar	Senior Secondary	Apr 2015 to Mar 2022	Field Supervisor	Having experience of apple orchard management	Implementation of Project activities in Chhota Bara Kamba Gram Panchayat.
6.	Mr. Chander Das	Matric	Oct 2015 to Mar 2022	Field Supervisor	Having experience in farming.	Implementation of Project activities in Rupī Gram Panchayat.
7.	Mr. Ashish	Senior Secondary	Nov 2015 to May 2017	Field Supervisor	Having experience in farming.	Implementation of Project activities in Nathpa Gram Panchayat.
8.	Mr. Prem Singh	Graduate	Jun 2017 to Mar 2022	Field Supervisor	Having experience of working in apple orchards management	Implementation of Project activities in Nathpa Gram Panchayat.
9.	DR. Y.P. Sharma	Ph.D.	Dec 2014 to Jun 2016	Consultant Horticulture (Part Time)	Emeritus Scientist (Retd.) ICAR	Imparting Skill Development Trainings and Providing Technical Advice to Project Staff
10.	Dr. B.S. Thakur	Ph.D.	Nov 2019 to Sep 2020	Consultant Horticulture (Part Time)	Professor & Head (retired), Department of Fruit Science, UHF, Nauni	Imparting Skill Development Trainings and Providing Technical Advice to Project Staff
11.	Dr. Harinder K. Thakur	Ph.D.	Jun 2016 to Mar 2022	Accountant/ Consultant Horticulture	Experience of handling Organic Farming Project, UPNRM Project in HARP	Implementation of Project activities, Maintaining Accounts, Documentation & overall coordination with Project Staff
12.	Dr. R.S. Ratan	Ph.D.	Sep 2014 to Mar 2022	Marketing, processing & credit mobiliser & Over all Supervision	Experience of handling similar nature Projects in HARP	Providing Training to Project Staff, Implementation and overall supervision of Project

XI. FINANCIAL ACHIEVEMENTS

Table 34. Financial achievements made under the Project.

(Rs. lakh)

SN	Project Component	Sanctioned programme			Cumulative release by NABARD	Cumulative utilisation	
		Phy.	Rate	Fin.	Fin.	Phy.	Fin.
A	PROJECT MEASURES						
I	Livelihood Programme						
1	Horticulture plantation & maintenance						
a)	Apple plantation (ac)	438.5	0.13683	60.00155	85.30781 (lump sum release)	438.5	54.92801
b)	Boundary plantation						
	Walnut (plants)	1150	0.00050	0.57500		1150	0.53700
	Pears (plants)	2800	0.00090	2.52000		2800	2.13840
	Wild apricot (plants)	2000	0.00015	0.30000		2000	0.30000
c)	Fertilizer and manure						
	Neem Cake/Fertilizers (qtl)	741	0.00770	5.70570		741	5.67391
d)	Plant protection (Trichoderma) (kg)	700	0.00220	1.54000		700	1.43729
e)	Irrigation pipe-tank to plot (max 400m/unit, farmer's contribution 50%)	-	-	22.72400		-	6.55405
f)	Intercrop - vegetable seeds (kg)	2955	0.00160	4.72800		2955	4.71665
g)	Tools and implements (No. of tool kits)	598	0.01510	9.02980		598	9.02250
	Subtotal: Horticulture			107.12405	85.30781		85.30781
2	Water resources development (WRD)						
a)	Tank irrigation schemes (No.)	11	-	86.66400	86.66400	11	86.66355
	Sub total: WRD			86.66400	86.66400		86.66355
3	Livelihood interventions for landless						
a)	Carpentry toolkit (No. of families)	9	0.25000	2.25000	2.25000	9	2.25000
	Sub-Total			2.25000	2.25000		2.25000
	Total I - Livelihood (1+2+3)			196.03805	174.22181		174.22136
II	WADI Plus Activities						
1	Training & Capacity Building						
a)	Wadi and related Training						
i.	Awareness camps and wadi farmers sensitization (Nos.)	13	0.06000	0.78000	11.31133 (lump sum release)	13	0.50695
ii.	Training to PIA Staff (Nos.)	14	0.06000	0.84000		14	0.52421
iii.	Skill Development Training for wadi farmers and Wadi Project Field Staff (Nos.)	28	0.04500	1.26000		28	1.13761
iv.	Farmers Exposure visit to other successful wadies within the State (No. of Farmers)	125	0.01040	1.30000		125	1.25985
v.	Formation of VPCs, Training and Functioning (Nos.)	15	0.04000	0.60000		15	0.16000
vi.	Capacity Building and training to VPCs (Nos.)	30	0.01067	0.32000		30	0.13090
vii.	Training of vegetable cultivation in open field and polyhouse (Nos.)	12	0.06000	0.72000		12	0.43208
viii.	Technical support of KVK/UHF - cost includes the travel and visit (Nos.)	14	0.02000	0.28000		14	0.27991
ix.	Experience sharing workshop (Nos.)	9	0.20000	1.80000		9	1.39628
x.	Printing of wadi reference material and field brochures (Nos.)	2000	0.00010	0.20000		2000	0.13000

SN	Project Component	Sanctioned programme			Cumulative release by NABARD	Cumulative utilisation	
		Phy.	Rate	Fin.		Phy.	Fin.
xi.	Field display boards for fields and master project board for Project office	5				5	
	Sub-Total			8.10000			5.95779
b)	Micro Enterprise Training						
i.	Training on Vermicomposting	20	0.03000	0.60000		20	0.32332
ii.	Training on Nursery raising and management	6	0.06000	0.36000		6	0.2998
iii.	Capacity Building workshop on animal nutrition and livestock management	6	0.06000	0.36000		6	0.18519
	Sub-Total	32		1.32000		32	0.80831
c)	Processing and marketing						
i.	Training of farmers on post-harvest handling (Horti)	10	0.06000	0.60000		10	0.42760
ii.	Training on apple grading and packaging	2	0.06000	0.12000		2	0.11858
	Sub-Total	12		0.72000		12	0.54618
	Total Training & Capacity Building (1)			10.14000			7.31228
2	Women Development and Health (WDH)						
a)	Women Development Interventions						
i.	Training on women and child nutrition management	7	0.10000	0.70000		7	0.41196
ii.	Gender sensitization campus	4	0.07500	0.30000		4	0.29722
iii.	Water purifier (Demo) (One each in every Mahila Mandal)	7	0.03000	0.21000		7	0.1515
	Sub-Total	18		1.21000		18	0.86068
b)	Health and Sanitation Camps						
i.	Health camps for children, women and elderly	3	0.50000	1.50000		3	1.47608
	Sub-Total	3		1.50000		3	1.47608
	Total WDH (2)			2.71000			2.33676
3	Cooperative and its functioning and Processing						
i.	Awareness programmes and orientation on FPO	6	0.06000	0.36000		6	0.10122
ii.	Formation, registration and strengthening of FPO	3	0.05000	0.15000		3	0.15000
iii.	Orientation and training programme for FPO	3	0.10000	0.30000		3	0.30000
iv.	Exposure visits for FPO	2	0.50000	1.00000		2	0.90626
	Sub-Total	14		1.81000		14	1.45748
	Total Cooperative. (3)			1.81000			1.45748
	Total II - WADI Plus Activities (1+2+3)			14.66000	11.31133		11.10652
III	Bank Charges						0.00948
	Total A PROJECT MEASURES (I+II+III)			210.69805	185.53314		185.33736
B	PROJECT MANAGEMENT						
I	Building, Equipments						
1	Project Office (own or rental)	84	0.02000	1.68000	51.74000 (lump sum release)	84	1.61661
2	Project godown	84	0.01000	0.84000		84	0.60700
3	Furniture	1	0.25000	0.25000		1	0.19498
4	Computer with peripherals and printer scanner	1	0.50000	0.50000		1	0.50000

SN	Project Component	Sanctioned programme			Cumulative release by NABARD	Cumulative utilisation	
		Phy.	Rate	Fin.		Phy.	Fin.
5	Accounting software (Tally)	1	0.22000	0.22000		1	0.22000
6	LCD Projector for training purpose	1	0.35000	0.35000		1	0.34675
7	Handycam/camera	1	0.50000	0.50000		1	0.50000
	Sub Total I			4.34000			3.98534
II	Operation and maintenance						
1	Office running expenditure	84	0.02000	1.68000		84	1.68000
2	Four-wheeler hiring charges for internal & external monitoring	84	0.03000	2.52000		84	2.51190
3	Petrol charges for field visit and supervision	84	0.02000	1.68000		84	1.67836
4	Documentation of wadi & impact evaluation	7	0.10000	0.70000		7	0.69890
5	Miscellaneous and Audit fee - on submission of separate audit report to NABARD	7	0.07000	0.49000		7	0.48821
	Sub Total II			7.07000			7.05737
III	Personnel / Management						
1	Honorarium - Project Staff (Project Coordinators (2 @ Rs. 15000 pm) & Field Supervisors (1st Yr 1, 2nd Yr 2 & 3rd Yr onwards 3 @ Rs. 3000 pm)	84	0.37714	31.68000		84	31.64827
2	SMS on consultancy basis	30	0.02500	0.75000		30	0.73100
3	Marketing, processing and credit mobiliser- part time salary- experienced staff of PIA may be earmarked	72	0.06000	4.32000		72	3.25036
4	Project Accountant	84	0.05000	4.20000		84	4.05377
	Sub Total III			40.95000			39.68340
IV	Bank Charges						0.00856
	Total B (PROJECT MANAGEMENT; I+II+III+IV)			52.36000	51.74000		50.73466
C	Contingency (5% of grant)			10.53490	0.96600		0.96600
	Grand Total (A+B+C)			273.59295	238.23914		237.03802