

EcoHimal Nepal
Integrated Sustainable Tree Cropping and AFRC Programme
Annual Progress Report
1st April, 2017 to 30th June, 2018

A. Executive Summary

The programme, implemented since 1st August, 2017 in financial support of The Glacier Trust (TGT), UK in Deusa and Waku Village Development Committees (VDCs) of Solukhumbu district, contributed in promotion of commercial high value cash crops and tree cropping.

The programme has fostered Deusa and Waku villages towards tree cropping for sustainable livelihood, promoting greenery conservation. Promotion of green village education with production cum plantation of tree crops and capacity building of local farmers has contributed in sustainable rural livelihoods. Training and orientations to local farmers in tree crop farming has enabled them to follow organic farming culture. This has supported to coffee farmers by reducing their production cost, increasing crop quality and production and helping the product marketing has great significance in rural livelihood improvement. Through this programme, 83 farmers from 12 villages are capacitated to the organic coffee farming methods and have initiated cluster trainings at local level to ensure the sustainability of the future organic coffee farming in the villages.

In addition to that, the programme also assisted the local farmers to set up the local corporative "Sustainable Organic Coffee, Orange, and Fruits Cooperative Limited" with the purpose to maintain the market price of the tree crops products. By selling their product to the local corporative, it will cut the role of the middle man. Thus, the price of the crops will be better.

The availability of 18 pulping machines through the programme at local level for pulping coffee has ensured quality improvement for better prices. The local farmers have been skilled in operating pulping machine and are utilizing since the introduction of this technology in their villages.

The programme strengthened the ability of small-scale coffee farmers to meet the demands of the export market through improved cultivation techniques. The quantity and quality of the farmers' production yield greater participation of local farmers and introduction value-added organic fertilizer production and post-harvest processing at the farm level has triggered them for sustainable income generation.

The plantation of 27,085 tree crops seedlings (including seedlings in 2017 and 2018) has contributed in orientation towards green village. The survival status of planted tree crop seedlings is satisfactory; about 15,522 seedlings (72.74%) out of planted 21,243 seedlings in previous year 2017 are alive. The planted seedlings will have great benefits in future for the provision of ecosystem services, adaptation to climate change-related stresses, and the productivity of agricultural systems. The farmers are very optimistic towards the utilization of the marginal land as source of income generation with alternative agriculture practices.

The translated version of response from Til Bahadur Rai on climate change is in [Annex 1](#)

B. Objectives Achieved:

Overall Goal

Sustainable rural livelihoods through the promotion of tree cropping and organized marketing of the produce

To achieve overall objective of improving sustainable rural livelihoods, the programme distributed high value tree crops seedlings, enhanced knowledge and skills of local farmers for tree crops plantation and quality improvement in agro-products (empowered the coffee producers with knowledge over coffee production and processing), established market linkages of coffee producers in Kathmandu through Deusa Agro Forest Resource center and capacitated the farmers to prepare the agro products for outer export.

High value tree crops as well as fodder and forage plants have been promoted in uncultivated land for income generation and nutritional security in order to enhance rural livelihoods. In total, 27085 seedlings have been planted in Deusa and Waku during the reporting period. 15988 seedlings are alive till the latest assessment done in June, 2018 where, 21243 seedlings distributed and planted in 2017 (Before December). Approximately, 75.26% plants are active (stay alive), 9.67% are in inactive and 15.07% have been died. The detail is given below:

Table 1: Seedlings survival status

Seedlings survival status assessment period	Active	Dormant	Dead	Total	Remarks
	15988	2054	3201	21243	
%	75.26	9.67	15.07	100	

A cooperative "***Sustainable Organic Coffee, Orange, and Fruits Cooperative Limited***" has been formed aiming to promote coffee, orange and fruits covering the representative farmers from Thulung Dudhkoshi Rural Municipality (RM), to benefit all 8 wards. The ownership orientation towards cooperative is impressive; the cooperative was formed with 13 founder members, impressively at present, there are 45 members. The distribution of membership is opened to all farmers from Thulung Dudhkoshi Rural Municipality. In addition, the cooperative has been equipped with agri-materials and share capital of NPR 93,600.00. The marketing of agri-products will be channelized through cooperative in organized manner and will add bricks in market linkage of agro-products, access to financial capital, certification and quality improvement.

Prior of forming the cooperative, 34 farmers were well-informed about cooperative management focusing on agro-products marketing through institutional cooperation by project management.

Specific Objectives:

To capacitate farmers on tree cropping technology and its extension and promotion

573 local farmers have been capacitated on tree crops and its associated technical areas like climate change adaptation, organic farming, pest infestations and control, organic coffee production and processing, intercropping farming, bio-intensive plantation and nursery

management etc. to achieve sustainable agro-products production and socio-economic well being as given below.

Table 2: Capacity Buidling of Farmers on Tree Cropping Technologies

S.N	Training and Orientations on	Participation in Farmers' Field School											Total
		Male			Female			VDC wise			Gender wise		
		Deusa	Waku	Others	Deusa	Waku	Other	Deusa	Waku	Other	M	F	
1	Climate Change adaptation	39	33	0	11	44	0	50	77	0	72	55	127
2	Organic Farming Methods	37	25	0	33	15	0	70	40	0	62	48	110
5	Pest Infestations and Control	16	32	0	7	15	0	23	47	0	48	22	70
7	Organic Coffee Production and Processing Technologies covering 9 villages	29	21	11	16	7	5	45	28	16	61	28	89
8	intercropping farming technologies	32	3	0	29	9	0	61	12	0	35	38	73
9	Bio-Intensive Plantation	35	34	0	14	0	0	49	34	0	69	14	83
10	Nursery Management	0	7	0	0	14	0	0	21	0	7	14	21
Total		188	155	11	110	104	5	298	259	16	354	219	573

Detail is in [Annex 2](#)

They have been skilled with tree cropping technologies with the purpose of benefiting them and increasing farm productivity in terms of yield and management efficiencies. Conducting practical demonstrations at field level, technical skills in tree crop production and management practices have been shared to local farmers.

Local households have been knowledgeable on the use of different trees they have grown on the farmland and have developed their own set of criteria for choosing what tree species to plant. They have been aware on on-farm tree diversity for the sustenance of their livelihood. Nuts plants and high value plants have been promoted for plantation in their farm land.

Farmers to Farmers Visit for knowledge sharing has supported in information dissemination regarding tree-cropping and has encouraged farmers especially women farmers to have association with agriculture groups and to assist one another in producing plants and protecting trees on farm.

The agro-forestry and tree cropping technologies practiced in Deusa and Waku have been extended and promoted in other neighboring villages. Satellite nursery technologies have been replicated in Tinla VDC of Solukhumbu.

Importantly, Thulung Dudhkoshi Rural Municipality requested EcoHimal Nepal and The Glacier Trust with formal letter to replicate the programme in all wards. The local government acknowledged the significance of the programme for green eco village development and promotion and requested for extension of same programme model in other 6 wards¹. In addition, the local government has passed out the proposal of three parties' cooperation between Thulung Dudhkoshi Rural Municipality, Deusa Agro Forest Resource Center and EcoHimal Nepal/The Glacier Trust to implement the tree crop programme in all wards. Local government has already allocated the budget of NPR 15,00,000.00 for the programme extension. (The approved plan and budget is in [Annex 3](#))

Organic certification of coffee (that is under last phase) produced by 20 lead farmers (Detail of farmers is in [Annex 4](#)) of Deusa increases the market access of organic coffee products, to the national and international level. The certified status will be a big helping hand for the income generation for rural farmers.

C. Outcomes/Results Achieved:

1. **Approximately 200 farmers trained in tree crop production and supplied with appropriate tree crop planting materials.**

294 households² received know-how in tree crop plantation, weeding, cure and other technical aspects by the project staff while distributing seedlings at local level. They gained technical knowledge cum seedlings in accordance to the geological structure and altitude of their farmyard.

In addition, 511 local farmers organizing training and orientation workshop capacitated in tree crop production along with advanced knowledge and skills. Out of them, 83 farmers have been educated in bio-intensive plantation. 5 farmers have been capacitated as local trainers for bio-intensive plantation after taking 3-days long training at Everything Organic Farm. 3 of them have already conducted trainings to 25 local farmers in Waku.

Table 3: Local trainers in Bio-Intensive Plantation

S.N	Name of Trainers	Address	Remarks
1	Mingmar Rai	Mapya dudhkoshi RM-7	
2	Binod Rai	Mapya dudhkoshi RM-6	
3	Dinesh Khaling	Mapya dudhkoshi RM-6	
4	Madansir Rai	Mahakulung RM-1	
5	Jangbu Sherpa	Mahakulung RM-1	

2 lead farmers Mr. Amar Rai and Dillisher Rai, from Deusa, have been skilled in improved Macadamia farming in coordination with Everything Organic Nursery, Patlekheta, Kavre. They have already done trial of sample seedlings of Macadamia in their farmyard.

34 farmers from 9 Village Development Committees (VDCs) of Solukhumbu have been skilled on organic coffee farming and processing by organizing 3 days residential training on

¹ Out of 8 wards, STC programme is implemented in 2 wards; ward no 7 & 8

² The number of beneficiaries supported with seedlings is 301 till the date. Out of them, 7 are organized groups like DAFRC, Masep Group etc. The number of individual farmers received seedlings is 294.

coffee farming and processing technologies in facilitation of Mr. Bhola Shrestha, Team Leader, HELVETAS Swiss Inter-cooperation Nepal. They have been skilled on improved technologies for better production and income.

Response from trainees:

"Most of us were planting coffee one or two for the sake of hobby, not were well known about coffee farming. After training, we just have planned to start commercial farming in local area"

"We will initiate collective coffee farming for easy marketing"

2. About 30,000 tree crop seedlings planted.

The programme distributed 27085 seedlings (fruits, nuts, coffee fodders, forage and multi-purposed) and 161 kilograms grass seeds in project area to increase vegetative coverage and agro-forestry to minimize soil erosion, surface runoff, soil nutrient loss, and evaporation of soil moisture along with to support local farmers in income generation.

High value seedlings of fruits, nuts and multi-purposed plants purchased, transported and distributed to local farmers in coordination with various nurseries in Kathmandu and Kavreplanchowk. The local farmers have intercropped these fruit seedlings especially in coffee yard.

301 local farmers including 7 organized groups have planted seedlings in their marginal land and have intercropped with coffee and orange plants in about 94.70 hectare land. The survival status of seedlings is satisfactory. The detail seedlings distribution and survival status is in [Annex 5](#)

D. Activities carried out:

• Institutionalization of farmers groups

13 agriculture groups (7 in Deusa and 6 in Waku) for cash crops production have been reformed. After formation/reformation, they have been oriented on rules and regulations of institutions. The members have been trained in "Go Green" promotion and supplied with the seedlings.

The representatives of farmer groups are enrolled in newly formed cooperative named **"Sustainable Organic Coffee, Orange, and Fruits Cooperative Limited"**. As the umbrella organization, the formed cooperative will support in agri-products supply and create strong market linkages. In coordination with Thulung Dudhkoshi Rural Municipality (RM), the RM level cooperative in chairmanship of Mr. Net Kumar Rai of Deusa was formed. The cooperative covers *Nele, Panchan, Deusa, Jubu, Kangel, Lokhim and Mugli* villages. Formation of cooperative will help them to institutionalize and in easy coffee market management, coffee, fruits and nuts farming and production. The lists of Cooperative committee members are in [Annex 6](#) and participants of the cooperative formation meeting are in [Annex 7](#)

• Physical upgrading of the AFRC and hiring of one project dedicated staff

As per the technical report received for maintenance of DAFRC building by Ms. Johanna, from Austria the affected building is retrofitted. In the front and right side of the building

below 50cm from the original ground, the column is tied up by plinth level beam and have done reinforced cement concrete (RCC). Similarly, RCC has been done at the back side of the building and the seasonal water collected inside building is drained out through the pipe.

The DAFRC building has been retrofitted as per the technical report received for maintenance of DAFRC building by Ms. Johanna, from Austria.

Likewise, DAFRC has been equipped with solar and hot water system. A small servant quarter has been constructed. A projector has been supported to facilitate in training and workshop conduction at DAFRC. The advanced trainings can be run at local level.

In financial support of Thulung Dudhkoshi Rural Municipality of NPR 4, 00,000.00, DAFRC has constructed a building on the land in-between main building and kitchen building with the purpose of using it as store and alternative training hall. The technical support was provided by EcoHimal Nepal during construction phase.

- **The undertaking of market and value chain research and surveys to identify most profitable tree crops for Solukhumbu district.**

Under the market and value chain research plan, planted seedlings of varieties of nuts, cash crops and fruits have been successful in trial. Coffee and banana plants are intercropped where banana plants will provide shade to the coffee plants. The intercropping of coffee and banana plants and orange and coffee have 100% survival status.

To ensure reasonable price of products of local farmers, project has already initiated market research and identified potential market linkages in Kathmandu. Coordination, correspondence and meetings in Kathmandu for market access of produced fruits were carried out by project management; consequently, connection with Singhadurbar Vaidyakhana has been established for marketing of goose berry. This year, 1090 kg goose berry in 2 lots supplied in Vaidyakhana and local farmers have generated income. They had demanded more quantity of goose berry but we could not able to supply due to limited time. For next year, they have purposed for tons of goose berry.

In addition, the project management has become successful to have relation with a reliable coffee buyer – Newa Estate Pvt. Ltd. The company has been convinced with the quality of coffee from Solukhumbu and committed for long term demand and supply. Sustainable market solution for coffee is set up with better coordination. In total, 1564.6 kg parchment coffees have been supplied to the company. Remarkably, the company has already done sample brand packaging of Solukhumbu coffee. They have provided packages to EcoHimal Nepal and The Glacier Trust for sample marketing in international level.

To ensure better market research and access of coffee, short term revolving fund has been created. The revolving fund has been initiated with UK pound 4,000.00, in coordination with The Glacier Trust, to ensure quality production, supply and better price of coffee. Pre-harvesting deal by providing seed money to the coffee producers in advance has given them trustworthiness towards DAFRC and has guaranteed secure supply of the products.

Since the hazelnut plant is small in height at present, the soybean plants have been intercropped with hazelnut in the surrounding land of the hazelnut. The outcome of the intercropping will be reported in next reporting period.

- **Procurement of seedling materials and production of a wide variety of the most suitable species for the two target VDC.**

Go Green model village approach has been induced to promote income generation and better living condition of local people. As per the strategy, varieties of seedlings are produced at DAFRC nursery to make available to farmers. In total 42,655 seedlings are produced of 32 kinds till the reporting period. The detail is in [Annex 8](#)

The approach is intervened initially with vegetable seeds and agri-materials support to all households of Dalit hamlet of Waku. All 17 households are trained in improved vegetable farming and supported improved vegetables seed as well as materials. Improved seed of vegetables like Cauliflower, Cabbage, Chilli, Cucumber, carrot and radish etc. have been provided. Along with seeds, sprinkles (17 set of sprinkle to 17 farmers) have been supported to the farmers for regular irrigation. (The detail is in [Annex 9](#))

In addition, seedlings of high value fruits and nuts along with ornamental varieties have been purchased from various nurseries farms especially from Everything Organic Nursery and Love Green Nursery, Kavreplanchowk.

The tree crop seedlings of fruits, fodders, forages, nuts produced at DAFRC is in high demand and farmers are purchasing the seedling from DAFRC nursery. Till the reporting period, 12625 seedlings have been distributed from DAFRC to the local farmers and local government. (Record of seedlings distribution is in [Annex 10](#))

- **Training of at least 120 farmers in all aspects of tree crop production, through nursery management, land selection and preparation, nutrients requirements and crop management and special aspects of each species selected by the farmers**

a. Impact of climate change on tree crops

Training on impact of climate change on tree crops was provided to 127 local famers. The local farmers were made aware on;

- What is climate change
- What is causing climate change
- The impacts of climate change on tree crops
- Climate change and tree crops (Coffee)
- Responding to climate change: Adoption and Mitigation

The detail of participants is in [Annex 2 Table A](#).

b. Organic farming methods

82 farmers from Deusa and Waku have received technical knowledge on organic farming methods. The farmers were oriented on: introduction to organic farming, basic concept of organic farming, and components of organic production, organic farming v/s chemical farming, proper handling of farm waste and household waste, harvesting and storage of

organic products and marketing of organic products .The demonstration of organic farming was conducted at DAFRC. Detail of participation is in [Annex 2 Table B](#).

c. Intercropping with coffee farming

Trainings on intercropping farming and tree cropping system have been conducted in the project areas with the objective of increasing the total production per unit area and time, to increase on-farm income. The participation of trainees was mainly focused from coffee production potential areas.

The training on intercropping farming mainly of cash crops and vegetables as well as coffee and nuts was conducted. They were educated to get dual benefits from crops combination. The farmers have been encouraged to cultivate more than one crop (intercropping farming) applying the intercropping technology acquires more profits from their limited lands than the single crop.

In the year 2017/018, 73 local farmers have been educated to find ways to increase yields by intensifying crop management of coffee and other tree crops like banana in their limited land holdings. In the trainings, they were oriented on: how tree crops provides shade for coffee that is beneficial in reducing stresses caused by extreme temperatures, how intercropping helps to improve and stabilize coffee yield and quality, why intercropping is best option to avoid excessive competition between the two crops for light, water and nutrients and the advantage of tree cropping where tree crops like banana also provide mulch to the cropping system and the soil cover that benefits both crops. The mulch improves root development in both tree crops and coffee, and improves availability of potassium in the topsoil. (Detail of trainees is in [Annex 2 Table C](#))

d. Bio-incentive plantation

83 farmers have been already trained in bio-intensive plantation by technical staff and external expert.

Table 4: Trainees in Bio-Intensive Plantation

S.N	Particulars	Number of trainees	Remarks
1	Local farmers trained by project staff	32	
2	Local lead farmers as resource person trained in Kavreplanchowk ³	3	
3	Local farmers trained by trained resource person	24	
4	Local farmers trained by technical expert_Mr.Binod Puri	24	
Total		83	

³ 5 lead farmers including elected chairperson of ward no 6 from Waku and neighboring village named Khiraule have been trained as local resource person on Bio-incentive organic nursery production in coordination with Everything Organic, Kavre. [The training itself was conducted by EVON's field manager, Binod Puri, very talented horticulturalist and tree-grafter.](#)

To enhance the capacity of farmers for organic nursery plantation, the training on bio-intensive plantation was provided for climate smart agriculture promotion in Deusa and Waku. All the trainees have acquired the skills and knowledge on;

- Use of variety of homemade organic pest and disease treatment techniques
- Deep soil building/double digging
- Bio-intensive and sheet composting bed preparation
- Pits preparation and plantation

Consequently, the resource person trained in Kavreplanchowk conducted training on bio-intensive plantation to the local farmers of Waku organizing 1/1 day two trainings. Total 24 farmers were trained on the topic in theoretical and practical way.

In addition, EVON's field manager, Binod Puri, very talented horticulturalist and tree-grafter, conducted one day training on bio-intensive plantation at DAFRC to 24 local farmers. He visited project areas; both Deusa and Waku for feasibility study of fruits and nuts.

Details of trainees is in [Annex 2 Table D](#)

e. Organic fertilizers production and use

Training on organic farming has been conducted in the project areas. Till the reporting period, 70 local farmers have been educated on following subject matters:

- Introduction of organic farming
- Why organic farming?
- Techniques and practices of organic farming
- Production of organic fertilizers (OF) and use, effectiveness of OF , OF preparation techniques and conductions and methods of OF use in coffee farming
- Why organic products?
- Organic certification

Detail of local farmers trained in organic farming is in [Annex 2 Table E](#)

In addition, 20 farmers have already produced organic fertilizer (OF) and have used on their farmland. In total, they have produced about 31440 kg OF and all of them have used the production on their farmyard. (Detail is in [Annex 11](#))

f. Nursery Management

21 local farmers have been trained in vegetable nursery establishment and management. (Participation detail is in [Annex 2 Table F](#)) They have been trained in following contents:

- Importance of vegetable nursery in vegetable farming
- Materials necessary for vegetable nursery
- Practical training on nursery establishment

To promote vegetable nurseries, DAFRC has distributed vegetable seeds to local farmers. 41 farmers have been benefited with about 658 kg vegetable seeds. (Detail is [Annex 12](#))

g. Organic Coffee Production and Processing

In coordination with Helvitas Inter-cooperation, 2 phases of training on organic coffee production and processing have been conducted. In total, 61 farmers (27 from 1st phase and 34 from 2nd phase) have been benefited by the special training on coffee production and

process. The latest training was conducted in January, 2018 where 34 farmers from 9 VDCs were skilled in coffee production and processing. (The report is in [Annex 13](#))

Likewise, 28 farmers from Deusa and Waku have been trained by our technical staff in organic coffee production and processing. Detail of 89 trainees including 61 trainees of specialist' training is in [Annex 2 Table F](#)

In addition, to capacitate famers at grassroots level and to cover wider farmers, hamlet (coffee plantation hamlet and potential hamlet for coffee plantation) focused coffee production and processing training has been conducted by project staff in other VDCs. The trainings have been conducted in more than 3 hamlets, where 40 farmers have been trained as follows:

- 15 farmers in Besi, Lokhim VDC
- 10 farmers in Khorda, Pawai VDC
- 15 farmers in Bangaun, Jubu VDC

Moreover, organic certification of coffee products is under final stage. The organic certification of 20 farmers' products is ongoing in coordination and technical support of Organic Certification Nepal (OCN). A one day workshop by Mrs. Yam Kumari Shrestha, OCN representative was conducted in DAFRC to inform and orient selected 20 farmers about procedures and requirements. It will provide certificate for trust worthiness and will establish organic agriculture standards.

- **Field extension and supervision of orchard and plantation development.**

Under this intervention, demonstration of 430 hazelnuts seedlings (including 8 polinizers) is well managed in coordination with Bhutan Mountain Hazelnuts project. The growth and adoptability of the plants is satisfactory. The irrigation and fertilization is doing regularly. The caretaker is doing regular rearing and caring and our staffs regularly visit there for supervision. The development of plants is as follows:

Table 5: Hazelnuts Plants Development

S.N.	Varieties	Symbol	Average height	Remarks
1	Barcelona	B	11.25 inch.	
2	Silver/White	L	13.2 inch.	
3	Green	E1	10.33 inch	
4	Cochlet	p1	9 inch.	Shortest
5	Yellow	A	14.5 inch.	Tallest

The monitoring update report is in [Annex 14](#)

- **Establishment of satellite nurseries for tree crops seedlings production.**

In total, 6 satellite nurseries have been established; 2 in Deusa, 3 in Waku and 1 in Tinla Village. Out of 7 satellite nursery farmers, 5 have already generated income from seedlings production and 2 have just initiated seedlings production. A model satellite nursery in Tinla (nearby VDC) has been successfully managed. Agri-materials, seeds and technical support have been provided by the programme. Necessary agri-materials like Agro-net 1nos, Plastic

tunnel 1 pack, Sprinkle 12nos, Sprinkler (Hazari) 1, Poly bag 15kg have been supported. Further, 7 varieties of seeds; lemon, Lapsi (Nepali Hog Plum), Ritthha (Sapindus mukerosshi), Sitalchini (Moringa), Kimbu (Mulberry), Epil Epil, and Mendula have been supported and planted in the nursery.

For the establishment of the nursery satellite nursery management training was provided. The farmers having satellite nurseries are very optimistic and sharing the learning to their neighbors. The status of satellite nurseries and income generation is as follows:

Table 5: Satellite nurseries status and income generation

S.N	Name of Satellite Farmers	Production	Quantity	Stock	Died	Sale	Amount (NPR)
1	Solahang Rai	6 varieties of vegetable and fruits seedlings	3030	910	10	2110	25,800.00
2	Youbraj Rai	4 varieties of vegetable and fruits seedlings	3000	200	0	2800	37,500.00
3	Harka Rai	6 varieties of vegetable and fruits seedlings	1900	800	0	1100	12,200.00
4	Dal Bahadur Rai	8 varieties of vegetable and fruits seedlings	1433	655	0	778	11,670.00
5	Karna Bahadur	6 varieties of vegetable and fruits seedlings	9800	3000	200	6600	37,000.00
6	Mingmar Rai	Seed sowing and nursery established					
Total			19163	5565	210	13388	124,170.00

Detail is in [Annex 15](#)

- Training of farmers on climate smart agriculture techniques**

Coordination with Local Initiatives for Biodiversity, Research and Development (Libird) Nepal for training manual preparation has done and manual preparation is ongoing. After rainy/monsoon season, training to local lead farmers on CSA techniques will be provided for CSA practices at local level.

- Capacity building of farmers on pest management and diseases control**

In total, 70 farmers have been trained on pest management and diseases control. They have been provided with knowledge and practical skills on pest infestations and control. Their status of application has been assessed and results found satisfactory. The trained 28

local farmers on pest management and disease control are utilizing received training skills in the field to control pest infestation.

- **Exposure visit of local farmers, and farmers to farmers knowhow transfer**

The exposure visit of local lead farmers for knowhow transfer was planned before summer but it could not be happened. The visit will be organized after summer and farmers from Solukhumbu will have opportunity to experience improved agriculture practices in Nepal. Knowledge sharing among improved farming and tree cropping is conducted by farmers by conducting farmers to farmers visits. Till the reporting period, only two visits by 23 farmers has been done. (Detail is in [Annex 16](#))

- ❖ **Establishment and demonstration/dissemination plots and blocks.**

In total, 73 local farmers have been trained in demonstration farming/intercropping farming. Out of 73, 15 were supported with vegetable and intercrops seeds and they have generated income from the farming. They were technically supported in intercropping model farming for demonstration. Analysis has been done to find out best crop combination as per land equivalent. (Detail is in [Annex 17](#))

- **Cultivation of marginal land for fodder and forage cropping**

Different varieties of forage and fodders seeds have been provided to DAFRC for wide production of fodder and forage seedlings at local level. 500 kg seeds of different varieties of forage from Buddha Nursery (Sanga, Kavre) purchased, transported and distributed to small land holding farmers.

In coordination with Thulung Rural Municipality, ward no 8, plantation on the side of road for greenery environment has been done. About **50,000** seedlings have been planted.

- **Establishment of cooperative to oversee the development of enhanced tree crop production and product marketing**

With the initiation of the coffee producing farmers of *Thulung Dudhkoshi RM*, a RM level cooperative is formed named "***Sustainable Organic Coffee, Orange, and Fruits Cooperative Limited***" and is under way for its registration at district line office. The cooperative members have collected around NRs. 93690 as a revolving fund till the reporting period. It covers all 7 villages (*Nele, Panchan, Deusa, Jubu, Kangel, Lokhim and Mugli*) of RM. After formation of cooperative, market linkages, access to financial capital, certification and quality improvement will be easy. They have already started sale of seed, seedlings and agri-materials at local level.

Cooperative management training to the 34 lead farmers has provided knowledge and information about market access cum value chain. They have been educated on following marketing strategies under cooperative management:

- Selling Plan- Market environment
- Market partnership
- Production Promotion strategies
- Production Quantity
- Financial Plan
- Implementation Work plan

- Administration Management and Recording System
- Expenses and income plan

Our project is working with coffee producers at local level to enhance the quality and quantity of coffee cherries produced through improved farming techniques and affordable access to quality inputs and services, thereby providing the means for a sustainable income for them directly. Project is conducting market study and promotion.

- **Purchase of necessary processing equipments for the new cooperative for the most popular products**

This year, till the reporting period, 18 pulping machines have been distributed to 5 different villages. 8 were distributed by the programme directly where 10 were distributed in coordination with Prime Minister Agriculture Commercialization Programme. Though the machines have been distributed to the local community, the ownership of all pulping machines is reserved with DAFRC.

Detail is given below:

Table 2: Pulping Machines Distribution

S.N.	Distributed Area	Quantity (In Number)
1	Masepa, Ward no 2 (Organic Coffee Farmer Group) – Shyam Kumar Rai	1
2	Rindipu, Ward no. 2 (Khadim Farmer Group) – Net Kumar Rai	1
3	Khorda, Pawai (Khorda Coffee Production Group)- Bhim Bahadur Basnet	1
4	Lokhim VDC (Lower Lokhim Coffee Group)	1
5	Jubu VDC (Jubu Coffee Farmer Group)_Man Bahadur Ban	1
6	Waku VDC (Waku Coffee Production Group)_Dinesh Kumar Rai	1
7	Cherakhu, Deusa (Cherakhu Fruits Production Group)_Mani Kumar Rai	1
8	Diple, Deusa (Multipurpose Farmer Group)_Youbraj Rai	1
9	Shree Sana Kisan Co-oprative Ltd_Maypa Dudhkoshi RM	1
10	Shree Himali Agri Group, Thulung Dudhkoshi RM, ward no 6	1
11	Chomolungma Agri Group, Thulung Dudhkoshi RM, ward no 6	1
12	Shree Ranem Agri Group, Thulung Dudhkoshi RM, ward no 8	1
13	Shree Fruits Agri Group, Thulung Dudhkoshi RM, ward no 7	1
14	Shree Namse Agri Group, Thulung Dudhkoshi RM, ward no 7	1
15	Shree Panchan Agri Group, Thulung Dudhkoshi RM, ward no 3	1
16	Shree Saipatri Agri Group, Thulung Dudhkoshi RM, ward no 8	1
17	Shree Shrijanshil Agri Group ,Thulung Dudhkoshi RM, ward 8	1
18	Shree Khilu Agri Group Thulung Dudhkoshi RM, ward no 7	1
Total		18

In addition, support of equipments to DAFRC and beneficiaries is as follow:

- ❖ 1 Moisture machine at DAFRC
- ❖ 1 Coffee grander and coffee cooking pot (Makha pot)

- ❖ Castration machine (large and small) 2 and compound microscope 1 to Amar Rai
- ❖ 6 Pruning saw Masep Coffee farmers group
- ❖ Sketcher Masep Coffee farmers group
- ❖ Irrigation HDP pipe 1200 m to Masep Coffee Farmers Group

- **Establishment of contacts with major cooperatives and local and export buyers in Kathmandu**

The market contacts of local farmers under management of DAFRC for coffee and cash products sale in Kathmandu has been established. The contacts of local farmers in Kathmandu have been established in coordination Newa Estate Pvt. Ltd.

The RM level cooperative has been formed, especially for marketing of coffee, orange and fruits. Formation of cooperative will help farmers for easy market linkages, access to financial capital, certification and quality improvement.

For organic certification of coffee, an agreement with Organic Certification Nepal Pvt. Ltd conducted. The inspection of coffee by consultants visiting Deusa is done and certification is under process.

- **Establishment of sound linkages with relevant district line agencies**

District Agriculture Development Office (DADO) has been dissolved and agriculture extension services are mobilized through Rural Municipality Level in federal structure. Regular coordination with both rural municipalities has been regularly done for good linkages. Newly elected body of local government is very supportive to us and is very cooperative. Local farmers are encouraged for resource pooling and developing better linkages with local bodies.

In this fiscal year (2074/075), Thulung Dudhkoshi Rural Municipality has allocated NPR 15,00,000.00 for this project to extend the activities in wider range covering all 9 wards of RM. In addition, in leadership of chairperson of ward no 6, Mr. Ram Sangarsha Kirati, 4681 saplings of varieties of fodders and forages have been planted on the side to make the road from Bhulbhule to Deusa School green in support of RM.

DAFRC is working together with Prime Minister Agriculture Commercialization Programme in the project area. Sound liaison has been established with programme and other like-minded organizations. The local communities in initiation of DAFRC have received agriculture tools, thresher and coffee pulping machines.

- **Formation and institutionalization ward level DAFRC sub-committees**

The formulation of sub-committee is planned in 3rd year of Project implementation.

E. Significant Changes:

Timeframe Deviation: As per the project document and plan, all the programme activities have been accomplished except following two major activities remained unaccomplished:

- ❖ Exposure visits for local farmers to promote farmer-to farmer know how transfer
- ❖ Formulation of DAFRC Sub-committee in all wards

F. Monitoring and Evaluation of the project:

The project management has conducted several visits in the project area. Project implementation guidelines and orientation on conduction of activities (especially trainings activities) was delivered to the responsible staff by the project manager. The monitoring format and guidelines were provided to staff and he used to share the progress using prescribed format and feed backs on the implementation were given to him for effectiveness and tracking.

Co-Director Dr. Morgan Philips along with Programme manager Mr. Narayan Dhakal had field monitoring visit in Deusa and Waku in February, 2018. The programme management monitored the programme and provided valuable feedbacks on the programme implementation.

G. Difficulties

- Local people were disturbed by the province and central level election during peak hours of project implementation.
- Due to lofty engage of local communities in reconstruction of infrastructure, the training conduction became so difficult.
- Due to unavailability of nuts seedlings in nurseries, it was hard to find the seedlings and targeted seedlings were not transported to the project area.
- Due to early summer began; transportation of seedlings became challenge and expensive.

H. Lessons Learnt

- The farmer field school (FFS) approach became productive and field based practical training is effective for information and knowledge sharing.
- There is need of sufficient time for fully materialization of farmer field school approach. The limited period for tree cropping is too short, where project aimed to minimize the effects of climate change on agriculture, especially on tree cropping.
- Involvement of lead farmers as resource person enhances quick update of improved technologies among rural farmers. The trained resource person in bio-intensive plantation from Deusa and Waku are taking responsibility of helping hand in technology and skills transfer.
- If the programme is designed and implemented in accordance with community needs, local government encourages the organization with financial cooperation.