

Quarterly Report

EcoHimal Nepal

Project title: Climate Change Adaptation in Solukhumbu District	Project code:
Report by: EcoHimal Nepal	Month: August
Date: April-June	Year: 2019

A. Activities:

Following **activities** have been conducted from 1st April 2019 to the reporting period;

1. Physical upgrading of DAFRC

Construction of a High-Tec greenhouse for nursery has been completed in cooperation with Prime Minister Agriculture Improvement Programme – Orange Zone Implementation Unit, Deusa, Solukhumbu. The Greenhouse is in use for production of quality seedlings of fruits and other multiple varieties of vegetable seedling. Right in the moment, major part of green house is utilized for Banana seedling hardening.

The existing plastic tunnels and plastic pond in the premises of DAFRC have been repaired. Minor repair and maintenance has been done in the main building and Kitchen building.

2. Training of farmers on climate smart agricultural techniques

Training on bio-Intensive tree plantation to 12 local farmers was carried out in Deusa and Waku. The trained farmers are made skilled in bio-intensive pit preparation techniques and its importance. They have been competent on; 1 meter depth and 1 meter wide (1/1m.) plantation pit, usage of compost manure and other materials in different layer, plant spacing, companion planting, genetic diversity, use of water etc. During practical session of the training, a sample bio-intensive bed was prepared by the participants. Participants detail is in table 1 below.

Table 1: Participants in Bio-intensive training

S.N	Name of farmers	Gender	Remarks
1	Oja kedar Rai	M	
2	Shayam Kumar Rai	M	
3	Mekh Raj Tamang	M	
4	Arjun Rai	M	
5	Mansubi Rai	F	
6	Maina Kumari Rai	F	
7	Arjun kumar Rai	M	
8	Maniram Rai	M	
9	Kabirman Rai	M	
10	Bhim Raj Rai	M	
11	Narajit Rai	M	
12	Dinesh Kumar Rai	M	

3. Training of farmers in all aspects of crop growing

One day long training on organic nursery management was carried out in DAFRC for 17 farmers. Both theory and practical approach have been applied in the training and

demonstrated; green house construction and management, nursery bed preparation, nursery management, farmyard manure management and its application, organic pest preparation and its application for disease control and plant care. Table 2 details of participants.

Table 2: Participation in Bio-intensive training

S.N	Name of farmers	Gender	Remarks
1	Dikkumari Rai	F	
2	Rojina Rai	F	
3	Furwa Rai	F	
4	Jesmikala Rai	F	
5	Garbe Rai	M	
6	Harka B.K.	M	
7	Tenje Rai	M	
8	Dhanlaxmi Rai	F	
9	Fulmaya Rai	F	
10	Lama Rai	M	
11	Junamaya Rai	F	
12	Tankman Rai	M	
13	Maulimaya Rai	F	
14	Sukudhani Rai	M	
15	Dilmaya Rai	F	
16	Kumari Rai	F	
17	Garbajit Rai	M	

4. Sharing of expertise of DAFRC

DAFRC is well institutionalized and is recognized as farmers training centre in Solukhumbu. 3 days-long training on bio-intensive farming was organized by DAFRC in financial support of **Nepal Remote Villages Trust**. The Nepal Remote Villages Trust has coordinated with TGT and Dr. Morgan Phillips has facilitated for further cooperation. The training was facilitated by Mr. Hari Kumari Karki and Mr. Keshab Rai. Such training is beneficial for a shoestring income to DAFRC for its sustaining and allotment of practical knowledge and skill in wider public. The trainees were from Khotang district, Aiselukharka Rural Municipality, Jaleshowari ward number 5. Detail list of are as follow;

Table 3: Participats in Training in DAFRC

S.N	Name of farmers	Address	Ward no	Remarks
1	Mitrakala Rai	Aiselukharka	5	
2	Ashmita Rai	Aiselukharka	5	
3	mamaTa Rai	Aiselukharka	5	
4	Singita Tamang	Aiselukharka	5	
5	karna Bdr Giri	Aiselukharka	5	
6	Premchhiring Tamang	Aiselukharka	5	
7	Biraj Tamang	Aiselukharka	5	
8	Tanka Tamang	Aiselukharka	5	

9	ParshuRam Rai	Aiselukharka	5	
10	Sinjit Tamang	Aiselukharka	5	
11	Lovkumar Rai	Aiselukharka	5	

5. Procurement of seedlings materials and production of a wide variety of the most suitable species

A. Procurement of seedlings

Improved varieties of fruits and nuts seedlings have been distributed to the local farmers of Deusa and Waku village. In winter season, the programme management coordinated with various nurseries especially Everything Organic Nursery and Love Green Nursery, Kavreplanchowk for suitable seedlings. The feasibility/suitability of seedlings was defined by the Horticulturalist, Mr. Binod Puri during his research in May 2018 on geo climatic conditions for appropriate fruits and nuts in Deusa and Waku. In winter season, 126 seedlings of various fruits, nuts and ornamental plants were distributed to 13 local farmers.

Moreover, during this summer season, more 453 seedlings of various fruits, nuts and ornamental plants have been distributed to 29 local farmers. This year, total, 579 seedlings have been supported to 42 local farmers. (Detail of farmers, seedlings supported is in [Annex 1](#)). Likewise, for forthcoming winter season, seedlings of fruits and nuts have been ordered, varieties of seedlings booked and finalization of numbers of seedlings on the basis of budget volume will be done after this summer.

The survival status of planted seedlings of local farmers is satisfactory. In total, 77.89% (451 out of 579 seedlings) are active where as 3.28% (19) are dormant and 18.83% (109) has been died. (Detail is in [Annex 2](#))

To promote resilience and climate smart agriculture, coffee banana intercropping (CBI) is under plan. In coordination with Central Horticulture Centre, Tribhuvan University and in cooperation with Nepal Biotech Nursery Pvt.Ltd, 14,400 banana seedlings (2 improved varieties – G9 (5,600) and William (1,800) and one local malboro (7,000) banana species) cultivation is planned. Till the date, 7,400 seedlings (2 improved varieties – G9 (5,600) and William (1,800)) have been under hardening process in DAFRC, Kangel and Panchan satellite nurseries. More 7,000 malboro banana seedlings will be transported to the site with in August, 2019. A detail is as follows:

Table 4: Banana Seedlings Hardening Status

Villages/Ward	Varieties of Banana				
1. First Lot					
	G-9	William F1	Malabo	Total	Current status
Deusa-8	2000	0	0	2000	Survived Seedling: 1800 Dead Seedling : 200 Height of Seedlings in average : -9 inch
Sub-Total	2000	0	0	2000	
2. Second Lot					
DAFRC	2700	900		3600	Recently transported in the targeted area.
Panchan	600	600	0	1200	
Kangel	300	300	0	600	

Sub-Total	3600	1800	0	5400
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CBI will increase the productivity, compared to mono-cropped banana or coffee, without affecting coffee yield. Bananas make coffee production systems more diverse, reducing risk of dryness. In terms of resilience, bananas provide valuable shade coverage for highly climate-sensitive coffee crop. In addition, bananas are capable of remaining hydrated under drought stress, reducing water competition during drought, compared to other shade trees.

B. Production of seedlings

DAFRC is producing and distributing the seedlings of vegetables, fruits, nuts, fodders, forage, forest trees and other plant species. DAFRC succeeded to produce 61,311 seedlings of 33 different varieties during this reporting period. Out of produced seedlings, 17,800 have been sold at local level and 43,511 are yet to be sold. (Detail is in [Annex 3](#)) DAFRC is generating income from the production and sale of seedlings at local level. The actual income is under process of calculation by DAFRC.

6. Capacity building of farmers on integrated pest management and diseases control Organic Fertilizer (OF) Production and Use

- i. One day long training on production and use of organic fertilizer (OF) has been conducted in DAFRC. The training was focused to enhance skill of local farmers for vegetable farming. The training was executed in a participatory way; where participants were given time to share their experiences and skills. It was an interactive training to correct the malfunction practice that farmers are applying unknowingly. As an example; one farmer shared that he used to apply fresh buffaloes dung directly into vegetables as fertilizer, which is wrong and harmful to the plants. Here, he learned how to prepare farmyard manure and its correct application that benefits both crop and environment. Similarly, the practice of keeping farmyard manure opened in the field for a long time without protection it inside the soil. Such types of practical interactive training are being more useful. Details of participants are in table 5.

Table 5: Participation in training on OF

S.N	Name of farmers	Address	Gender	Remarks
1	Lokendra Rai	Thulung Dudhakoshi-7	Male	
2	Arinjit Rai	Thulung Dudhakoshi-7	Male	
3	Dak Bdr Rai	Thulung Dudhakoshi-7	Male	
4	Ang Rinje Rai	Thulung Dudhakoshi-7	Male	
5	Bandana Rai	Thulung Dudhakoshi-7	Female	
6	Mansubi Rai	Thulung Dudhakoshi-8	Female	
7	Prasna BDr Rai	Thulung Dudhakoshi-8	Male	
8	Binamaya Rai	Thulung Dudhakoshi-8	Female	
9	Subhalaxmi Rai	Thulung Dudhakoshi-8	Female	
10	Sabina Rai	Thulung Dudhakoshi-8	Female	
11	Susma Rai	Thulung Dudhakoshi-8	Female	
12	Sunadhan rai	Thulung Dudhakoshi-7	Male	
13	Dhankumari Rai	Thulung Dudhakoshi-8	Female	

14	Aman Rai	Thulung Dudhakoshi-8	Male	
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- ii. one day long 2 trainings on integrated pest management (IPM) were carried out in Deusa and Waku village. Participants were educated on the methods and remedies to pests' prevention, control together with technical knowledge on; crop management, methods of pest management, importance and benefits of IPM in organic farming. All together 23 participants (12 from Waku and 11 from Dusa), were participated in the training. Details of participants are in table 6. In the first phase we are able to establish 6 more nurseries. Still two more nurseries are yet to be established to cover the entire TDRM.

Table 6: Participation in IPM training

S.N	Name of Participants	Address	Gender	Remarks
1	Dinesh Kumar Rai	Mapya Dudhkoshi-6	Male	
2	Bhim Rai	Mapya Dudhkoshi-6	Male	
3	Dikshor Rai	Mapya Dudhkoshi-6	Male	
4	Nawalsing Rai	Mapya Dudhkoshi-6	Male	
5	Bishal Rai	Mapya Dudhkoshi-6	Male	
6	Arjun Kumar rai	Mapya Dudhkoshi-6	Male	
7	Surya BK	Mapya Dudhkoshi-6	Male	
8	Bal bdr Rai	Mapya Dudhkoshi-6	Male	
9	Lalchan Rai	Mapya Dudhkoshi-6	Male	
10	Prashna BDr Rai	Mapya Dudhkoshi-6	Male	
11	Purna Bir Rai	Mapya Dudhkoshi-6	Male	
12	Ram Bdr Rai	Mapya Dudhkoshi-6	Male	
13	Rajkumari Rai	Thulung Dudhkoshi-8	Female	
14	Nirmala Rai	Thulung Dudhkoshi-8	Female	
15	Simon Rai	Thulung Dudhkoshi-7	Male	
16	Yaster Rai	Thulung Dudhkoshi-8	Male	
17	Susma Khatri	Thulung Dudhkoshi-7	Female	
18	Dhak Bdr Khatri	Thulung Dudhkoshi-7	Male	
19	Sau Bdr Khatri	Thulung Dudhkoshi-7	Male	
20	Maniram Rai	Thulung Dudhkoshi-8	Male	
21	Susma Rai	Thulung Dudhkoshi-8	Female	
22	Bandana Rai	Thulung Dudhkoshi-8	Female	
23	Sabina Rai	Thulung Dudhkoshi-8	Female	

7. Establishment of satellite nurseries

The joint initiation of TDRM, TGT, EcoHimal and AFRC to established Satellite nurseries in each ward is in progress. The summary of the progress in each nursery is presented in table 7 below.

Table 7: Progress of satellite nurseries

S.N	Activities conducted	Achievements	Remarks
1	<u>Ward no 9: Lokhim</u>	• Received guarantee paper of 5 ropani -	

	Regular coordination and monitoring with local farmers, stakeholders and ward chair	<p>508 Square meters - land</p> <ul style="list-style-type: none"> Fodders and fruits nurseries established - ipilipi, Mendola and fruits seedlings are produced in nurseries. Construction of plastic tunnel is almost completed. A committee for satellite nursery has been formed and is working Construction of plastic pond – 90% of works completed Mother plants for fruits are planted 	
2	<p><u>Ward no 5: Jubu</u> Regular follow- up, monitoring, orientation and training on satellite nurseries establishment</p> <p>Regular coordination with local government</p>	<ul style="list-style-type: none"> Received Guarantee paper (Manjurinama) by ward office. Land has been labelled for nurseries establishment. A plastic pond construction completed. Construction of green house is almost completed. Land labelling and site clearance for house construction has been completed. Nurseries of forest and fruits have been established. Root stocks of Kiwi have been prepared. 	
3	<p><u>Ward no 2: Kangel</u> Regular coordination and meetings with ward committee, lead farmers and stakeholders</p>	<ul style="list-style-type: none"> Registered 3 ropani of land for satellite nursery. Guarantee paper (Manjurinama) has been received by ward office. Construction of a green house completed Construction of a plastic pond is ongoing Appointed Mr. Gokarna Basnet as nursery caretaker. Nurseries of fodders and forage established (seedlings of Ritha, ipil ipil, mendola). Rootstocks of peach are prepared. Banana seedling hardening (600 Plants) 	
4	<p><u>Ward no 6: Mugli</u> Regular coordination, meetings with ward committee and follow-up as well as close monitoring carried out</p>	<ul style="list-style-type: none"> Received Guarantee paper (manjurinama) of land Construction of a green house completed Construction of a plastic pond completed 	

		<ul style="list-style-type: none"> Nurseries of fodders and forage established (seedlings of Ritha, Ipilipil, Mendola). Rootstocks of peach are prepared. Mr. Raghu Lama as nursery caretaker appointed 	
5	Ward no 3: Panchan Regular coordination and follow up carried.	<ul style="list-style-type: none"> Land has been registered under ward ownership for satellite nurseries establishment Mr. Laxmi Roka as nursery caretaker, appointed by ward office A green house has been established. Forest and fruit nurseries have been established 1200 banana seedlings are kept for hardening Around 500 seedlings of Moringa and Ipilipi are ready for sale 	
6	Ward no 7: Deusa Regular coordination and follow up carried.	<ul style="list-style-type: none"> Land labelling for nursery establishment completed Construction of plastic pond is almost in progress A plastic pond is planned but not started Nursery beds have been prepared for establishment of nurseries 	

7 satellite nurseries including DAFRC have been supported with necessary agri-materials, tools, vegetable seeds, plastics for greenhouse and pond construction. Detail of goods supported to satellite nurseries is in [Annex 4](#).

8. Establishment of demo plots

AFRC and subsequent dissemination and extension (Hazelnut and Coffee)

In coordination with Helvetas Swiss Incorporation Nepal under Bhutan Mountain Hazelnuts Project, the 430 hazelnuts plants were planted. Till reporting period 401 plants are in existence and are under demonstration in Deusa village. The growth and survival status of planted hazelnut seedlings are regularly being assessed. Regular irrigation, manuring and weeding is done. Till the reporting period, out of 430 samplings planted 353 are active, 42 are dormant, 6 are inactive and 29 are decayed. (Detail report is in [Annex 5](#))

Among the planted 5 varieties of the hazelnuts, the tallest variety is Yellow (A) with average height 43.5 inches and shortest variety is Cochlet (P1) with average height 27 inch. The detail is in [Annex 6](#).

9. Market linkage and supply of coffee produce

Annual supply of coffee establishing the market contacts of local farmers in Kathmandu under management of DAFRC for coffee sale is motivating the local farmers in preservation

and promotion of coffee plants in their field. The contacts of local farmers through DAFRC in Kathmandu have been established with Newa Estate Pvt. Ltd. The programme management in coordination with DAFRC has become successful to supply 995 kg parchment to Newa Estate Pvt. Ltd from this year harvest. About 144 kg parchment is collected at DAFRC and ready to send to Kathmandu.(Detail of farmers with quantity of parchment is in [Annex 7](#)). Many vender came to village to collect coffee fom the farmers field. So that many farmers are able to sale their coffee from their home. It shows that both in kathmandu and local collector assuered the sustainable market of coffee in future. The further concern is production and quality imporvement. However; farmers are selling parchment and the major chunck of the price is still outside of the producer. The necessity to end-user product is the challange of the proiect for fair price.

10. Establishment of cooperative to oversee the development of enhanced tree crop production and product marketing

Registration of cooperative - *Sustainable Organic Coffee, Orange, and Fruits Cooperative Limited*, is completed. The cooperative has been registered in local government. This is the first cooperative registered in Thulung Dudhkoshi Rural Municipality. The cooperative members have collected around NRs. 150,000 as a revolving fund till the reporting period.The further institutionalization of cooperative will ensure easy market linkages, access to financial capital, certification and quality improvement.

B. Success stories

The joint project with TDRM to established replica of DAFRC is one of the successes. The work-in-progress is satisfactory. TDRM mayor requested a complete agriculture plan draft from EcoHimal. We prepared a draft and sent before RM annual RM council meeting. It was presented by the Mayor in the meeting (palika Parisad) and some of the activities of the plan are addressed by the plan. Similarly, Mahakulung Rural Municipality Mayor visited the DAFRC in coordination with EcoHimal and requested to prepare a plan. On the basis of our purposed plan, they have allocated budget for this fiscal year to establish a resource centre in the RM. As our success, the replication of AFRC is continuing in neighbouring RMs and districts i.e Bhojpur. In other hand, local government is requesting our expertise in landscape suitable agriculture and climate change adaptation.

C. Difficulties

N/A

D. Deviation from the working plan

Two satellite nurseries are yet to be setup in TDRM.

E. Next steps

1. Institutionalization of satellite nurseries
2. Cultivation of marginal land for fodder and forage cropping in before starting of summer
3. Procurement, transportation and distribution of varieties of seedlings
4. Strengthening of cooperative, may be a cooperative management training
5. Weeding, intercropping in Hazelnut demonstration orchard
6. Training on farmyard manure
7. Pest management training

8. Seed and seedlings procurement and distribution
9. Continuation of climate smart agriculture training
10. Continuation of regular monthly farmers training

F. Remarks

- Three meeting with TDRM Mayor, Mr. Ashim Rai in Kathmandu for current situation, landscape suitable agriculture promotion, planning and review of the joint project.
- Meeting with Mayer of Mahakulung Rural Municipality, Mr. Sagar Kirati, in Bung and Kathmandu. He has visited our AFRC and requested for a similar draft plan. Based on our draft, they have planned a model resource centre in the RM.
- Meeting with lead farmer of Bhojpur-Dovan. He heard about the success of AFRC and requested for concepts and ideas of AFRC.
- EcoHimal Nepal became member of Coffee Sub-Sector Working Group (CSWG)-constituted by National Tea and Coffee Development Board (NTCDB), Government of Nepal with major objective to build strong coordination and collaboration amongst the stakeholders. Moreover, we have participated in Coffee Enterprises Summit, organized by NTCDB from April 15-16 in Kathmandu.
- **Project visit by TGT trustee Mr. Andy Rutherford:** Andy has visited AFRC and STC project area in March/April 2019 and provided valuable insight. He has highly motivated staff members and management staff providing valuable inputs. Also he has brought cash crop sample including coffee to UK and handed over to the concern parties. Continuation of that he has sent 4 sets of best quality grafting tools to DAFRC. Hari is using those tools for grafting. Such visit from TGT always beneficial for project and staff members.
- TGT Higher education programme: Two Masters students from University of Southampton UK and two students from Tribhuvan University, Nepal have done research in Deusa for master's thesis. The Research is focused on coffee value chain and socioeconomic development considering climate change and adaptation. The report of TU students is in [annex 8](#).