

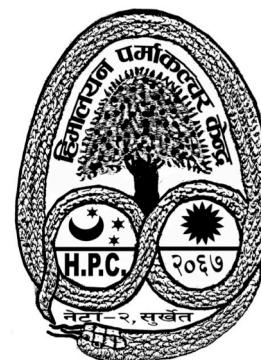
# Himalayan Permaculture Centre

[www.himalayanpermaculture.com](http://www.himalayanpermaculture.com)

*Building Livelihoods for Household and Community Resilience*

6-month Report

Date of this report: April 2017



## Introduction and background

This is the third report of the **Building Livelihoods for Household and Community Resilience** program, which follows on from 4 years or KCF-supported programs, and continues to build on successful past activities while having an emphasis on building livelihood strategies for villagers in the working areas. These strategies are also aimed at being a model for wider replication and application of HPC's working methods and approaches.

Details of achievements over the current reporting period from November 2016 to April 2017 are provided. Details of specific outputs are provided in the various Annexes attached to this document.

## Working Areas

An updated summary of groups' names, locations and demographics is given below.

		Households	Women	Men	Total
<b>Surkhet</b>	2 VDCs, 10 villages	168	529	604	1133
<b>Humla</b>	3 VDCs, 11 villages	266	785	822	1607
<b>Total</b>	5 VDCs, 21 villages	434	1314	1426	2740

These figures represent the demographics of the villages that have been registered with HPC as participating villages. They do not include the new villages that have requested participation, where HPC staff and barefoot consultants have started to work. Details of activities in these new villages is included in the report below and in the attached annexes, but are kept separate where possible.

Details of the new villages are as follows:

		Households	Women	Men	Total
<b>Surkhet</b>	2 VDCs, 4 villages	98	272	305	577
<b>Humla</b>	1 VDC, 7 villages	309	887	892	1779
<b>Total</b>	5 VDCs, 11 villages	407	1159	1197	2356

This gives a total as follows:

		Households	Women	Men	Total
<b>Surkhet</b>	2 VDCs, 14 villages	266	801	909	1710
<b>Humla</b>	3 VDC, 18 villages	575	1672	1714	3386
<b>Total</b>	5 VDCs, 32 villages	841	2473	2623	5096

## ACTIVITIES

### 1. FOOD SECURITY PROGRAM

**Food Security** is a key objective of HPC's program, through proactive use of the 3 resource centres in Surkhet, Humla and Kathmandu for demonstration and training purposes, as well as farmers' own demonstrations in their villages established or initiated during earlier programs. HPC provides materials to new groups, and stakeholders are trained in a range of techniques from stove-building, kitchen gardening and fruit tree grafting to micro-credit fund and forest management. The project also focuses on livestock improvement through provision of improved breeds and training in basic animal health and disease prevention. Introduced livestock is part of an overall breed improvement objective and participating farmers are expected to provide offspring for distribution. Small-scale irrigation from local water sources through sprinkler irrigation helps to increase productivity of kitchen gardens, orchards and staple grain.

#### 1.1 Resource Centers (RCs)

##### **RC production – Surkhet & Humla**

At the 1700m altitude **Surkhet RC** in Baragaun village, establishment started in 2010 with the acquisition of an acre of land and building of the farmhouse. Over **170kg of vegetables** have been harvested from the terraces amongst agroforestry systems that have yielded nearly **800kg of fodder** (from mulberry, napier grass and Broom grass) and **130kg of firewood** over the past 6 months, while in new fodder grass planting over 300 new lemon grass, comfrey and napier grass seedlings have been established and **5 grafted fruit trees** (pear and cardamom) have been planted, along with **16 medicinal herbs** including Aloe vera, Mints and other local varieties. A further **77 new fruit trees** have been grafted in the RCs fruit nurseries. In December Surkhet's first flexi-biogas demonstration was installed by Kenyan expert Dominic at Baragaun RC.

At the **Humla RC** (2300m) in Dapka village of Madana VDC, **19 grafted fruit trees** and various multi-purpose trees and shrubs have been established and over **1500kg of vegetables** and grains have been harvested, including potatoes, pumpkins, corn, garlic, cauliflower, cabbage, onion, tomato, mustard greens, aubergine, taro, daikon radish, onion, chilli, cucumber, carrot and coriander. From the nurseries **120 grafted plants and perennial shrubs and vegetables** and 34 fruit root stock have been distributed. A further 46 fruit trees have been grafted.

##### **Sunrise Farm**

Sunrise Farm (SF) on the outskirts of Kathmandu has continued to play its role as a contact hub for HPC in the capital as well as coordinating other related programs. The farm was seriously damaged the earthquake of April 2015 and a crowdfunder was successful in raising the amount needed to repair and rebuild the farm into an active demonstration and training hub once more. In November it hosted a Lime Stabilized Soil training led by UK experts Bee Rowan, Stafford Holmes and Qazafi from Pakistan. This looked at lime as a cement substitute which is breathable and has a much smaller carbon footprint. Demonstration plasters and structures were made. Lime plaster was then used on parts of the repaired farmhouse & buildings. In total 24 people from Nepal and several other countries, including 2 from HPC Surkhet attended the training, which was co-hosted by Natural building specialists [Abari](#). Abari are partners in the [Building Resilience Through Recovery](#) (RTR) project, a response to the Earthquake of April 2015 co-funded by Lush UK ([SLush Fund](#)) and where 4 barefoot consultants (BCs) from HPC are currently working providing training and support to 2 villages in Nuwakot and Kavre districts near Kathmandu.

In December SF hosted Nepal's first training in flexi-biogas systems and one system was established at the farm. This program is supported by [IFAD](#) (International Fund for Agricultural Development, the Agriculture wing of FAO) who supported Kenyan flexi-biogas expert Dominc Wanjihia and technician Julius of [Biogas International](#) to travel to Nepal to install a total of 11 pilot systems around Kathmandu and in Surkhet and Dailekh districts, including HPC's RC at Baragaun and IFAD's ASHA program. IFAD will be responsible for monitoring the performance of the systems, which have been placed at different altitudes between 640-1940m. Although installed in the coldest time of year, by January all systems were starting to produce enough gas for an average of 3 hours cooking per day. More details are given below in **4.12**.

During this reporting period there have been 37 day visitors to SF (18 Nepali, 19 non-Nepali) and 72 on farm stay (through WWOOFing, StayAway, Helpex, etc.)

On the farm meanwhile over 250kg of various vegetables and fruit have been recorded, including salads and greens, pulses, brassicas, guava, mulberry and coffee. In addition the farm cow has produced 4 litres per day of pure organic milk.

## 1.2 Farmers' demonstrations

HPC supplies various basic tools to farmers' groups enabling them to implement activities in their villages. These include grafting knives, secateurs, irrigation pipe, sprinklers and plastic for hot beds and small polytunnels.

As a result of demonstrations at the RCs and in farmers' fields and various training opportunities (see below 1.3), groups are involved in implementing various types of practical work in their houses and fields to increase household self reliance. A summary of all practical work carried out in the groups from November to April is as follows:

### Farmers making integrated demonstrations

Practical Activities	Nov 2016-April 2017		
	Surkhet	Humla	Total
<b>No: households implementing</b>	363	575	<b>938</b>
House hygiene	260	390	<b>650</b>
Stove	14	396	<b>410</b>
Toilet	26	557	<b>583</b>
Grinder	260	285	<b>545</b>
Water pot	244	388	<b>632</b>
Hay box	11	1	<b>12</b>
Sweepings	105	235	<b>340</b>
Waste water management	45	381	<b>426</b>
Plate/pot rack	111	186	<b>297</b>
Compost	45	7	<b>52</b>
Fodder trough	1	24	<b>25</b>
Salt lick	82	52	<b>134</b>
Kitchen garden/vegetables	208	51	<b>259</b>
Mulching	18	3	<b>21</b>
Liquid manure	66	26	<b>92</b>
hot bed	22	34	<b>56</b>
Leaf pots	43	2	<b>45</b>
Home nursery	51	0	<b>51</b>
Fruit nursery	71	71	<b>142</b>
Air nursery	14	0	<b>14</b>
Off season onions	5	43	<b>48</b>
Grafting	34	6	<b>40</b>
Budding	0	0	<b>0</b>
Top grafting	21	0	<b>21</b>
Air layering	31	0	<b>31</b>
Pot irrigation	24	43	<b>67</b>
Orchard	2	89	<b>91</b>
Agro-forestry	16	8	<b>24</b>
SRI	27	44	<b>71</b>
Green manures	0	0	<b>0</b>
No till	0	0	<b>0</b>
Bamboo cuttings	5	0	<b>5</b>
Improved plough	265	23	<b>288</b>
Fruit tree Pruning	58	210	<b>268</b>

Greenhouse	0	18	<b>18</b>
Biomass compost	1	8	<b>9</b>
Double digging	10	0	<b>10</b>
Urine collection & use	13	13	<b>26</b>
Seed production	0	18	<b>18</b>
Fruit tree planting	7	16	<b>23</b>

Most of these activities are illustrated in the [Farmers' Handbook](#), a key training tool used by HPC.

### Barefoot consultants

HPC continues to facilitate the production of farmer-trainers, which it calls “barefoot consultants” (BCs) to be able to outreach to villages and programs outside of its project area. In addition to the activities of 13 BCs detailed in the previous report, a further 5 have been involved in training in new villages in Humla, and 3 BCs have started work outside of Surkhet. Of these 2 are on a 9-month consultancy in the remote villages of Linjo and Puru in Dhading district. Linjo was also seriously affected by the 2015 earthquake, and a program supported by KAAA is facilitating villagers in **85 households** to establish integrated apple orchards, with a target of **600 apple trees** plus a diverse mix of other fruit, nut and companion trees and shrubs. BCs here have been establishing the first fruit trees while also training villagers to grow their own trees through nursery establishment and grafting. Finally a BC has been seconded to another earthquake-affected village in Sindhupalchowk district, Gurun Gaun of Bhotenamang VDC, where **105 households** have been registered with the government for earthquake relief distribution.

### Fruit and multi-purpose tree production

#### Grafting fruit trees

Over the winter season over 3700 fruit trees have been grafted in village nurseries of Surkhet and Humla, as follows:

Species	Apple	Pear	Peach	Plum	Apricot	Walnut	Almond	Cherry	Total
No:	840	414	583	500	327	405	563	55	<b>3707</b>

In addition over **500 fruit trees** have been “**top worked**” where improved varieties of pear, peach, plum, almond and cherry have been grafted onto wild root-stock growing around farmers’ fields. A further **196 seedlings** of various citrus, guava, pomegranate, pear and plum have been produced by “air layering”.

#### Planting fruit trees and shrubs

In Surkhet a total of **792 fruit trees and shrubs** have been planted over winter, and in Humla a total of **1358 fruit trees** have been distributed and planted. Plants include Cardamom, walnut, Kiwi fruit, plum, pear, sugar cane, peach, apricot, hazel, strawberry, lime, lemon, almond and apple.

#### Agroforestry planting

In addition to fruit, various multi-purpose trees and shrubs have been established in farmers’ fields for fodder, fuelwood and biomass production as part of agro-forestry design. In Surkhet over **550 trees and shrubs** have been planted, and in Humla **198** have been planted. Species include honey locust, bakaino (relative of Neem), comfrey, napier grass, broom grass, various *ficus* species, bamboo, and mulberry.

#### Community Funds

Each group collects a monthly sum from each member household towards a micro-credit scheme where loans are provided for local business start-up or domestic need. This reporting period’s audit is summarised below:

	Loans given	Expenses	Cash	Total NRs	GB£ eq.
Humla	127,860	5,693	33,399	<b>166,952</b>	£1,285
Surkhet	1,168,795	50,812	26,706	<b>1,246,313</b>	£9,590
<b>Total</b>	<b>1,296,655</b>	<b>56,505</b>	<b>60,105</b>	<b>1,413,265</b>	<b>£10,875</b>

Loans were dispensed to **184 households** (149 Surkhet and 35 Humla) for reasons including livestock purchase, school books, medical needs, marriage, business and domestic needs.

### 1.3 Farmers' Training

Different formats of farmers' training have continued since the last reporting period. There are 3 main formats: residential 5-day farmers training held at the Resource Centres (RCs); mobile 3-day trainings held in the villages, and short single-topic trainings of 30 minutes to a few hours, which may be held at the RC or in the villages. Topics are decided depending on season and stakeholder needs. Mobile trainings may be general or for specific topics such as livestock health (see below 1.4) or women's health (see below 2.1).

A training summary is below:

Surkhet	No: Trainings	Days	Participants		
			Women	Men	Total
Residential Farmers' Training	1	5	6	10	16
Video training	1	5	1	7	8
Technical Trainings	19	7	37	58	95
Gender training	1	5	5	9	14
Mobile Farmers' Training	4	12	20	56	76
<b>Total</b>	<b>26</b>	<b>34</b>	<b>69</b>	<b>140</b>	<b>209</b>

#### Humla

Residential Farmers' Training	1	5	10	14	24
Mobile Farmers' Training	7	17	74	60	134
Technical Trainings	36	21	153	172	325
<b>Total</b>	<b>44</b>	<b>54</b>	<b>237</b>	<b>246</b>	<b>483</b>
<b>Total All Areas</b>	<b>70</b>	<b>77</b>	<b>306</b>	<b>386</b>	<b>692</b>

### Slide and Film shows

Slide and film shows have been shown to village groups using HPC's solar-charged pico-projectors. A total of **16 shows** have been provided to **100 women and 122 men**. Shows have included soil management, integrated pest management, green manures and orchards, and new videos produced by HPC themselves on seed saving, agro-forestry, liquid manure and women's health have also been shown.

### 1.4 Livestock

HPC's Livestock program encompasses 3 main areas: farmers' training, stock treatment and provision of improved breeds. Training has been on-going as part of HPC's integrated farmers' training (5 days), as part of 3-day mobile training and as specialist 1 to 3 day courses. These courses are now largely taught by barefoot consultants that have been trained in livestock health.

In this period in Humla treatment for internal and external parasites and wounds have been provided to 305 livestock comprising bulls, cows, buffalo, sheep, goats and horses. A further 28 ox and goats have been castrated.

### Improved breeds of livestock

In this reporting period a **bull buffalo** (*Rango*) has been provided to Dhakal Samaj Sudhar group in Gallabada village of Humla, and a **breeding male goat** each to Jana Jyoti group of Pakhapani and Namuna group of Neta village in Surkhet.

### 1.5 Irrigation

HPC has been surveying villages for provision of gravity-fed irrigation systems, comprising collection by pipe of spring/stream water into plastic lined tanks, and gravity distribution again by pipe from the tanks to crop growing areas below the tanks. In this period 3 systems have been completed and 1 is still in process for a total of **57 households** comprising **161 female** and **184 male** beneficiaries, irrigating an area of over **16 hectares**. Villagers provide portering of pipe and materials and all labour involved to dig pipelines and tanks – in total **211 person-days** for the 3 systems so far.

## 1.6 Appropriate Technology

In this program new technologies that aim to reduce labour/increase productivity are being acquired and tested by HPC's farmers. They include a foot-pedalled millet-hulling machine, a foot-pedalled rice/wheat thresher, 2 types of hand-operated maize huller, and a jab planter for planting maize and other large seeded crops through mulch.

To date **10 maize de-hullers** and **2 jab planters** have been supplied in Humla and are undergoing trials to test their efficacy.

## 2. HEALTH PROGRAM

### 2.1 Women's Health Program (WHP)

HPC's Women's Health Program works around 3 main activities: training, health camps and networking. Women's Health Training (WHT) takes place through residential 5-7 day trainings at the resource centres and mobile 3-day courses run in the villages. Short half to 1 day trainings and workshops are also provided.

Women's Health Camps (WHCs) have taken place each year in both districts and involve a trained team of specialists providing diagnosis, counselling, treatment and referral services as well as educational classes to attendees of the camps.

The Women's Health Network (WHN) involves meetings between women active in the trainings and camps where they discuss issues, develop strategies and plan events including the WHTs and WHCs

### Women's Health Training (WHT)

In Surkhet and Humla 6 Mobile Women's Health Trainings (3 days each) have been provided for a total of **184 women**. A full WHT was due to be held in Surkhet at Baragaun RC but was prevented temporarily due to the elections. It will now be provided in the next reporting period. Meanwhile, A 5-day **Gender training** has been provided for **5 women and 9 men**. Topics included:

- Gender differences between male and female – physical and habitual
- Gender-related violence & its effects on family, community & development
- History of development: roots of gender & caste discrimination and violence against women (VAW)
- Child marriage, caste influences,
- Discrimination against menstruating women & girls and pre- & post-natal women
- Conflict resolution in communities – routes of action at village/VDC level
- Laws and rights around gender discrimination and VAW
- Government strategies & programs to promote women's rights and prevent gender discrimination and VAW at national, district & VDC level
- Roles of community in advocacy
- Workplan for action by the group to hold further discussion and develop programs to make the work effective

A 3-day **Nutrition training** has also been provided for **25 women** from Surkhet groups, hosted by Hariyali group in Khalikharka, Rajena. Topics included

- Reasons for disease
- People's nutritional needs
- Benefits of Organic food
- Components of a balanced diet
- Hygiene

### Women's Health Camp (WHC)

In this period a WHC was due to be held in Surkhet but due to local elections the authorities have not permitted this to be implemented (the excuse is that the camp will be run for political gain!). The authorities had also tried to prevent the WHT from running but staff and village representatives lobbied hard to be able to implement it.

### Baragaun Health Post Support

Meanwhile HPC has provided support to the local health post in Baragaun, with materials and infrastructure support. As a result the Health Post has been able to provide health services to **346** villagers (**189 female and 157 male**) for a range of issues from urinary tract infections and gastric ulcers to burns and skin parasites and pregnancy tests.

### Women's Health Network (WHN)

WHN meetings have been held in Surkhet and Humla (2) for 14 and 23 women members respectively over the past 6 months. At the meetings the members review and plan activities and listen to stories of both achievements and challenges from the villages.

### 2.2 Drinking Water

HPC has used its traditional method of non-cement tanks to capture springs before piping water through break tanks to tap stands in the villages. The drinking water is integrated with irrigation for nurseries and kitchen gardens from the tap stands, both through attaching pipe to the taps to run sprinklers, and through directing waste water by gravity to land adjacent to the tap stands.

In this period 5 drinking water systems have been constructed in Rajena VDC of Surkhet. The 5 systems have provided drinking water to a total of **50 households** comprising **133 female and 157 male beneficiaries**. In addition **615 livestock** (cow, buffalo and goat) have benefitted from the availability of water close to their stock pens.

Beneficiary villagers provide portering of pipe and materials and all labour involved to dig pipelines and build tap stands – in total **185 person-days** for the 5 systems have been contributed.

## 3. EDUCATION PROGRAM

### 3.1 Practical Literacy Classes

This activity involves running practical literacy classes in Humla and Surkhet. The PLCs combine Freirian literacy principles with HPCs unique collection of practical activities based on the Farmers' Handbook (FHB), an easy-to-read compendium of over 40 farmer-friendly methods to increase domestic household and farm productivity. PLC participants learn letters and words, and later sentences, that form topics from the FHB such as stove, nursery, toilet, hygiene, diet, fruit tree grafting, etc. At the same time as developing their literacy skills, they also apply the methods in their own houses and fields.

**Three PLCs** (1 in Surkhet and 2 in Humla) are currently in process. In total **76** villagers were enrolled in the PLCs (**73 women and 3 men**).

	women	men	total
Surkhet	18	1	<b>19</b>
Humla	55	2	<b>57</b>
<b>Total</b>	<b>73</b>	<b>3</b>	<b>76</b>

### 3.2 Schools' Program

HPC continues to provide infrastructure and curriculum support to schools in its working areas. In Surkhet, Pakhapani Primary school has had further support plastering remaining classrooms. Training has been provided to classes in personal hygiene, drip irrigation, sweepings pits and waste management/recycling as follows:

Village	Group	Girls	Boys	Total
Khalikharka 6-Rajen	Hariyali Krishi	15	18	<b>33</b>
Khaltakura-3, Neta	Jagaran Krishak	28	4	<b>32</b>
Subbatol-7, Rajena	Jana Sahayogi	5	11	<b>16</b>
	<b>Total</b>	<b>48</b>	<b>33</b>	<b>81</b>

### 3.3 Education materials

In this period 24 types of educational posters have been produced for use in trainings, including about Fruit Nurseries, Integrated Orchards, Women's Health, Agro-forestry and Liquid Manures. A brochure about HPC has also been produced.

## 4. LIVELIHOODS PROGRAM

### 4.1 Beekeeping

In the beekeeping program training has been provided to 2 groups on how to make improved beehives – one group on Newton hive and one group on Top-bar hive construction. A total of 31 farmers participated (27 men and 4 women), and 2 Newton hives and 9 Top-bar hives were constructed.

A total of **517.5kg** of honey was produced by beekeepers trained by HPC, comprising **300kg** from improved (Newton and Top bar) hives, with a market value of **NRs 310,000/- (€2,385)**

### 4.2 Vegetable seed production

Villagers are currently involved in sorting and packing seed saved over winter, so varieties and amounts will be detailed in the next report.

### 4.3 Cotton Growing & Processing

In one of the most ambitious of HPC's new programs, **18 farmers** have successfully raised crops of high quality organic cotton on small plots, enough to produce seed for continued and expanded planting this year. This has been possible thanks to the training from a UK-based organic cotton growing expert who visited HPC areas 5 times over the year to facilitate the selected farmers to grow and manage the crops from land-preparation to harvest. Planting of the cotton was delayed due to a drought and late onset of the monsoon, but crops grew well and ripened late but have been harvested and seed stored for the coming season. A small mobile ginner has been acquired from India to speed up

### 4.4 Mills

A new multi-purpose mill has been surveyed for Pragitshil Krishak group of Salghari village, and acquisition of materials has begun. Construction will be completed in the next reporting period.

### 4.5 Oil Processing

Hand-operated oil expellers have been in use in Humla where it has been recorded that 1kg of mustard seed produces 400g oil. There are currently 6 machines being used with 4 more awaiting distribution.

### 4.6 Herbs development stage 2

This program involves setting up a distillation unit for lemon grass and other herbs grown or to be grown in Surkhet. It has been delayed from last year due to restrictions placed on HPC by the government and also by the Indian embargo. Currently, village groups have formed a cooperative to oversee the development of this activity, and have decided a location for the distillation mill and started construction. Meanwhile HPC has been negotiating with the district handicrafts office, which has committed to providing a 45-day training for 4-5 villagers in herbs processing. HPC is also hoping they will supply hardware for the mill but this is still under negotiation.

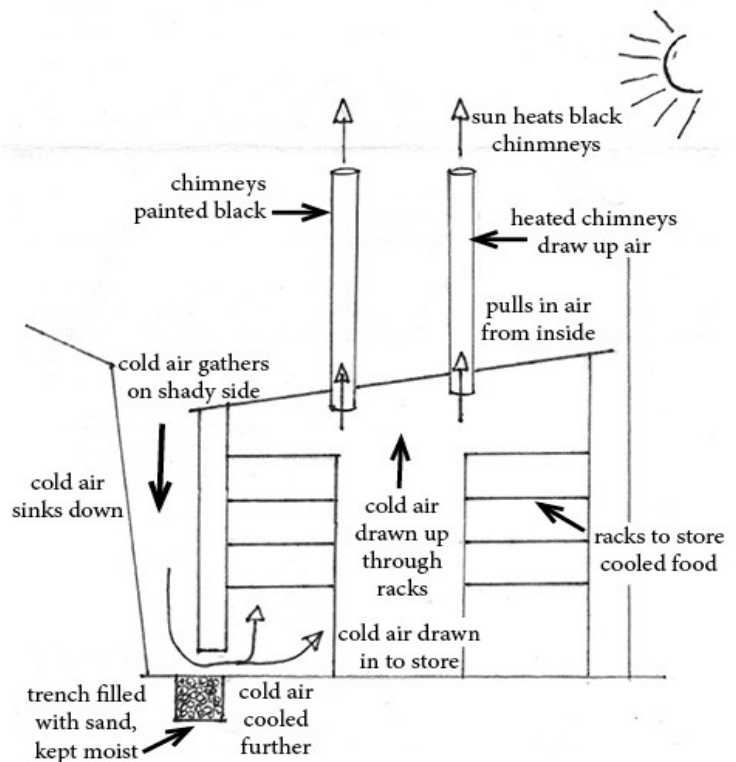
### 4.7 Weaving & Fibre Processing

This program was also delayed from last year for the same reasons as 4.6, but is now underway and groups have decided a location for a weaving building and have started construction of this and of looms that it will contain, with HPC providing tin for roofing, skilled carpenter costs and a weaving technician. Meanwhile villagers have been harvesting wild nettle for the 2<sup>nd</sup> year running to spin into twine for selling on the national market.



#### 4.8 Cold Store

Cold stores have been constructed in Humla (see last report) and a pilot in Surkhet. Now the hot season is upon us their effectiveness will be monitored and evaluated. The diagram on the right illustrates how the cold store at Baragaun RC works, based on an original design by permaculture co-founder David Holmgren at his home in Australia. Warm air drawn up out of a black chimney constantly draws in cool air in through vents on the cool side of the store and up through racks on which food is placed, maintaining a cool air flow throughout.



#### 4.9 Solar drier

This program was also delayed from last year for the same reasons as 4.6, but is now underway and solar drying units have been acquired from Birendranagar in Surkhet, and are being shipped to locations in HPCs working areas in both districts, where they will be tried and tested over the next few months.

#### 4.10 Apple drying Humla

This program was also delayed from last year for the same reasons as 4.6, and as there are no apples in this season the acquisition will be done in the next period in time for the autumn apple harvest.

#### 4.11 Juice/Jam making

Most groups in both districts have received training in juice and jam making, and have successfully made tasty products. HPC is still waiting to acquire processing hardware to enable this on a larger scale that will now happen in the next reporting period.

#### 4.12 Biogas

As reported above the new flexi-biogas technology has been successfully established at Sunrise Farm and Baragaun RCs, with gas being produced enough to run stoves for cooking. The units will continue to be monitored for their efficacy over the next few months. Next year it is hoped to test a unit in Humla at an even higher altitude where temperature will provide a limit to gas production, and ways to passively heat the unit will be examined. The following overview of the system is provided by IFAD's ASHA project, which installed 6 systems in Surkhet and Dailekh districts.

Flexi Biogas Solutions are the cleanest, greenest, most affordable & sustainable, portable and simple to operate biogas system that is installed above the ground Level. It has been successfully piloted and promoted in several countries and piloting first time in Nepal which is introduced by the Biogas International Ltd., Kenya. It has advantages of

- *No digging required easy to install which requires only 3 hours for installation*
- *Simple operation and low maintenance*
- *Lightweight (45 kg) and portable.*
- *Durable & Robust - Prefabricated from the highest quality UV treated materials*
- *Long life span of 20 years or more*
- *No Construction required*
- *True Cross-flow digestion methodology*
- *Micro Greenhouse thermodynamic enhancement*

#### How Does It Work

The Flexi Biogas system is portable and expandable. It has a shorter retention period (the time it takes for organic material to break down) than fixed dome systems. Similar to an open-ended pillow case, it consists of a plastic digester bag housed in a greenhouse tunnel. The tunnel acts like an insulated jacket, trapping heat and keeping the temperature between 25

and 36 degrees Celsius. The combination of the tunnel and the plastic bag increases the volume of gas production and reduces the retention time, ensuring a high rate of fermentation and gas production. As microbes digest the organic material, biogas bubbles up from the mixture, inflating the plastic bag. Sitting above the ground in the sun, the system quickly heats up, promoting rapid production of methane gas. It is then piped through a PVC tube connected to an appliance or piece of equipment such as a gas stove for cooking.

The tunnel fabric serves as an ultraviolet shield, further extending the life of the digester. During the day the tunnel captures solar radiation, increasing the temperature of the organic waste material (substrate) in the digester. Experience with Flexi systems has shown that, since the digester bag is placed above ground (and thus the volume of gas is visible), it takes farmers one week to understand how much and which materials to use in the system.

#### 4.13 Solar electric

Lighting units with battery and solar panel have been acquired for a further **63 households** in Humla and are currently being shipped to project sites.

### 5. CAPACITY BUILDING PROGRAM

#### 5.1 Permaculture Design Course (PDC)

The first part of the PDC was held over 7 days in April at the Resource Centre in Baragaun, Surkhet. This section focussed on building blocks of design including problems' identification, soil and water management, cropping patterns, pest management and agro-forestry. The second part of the PDC, focussing on design and including a design activity in groups, will be held in November. The PDC is specifically for those farmers aiming to become barefoot consultants, having successfully implemented a variety of techniques in their own households and communities, by giving them further design skills to increase their capacity to train others.

#### 5.2 Trainers' Training

This component was described in the previous report.

#### 5.3 Organisational development

HPC was due to receive training from its mentoring organisation Sahakari Samaj, but due to the untimely passing of founder CEO and head trainer Mr Narad Sharma in November 2016 the training has been postponed and will be held in the next reporting period.

Meanwhile HPC staff have provided 2 "**Leadership Development**" trainings to 45 group representatives comprising 16 women and 29 men of both VDCs it is working in in Surkhet (Neta and Rajena). Topics included:

- Roles and responsibilities
- Participation
- Community skills analysis and audit
- Communications
- Decision making processes
- Leadership skills
- Meeting processes
- Monitoring and evaluation

#### 5.4 Farmers Field trips

In March, 10 farmers (4 women, 6 men) from Humla visited HPC in Surkhet. Participants viewed activities on the Resource Centre in Baragaun, and also toured several villages in HPC's working area to meet member farmers there and see what they were doing on their land. The following table describes what they saw and where.

Place visited	Demonstrations viewed
Gumi (HPC Coordinator's home farm)	Living fence, cuttings nursery, livestock, mulberry agro-forestry, green manures, SRI, biogas, tree pruning, mixed vegetable growing (polyveg), cold store
Baragaun (HPC Centre)	Non-cement drinking water and irrigation, community labour contributions, forest protection and management plan, school improvement program, agro-forestry, cash crops (cardamom)
Salghari	Traditional homestead, nursery, fodder feeding method, compost
Khaltakura	Cuttings nursery, air nursery, waste water management, sprinkler irrigation
Thulo Khaltakura	Air nursery, sweepings pit, water management, handicrafts made from local resources
Salkharka/Bhalim	Potato tower (in doko/sweepings pit), plastic-lined irrigation pond, community building, salt lick

Pakhapani	Vegetable farming, improved livestock husbandry
Subbatol	Vegetable farming, citrus orchard, vegetable seed production
Chaurgaun	Chiuri planting, nurseries, compost, integrated drinking water/irrigation
Ghatutol	Cardamom farming, compost

### 5.5 Farmer-Farmer extension

A range of activities are happening in the Farmer-to-farmer exchange program as village groups take more responsibility for planning HPC programs. Representatives of groups meet together periodically to review activities and share exchange experience. Meetings are usually held quarterly unless important issues arise in which case they are more frequent. Topics discussed centre around review and evaluation of on-going activities and planning of future programs, and stories of various techniques and approaches are shared – what's working, what's challenging.

### 5.7 Rice Breeding training

This program is again delayed due to unavailability of chief trainer Surya Adhikari from Begnas Tal.

### 5.8 Festival

In March HPC hosted their festival in Baragaun, that has become a 2-day annual event. Around **900 people** attended the festival. Activities included exhibitions of farmers' produce (crops, seed, livestock and handicrafts), several types of traditional dance, "Permaculture theatre", inter-schools quiz and a sports tournament including volleyball, shot put and tug of war. The HPC festival in Humla, which was made for the first time last year, will be carried out in July.

### 5.9 Cultural Program

Staff and volunteers have continued to develop cultural shows and performances for display, but due to the elections all work has had to be suspended, and will re-start after the elections in May.

### 5.10 Video film making

In March HPC were fortunate that Marlene, their original trainer from [InsightShare](#) in UK was in Asia and available to "drop in" to provide follow-up support in their video-making program. She spent 5 days with 8 staff and BCs from HPC with a translator. Since the first training in February 2014 HPC have made several videos about topics such as Stoves, Nutrition and Seed Saving, and have several others in process such as Liquid Manure and Agro-forestry. The team were introduced to 3 planning tools:

- the 'planning tree', combined with a 'video check-list' (a collectively planning and prioritisation to get clarity on which videos to work on and for what reasons)
- the video production plan (to plan the production process, get clarity on video's aims, duration, risks/sensitivities, human resources and production time required etc.)
- the video soup (to plan all the required 'ingredients' for an effective video)

The team used the check-list, video plan and video soups to prepare for the production of three videos on 'white discharge' (a women's reproductive health problem), 'grafting' and 'animal husbandry'.

As well as refining production and editing skills, the team reviewed productions to date and made plans for what videos they planned to make over the coming year.

A **You-tube playlist** of the latest videos is available to view at this link:

<https://www.youtube.com/playlist?list=PLUtvIa4Yp5ymtgLYCzZnGISf6FCsKgmV>

### Community contributions

Community contributions to activities in Surkhet and Humla show a total contribution of **1379 person days** with a monetary value of **NRs 413,700/- (GB£3180)**. Activities include maintaining community infrastructure (paths, drinking water, irrigation, mills, schools, health post and community learning centres), and direct contributions to HPC programs such as portorage of solar equipment, and construction of PLC classrooms.

## Livelihoods Activities

In addition to activities described above in part 4, the following livelihoods activities have resulted in income generation from HPC groups during the reporting period:

	Honey	Vegetable seed	Cardamom	Ginger	Asian Pepper	Total
Kg produced	517.5	0	411.9	4758	4949	<b>10,636</b>
Income NRs	310,500/-	0	617,850/-	118,950/-	1,141,520/-	<b>1,141,520/-</b>
Income eq. GB£	£2,390	0	£4,750	£915	£8,780	<b>£16,835</b>

## HPC Website

HPC's website, [www.himalayanpermaculture.com](http://www.himalayanpermaculture.com) was created February 2009. Up to the time of this report (April 2017), over **147,460** hits have been recorded.

## Challenges during this period

HPC has been unable to fully clear the backlog of delayed programs caused by registration delays and Indian blockade last year, though it has made progress, but there are still several delayed activities. In addition a new limit has presented itself – local/national elections! The authorities have prevented HPC from running women's health camps and training and have also prevented the cultural program from running, citing the potential for vote canvassing! Elections are due mid-May after which the situation should return to normal. The delayed activities will now be held in the next reporting period (May-Oct 2017).

Due to unreliable flights participants from Humla travelling to the April week of the PDC were unable to travel to Surkhet so have missed the training. They will now receive the same training in Humla and travel to Surkhet for the second PDC week in November.

Once again the Water Resources project, and INGO supported program, has been trying to distribute iron smokeless stoves made in Nepalganj in Humla district. Despite villagers demonstrating that HPC-inspired stoves made from local resources are cheaper and more effective, the WR project seems determined to waste aid budgets and farmers time. HPC and stakeholder representatives are again lobbying local government to try and convince them of the wastefulness of this approach.