

Water Harvesting and Purification Initiatives in the Garhwal Himalayas

Supported by

Himalaya Resources, Netherlands.

An Activity Report -2015



Prepared by

Partner organizations of Himalaya Resources in India

The Activity Report

It is nice to see that the seeds of friendships and collective “Himalaya Resources” in the Himalayan region have happily spread and sprouted with a very positive response from the mountain communities. The solidarity and support extended by Himalaya Resources for the conservation of land, water and forest in the Himalayas has started taking shape in several constructive and creative forms. HIMCON (Himalaya Consortium for Himalaya Conservation) and HSS (Himalaya Seva Sangh), partner organizations of Himalaya Resources in India, are happy to share a brief activity report on what we have been doing for water conservation and purification along with other environment and ecological conservation tasks in the Tehri and Pauri Garhwal districts. These initiatives have directly benefited 285 households covering a population of around 1800 people, and around 300 school children.

Construction and repair of Slow sand filters

With the support of Himalaya Resources, we have successfully constructed seven slow sand water filters for safe drinking water in the villages of Tehri and Pauri Garhwal benefiting 152 households covering a population of around 1000 people.

A slow sand filter contains biological activity and is therefore often referred to as a bio-sand filter. As micro-organisms such as bacteria, viruses and parasites travel through the sand, they collide with and adsorb onto sand particles. The organisms and particles collect in the greatest density in the top layers of the sand, gradually forming a biological zone. The biological zone is not really a distinct and cohesive layer, but rather a dense population that gradually develops within the top layer of the sand. The population of micro-organisms is part of an active food chain that consumes pathogens (disease-causing organisms) as they are trapped in and on the sand surface. The uppermost 1-3cm of this biological zone is sometimes referred to as 'schmutzdecke' or 'filter cake'. Slow sand filters are usually cleaned by scraping of the bio-film and/or the top sand layer.

The table given below shows the village wise detail of the beneficiaries.

Sl. No.	Village Name	No of filter constructed	Beneficiary families
1.	Jhaldiyal Gaon	01	24
2.	Chamthari Gaon	01	27
3.	Kumar Gaon	01	14
4.	Indwal Gaon	01	22
5.	Bidkot	01	19
6.	Maroda	01	32
7.	Khairna	01	14
		07	152



Himalaya Resources has also financially assisted in the repair and maintenance of 06 old slow sand water filters benefiting 133 households covering a population of around 800 people. The table given below gives a breakup of village wise beneficiaries in Tehri and Pauri.

Sl. No.	Village Name	No of filter constructed	Beneficiary families
1.	Chopriali	02	44
2.	Mudan Gaon	01	19
3.	Indwal Gaon	02	50
4.	Aamkatal	01	20
		06	133



Roof water harvesting Ferro cement tanks

HIMCON and HSS have constructed two roof water harvesting Ferro cement tanks of 5000 liter each in the two schools of Kimsar and Ramjiwala villages in the Yamkeshwar block of Pauri Garhwal district. The schools had no water supply or spring nearby and these rain water harvesting storage tanks will be of great use. A school going population of around 300 persons will be benefited through this intervention.

If the drinking water requirements of the people are met in a cost effective way, in a manner that is eco-friendly and aimed at reducing the dependence on pipe water supply – a strategy to harvest rainwater from rooftop is very important. Roof-top rain water harvesting (RWH) is a highly economical and sustainable way of water supply for drinking and other allied need. Further from drinking water point of view rainwater is safe than existing water tap supplied in the watershed villages. In roof top rainwater harvesting technology, the rain water running off the surface of roof is collected with the help of channels and pipes laid around the roof edges. Collected water from the roof then channeled into a Ferro-cement tank constructed outside the house. A simple but effective water filter was attached to keep away fine particles and other contaminants, so that the available water can be used safely for drinking purposes. According to

'Drinking Water Mission' norms the minimum requirement of water in rural area should be at least 40 liters /person/day. Metrological data of the region reveals that the area on an average receives about 1200 mm precipitation in the form rain. It can be easily met with the roof top rainwater harvesting tank. If a house with a roof measuring 10 m long and 6 m wide area and the average annual rainfall of 1200 mm, the roof-top would be able to collect (10m x 6m x 1200mm) more than 36000 liters per year. Thus, on an average about 36,000 liters of water would be possible to be available from Ferro-cement tank. Average family size of the villages is around six members per family. A full tank would provide 6-8 month water need of a family for drinking and other domestic purposes. Hence, Roof-top Rain Water Harvesting seemed to be one of the appropriate interventions suitable for mountain ecosystem to eliminate drinking and other domestic need of the people. We intend to continue mobilizing mountain communities for adopt this intervention.





Organizing women and youth groups for eco conservation work

Himalaya Resources friends and activists have organized more than 30 small and big community level meetings and training programs on various eco conservation themes involving women, youth groups, children and other elected Panchayat members in the villages of Tehri and Pauri Garhwal mainly focusing the Been and Henwal river catchment areas.





Construction of small ponds for creating moisture regime

The partners of Himalaya Resources along with the Himalayan communities have constructed 13 recharge pits /percolation tanks /small ponds locally called Chaals to improve the moisture regime in the region to help the farming communities. The women mutual support groups have been the channel and driving force in this effort.

Historically, people were appreciative of the relationship between groundwater recharge and the spring yields. As a result, the recharge zones of the springs were traditionally protected by the communities. Most prominently, this was done by devoting the forests to local deities and imposing religio-magical sanctions. Spring recharge pits (*Chaals* in local parlance) were also maintained in crucial locations. It continues to be our mission to observe the intricacies of the hydrological cycle and give adequate attention to the recharge zones of the springs in order to maximize water availability in the region. The atmospheric precipitation entering the ground's surface adds to the groundwater reserves that feed the natural seepages around the valley slopes in the hills. The quantum of the rainwater entering the ground is a function of the duration of time for which the water gets the opportunity of remaining at a particular altitude. This retention time is decided upon by the nature of vegetal cover, physical resistances to the flow of water on the ground, and the others. *Chaals* represent the understanding of the groundwater regime and response of the local populations to their quest for augmenting spring discharge. These measures have significantly increased the spring yields in the region.



Plantation program

With the contribution of Himalaya Resources, HIMCON and HSS along with the village communities of 18 villages planted more than 50,000 saplings and cuttings of water conserving and fodder variety broad leaf species during this monsoon season in the months of July and August 2015. The table below shows a village wise detail of plantation done.

Sl.No.	SHG,s Name	Village Name	Guriyal	Mulberry	Oak	Total
1.	Ganesh SHG	Dharkot	246	454	-	700
2.	Gaytri SHG	Dharkot	149	517	-	666
3.	Luxmi SHG	Dharkot	199	668	-	867
4.	Puja SHG	Dharkot	255	433	-	688
5.	Mahadev SHG	Dharkot	254	695	-	949
6.	Parvati SHG	Dharkot	386	652	-	1038
7.	Sarswati SHG	Dharkot	299	409	-	708
8.	Dev Bhumi SHG	Kimsar	850	600	-	1450
9.	Durga SHG	Kimsar	600	250	-	850
10.	Asha SHG	Kimsar	783	685	-	1468
11.	Swarnima SHG	Ramjiwala	600	2010	-	2610
12.	Ushakiran SHG	Ramjiwala	960	1320	-	2280
13.	Bhagyashri SHG	Ramjiwala	1420	1670	-	3090
14.	Jai Shri Ram SHG	Ramjiwala	690	1310	-	2000
15.	Gagan SHG	Malla Banash	782	-	-	782
16.	Milan SHG	Jogiyana	3272	450	-	3722
17.	Jai Maa Medan Puri	Malla Banash	3091	525	-	3616
18.	Om SHG	Jogiyana	735	240	-	975
19.	Taleswar SHG	Sahjaada	1295	280	-	1575
20.	Himalayan SHG	Bhumiyakisaar	1670	310	-	1980
21.	Sagar SHG	Talla Banash	1107	-	-	1107
22.	Bindwasani SHG	Khairna	1075	-	-	1075
23.	Aarti SHG	Talla Banash	2031	-	-	2031
24.	Geeta SHG	Talla Banash	1981	-	-	1981
25.	Mandakini SHG	Talla Banash	1960	-	-	1960
26.	Jai Maa Pundiyanani SHG	Chopriali	500	-	500	1000
27.	Raj Raheswari SHG	Chopriali	500	-	500	1000
28.	Maa Vasno Devi SHG	Bidkot	500	-	500	1000
29.	Laxami SHG	Bidkot	500	-	500	1000
30.	Nirankari SHG	Chamthari	500	-	500	1000
31.	Sursain SHG	Kumar Gaon	500	-	500	1000
32.	Mahila Mangal Dal	Indwal Gaon	-	-	2000	2000
33.	Mahila Mangal Dal	Koti	-	-	1000	1000
34.	Mahila Mangal Dal	Chidiyali	2000 cuttings of local bushes			
35.	Mahila Mangal Dal	Tipli	2000 cuttings of local bushes			
Total			29,690	13,478	6000	49,168



STATEMENT OF EXPENDITURE

GRANT RECEIVED FROM HIMALAYA RESOURCES
NETHERLAND
GRANT RECEIVED BY HIMCON
AMOUNT OF GRANT RECEIVED Rs. 1,48,076.00 Dated 04.06.2014
Rs. 1,35,775.00 Dated 13.12.2014
PROJECT NAME Construction of Slow Sand Filter's in Himalayan Region

HEAD OF EXPENDITURE	AMOUNT UTILIZED FOR THE PERIOD 04.06.2014 TO 30.09.2015	TOTAL AMOUNT UTILIZED
Slow Sand Filter Repair Work	69,394.00	69,394.00
New Construction of Slow Sand Filter	1,32,460.00	1,32,460.00
Roof Water Harvesting Ferrocement Tanks	72,000.00	72,000.00
Office Expenses & Honorarium	15,000.00	15,000.00
GRAND TOTAL Rs..	2,88,854.00	2,88,854.00

(Rs.5,003/- is overspent)

Place: Dehra Dun
Dated: 01st October, 2015



Anshu Chandna
(Anshu Chandna)
Chartered Accountant
M.N. 078850