



Annual Report

(2017 - 2018)



People's Science Institute
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Uttarakhand

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ABOUT PEOPLE'S SCIENCE INSTITUTE (PSI)

People's Science Institute (PSI) is registered as a society in New Delhi under the Societies Act (1860) and the Foreign Contributions Regulations Act (FCRA). Its stated mission is, "To help eradicate poverty through the empowerment of the poor and the productive, sustainable and equitable use of available human and natural resources." Operationally it provides technical and managerial support to communities and organizations that work with them, implements development programs and undertakes public interest research. The Institute is known in India's voluntary sector for its pioneering work in the fields of community-based natural resources and watershed management for improved livelihoods, environmental quality monitoring, river conservation and dissemination of appropriate technologies.

PSI has active units for natural resources management, disaster mitigation and response, environmental quality monitoring and innovative projects. Each unit implements development projects, undertakes research and provides training as well as professional support. The Institute has a competent staff of socially conscious engineers, scientists and social workers to carry out these tasks. This annual report outlines the major activities of each group in 2017-18.

I. NATURAL RESOURCES MANAGEMENT

The Natural Resources Management (NRM) Group executes the Institute's NRM activities. It strives to fulfill the basic needs of local communities in a sustainable, self-reliant, democratic and socially just manner. It is mainly involved in community-led micro-planning and development programs for promotion of water, food and livelihoods security in marginalized areas. It also undertakes research on improved agricultural practices, hydrology, water technologies and institutional processes.

In 2017-18, the NRM Group continued with the implementation of the (i) Participatory livelihoods' development plans of the Uttarakhand Floods Disaster Response program in villages of Madhu Ganga valley, Ukhimath block (Rudraprayag district), and Revati and Saryu valleys of Kapkot block (Bageshwar district). The program is financially supported by Star India (for Madhu Ganga and Revati valleys) and Axis Bank Foundation (for Saryu valley), besides donations received from hundreds of generous individuals and enterprises, (ii) "Providing Safe and Sustainable Drinking Water and Sanitation in ten hamlets of Bageshwar block in Bageshwar district' under Uttarakhand 2020 Water and Sanitation Mission of The Hans Foundation, New Delhi and (iii) "Upscaling Sustainable Agricultural Practices in Bahadrabad block of Haridwar district, Uttarakhand" under Mission Sunhara Kal (MSK) of ITC, Kolkata.

Two new programs were started during this period (i) "Providing Safe and Sustainable Drinking Water and Sanitation in eight villages in Pindar valley of Bageshwar district" under

the Integrated Village Development Program (IVDP) of The Hans Foundation. (ii) Cluster Approach for Production, Processing and Marketing of Pulses for Livelihood Development in 10 villages of Ukhimath block, Rudraprayag district under the Integrated Livelihood Support Program (ILSP) of the Government of Uttarakhand.

I.1 Response to Uttarakhand Floods Disaster of 2013

During FY 17-18, the program's focus was on strengthening democratic village institutions, implementing various livelihoods activities, especially targeting the poorest of the poor. The major activities undertaken during the year are summarized below.

I.1a Institution Building

Each program village has a *Gram Swaraj Samiti* (GSS), *Mahila Mangal Dal* (MMD)/ *Mahila Swaraj Sangathan* (MSS), Savings and Credit Groups (SCGs), Farmers Interest Groups (FIGs), and User Groups (UGs), to lead village development and move towards *Gram Swaraj*. Formation and strengthening of *Gram Swaraj Sangathans* at a valley level was the main focus of institution building. The valley wise details are given below.



Meeting of MSS in Revati valley

Table 1a: Details of Institutions in three valleys

Valley (Villages)	Total House-holds	Gram Swaraj Sangathan (at Valley level)			GSS (at Village level)			MSS (at village level)	
		Total Members	Female Members	BPPL Members	Total Members	Female Members	BPPL Members	Total Members	BPPL Members
Madhu Ganga (5)	669	15	5	5	57	23	27	244	127
Revati (6)	606	20	9	11	60	32	34	168	92
Saryu (6)	457	19	9	10	52	31	32	79	53
Total (17)	1,732	54	23	26	169	86	93	491	272

Table 1b: Details of Institutions in three valleys (Contd.)

Valley (Villages)	Total Households	SCG			FIG		
		Number of SCGs	Total Members	BPPL Members	Number of FIGs	Total Members	BPPL Members
Madhu Ganga (5)	669	21	225	169	23	312	114
Revati (6)	606	27	265	145	20	235	140
Saryu (6)	457	19	188	80	12	159	112
Total (17)	1,609	67	678	394	54	706	366

I.1b. Community Mobilization

In FY '17-18, all the village level institutions met regularly in all the villages of the three valleys. The progress of implementation of different livelihood activities, both through program funds as well as through convergence with government schemes, and other village level issues were discussed in these meetings.

One-day awareness-cum-felicitation camps were organized by the GSSs in all the three valleys to felicitate progressive farmers and institutions and motivate others. Information about government schemes for the villagers was also provided.

In Madhu Ganga valley, Ms Asha Nautiyal Ex MLA was the Chief Guest at the occasion. Representatives from agriculture, horticulture and animal husbandry departments were invited as guest speakers. In Saryu valley the felicitation camp was organised as *Mahila Mahotsav*. For children's benefit, two Children's Resource Centres known as *Baal Manoranjan Kendra* were established in Saryu valley. These *Kendras* provide space for school-going children's creative activities (like art, craft, singing, dancing, sports etc.) – an opportunity that is somewhat limited to them otherwise. Tuition classes were organized for the 10th and 12th class students of Saryu valley during January-March 2018.

I.1c Capacity Building

Capacity-building activities undertaken in the three valleys are summarized below.

- (i) **Training of MSSs:** Thirty six women attended a one day training camp for MSSs' members from Revati valley in September 2017 at Kapkot.. Ms Alka, a gender expert, addressed issues raised by the women.
- (ii) **Training of FIGs:** Between July to September FIG farmers were trained to prepare *matkakhad* in the different valleys.. Under the System of Wheat Intensification (SWI) weeders were distributed to FIGs, and farmers were trained in their use.
- (iii) **Training and Exposure on Poultry:** Mr. Changan Chamiyal, of CHIRAG, Nainital visited Saryu valley to assess the existing poultry units. Thereafter, a group of poultry farmers was taken to the field area of CHIRAG. The



Training of Women's Groups' members



Training on preparation of liquid organic manure

training and exposure was very beneficial. Two young poultry farmers from Saling village decided to start poultry farming on a large scale.

- (iv) **Exposure visits:** In June 2017 15 GSS members from Madhu Ganga visited Rawain valley in Uttarkashi, district to learn from Rawain Ghati Farmers Federation members how a strong farmers' institution can benefit from collective production and marketing of vegetables.

Between September and December 2017, farmers from Revati and Saryu valleys visited CHIRAG to interact with farmers growing vegetables and fruits and linked to dairy. They saw the Community Facility Centre established by a Farmers' Producers Company (FPO), Mukteshwar, interacted with traders of *mandi* at Haldwani and visited Anchal dairy.

- (v) **Capacity Building of Program Team:** Regular review meetings were held with program team including livelihood development team members for sharing experiences and drawing future strategy. A two days' workshop was held with the team where subject experts provided inputs on various aspects of the program to ensure and promote sustainability and equity in the livelihoods interventions.

I.1d Livelihood Development Activities

Through FIGs and other institutions PSI continued to promote household-level farm and off farm interventions besides common property resource based activities like springs' rejuvenation, irrigation works, etc. These are outlined below.

(I) Farming Activities

- (i) **Vegetable cultivation:** In Kharif 2017, 966 farmers (544 BPPL) cultivated various vegetables (tomato, brinjal, capsicum, chilly and cabbage) on 9.5 ha based on Low External Input Sustainable Agricultural practices. Over 40 tons of vegetables were sold bringing a net income of Rs. 7.3 lakhs.

Table 2: Details of Vegetable Cultivation in Kharif 2017

Valley	Vegetable Producing Farmers	BPPL Farmers	Total Area (ha)	Total Production (Q)	Value of Produce (Rs. in lakhs)	Farmers who Sold	Total Sale (Q)	Net Income (Rs. in lakhs)
Madhu Ganga	459	281	5.1	334	4.5	220	220	3.08
Revati	227	122	3.2	190.5	4.48	190	131.5	3.06
Saryu	280	141	1.2	75	1.5	130	58	1.2
Total	966	544	9.5	599.5	10.48	540	409	7.34

Note: Per farmer average production is about 62 kg and the estimated value is Rs. 1084. 540 farmers (56 per cent) sold their produce whose estimated average sale per farmer was about Rs 1359.

In the Rabi season, the area under vegetables increased by about 30 percent. The expected production is 940 tons worth Rs. 13.2 lakhs.

- (ii) **Spice cultivation:** In 2017-18 1,067 farmers (687 BPPL farmers) from the three valleys cultivated spices like ginger and garlic on 16.6 ha. They sold 13.8 tons for a net income of

Rs. 5.7 lakhs. The area under spices increased by 22 percent compared to 2016 and the net income from sale by more than 54 percent.

Table 3: Status of Spice Cultivation in 2017-18

Valley	Total Farmers	BPPL Farmers	Total Area (ha)	Total Production (Q)	Value of Produce (Rs. in lakhs)	Total Sale (Q)	Net Income (Rs. in lakhs)
Madhu Ganga and Revati	931	540	15	247	13.58	118	4.6
Saryu	136	147	1.6	60	3.00	20	1.1
Total	1,067	687	16.6	307	16.58	138.0	5.7

(iii) System of Crop Intensification (SCI):

During Kharif 2017 937 farmers from the three valleys adopted SCI techniques for various crops over a total area of 25 ha. Despite low rainfall, the incremental SCI grain yields during Kharif ranged from 17 to 40 per cent for the different crops.



SCI (Rajma) cultivation in Saryu valley

Table 4: Number of Farmers practicing SCI (Kharif 2017)

Valley	Paddy Direct Seeded		Paddy Transplanted		Kidney Beans		Maize	
	Farmers (Area in ha)	% Grain Yield Incr	Farmers (Area in ha)	% Grain Yield Incr	Farmers (Area in ha)	% Grain Yield Incr	Farmers (Area in ha)	% Grain Yield Incr
Madhu Ganga and Revati	103 (2.3)	24	53 (1.1)	17	566 (16.8)	40	98 (2.6)	20
Saryu	-	-	45 (0.8)	35	72 (1.4)	18	-	-
Total	103 (2.3)	24	98 (1.9)	26	638 (18.2)	29	98 (2.6)	20

In Rabi 2017-18, farmers practiced the System of Crop Intensification with two new crops, i.e., pea and lentil, other than wheat. 803 farmers from the three valleys adopted SCI practices on 13.4 ha.

Table 5: Number of Farmers practicing SCI (Rabi 2017)

Valley	Wheat (SWI)		Lentil		Pea	
	Farmers	Area(ha)	Farmers	Area (ha)	Farmers	Area (ha)
Madhu Ganga and Revati	289	5.7	275	4	239	2.5
Saryu	59	1.1	16	0.1	-	-
Total	338	6.8	291	4.1	239	2.5

(II) Off-Farm Livelihoods

- (i) **Poultry:** More households, especially BPPL, got interested in rearing kuroilers as it provided a very good income. 32 new poultry sheds were built and provided with 25 chicks at the start. More than 250 poultry units were found to be doing well. An average beneficiary earned over Rs. 5,000 per unit from the sale of chicks & eggs.



Poultry unit in Saryu valley

Table 6: Status of Poultry Rearing

Cluster	Villages	Total Poultry Units	BPPL Households	Income from Sale of Chicks (Rs. In lakhs)	Income from Sale of Eggs (Rs. In lakhs)	Total Income (Rs. In lakhs)
Madhu Ganga and Revati	8	205	160	7.88	2.9	10.7
Saryu	5	89	60	5.13	0.49	5.6
Total	13	314	220	13	3.4	16.3

- (ii) **Bee-Keeping:** In 2016 in Revati and Sayu valleys 23 households adopted bee-keeping. They were given training and exposure on bee-keeping. In 2017, four new farmers in Revati valley adopted bee keeping. In addition to bee boxes, traditional improved bee hives were also promoted with these farmers. The bee keepers of Revati valley earned an average income of Rs. 17,000 each over two years.



Bee keeping unit in Revati valley

(III) Natural Resource Based Activities

- (i) **Fodder Plantation:** Plantation of fodder trees on community lands and slips of Napier grass on private field bunds was done in all the valleys. *Kisan* nurseries were raised by BPPL households and women's groups. Local institutions, particularly MMSs, led the community fodder tree plantation. Monitoring of tree plantations done in the summer of 2018 showed 68 percent survival. This was followed by gap filling activities in the monsoon along with additional area coverage of 23 ha.



Napier plantation on field bunds in Revati valley

Table 8: Details of Fodder tree and Napier Grass Plantation

Valley	Community Plantation		Individual Grass Plantation	
	Fodder Trees Planted	Area Planted (ha)	Beneficiary Households (BPPL)	Napier Grass Slips Planted
Madhu Ganga and Revati	12,078	15	585 (362)	62,956
Saryu	7,030	8	130 (65)	14,900
Total	19,108	23	715 (427)	77,856

(IV) Engineering Works

Several engineering works were completed in the three valleys up to March 2018 (Table 9). User groups have been formed for proper distribution of irrigation/household water and maintenance of the schemes.

Table 9: Engineering Works Completed

Valley	No. of Completed Schemes	Beneficiary Households(BPPL)	Area Irrigated (ha)
Madhu Ganga and Revati	Drinking Water - 7	252 (170) + 1 school	-
	Irrigation - 12	237 (158)	18
Saryu	Drinking Water - 6	136 (48)	
	Irrigation - 5	173 (71)	5
	Other - 7	174 (83)	

(V) Livelihood Activities under Convergence Funding

Other development works were done in convergence with other agencies, mostly through government programs. 55 such activities were completed by March 2018. Proposals for all these works were passed by the *Gram Panchayats* and submitted to the concerned departments.

Table 10: Status of Works under Convergence

Valley	Completed Activities	Value of Works Completed (Rs. in Lakhs)	Type of Works done under Convergence	Departments/Schemes
Madhu Ganga and Revati	25	43	Dry stone wall, foot path, pipeline , farm ponds (4), and retaining wall	MGNREGA, GRMYA (watershed project), Gram and Jila Panchayat, Forest Department, Horticulture Department
Saryu	30	30.9	Foot path, drinking water, toilet, diversion drain, protection wall, cattle shed, beautification of temple, foot over bridge	MGNREGA, GRMYA, Gram Block and Jila Panchayat, State Finance, PWD, Jal Sansthan, <i>Daiviya Aapda</i> , MLA fund
Total	55	73.9		

(VI) Skills Development

- (i) **Development Professional Training (DPT) Course:** The DPT course, initiated by PSI in 2016, involving 10 month's intensive training in the basic concepts and practice of development for educated rural youth is designed to meet the human resources needs of the non-profit sector while providing employment to them.

From the first DPT batch of seven youths, four were hired by PSI as project staff while one person is working with another VO. In 2017, six more students were selected for the second batch of DPT course of whom five will complete the course in April 2018.



Transect walk during PRA training in Moldhar village, Tehri Garhwal district

- (ii) **Computer Training:** A one month computer literacy program was organized for youths from Saryu and Revati valleys at Kapkot. Nine participants including 3 girls completed the 30 days' course. It is expected that these trained youth will get better employment opportunities while few of them can be recruited by the communities for running service centers and/or provide computer classes at cluster resource centers which are likely to come up next year. Three of the trained students have already joined ITI for further training.
- (iii) **Sewing and Beautician Courses:** A three months' sewing training was organized at Kapkot while three month-long beautician courses were organized at Bharari (near Kapkot). Nine girls got trained in sewing while five girls attended the beautician's course. After completion of the course successfully, all the participants were given sewing machines. Five of the trained students do miscellaneous stitching work at home when people from the village give orders, apart from using the machines to stitch basic items for themselves and their family.

I.2 Providing Safe and Sustainable Drinking Water and Sanitation

In November 2016 a project to provide safe water and sanitation in ten hamlets of Bageshwar block- was started with the financial support of The Hans Foundation. During FY 18, Detailed Project Reports (DPRs) for drinking water and sanitation were prepared and implemented through the local communities. The progress of various program activities up to March 2018 are as follows:

1.2a Formation of Users' Water and Sanitation Sub Committees (UWSSCs)

Village level facilitators (one for each hamlet) were identified (4 Male, 6 Female) by the concerned communities to help PSI's team in community mobilization. Communities of the selected hamlets formed UWSSCs in all the 10 hamlets. Out of the 74 UWSSC members, 48 are women. Thereafter, all the committees were explained their role and responsibilities and helped to draft their rules and regulations.

Table 11: Composition of UWSSCs

S.No.	Hamlet	Village	Households (SC)	UWSSC Members			
				Total	Male	Female	SC
1	Rupail	Joshi Paldi	24 (5)	9	0	9	2
2	Dubagarh	Matela	24 (24)	7	2	5	6
3	Paarkhet	BediBagair	16 (0)	7	2	5	0
4	Khoulkhan	Khoulseer	30 (6)	7	3	4	2
5	Samgair and Chundhar	Amsarkot	33 (0)	9	4	5	0
6	Darimthok	Gunakot	17 (0)	7	3	4	0
7	Santeshwar	Saat	4 (0)	7	2	5	0
8	Jalthola	Gurna	16 (3)	7	3	4	1
9	Basanichina	Purkot	9 (0)	7	3	4	0
10	Malaizer	Dwarson	12 (0)	7	2	5	0
	Total		185 (38)	74	26	48	11

The UWSSCs organize monthly meetings in their respective hamlets to discuss issues related to implementation of DPRs, community contribution, water treatment, and sanitation practices.

1.2b Awareness Camps

Awareness camps were organized in all the 10 hamlets. In each awareness camp 60-70 members from all the villages participated. Resource persons from PSI and other organizations shared knowledge and information. Most of the 216 participants in these camps were women. Various issues related to women's drudgery and health were discussed. The focus was to highlight the role, benefits and processes of strengthening women's institutions.

1.2c Capacity Building

Various capacity building activities were undertaken during the year, as under.

- (i) **Orientation Workshop:** 105 persons (male 55 and female 50) attended a workshop in October at Bageshwar for UWSSCs' members and village level facilitators to discuss the roles and responsibilities of UWSSCs in the execution of the ongoing program and beyond.
- (ii) **Exposure visits:** One exposure visit was organized in October for villagers from four hamlets for understanding the spring recharge work done in Siri village (Kapkot block) with the help of PSI. A second exposure visit was organized in November to Tallihaat village of Himalaya Trust in Garur block for understanding operational systems of community operated water supply systems. In all 76 persons (30 men and 46 women) attended the above exposure visits.
- (iii) **Training on Water Quality Testing:** Village level facilitators and UWSSCs' reps were trained in water quality testing in October'17 at Bageshwar. Water quality testing kits were distributed. Water quality testing is being done by the trained persons on a quarterly

basis. Follow up training on water quality testing was organized in January and March 2018.

1.2d Implementation of DPRs

DPRs of all the 10 hamlets (8 gravity schemes and 2 lift schemes, community soak pits and septic tanks) were prepared by May 2017. Community contribution (10 per cent of the total budget) will be done in the form of cash and labour. In addition, individual toilets will be constructed through convergence funding. Bank accounts of all the 10 UWSSCs were opened, and after approval of DPRs in August, implementation began. By March 2018, pipelines had been laid out from source to habitations (in six hamlets) and construction of silting chambers was completed in seven hamlets. Construction of water storage tanks was initiated in four hamlets.

For recharge of concerned springs, geo-hydrological studies were undertaken in all the 10 hamlets. Trenches were dug for springs recharge in Rupail and Amsarkot. Plantation of about 250 fruit plants (Malta, Lemon, and Mango) was done in 5 hamlets (Basanichina, Matela, Malaizer, Amsarkot and Dadhimtok).

Execution of DPRs is regularly monitored by PSI's team. One scheme in Malaizer hamlet of village Dwarson has been completed and run by the UWSSC and villagers.



Training on Water quality testing at Bageshwar



Treatment work for recharge of springs in Rupail

I.3 Providing Safe and Sustainable Drinking Water & Sanitation in Pindar valley, district Bageshwar under Integrated Village Development Program (IVDP)

In April 2017 a project to provide safe water and sanitation in ten remote villages of Pinder valley was started with the financial support of The Hans Foundation. During FY 18, community mobilization and preparation of Detailed Project Reports (DPRs) was initiated in all the villages. Implementation of the DPR through communities began in Khati village. The progress of various project activities up to March 2018 are as follows:

1.3a Community Mobilization and Capacity Building

Initially village level meetings were organized in all the 8 villages to understand the issues related to domestic water access and prevailing sanitation practices and PRA exercises (including social mapping, resource mapping, seasonality diagram, etc.) were conducted later to understand the status of existing water sources and their usage. The communities identified village level facilitators to take the responsibility for community mobilization to DPR prepare and implement the DPRs.

Users Water and Sanitation Sub Committees (UWSSCs) were formed at open meetings in all the eight villages with 92 members (51 male and 41 female). The UWSSCs members and village level facilitators were explained the various components of water and sanitation, as well as their role and responsibilities for operationalizing the system in the villages. They were later trained in water quality testing.

About 318 people participated in awareness camps in seven villages which focused on issues pertaining to proper use and management of water sources, health and sanitation.

1.3b Preparation and Implementation of DPR

DPRs of four villages including Khati, Badiyakot, Kalu and Sorag were completed till March end. The DPR of Khati was approved for implementation in September 2017.

After opening a bank account of Khati village, the villagers deposited 1 percent of the budget as a cash contribution (besides their labour contribution).. Up to the end of March, 3,000 meters of pipeline (from source to habitation) was laid out. Materials (stone and sand) has also been collected for construction of silting chamber and water storage tanks.



Digging for laying and fitting of pipelines in village Khati

I.4 Cluster Approach for Production, Processing and Marketing of Pulses for Livelihood Development

From September 2017, PSI started promotion of production and marketing of pulses in 10 villages of Madhu Ganga valley under the Integrated Livelihood Support Program (ILSP) of the Uttarakhand government, Farmers' institutions at village and cluster level will be formed and strengthened for up scaling of production, grading, processing, value addition and marketing of pulses. Activities completed up to March 2018 are:

- (i) Base line survey: A base line survey was conducted in all the 10 selected villages to assess the current status of pulses production.
- (ii) Identification of progressive farmers as para-technicians: From each village 2-3 progressive farmers were identified as para -technicians. 25 such farmers were trained in preparation of organic liquid manure, integrated pest management, production techniques of *Masoor* (Lentil) and *Toor dal* (Pigeon Pea). The trained para-technicians were given the responsibility of disseminating the knowledge to other farmers in their villages.
- (iii) Formation of Farmers Interest Groups (FIGs): 39 FIGs were formed by March end with 468 members (187 BPPL).
- (iv) Exposure visit of FIG members: In March 2018 18 farmers and 2 field team members attended a three days' exposure visit to Yamuna valley in district Uttarkashi.
- (v) Crop Demonstrations: In Rabi 2017, demonstrations of new seeds (PL -8, developed by GB Pant University of Agriculture and Technology, Pantnagar) was undertaken by 256 farmers in about 4 ha land in the program villages.



Meeting with the Farmers' Interest Groups (FIGs) in Madhu Ganga valley



Training of Farmers' Interest Groups (FIGs) on preparation of liquid manure

I.5 Climate Resilient Farming in Bahdarabad block, district Haridwar

From January to March 2017, a pilot project "Up scaling Sustainable Agricultural Practices in three villages of Bahadrabad block of Haridwar district of Uttarakhand" was initiated under Mission Sunhara Kal (MSK) supported by ITC Saharanpur. During this phase, village level agricultural plans were prepared for three villages (Meerpur Muajarpur, Aurangabad and Tanda Banjara) for promoting sustainable food security along with initiation of entry point activities such as NADEP compost pits and kitchen gardens.

During April 2017 to March 2018, three more villages were added to the program. The program objectives were to (i) Develop agricultural plans enhancing climate change adaptations for

promoting sustainable food security, (ii) Establish and strengthen custom hiring centers and cluster level farmers' school, (iii) Promote organic farming and kitchen gardening, (4) Enhance food grain production through sustainable agriculture practices like Crop Intensification, (5) Improve productivity of land through soil and moisture conservation techniques and (6) Enhance ground water recharge through promoting infiltration and reducing runoff. Thus the focus of the program was on promotion of soil and moisture conservation, ground water recharging and promotion of climate resilient farming. The key achievements of the program from April 2017 to March 2018 were:

1.5a Mobilization

- (i) **Net Planning:** Capacity building of the field team was undertaken for sustainable agricultural planning. A database was created for all the six program villages through PRA and household surveys. The NET Planning process included village profile, seasonal crop calendars along with farming activities, irrigation system, and marketing systems, and institutional profile.



Net Planning for Sustainable Agriculture

- (ii) **Village Level Institutions:** Various village level institutions like Farmers' Interest Groups (FIGs), Farmers' Field Schools (FFSs), Custom Hiring Centres (CHCs) and Self Help Groups (SHGs) were formed at different levels. FIGs (22) were formed at village level to organize farmers (265) in introducing sustainable farming practices. Progressive farmers (105) from villages were organized to form FFSs (6, one in each village) so as to demonstrate above practices and extend handholding support to other farmers. Two CHCs were formed with the help of women farmers (31) for providing farm machinery to others on rent. Apart from the above, three SHGs were formed by women (55) of poor farming households for undertaking savings and inter-loaning within them

1.5b Capacity Building

Regular meetings, training and exposures visits were organized for members of different institutions. These included

- (i) **Training:** About 17 training workshops were organized covering formation of FIGs, organic farming, soil and moisture conservation, mushroom cultivation, System of Sugar Cane Intensification (SSI) and System of Rice Intensification (SRI). These were attended by 558 farmers, including 120 women farmers.



Farmers' Training: Class room and Practical

Exposure Visits: Six exposure visits to (a) MVDA Saharanpur, (b) Sarv Mangal Seva Sansthan, Bundi Rajasthan, and (c) Indian Institute of Sugarcane Research, Lucknow were organized with 61 participants (including 14 women) from all the villages. The villagers saw the DSR method of rice cultivation, no tillage method in wheat cultivation, system of sugarcane intensification, functioning of CHCs and water users' groups, soil and moisture conservation measures and rain water harvesting.



System of Sugarcane Intensification

1.5c Integrated Agriculture Practices

The following practices were introduced and promoted:

- (i) 60 NADEP pits were constructed for promotion of organic farming.
- (ii) 412 farmers were covered under kitchen gardening for vegetable production.
- (iii) Area covered under sustainable agriculture practices- SSI- 2 ha, SRI- 0.5 ha, SWI- 51 ha.
- (iv) 915 fruit plants were distributed to farmers for enhancing household income.

1.5d Soil and Water Conservation Activities

To reduce soil erosion and enhance ground water recharge various structures were built, through local communities, like gabions, dykes, recharge pits, farm ponds, field bunds, and renovation of community ponds.

Table 12: Soil and Moisture Conservation Activities

S. No.	Structure	No.	Number of Beneficiary Households
1	Field bund	38	38 (23 ha)
2	Farm Pond	13	13
3	Community Pond	3	98
4	Gabions	18	85
5	Dykes	12	85
6	Recharge Pits	11	132

**Renovated Community Pond, Meerpur**

The different soil and water conservation activities generated a total of 1,179 days of employment in all the six project villages.

I.6 Other Activities

During the year, the NRM team provided support to other organizations on NRM related issues, as well as attended various workshops and meetings, as briefly described below.

1.6a Support to Organizations

At the request of CORD, Kangra, the NRM team visited Kuthed panchayat of Chamba district, Himachal Pradesh in March 2018. They visited all the five panchayat wards and organized meetings and participatory exercises with the local community. An NRM based Integrated Development Plan was developed and submitted to CORD.

The NRM team also provided support to MVDA, Tehri Garhwal and Pragati, Koraput for sustainable agriculture and watershed development related activities respectively.

1.6b Meetings and Workshops

Members of the NRM group represented PSI at

- Meeting with Secretary, Ministry of Water Resources, GoI, New Delhi on April 5, 2017 along with Spring Initiative partners,
- Consultative meeting organized by Swaniti with MPs from different constituencies on water related problems, on April 5, 2017 at New Delhi,
- Vikalp Sangam meetings on April 10-12, 2017, September 18-19, 2017, and November 29-30 for developing agendas for Western Himalayas and Bundelkhand regions,

- Second Meeting of National Platform for Disaster Risk Reduction scheduled on 15-16 May 2017 at Vigyan Bhawan, New Delhi,
- Workshop on improved water mills on June 27, 2017 organized by Uttarakhand State Council for Science and Technology (UCOST), Dehradun,
- Water Practitioners Network meeting on July 8, 2018 at Indore,
- Workshop on “Vulnerability Assessment of Water, Forests and Disaster towards Climate Change in different districts of Uttarakhand on July 14 2017 at Dehradun organized by State Climate Change Centre, Uttarakhand; UNDP and TARU Leading Edge,
- India Water Stewardship Network meeting on July 18, 2017 at WWF India, New Delhi,
- MAKAAAM consultation with National Commission of Women regarding “Securing Rights of Women Farmers: Developing A Roadmap for Action” on August 2 - 3, 2017 at Dehradun,
- CSR Summit on September 18-19, 2017 at Gurgaon,
- Consultation of stakeholders for roadmap on rejuvenation of Naini lake organized by UNDP on November 27, 2017 at Dehradun,
- National Water Convention on December 2-3, 2017 at Khajurao organized by Jal Jan Jodo Abhiyan,
- IAG -Uttarakhand Way Forward meeting on Disaster Preparedness on January 27, 2018 at Dehradun,
- World CSR Day on February 18, 2018 at Mumbai for receiving certificate of merit on behalf of PSI,
- Two-days' workshop for NGOs at Orchha, Tikamgarh on February 22-23, 2018 organized by NABARD, and
- 12thUttarakhand Science and Technology Congress on March 9, 2018 at UCOST, Dehradun.

1.6c Training

Members of the NRM group undertook various training, as under

- (i) Training Workshop organized by ITC on May 15-16 at Saharanpur
- (ii) Training program on “Water conservation practices through adaptation of appropriate management and technological interventions: A practitioners approach” from July 3-7, 2017 organized by NIH, Roorkee
- (iii) Training-cum-workshop on Water Resources Management by National Water Academy (NWA), Pune on July 31-August 1, 2017
- (iv) Training workshop on Organic Kitchen Garden Development at the Gandhi Smarak Nidhi on November 5th, 2017 organized by LEAD, India

- (v) Workshop for the Rainfed Data portal organized on November 28-29, 2017 at Indian School of Business, Hyderabad by RRAN

Dr. Debashish Sen made a presentation on impacts of hydro-power projects on livelihoods at the World's Large Rivers Conference, New Delhi on April 20, 2017. Similarly, Mr. Rajesh Kumar made a presentation on the benefits of springshed development at a two-day training-cum-exposure workshop on "Importance of Embedding the Science of Hydrogeology in Springshed Management and Governance" on March 9-10, 2018 in Gangtok organized by ACWADAM, Pune and RM&DD, Govt. of Sikkim

I.7 Remarks

In the beginning of FY 18, at the request of PSI, the "Participatory Livelihood Rehabilitation" program was extended both by Axis Bank Foundation as well as Star-India for a year upto March 2018 for completion of the remaining activities, and strengthening of institutions and operational systems for ensuring sustainability. After reviewing the past years' experiences, PSI ended the partnership mode of implementation and decided to implement the remaining work on its own.

This year's focus was on capacity building of the valley level GSS *Sangathans* along with other village level institutions (GSS, MMD/MSS, SCGs and FIGs). Meetings, training and exposure visits helped in implementing a withdrawal strategy. With FIGs the focus was on increasing the coverage, production and income through cultivation of pulses, vegetables and spices. For the marketing of local farm produce from villages of Revati and Saryu valleys, a market outlet was established in November 2017 at district headquarter Bageshwar.

There is a need to further strengthen the supply chain of livelihood activities like dairy and poultry. In the coming year more efforts will be put in the above direction. Apart from the above, community based tourism has been identified as a potential livelihood activity which could benefit many households of Madhu Ganga as well as Revati villages.

Neighboring villages from the two valleys (Madhu Ganga and Revati) have expressed their interest in the livelihood activities and even participated in some of the awareness camps and meetings. PSI's team will soon visit these villages in the near future and will consider adding 5-6 potential villages to the program which will also strengthen the GSS *Sangathan* and sale from the established market outlet at Bageshwar. The GSS *Sangathan* at Madhu Ganga is also considering to form a farmers' cooperative for enhancing farm production and income.

Under the new "Cluster approach for production, processing and marketing of pulses" project initiated in 10 villages of Ukhimath block in Rudraprayag district, farmers have shown tremendous response in adopting SCI practices in pulses production. The number of farmers growing lentil increased three fold. The expected incremental grain yield is about 40 per cent

which is likely to enhance self-sufficiency in pulses and increase farm income in future. A processing unit will be established in the coming year in the cluster itself for grading of pulses.

Under the “Providing Safe and Sustainable Domestic Water and Sanitation” project in ten selected hamlets of Bageshwar block, district Bageshwar, construction of drinking water schemes was initiated in six out of the eight hamlets through UWSSCs formed in each hamlet. The *Mahila Mangal Dals* of the concerned villages are also actively involved in the program especially in promoting good sanitation practices. The communities are looking forward beyond access to safe drinking water. Considering the request of people from these villages, a new program on food and livelihood security focusing on production and marketing of vegetables, spices and pulses is likely to be developed over the next year for the area.

As for the eight villages of Pindar valley of Kapkot block, district Bageshwar being covered under the “Providing Safe and Sustainable Domestic Water and Sanitation” project, being disaster prone and in a very remote location, the area is quite challenging. It becomes almost inaccessible during rains (due to landslides) as well as in winter season (due to heavy snowfall). Therefore, work is likely to take more time than expected. Two hamlets (about 60 households) of Khati village are likely to avail water supply in the coming summer. PSI’s team will seek extension for two more years up to 2021, from The Hans Foundation for execution of DPRs of the remaining villages.

The NRM group successfully promoted sustainable agriculture practices along with ground water recharge activities in six villages benefiting about 438 families under the ITC supported Mission Sunhara Kal program of “Up scaling Sustainable Agricultural Practices in Bahadradab block of Haridwar district of Uttarakhand” of (MSK). Farmers have responded positively to the demonstrations of System of Sugarcane Intensification and zero tillage in SWI. Organic farming practices have resulted in reducing the usage of chemical fertilizers. Commercial vegetable cultivation was done by 10 farmers obtaining good returns. A more detailed impact assessment study needs to be undertaken to understand the benefits of agricultural and soil and water conservation practices. More neighboring villages are expected to be added in the coming year.

I.8 Financial Statement

NRM Group's Financial Statement (2017-18)

S. No.	Project	Funding Partner	Opening Balance (Rs.)	Income (Rs.)	Utilization (Rs.)	Balance (Rs.)
1	Uttarakhand Flood Disaster	Individual Donations	20,279,732.33		1,497,230.06	18,782,502.27
2	Uttarakhand Flood Disaster	Star India Pvt. Ltd.	15,211,403.59		7,268,365.59	7,943,038.00
3	Uttarakhand Flood Disaster	Axis Bank	269,638.72	3,171,168.00	3,445,240.72	(4,434.00)
4	WUR	RRA-Hivos, ICCO, WU & OXFAM	93,497.94	0	0	93,497.94
5	Jal Dhara Bageshwar (JDB)	The Hans Foundation	12,407.00	2,617,622.00	2,063,507.44	566,521.56
6	Implementation of 10 DPRs of Jal Dhara Bageshwar (JDB-DPR)	The Hans Foundation	0.00	2,326,171.00	2,750,808.00	(424,637.00)
7	Integrated Village Development Plan (IVDP)	The Hans Foundation	0.00	1,610,320.00	1,767,320.00	(157,000.00)
8	Implementation of IVDP-DPR Khati	The Hans Foundation	0.00	1,345,835.00	1,634,473.00	(288,638.00)
9	Mission Sunehra Kal (MSK) in Bahadarabad block, Haridwar	ITC Limited	(69,955.67)	5,775,862.00	5,540,851.92	165,054.41
10	ILSP -Pulse project	Uttarakhand Gramya Vikas Samiti	0.00	1,007,762.00	694,694.46	313,067.54
	Total		35,796,723.91	17,854,740.00	26,662,491.19	26,988,972.72

II. ENVIRONMENTAL QUALITY MONITORING

PSI's Environmental Quality Monitoring Group (EQMG) monitors environmental quality, pollution levels and their impacts. It builds the capacities of VOs and communities to gather and interpret pollution data and plan for mitigating pollution-related problems. It also assesses the environmental impacts of developmental projects. It operates a well-equipped laboratory in Dehradun. In 2017-18, EQMG completed the second phase of its Participatory Ground Water Management program. The Group moved into a fourth phase of its fluorosis mitigation program in Dhar district (M.P.). Most of the year it was engaged in providing technical support to other organizations for community based springshed development activities especially in the northeastern states. Activities carried out during the year are highlighted below:

II.1 Participatory Groundwater Management (PGWM)

PSI promoted PGWM practices in the villages of Thanakasoga Panchayat, district Sirmour, H.P. from 2011-2014. This first phase of the PGWM program helped PSI to establish a resource centre for this kind of work in the form of a team of trained professionals with an understanding of hydrogeology. During this period, PSI provided training to over 150 professionals belonging primarily to the Himalayan states, in the concepts and practices of PGWM. The second phase of this program (August 2014-July 2017) focused on deepening and extending PGWM principles and practices in the Himalayan region and also in some new geographical regions. PSI included PGWM in all its major ongoing programs in geographically different areas having different groundwater related issues. Details of the 2017-18 activities are elaborated below.

II.1a Training

In order to extend the PGWM in other areas, region specific training and workshops were conducted in Manipur, Mizoram and Tripura.

(i) **Training Workshop in Manipur:**

A 15-day training workshop on PGWM was organized from 8-19 January, 2018 at Mantripukri, Imphal. Resource persons from PSI and ACWADAM led the workshop, attended by 18 participants from the Forest Department, local VOs and community representatives. On the concluding day, officials from

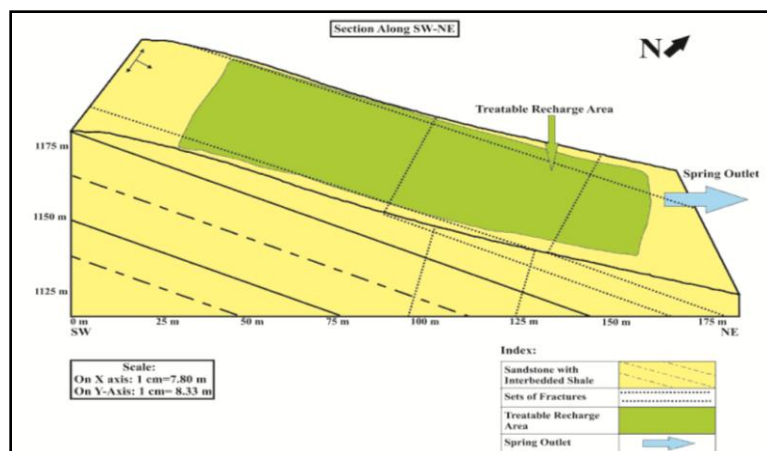


Interactive session with participants at the training workshop in Manipur

NABARD and Forest Department expressed the need to revive critical springs in Manipur.

- (ii) **Training Workshop in Mizoram:** PSI organized a 15-day training workshop in Mizoram from 23rd January to 3rd February, 2018 at Aizawl. A Mizoram Core Team (MCT) of 20 participants comprising of District Level Officers as well as field staff of PHED, Agriculture, Soil and Water Conservation, Irrigation, and Forest Department attended the training as a part of the Participatory Springshed Revival Program in Mizoram with ACWADAM Pune as a co-partner and GIZ & Arghyam as support organizations.

The training includes a demonstration pilot on participatory springshed development in Sihphir village of Mizoram involving the trainees and concerned villagers was conducted. The aim is to build the capacities of Mizoram's. Hydro geological study of 5 springs was carried out in the village to identify the potential recharge areas. The



Cross section of the Sihphir Lui spring in Sihphir village, Mizoram

The springshed development plans' preparation are underway. The trained MCT is expected to carry out similar activities in 15 other springs of Aizawl district.

- (iii) **Orientation-Cum-Training Workshop in Tripura:** PSI and Tata Trusts organized an orientation-cum-training workshop from 29th January to 1st February 2018 in Tripura with the support of ACWADAM and Arghyam. The objective was to discuss the principles and critical aspects of PGWM and to explore the potential for PGWM and springshed development in Tripura. The curriculum included theoretical sessions, practical and field work on hydrogeology and water quality. At the end of the workshop, NABARD expressed its keenness to develop springshed development program for the state of Tripura. JICA Tripura mentioned that it would include springshed development in its catchment area treatment component. Follow-up activities are going on with the participants these organizations to develop a state level program.

II.1b Action Research Program

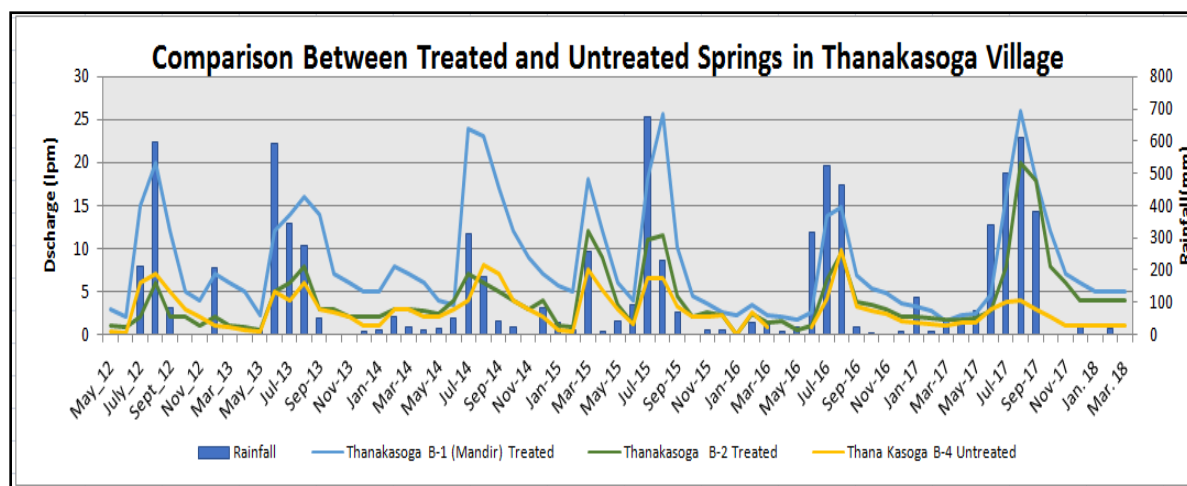
- (i) **Thanakasoga:** PSI's team sought an 8 months' extension (from August 2017 to March 2018) for the ongoing action research program in Thanakasoga to ensure completion of activities and planning an orderly phase-out of the program by preparing a community cadre who would manage the systems on their own.

The major activities during the extension period included training of communities in operation and maintenance of springs, and construction and repair works. An irrigation tank was constructed in each of the 3 villages – Luhali, Dhyali & Thanakasoga to collect and use overflowing spring water for irrigation. On villagers' request, *baoris* were repaired and gates were constructed to protect them from stray animals. The villagers voluntarily contributed about 20 per cent for these activities.



Irrigation Tank Constructed in Luhali Village

Members of *Mahila Mangal Dal* and volunteers from each village were trained in various aspects of PGWM including spring discharge and rainfall measurement, water quality monitoring, digging and desilting of trenches, conducting regular monthly meetings and maintaining records, establishment of nurseries, and using SCI practices for improved crop productivity through efficient water. The entire spring discharge data was collated from May 2012 to March 2018 and analyzed. A significant increase in discharge of *baoris* was observed where recharge activities were carried out. The hydrographs below show a comparison in discharges between treated and untreated *baoris* in Thanakasoga.



The comparative spring discharge data as shown in the hydrographs indicates that springs can be rejuvenated by implementing engineering and vegetative measures in properly identified recharge areas using hydrogeology. The major learning of PGWM through this project has been that science based springshed management through community participation is the critical element for attaining water security. In order to disseminate the experiences and success gained by practicing PGWM at Thanakasoga, knowledge products

like briefing note, process document, info-graphics, poster and research paper were prepared.

- (ii) **GW Quality Monitoring in the Baddi-Barotiwala-Nalagarh:** To explore the possibility of PGWM in an industrial area, PSI initiated groundwater quantity and quality studies in the Baddi-Barotiwala-Nalagarh area of Himachal Pradesh. The findings indicate that around 5000 industries in this area heavily depend on groundwater and release their effluents into Sirsa river. During the last two years, PSI has also monitored the area's groundwater quality. A draft report has been prepared and an article has been made available on India Water Portal.

II.2 Community Based Springshed Development in the Indian Himalayan Region (IHR)

It is estimated that 80 percent of drinking water supply in rural villages of the IHR is spring based. However, a vast majority of these springs are becoming seasonal or have dried up due to the impacts of climate change or changes in land use pattern. In order to mitigate this problem PSI has extended its technical expertise to communities and agencies based in the IHR for community based springshed development.

II.2.a Reviving Springs in Uttarakhand

PSI is helping rural communities to revive 50 critical springs in five water scarce districts of Uttarakhand -- Almora, Pauri Garhwal, Dehradun, Nainital and Pithoragarh with the support of Bajaj Auto Limited. This 3-years program is expected to benefit about 1000 rural households. In addition, there will be better irrigation, increased fodder availability, reduced soil erosion and sanitary protocols to protect springs. The program will assist women to reduce their drudgery to fetch water, sustain livelihoods and help in reviving a dying culture of managing local water bodies.

Initially an inventory of more than 150 springs was prepared in the selected districts. This was followed by hydrogeological studies in water scarce villages to identify critical springs for treatment. Till March 2018 work had been initiated in 2 districts - Almora and Pauri Garhwal. In Almora, the program activities are being undertaken in partnership with Kasturba Mahila Utthan Mandal (KMUM). A *Sandesh Yatra* was conducted in the selected villages to create community awareness about the causes of reduced discharges and the role of local communities in reviving springs.



Sandesh yatra in Naikana, Almora

This was followed by formation of village level water user groups for the concerned springs. Plans for implementing recharge measures were prepared for 15 springs in Almora based on hydrogeological studies involving members of water user groups and volunteers from the concerned villages. Members of these groups were trained in rainfall measurement (through installed rain gauges), spring water quality and discharge measurements.

II.2b Water Security Planning in Uttarakhand, Nagaland and Arunachal

In January 2018, PSI was sanctioned a research and implementation project by MoEF & CC under the National Mission for Himalayan Studies (NMHS). It is a 3 years' program on water security planning in the Indian Himalayan Region (IHR) through hydrogeology based and community driven springshed development. It is being led by PSI in partnership with IIT Roorkee; Department of Land Resources, Nagaland; WWF-India and Arghyam, Bengaluru. The project aims at (i) inventorization of 300 springs in the selected districts of Uttarakhand, Nagaland and Arunachal Pradesh, (ii) preparation of water security plans for villages on a watershed basis, along with (iii) implementation of spring and stream rejuvenation pilots and (iv) hydrological modeling to determine best management practices for water resources in the two watersheds of Uttarakhand.

State	District	Tehsil	Watershed (No. of Villages)
Uttarakhand	Almora	Takori	Chanauli (2)
	Pauri	Dwarikhal	Dasmeri (5)
Nagaland	Phek	Chizami	Chizami (3)
	Zunheboto	Akuhaito	Khrimtomi (2)
Arunachal Pradesh	Tawang	Zemithang	Socketsen (3)
	West Kameng	Thembang	Chander (4)

Program Location

An inception workshop was organized on 30th January at New Delhi to brief the partners about the program objectives, methodology and procedures to be followed. During the first quarter, watersheds were selected in all the districts and an inventory of 200 springs was completed for Uttarakhand and Nagaland. Sites within the two watersheds of Uttarakhand were identified for installation of automatic weather station and hydrological monitoring instruments. Training for preparation of spring inventory was provided to WWF's field team in Arunachal Pradesh.

II.2c Springshed Development Initiatives in Nagaland

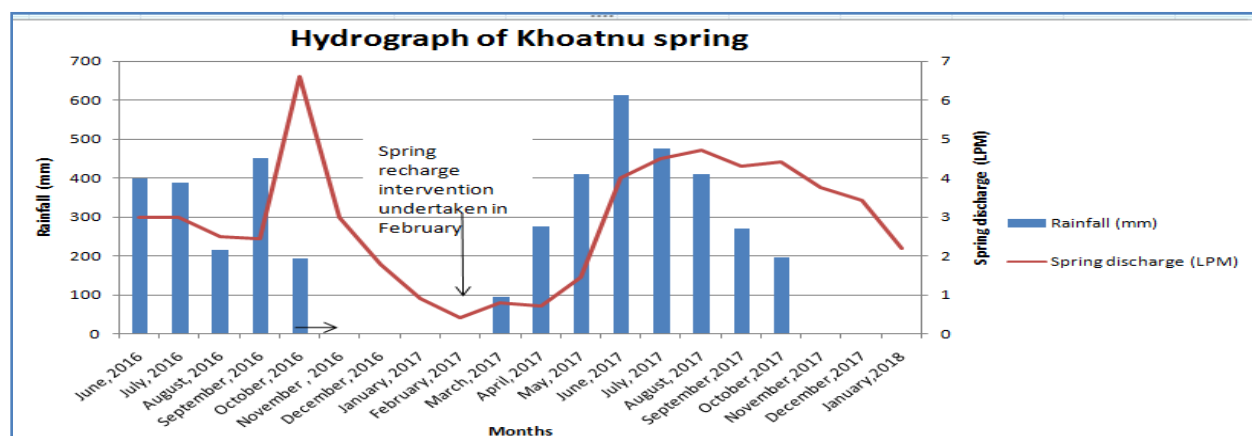
The Land Resources Department (LRD), Nagaland initiated a pilot project on Springshed development under its SPEED (Special Program for Environmental and Economic Development) program in April 2016. The department approached PSI to develop the project intervention plan and provide technical support for its implementation. PSI provided technical support to LRD for rejuvenation of one



Capacity Building of Spring's Water User Group

spring in each of the 11 districts of Nagaland as a pilot.

Training and hand-holding was provided to the project and field staff members of LRD to carry out this work. Successful results of the implementation encouraged LRD to scale up the work in the state. The department has now prepared a plan for community based springshed development in 100 villages of Nagaland with the support of the Department of Rural Development, Nagaland and Arghyam, Bengaluru. PSI along with ACWADAM will be working as technical partners for the above program.



An example of impact of interventions on spring recharge in village Old Jaboka in Mon district

II.2d Springshed Development in Meghalaya: Springs are rapidly drying up in Meghalaya leading to acute water shortages, especially during the summers. In order to revive the springs, the Soil and Water Conservation Department (SWCD) of Meghalaya planned to conduct springshed development pilots in 11 districts. PSI has partnered with SWCD as a technical support organization for implementing springshed development in 20 springs. PSI and ACWADAM have conducted three training workshops – one each in Garo, Khasi and Jaintia regions of Meghalaya for the officials of SWCD. In the next phase, springshed development plans will be prepared.



Capacity Building of SWCD's team of Meghalaya

II.3 Community based Fluorosis Mitigation in Dhar District (M.P.)

PSI is working in Dhar district of Madhya Pradesh since 2013 to provide safe drinking water to fluorosis-affected marginalized rural communities. This initiative is based on the principles of PGWM which consider groundwater as a common pool resource and the local communities are

involved in managing their groundwater in an equitable and sustainable manner. So far, implementation has been successfully completed in 13 villages while work is in progress in ten more villages. More than 1000 families (over 6600 people) have benefitted from this initiative. The interventions are based on studying the local hydrogeology and monitoring groundwater quality to identify fluoride safe water sources (mainly dug wells), preparation of operation and maintenance plans, establishment of water supply systems, monthly contributions and sharing of fluoride safe water by the communities.

This year, community based water supply systems were established in Jamunpura, Jamniamota, Sundarpura and Talabpura villages. Water User Committees (WUCs) were formed, rules and responsibilities for operation and maintenance of the water supply system were formulated and implemented in them. The households are voluntarily contributing a basic charge on a monthly basis to the WUCs to support the cost of running the water supply systems. The efforts have helped increase the availability of safe drinking water and on its equitable distribution. It has also created awareness about fluorosis and health & hygiene among 234 families.



Inauguration of Water Supply system in Jamniamota village

The project moved toward its goal of increasing the number of marginalized communities having access to safe drinking water and sanitation, awareness about hygiene practices and sustainable management of safe water resources. In the next phase, PSI is planning to introduce an Integrated Water Resources Management (IWRM) approach into the program with some additional funding support from Frank Water and Arup, UK. It will include water budgeting, construction of appropriate groundwater recharge structures and development of protocols for groundwater management at the village level.

II.4 Other Activities

II.4a Piloting PGWM Principles under BRLF Program

PSI is supporting two BRLF (Bharat Rural Livelihoods Foundation) -funded VOs, i.e., Parhit Consortium and FES to demonstrate PGWM activities in 7 pilot villages of Shivpuri and Sheopur districts in M.P. and Udaipur district in Rajasthan and Yavatmal district in Maharashtra. All the selected villages are almost entirely dependent on groundwater sources

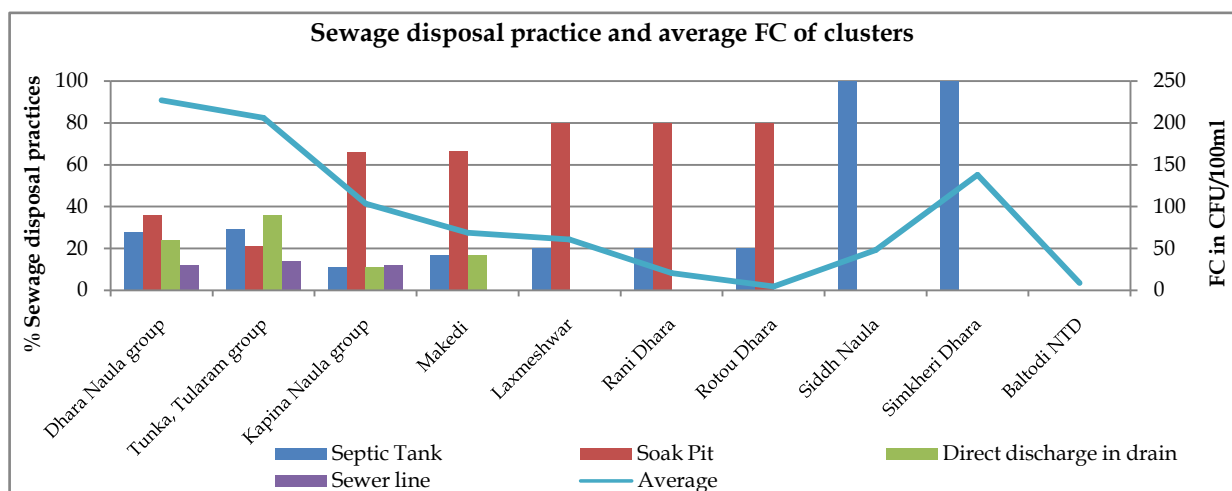
for their domestic and irrigation needs but the level of water in these sources is fast-declining causing water scarcity. Under a multi-year program, PSI is training the BRLF partners in the basics of hydrogeology, geological and aquifer mapping, water quality monitoring, groundwater and crop water. The major objective is to help the BRLF partners initiate PGWM in the selected villages.

Field facilitation and capacity building training sessions were conducted for 20 project staff members of BRLF partners in Udaipur and Shivpuri. After the training, a hydrogeological mapping exercise was carried out by the trainees with the help of PSI's team. Water budgeting and designing of groundwater treatment measures is in progress.

II.4b Groundwater Sanitation Nexus

Almora is a rapidly growing city in Uttarakhand. It has traditionally been dependent upon its groundwater sources i.e. *naulas* and *dharas* for drinking and domestic water needs. But over the last 150 years the number of springs has declined from an estimated 360 to 60. Those that remain are rapidly becoming seasonal with low flows due to shrinking of recharge area caused by unplanned development. Most of the *naulas* are contaminated throughout the year due to improper sanitation infrastructure.

PSI carried out a year-long research study in Almora with the financial support of Arghyam to identify transport pathways of microbial contaminants in *dharas* and *naulas*. After a preliminary survey, an inventory of 52 springs was prepared out of which 17 *naulas* were selected for further studies. The methodology included hydrogeological investigations, seasonal water quality monitoring and a survey of about 200 households. The study showed that sewage disposal practices bring about contamination of groundwater sources. It was found that direct discharge in open drains causes high contamination while springs surrounded by a combination of soak pits and septic tanks have least contamination, and springs having only septic tanks in its proximity have moderate contamination.



Most of the water sources are at the contact of schist and quartzite beds, where fractures of quartzite are most important factor for water movement. In such cases, soak pits built on

quartzite are a potential water contamination source. The data collected also suggest that *naulas* are more contaminated than *dharas*. This could be because of overflows into the *naulas*. The findings were presented at a meeting in Almora to the local people and the concerned department officials for suitable actions.

II.4c Inclusion of PGWM Courses In Educational Institutions

There is a felt need for creating a cadre of trained professionals who can help in faster dissemination of PGWM principles and practice. One way of achieving this is by introducing courses on PGWM in educational institutions. PSI has negotiated the inclusion of such courses at Chitrakoot University, M.P.

A consultative workshop was organized during November 16-18, 2017 to discuss and design degree and diploma courses in PGWM. It was attended by Heads and Professors of the concerned departments. It was decided that a special paper on PGWM will be introduced under courses like M.Sc Geology, M.Sc Environment, M.Sc Agriculture, MSW and Civil Engineering. To begin with, two dissertation topics related to

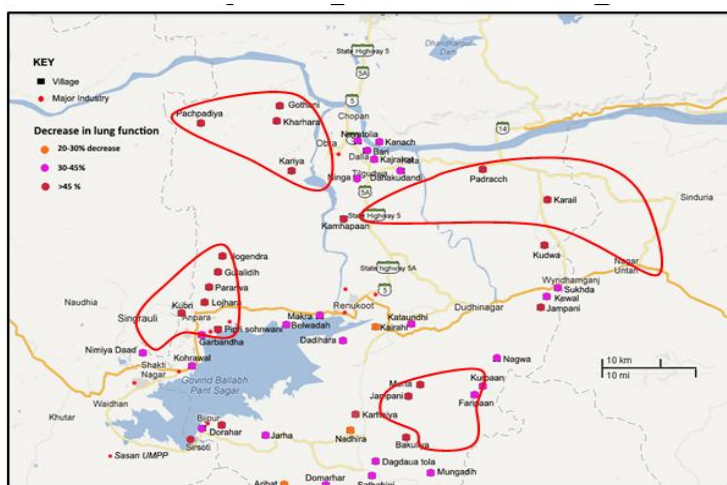


Participants in the 15 days' workshop at Chitrakoot University

assessment of groundwater and impact of effluents on river Mandakini were assigned to some students. As a follow-up to the consultative workshop, a 15-day PGWM training workshop was organized from 5-17 March, 2018 at the University. It was attended by 26 participants including university lecturers, professors, students and local NGOs. Designing of a PGWM course curriculum is under process.

II.4d Monitoring Air Quality in Singrauli and Delhi

Singrauli and Delhi are India's well known air pollution hot spots. PSI carried out air quality monitoring using low cost sensor devices that measure PM_{2.5} and PM₁₀ in collaboration with Hazards Centre, Delhi. The study objective was to (i) test the efficacy of the low cost sensor devices, (ii) monitor the status of air quality at identified sites and (iii) correlate the results with the health study carried out some time ago at both the places. The project period was for about 7



28 Air Quality Impact on Lungs in Singrauli

months starting from 1st July 2017. It was supported by European Climate Foundation, The Netherlands.

14 ATMOS sensor-based monitoring devices, provided by Urban Sciences, were installed in Sonbhadra around four industrial clusters in consultation with Banwasi Sewa Ashram, Global Strategic Communications Council (GSCC) and Hazards Centre. In Delhi, Airveda devices were installed at 15 locations by Hazards Centre. In both the regions, a workshop prior to the study was organised to inform local communities about the purpose of the study, followed by a workshop at the end of the study to discuss the findings and to plan future actions.

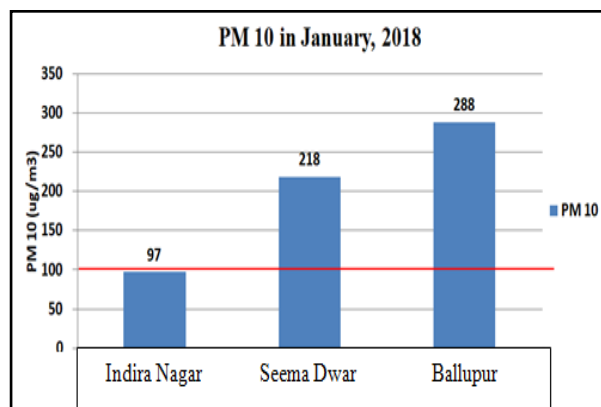
The data collected indicates that in Sonbhadra there were perceptible increases in particulate concentrations, 2 to 3 times the permissible levels during the winter months with occasional spikes of up to 5-6 times the standards. It was apparent that the particles were being carried long distances up to 25-30 km from the source by the plume.

In Delhi, the monitoring indicated that there is a base pollution load across the city at all times that is 3 times higher than the permissible limits. Occasionally the levels spike up all over the city to 6 times the permissible limits. Also there is a diurnal variation with a dip in the afternoons and peaks that occur at peak traffic time, illustrating that the city itself generates much of the pollution that it is victim to.

The impact of this study has been that some of the local organizations in Sonbhadra have decided to (a) organise a march to disseminate the health and pollution monitoring results in the concerned villages; (b) demand a toxicological laboratory and hospital to be set up in the region; (c) demand a District Medical Board be set up to assess health damage, and (d) file claims of compensation for health damage in the court. In Delhi, the results of air quality and its health impacts were shared with the school students and the neighbouring communities.

II.4d Monitoring Air Quality in Dehradun

Air quality monitoring in Dehradun was carried out in January 2018. PM₁₀ was monitored at 3 sites – Indira Nagar, Seema Dwar and Ballupur. The results show PM₁₀ to be higher than the permissible level of 100 µg/m³ as per the National Ambient Air Quality Standards, at Ballupur and Seema Dwar. Schools available at these sites are being contacted to involve students in air quality monitoring. Air quality monitoring will be carried out on a regular basis at more number of sites in the city.



Air Quality monitoring results from Dehradun sites

II.4e Water Quality Testing Kits and Monitoring

PSI's EQM laboratory in Dehradun tests water samples and also produces low cost water testing kits which are purchased by various organizations all over the country. In order to promote the sale of its water testing kits, PSI approached TATA Engage team to help with the marketing plan - to create awareness about the kit and increase its outreach. A plan for marketing of the kits has been suggested by the team which will be used to help in promotion of kits.

In 2017-18, 300 water samples were tested in the lab. Most of the drinking water samples were from PSI's project sites, Doon School, CEDAR, Lal Bahadur Shastri National Academy of Administration etc. The group sold 42 water testing kits and 10 refills.

II.4f Knowledge & Information Disemination

EQM group prepared following documents to disseminate the information gathered and experience gained in PGWM and Fluorosis Mitigation: (i) Briefing note on Thanakasoga, (ii) Infographics, (iii) Process Document, (iv) Briefing note on fluorosis mitigation, (v) Case study on Kalapani, (vi) Flip chart on WASH & Fluorosis (in Hindi), (vii) Compilation of case studies on fluorosis mitigation in Dhar. The following articles were made available on India Water Portal:

- Well water makes a difference in Dhar: <http://www.indiawaterportal.org/articles/well-water-makes-difference>
- Article on Baddi: <http://www.indiawaterportal.org/articles/baad-times-baddi>

A research paper on Thanakasoga was also submitted to be included in the special edition of the International Journal of Water Resources Development (IJWRD) on springs.

II.4g Meetings and Workshops

Members of the EQM group represented PSI at (i) National Seminar on " River Water and Environmental Conservation " on May 8, 2017 at Bhopal, (ii) National Workshop on Participatory Groundwater Management in Ahmedabad on May 30-31, 2017, (iii) 8th Environment Summit held on June 29, 2017 at Dehradun, organized by CII and UCOST. Dr. Anil Gautam was an invited speaker at the Session I- Clean Ganga Mission- Role of Industry, (iv) Stakeholder consultation meeting of working group on Himalayan Springs constituted by NITI Ayog on August 8, 2017 at New Delhi, (v) Roundtable discussion on 'Environmental Regulation in India', on September 20, 2017 at New Delhi organized by Vidhi Centre for Legal Policy, and (vi) Writing workshop organized by ICIMOD and ACWADAM from March 13-15, 2018 in Nepal. The purpose was to develop a research paper on PSI's work on spring rejuvenation in the IHR.

II.5 Remarks

The focus of the EQM Group this year was mostly on extending community based springshed development in the IHR particularly in the Northeast. Most of the year, the group was engaged

in providing training and field facilitation to officials of the government departments in different states to carry out pilots on community based springshed development. This has led the team to emerge as a leading technical support organization for this kind of work in the region. It has also led to new collaborations with various government departments like the Department of Rural Development, Land Resources Department, NABARD, Soil & Water Conservation Department of north eastern states and reputed agencies like Tata Trusts, GIZ and NEIDA. Efforts will be made in the coming year to extend the above activity in other states like J&K, Assam and Tripura of the Indian Himalayan region.

For the community based fluorosis mitigation program in Dhar, PSI is trying to integrate WASH and approaches like Integrated Water Resources Management (IWRM) which will further strengthen the program and work better towards the goal of providing safe drinking water to the fluorosis affected marginalized communities and also sustaining the safe groundwater resources. Agencies like BRLF and APPI (Azim Premji Philanthropy Initiatives) are being approached for additional support so that the work can be scaled up to block level covering 50 to 100 villages in new fluorosis affected villages of Dhar and Sonbhadra districts.

In Sonbhadra region, more scientific evidence will be collected through air and water quality monitoring and the information will be used to create awareness and design training programs for possible non-regulatory initiatives and pollution risk reduction strategies. Informed communities will also be able to work as a pressure groups to get the local authorities to take necessary actions to curb the growing menace of pollution in that area. Dialogues are going on with NTPC to study the status of drinking water quality and quantity and to prepare water security plans for 25 villages of Myorpur block in Sonbhadra district.

The EQM group is planning to carry out a study on River Ganga's health and water quality during *Ardh Kumbh* 2019 from Kaudiyala in Rishikesh to Allahabad. The study will involve WWF-India, IIT-Kanpur and MotiLal Nehru Regional Engineering College, Allahabad. The findings will highlight the critically polluted zones in the selected river stretch, help prioritize and guide management responses, and assess the effectiveness of efforts made to maintain the quality of river water during *Kumbh*.

The groundwater sanitation nexus study carried out in Almora helped to identify transport pathways of microbial contaminants in groundwater sources. The pilot study also helped to develop a proper methodology to conduct such studies.

The findings of the groundwater quality monitoring study carried out in Baddi Barotiwala-Nalagarh industrial area will be shared with the stakeholders and possibilities of such studies will be explored in Sonbhadra. The team is hopeful that such initiatives will help in developing a better understanding of water conflicts between the domestic consumers, farmers and industries, and help advocate participatory groundwater management in industrial areas.

The EQM group is looking forward to develop better products for knowledge dissemination. It will also get involved in data management and content creation using specially designed software and technology. New initiatives like air quality monitoring and introduction of

PGWM courses in educational institutions will eventually result in meaningful and productive work for the common people.

II.5 Financial Statement

EQM Group's Financial Statement (2017-18)

S. No.	Project	Funding Partner	Opening Balance (Rs.)	Income (Rs.)	Utilization (Rs.)	Balance (Rs.)
1	Frank Water	Frank Water	3,36,591.59	13,41,072.00	22,97,017.90	(6,19,354.31)
2	PGWM-II	Arghyam	18,02,143.95	25,48,962.00	43,39,814.32	11,291.63
3	GW SAN	Arghyam	2,87,590.00	56,638.00	3,44,228.00	0
4	GGET	Guru Ganga Envirotech Trust	(1,08,868.00)	1,08,868.00	0	0
5	WWF-India	WWF-India	3,37,506.00	0	3,37,506.00	0
6	BRLF	ACWADAM	24,321.00	9,97,148.00	10,67,911.00	(46,442.00)
7	CTC	Chawla Techno Const. Pvt. Ltd.	(2,151.00)	2,151.00	0	0
8	RSU BAL	Bajaj Auto Limited	0.00	71,02,830.00	17,84,971.00	53,17,859.00
9	NMHS	G.B. P NIHESD	0.00	77,99,291.00	3,13,551.00	74,85,740.00
10	PSM MEG	SWCD, Meghalaya	0.00	10,00,000.00	3,04,898.00	6,95,102.00
11	AQM ECF	European Climate Foundation	0.00	6,31,482.58	8,09,008.80	(1,77,526.22)
12	MSD GIZ	GIZ	0.00	12,23,749.00	2,92,355.00	9,31,394.00
13	LRD	Land Resource Department	36,088.00	0	36,088.00	0
	Total		27,13,221.54	2,28,12,191.58	1,19,27,349.02	1,35,98,064.10

III. INNOVATIVE PROJECT GROUP

In 2002 Innovative Project (IP) Group pioneered the *Gram Swaraj Abhiyan* as a community-led developmental response to the starvation deaths in western Orissa. This innovative and very effective social process was appreciated by many. In 2010 the Ministry of Rural Development, GoI approached PSI to replicate the effort in Bundelkhand as this region has witnessed repeated droughts in the last decade of 2001-2010. From 2011 till 2013 the Group focused on the *Gram Swaraj Abhiyan* (GSA) program in Bundelkhand through NIRD's financial support. After successfully completing the program in 15 panchayats (40 villages) of five districts in Bundelkhand, the Group launched another three years' program in 20 villages in Chhatarpur and Panna districts with the financial support of Tata Education Trust, Mumbai in December 2013¹.

In addition to the *Gram Swaraj Abhiyan* program, PSI's GIS lab is operated by the IP group which has developed a web-based Village Information System for various states like Uttarakhand, Himachal Pradesh and the Bundelkhand region, providing a wide range of information relating to demography, infrastructure and natural resources in visual and data form.

III.1 *Gram Swaraj Abhiyan*

The *Gram Swaraj Abhiyan* of PSI is a long term program of drought mitigation and poverty eradication to enable and empower communities in remote parts of Bundelkhand to initiate self-reliant development in a sustainable and socially just manner. It combines self-help with improved governance and convergence of funds from government schemes. The expected outcomes after three years were:

- Improved food security and income through improved agricultural productivity by increase in food grain production by more than **10 quintals per household**
- Improved availability of water for irrigation with 25% households in the village having access to irrigation
- Increase in the average annual income by **Rs. 17,000** per household for 1000 households
- Village level institutions to sustain self-reliant development and good governance
- Long term goals developed in the villages by the community and followed up in the *Gram Sabha* of 10 villages
- An approach for natural resource development through community mobilisation for the Bundelkhand region.

¹ Partner organization in Chhatarpur district, Chetna Samaj Seva Shiksha Evam Vikas Samiti (CSSSVS) has been directly implementing the project activities and reporting Tata Trust. Hence the following report is in context of Pann cluster alone where PSI is directly working.

The first year of the programme (Dec'13 – Nov'14) focused on preparing VDPs through the process of micro level planning, creating a trained cadre of local resource persons, mobilizing communities and establishing village level institutions (VLIs). The second year (Dec'14-Nov'15) focused on implementation of low cost livelihood enhancement techniques like – SRI, vegetable cultivation, fodder development, agro-forestry, etc.; construction of physical works (farm ponds and earthen dams), convergence through govt. schemes and strengthening the VLIs for better planning, implementation and monitoring of development activities and laying out long-term road map for the development of the region. The third year (Dec'15-Nov'16) focused more on strengthening the livelihood activities, implementation of physical works through community participation, convergence with government funds and strengthening village level institutions. The program got extension till May 2017 for completion of the some of the project activities like construction of physical works, strengthening newly formed farmer interest groups etc.

Status of expected output against proposed for Panna district, as in May 2017

S.No.	ACTIVITY	PROPOSED	ACHIEVEMENT
Micro-level planning			
1	Selection of villages	10 villages in 3 Panchayats of Panna	COMPLETED
2	Creation of Teams	3 <i>Sahayaks</i> , 3 <i>Village engineers</i> , 3 MTs + 10 VLRLPs, 10 <i>Lok Sevak</i> s	COMPLETED (as per requirement)
3	Preparation of VDPs	10 VDPs	COMPLETED
4	Capacity building of local cadre of youth	20 local resource persons	COMPLETED (as per requirement) Preference was given to recruit local youth in the field team. Capacities were built on various themes - engineering works for soil and water conservation, agriculture interventions, livelihood interventions, importance of village level institutions, government schemes etc.
Implementation of VDPs			
1	Convergence with government scheme	Rs. 18,200,000	COMPLETED (more than proposed) Rs. 32,937,000 converged through i. MGNREGA:Rs. 14,094,000 ii. Gram Panchayat's approved budget Rs. 11,252,000 iii. Toilet construction: Rs.7,356,000 iv. Biogas: Rs. 135,000 v. Vidhayak Nidhi:Rs. 100,000
2	Through TATA Trust fund	Rs. 3,000,000	COMPLETED (Fully Utilized)
3	Local contribution	Rs. 429,750	EXCEEDED. Rs. 10,05,144
Village Level Institutions (VLIs)			
1	<i>Aam Sabha</i> and <i>Gram Sabha</i>	Regular at least in 80% villages	COMPLETED <i>Aam Sabha</i> and <i>Gram Sabha</i> regular in 9 villages resulted in convergence of Rs. 32,837,000

S.No.	ACTIVITY	PROPOSED	ACHIEVEMENT
2	Women's Organizations (MahilaMangalDals)	In all 10 villages	ALL ESTABLISHED Regular meetings in all 10 villages resulted in increased participation in <i>Aam Sabha</i> , <i>Gram Sabha</i> , and initiation of several social actions. Strong participation in activities like Kitchen garden, Haat Bazar, <i>Mahua</i> collective etc.
3	SHGs	Need based	COMPLETED. Established 12 SHGs, 159 members, with net saving of Rs. 61,540 and inter loaning amount uptoRs. 125,000
4	Gram Swaraj Samitis	In all 10 villages	COMPLETED. Establishment of GSS in each villages, resulted in planning, implementation and monitoring of works implemented by PSI, strengthening of <i>Gram Sabha</i> and establishment of Gram Kosh of Rs. 476,006
Livelihood Interventions			
1	Farm-based livelihood interventions	As below	Coverage: 866 families
1.1	SRI (Kharif)	500 farmers	COMPLETED. 480 farmers, 104 ha
1.2	SWI (Rabi)	300 farmers	COMPLETED. 573 farmers, 224 ha
1.3	Kitchen garden	NA	COMPLETED 530 families. Establishment of Seed Bank in all villages
1.4	Vegetable cultivation	NA	COMPLETED 153 families, 7.65 ha
1.5	Promotion of Organic Farming	With above farmers	COMPLETED. Use of <i>Panchgavya</i> and <i>MatkaKhad</i> by above farmers
1.6	Fodder development	Increased availability by 30-40%	Partial 62 families
1.7	Agro-forestry	NA	COMPLETED 212 families, plantation of <i>Aonla</i> , <i>Guava</i> , <i>Su-babul</i>
2	Off-farm livelihood interventions	Establishment in each village	Initiated in 9 villages in the form of either Haat Bazar, <i>Mahua</i> , SHG or Dairy Net coverage of families = 300
Soil and Water Conservation Measures			
1	Construction of RWH and soil water conservation structures	Irrigation coverage of 25% household (250 HH)	ACHIEVED more than proposed So far, net coverage of 288 families for irrigation in the form of farm pond (103) and/or ECD (208) Additionally, drinking water measures = 198 families and field bund = 56 families Net coverage of 483 families
VIS and DSS preparation			
1	DSS - preparation of base maps	10 villages	COMPLETED
2	Creation of database	10 villages	COMPLETED
3	Creation of thematic	10 villages	COMPLETED

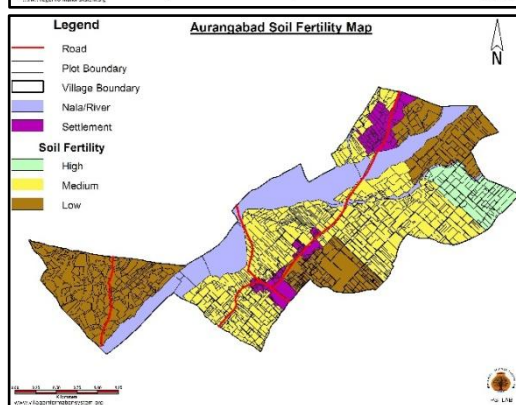
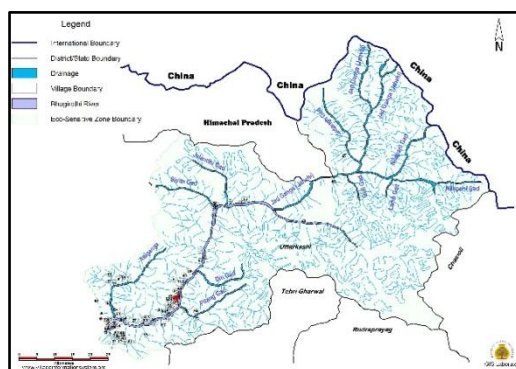
S.No.	ACTIVITY	PROPOSED	ACHIEVEMENT
	maps for villages		
4	Web loading of DSS and VIS	Maintaining data for 13 districts of Bundelkhand	VIS has been upgraded to Census 2011 and published on www.villageinformationsystem.org
Overall Output			
1	Net coverage of families	1000 households	Net coverage of 991 families including- on-farm, off-farm activities, drought proofing measures (out of total 265 families belong to BPPL category and 526 families belong to poorest category as per the PRA wealth ranking)
2	Improved food security	Increased food grain production by 10 quintals per household	Additional production of cereal and pulses by 3Q/HH and vegetables 2Q/HH
3	Income enhancement	Rs. 17,000/per family annually	Around Rs. 17,170/family in 2016-2017 (for covered 991 families)

III.2 GIS

In 2017-18, the GIS lab completed the digitization of all the north eastern states (except Assam). This involved processes like image registration and attachment of secondary data of census 2011 along with village location.

The lab also facilitated the work related to ongoing projects at PSI by preparing various maps. Given below are some examples of maps prepared by PSI's GIS team.

- Eco Sensitive zone map for Uttarkashi district, Uttarakhand
- Location maps of micro hydro power projects for districts Tehri Garhwal, Bageshwar, Rudraprayag and Chamoli
- River basin map for river Ken in district Panna (M.P.)
- Location maps of new program sites at state and national level
- Thematic maps of three villages of Bhadrabad block, Haridwar district for sustainable agricultural planning



- (vi) Location maps for critical springs of Uttarakhand, Arunachal Pradesh and Nagaland

III.3 Remarks

Based on the learning and success of the *Gram Swaraj Abhiyan* program, the following two programs have emerged which are likely to be initiated in the next financial year:

1. Three years' long program on "Livelihood promotion in tribal area of Bundelkhand under Forest Right Act and Watershed based development" is under consideration by BRLF for 100 villages in Panna and Damoh district of Madhya Pradesh.
2. Three years' long program on "Promotion of Climate-smart agriculture based livelihood for small and marginal farmers of central and eastern-plateau of India" is under consideration by APPI for 30 villages in Lalitpur and Sonbhadra districts of Uttar Pradesh, and Panna district of Madhya Pradesh.

III.4 Financial Statement

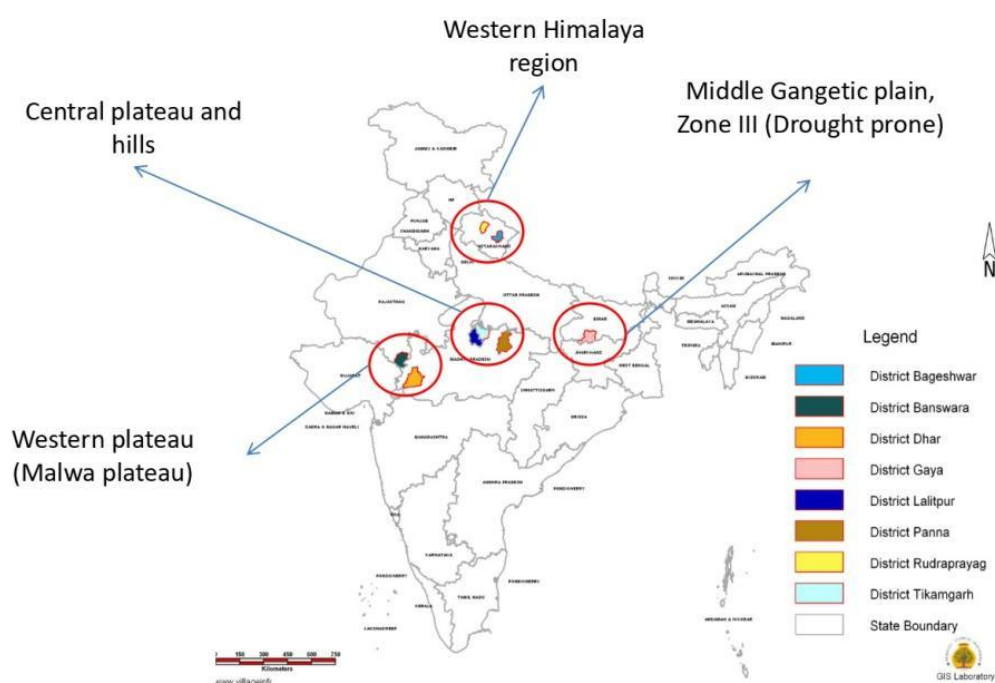
Financial Statement (2017-2018)

S. No.	Project	Funding Partner	Opening Balance (Rs.)	Income (Rs.)	Utilization (Rs.)	Balance (Rs.)
1	Natural resource management through Community mobilization in Bundelkhand region of M.P.	Tata Education Trust	1,795,182.33	573,602.65	2,368,784.98	0

IV. OTHER PROJECTS AND ACTIVITIES

IV.1 System of Crop Intensification

It is now well established that “SCI is a climate resilient agro-ecological approach for the enhancement of agriculture production” even though yields vary considerably between and within regions because of differences in growing conditions as well as seasonal variations, but this is normal for all crop production. There is a pattern of yield improvement and resilience that is common across regions. SCI has been adopted by various government schemes (e.g. NFSM, ATMA etc.), but to a limited scale particularly in the rainfed regions of the country. Undertaking more adaptations and evaluations of SCI methods for improving production of millets, pulses, oilseeds, vegetables and spices; particularly by and for food-insecure and climate-stressed households, should be a priority for rainfed regions, given the large number of households here who depend on this crop for their sustenance and often also for income.



Location Map of Project Area

Hence to set up a pilot of SCI validation in rainfed areas, National Consortium on SRI (NCS) through PSI (where the secretariat of NCS is presently based) and other partner organizations have undertaken SCI inception program through the support of Revitalizing Rainfed Area Network (RRAN) in Rabi 2017-18 in five states viz. Bihar (1 district), Rajasthan (1 district), Uttarakhand (2 districts), Madhya Pradesh (3 districts) and Uttar Pradesh (1 district) covering 286 ha by 2240 farmers in 73 villages of 8 districts. Government's financial support was sought

in – capacity building of farmers (training and exposure) and providing inputs such as seeds, compost, etc. The goal was to demonstrate, by taking up the case of SWI, how farmers, NGOs and Government agencies can work together for promoting food production and nutritional security among climate vulnerable small and marginal farmers of rainfed regions of India.

Overall Result:

State	Cluster (Partner Organization)	Number of Samples	Grain Productivity (T/ha)		% Increment	
			Conventional	SWI	Grain	Fodder
Madhya Pradesh	Panna (PSI)	30	2.8	3.63	30	27
	Dhar (PSI)	15	3	3.64	21	20
	TikamGarh (BSS)	30	2.26	2.91	29	22
Uttar Pradesh	Lalitpur (BSS)	30	2.74	3.41	24	18
Rajasthan	Banswara (Vagdhara)	30	2.5	2.74	10	18
Uttarakhand	Saryu Valley (PSI)	30	1.71	2.27	33	28
	Revti Valley (PSI)	21	2.64	3.78	43	20
	Madhu Ganga Valley (PSI)	30	1.16	1.45	25	24
Bihar	Gaya (PDST)	235	2.41	4.16	73	NA
Total /Average		451	2.4	3.1	32%	22%

This program has served the purpose of piloting SCI in rainfed conditions in various agro-climatic zones and successfully established the desirable production enhancements. The grain production enhancement has been observed in the range of 10-73 per cent (with average of 32 per cent); whereas the straw production enhancement was in the range of 18-28 per cent (with average of 22 per cent). The experiments and results have laid down the possible package of practices for various agro-climatic conditions in the rainfed areas. Based on the above project, the proposal for policy advocacy for upscaling SCI through government programs is under consideration by RRAN



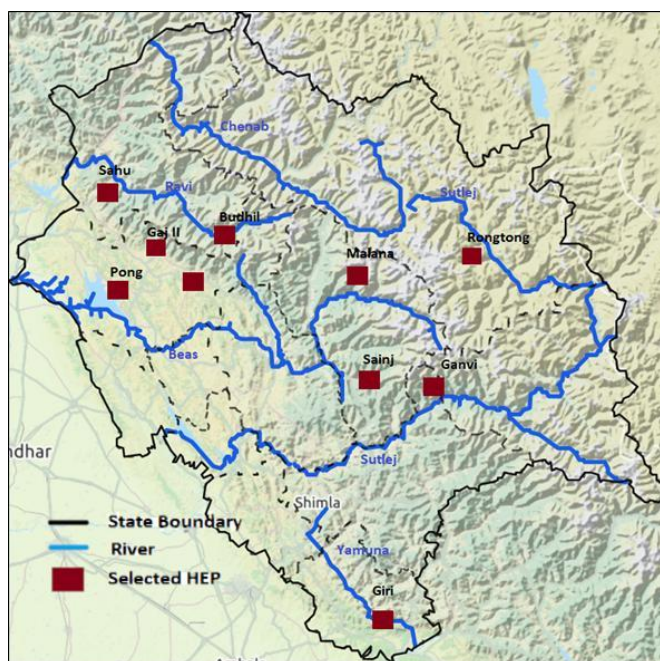
IV.2 Assessing Benefits Sharing from Hydropower Projects in H.P.

In December 2017, PSI initiated a ten-month' research project on assessment of benefit sharing mechanisms for hydropower projects in Himachal Pradesh, through the support of ICIMOD, Kathmandu. The project will study hydropower policies and their implementation in the state, and if and how revenue from hydropower generation is accruing to locally affected communities as benefits from the perspectives of the three key stakeholders: project affected communities, the state government and its departments, and the power developers. One of the

objectives is also to study how the concept of hydropower sharing has evolved over the years within the state and what its shaping factors have been.

Ten hydropower projects (HEPs) from across the five river basins in the state have been selected, of varying capacities, time of commissioning, design and public or private ownership. These projects have been selected based on literature reviews and in consultations with experts and activists.

Data collection commenced in February 2018 and field visits were made to the Giri Hydropower project in Sirmour district and the Ganvi I and II Projects in Shimla district. In March, two hydropower projects in District Kangra were covered, the Neugal Khad Project and Gaj II hydropower projects.



HEPs of H.P. selected for benefits sharing study

Data gathered so far from the field reveals that while the Himachal Hydropower Policy of 2006 is considered to be a pioneering attempt by administrators within and outside the state for its consideration of the rights of local communities, in practice these measures fall far short of desired. The reasons for this vary - administrative inaction, deliberate withholding of mandatory benefits by developers, underhand and illegal measures adopted by developers to quell opposition, and local politics. Small private developers have relatively been the worst performers so far in terms of fair compensation and equitable benefit sharing.

Similar assessment is being executed by other partners in Sikkim, Arunachal Pradesh and Pakistan. The overall objective of this project is to gather findings from across the Himalayan Region (ICIMOD has conducted a similar study in Nepal and Uttarakhand, the latter in partnership with PSI) and present these as learning and evidences that can be used by the governments of this region to move towards more sustainable, equitable hydropower development.

IV.3 Internship at PSI

Each year, PSI hosts a large number of interns. Our internship program generates valuable benefits for both the interns and us. It not only provides the interns an opportunity to develop new skills and gain exposure to field work but also provides us short-term assistance and their fresh outlook about our ongoing projects leading to new ideas and creative solutions. Being an

Institute which also works for social upliftment, we consider hosting interns as a good way to give back to the next generation of socially concerned people.

This year PSI hosted 41 interns from reputed institutes like Wageningen University, The Netherlands; Sam Higginbottom University of Agriculture, Technology and Sciences (SHUATS), Allahabad; Govind Ballab Pant University, Allahabad; Nirmala Niketan College, Mumbai; TERI University, New Delhi; Guru Gobind Singh Indraprastha University, New Delhi; H.N.B. Garhwal University, Srinagar, Pauri Garhwal; Doon University, Dehra Dun; Banaras Hindu University, Varanasi; S.G.R.R. (P.G.) College, Pathari Bag, Dehra Dun; Amity University, Noida; Institute of Rural Management Anand (IRMA), Gujarat , and DSB Campus, Kumaon University.

IV.4 Financial Statement

Financial Statement (2017-2018)

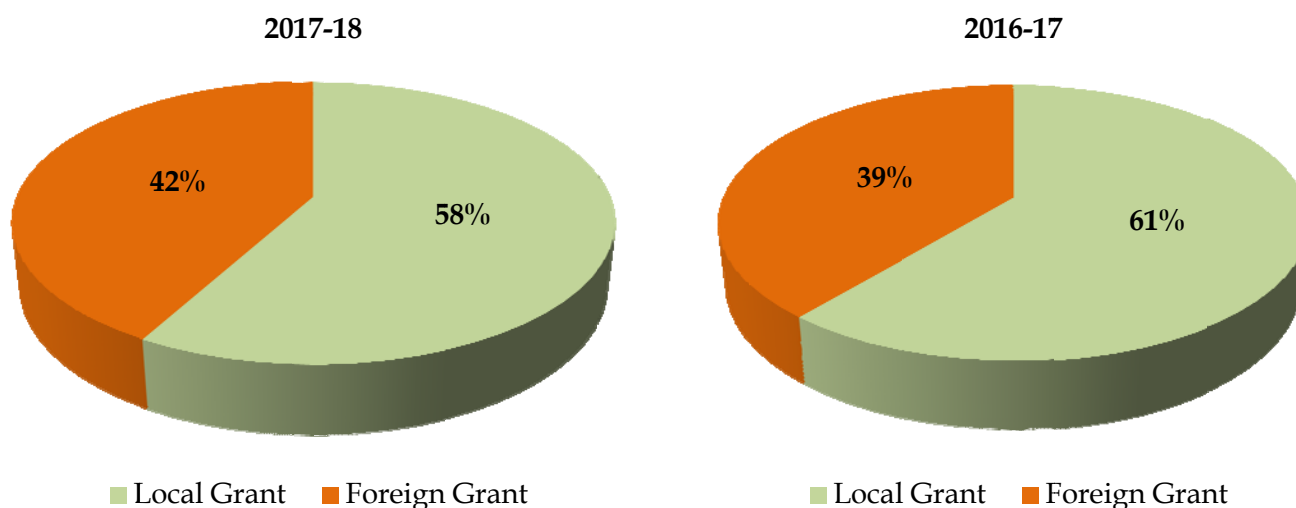
S. No.	Project	Funding Partner	Opening Balance (Rs.)	Income (Rs.)	Utilization (Rs.)	Balance (Rs.)
1	SCI-RRAN	Friends of WWB India	0.00	800,580.00	1,410,337.84	(609,757.84)
2	Benefits Sharing in Hydropower Projects	ICIMOD	0.00	379,786.17	165,421.00	214,365.17
	Total		0.00	1,180,366.17	1,575,758.84	(395,392.67)

V. FINANCIAL REPORT

PSI's balance sheet and consolidated income and expenditure account for 2017-2018, ending March 31, 2018 are attached as Annexures 1a and 1b.

During the year the Institute generated grants worth Rs. 2,92,79,885 and donations worth Rs.1,47,02,769. Other receipts from bank interest, sale of land, consultancies, sale of products and publications amounted to Rs. 2,11,05,094. Adding the opening balance of Rs. 4,03,05,129, the total income for 2017-2018 amounted to Rs. 10,53,92,877. The Institute spent Rs. 4,74,18,026, leaving a balance of Rs. 5,79,74,851. Unutilized grants carried forward amounts to Rs. 4,01,96,078. The deficit transferred to the reserve & surplus account is Rs. 3,38,238 & campus fund is Rs.1,81,17,011.

The pie-charts below show the sourcing of income from local grants and foreign grants for 2017-2018 & the previous year.



The main donors for local and foreign grants are listed below. PSI is thankful to all of them for their support.

Indian: Tata Education Trust, Star India Pvt. Ltd., Axis Bank Foundation, Arghyam, ITC Ltd., Bajaj Auto Ltd., Uttarakhand GramyaVikas Samiti, National Mission on Himalayan Studies (NMHS, GoI), ACWADAM, Soil and Water Conservation and Meghalaya State Watershed Development Agency, and Land Resource Department, Nagaland.

Foreign: The Hans Foundation, Frank Water, European Climate Foundation, ICIMOD, Friends of WWB India (RRAN) and GIZ.

VI. EXECUTIVE BOARD 2017-18

Dr. K.S. Chawla	Chairperson	Geotechnical Engineer
Mr. A.K. Roy	Treasurer	Chemical Engineer
Dr. Kshama Metre	Member	Medical Practitioner
Dr. Navin Juyal	Member	Scientist
Ms. VibhaPuri Das	Member	Political Scientist
Ms. Tinni Sawhney	Member	Rural Management
Dr. Debashish Sen	Director (Ex-Officio)	Scientist

VII. PSI STAFF 2017-18

S. No.	Name	Date of Joining	Date of Leaving
1	Bhupendra Singh Bartwal	01.08.13	01.01.18
2	Vargish Bamola	04.01.16	
3	Puran Bartwal	03.01.11	
4	Ravi Chopra	27.06.88	16.04.17
5	D.N. Dwivedy	17.08.98	
6	Pankaj Kumar Dwivedy	13.02.17	01.08.17
7	Anil Kumar Gautam	01.03.02	
8	Pushpa Juyal	21.12.92	
9	Surendra Kaintura	01.10.12	
10	Vikram Kaushal	01.02.17	
11	Ranjana Khare	01.12.11	01.06.17
12	Manoj Kumar	10.07.06	
13	Ravinder Kumar	01.02.14	01.05.17
14	Darshan Lal	01.06.13	
15	Raman Mishra	01.10.15	
16	Priyanka Negi	01.11.16	
17	Vinod Niranjana	15.01.14	
18	Vishal Patel	18.11.15	
19	R.S. Prasad	01.11.94	
20	Amit Petwal	01.11.16	
21	Puja S. Raghuvanshi	01.11.13	16.06.17
22	Mahendra Singh Rajwar	01.01.08	

S. No.	Name	Date of Joining	Date of Leaving
23	Nitin Rana	19.09.16	
24	Dinesh Chandra Raturi	15.04.15	
25	Ramesh Singh Rawat	16.09.04	
26	Subhash S. Rawat	01.06.02	
27	Chetan Kawley	16.01.17	
28	Aprajita Singh	01.10.16	
29	Debashish Sen	01.03.88	
30	Anita Sharma	02.07.12	
31	Dinesh Sharma	02.10.97	
32	Vikram Singh	01.02.00	
33	Yashpaul Singh	03.01.11	05.08.17
34	C. Tripathi	15.06.88	
35	Khrolhiwe-u Tsuhah	15.06.15	01.12.17
36	Kuldeep Prasad Uniyal	09.03.15	
37	Rakshita Bhatt	01.03.17	17.06.17
38	Bhagwati Pandey	20.03.17	
39	Seema Ravandale	01.04.17	
40	Richa Minocha	10.04.17	
41	Sandhya Kumari	17.04.17	
42	Sharad Yadav	01.05.17	
43	Arvind Nigam	06.06.17	
44	Than Singh	14.06.17	31.03.18
45	Makan Singh	01.07.17	
46	Kamal Kant Pandey	19.06.17	
47	Sunita	14.06.17	
48	Sana Anjum	16.10.17	
49	Sanjay Uniyal	01.11.17	
50	Vinod Negi	01.02.18	
51	Akhilesh Singh	02.02.18	
52	Kunal Upasani	01.03.18	
53	Roshan Rathod	15.03.18	

PEOPLES' SCIENCE INSTITUTE
B-57 Second Floor, New Rajender Nagar, New Delhi-110060
BALANCE SHEET AS AT 31st MARCH 2018

Amount in Rs.

CORPUS / CAPITAL FUND AND LIABILITIES	SCH	2017-18			2016-17		
		LG	FC	Total	LG	FC	Total
(a) Endowment Fund	A	-	5,97,837	5,97,837	-	5,97,837	5,97,837
(b) Campus Fund	B	71,72,000	304,98,750	376,70,750	71,72,000	123,81,739	195,53,739
(c) Reserve & Surplus	C	33,35,030	15,44,893	48,79,923	27,65,678	24,52,483	52,18,161
(d) Grant (to the extent Unutilised) Receivable/ Unutilised (net)	D	327,12,072	74,84,006	401,96,078	237,79,251	165,25,877	403,05,128
(e) Current Liabilities	E	23,26,576	30,24,787	53,51,363	4,47,075	16,49,492	20,96,567
Total (Rs.)		455,45,678	431,50,273	886,95,951	341,64,004	336,07,428	677,71,432
Assets							
(a) <u>Non Current Assets</u>							
Fixed Assets	F	79,35,141	171,81,182	251,16,323	73,79,597	103,17,276	176,96,873
(b) <u>Current Assets</u>							
Cash and Cash Equivalents	G	179,13,401	18,22,083	197,35,484	91,42,008	6,37,809	97,79,817
Other Current Assets	H	30,99,489	85,31,796	116,31,285	16,49,362	8,43,679	24,93,041
Investments	I	165,97,647	156,15,212	322,12,859	159,93,037	218,08,664	378,01,701
TOTAL (Rs.)		455,45,678	431,50,273	886,95,951	341,64,004	336,07,428	677,71,432

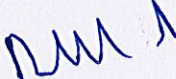
Significant Accounting Policies J
Contingent Liabilities & Notes to Accounts K

As per our report of even dated attached

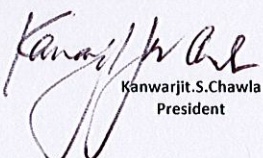
For Lodha & Co.
Chartered Accountants
FRN : 301051E


Gaurav Lodha
Partner
M. No. 507462
Place: New Delhi
Date : 27.09.2018




Debashish Sen
Director

For People's Science Institute


Kanwarjit S. Chawla
President


A.K. Roy
Board Member

PEOPLES' SCIENCE INSTITUTE

B-57 Second Floor, New Rajender Nagar, New Delhi-110060
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st MARCH 2018

Amount in Rs.

INCOME	Sch	2017-18			2016-17		
		LG	FC	Total	LG	FC	Total
Donations & Project Grants	L	300,31,265	139,51,389	439,82,654	128,09,914	68,40,745	196,50,659
Interest Income	M	15,57,643	14,36,786	29,94,429	15,21,804	12,86,562	28,08,366
Gain on sale of Land		-	168,34,252	168,34,252	-	-	-
Other Income	N	8,49,085	16,200	8,65,285	9,51,984	3,34,598	12,86,582
Environment Education and Services	O	3,06,500	-	3,06,500	11,91,479	-	11,91,479
Receipts		1,04,628	-	1,04,628	-	-	-
Profit on Mutual funds		328,49,121	322,38,627	650,87,748	164,75,181	84,61,905	249,37,086
TOTAL							
Grant Unutilised C/f		237,79,251	165,25,878	403,05,129	292,96,964	303,68,185	596,65,149
Total		566,28,372	487,64,505	1053,92,877	457,72,145	388,30,090	846,02,235
EXPENDITURE							
Expenditure							
Program Expenses	P	124,12,800	139,71,302	263,84,102	98,08,524	129,39,201	227,47,725
Establishment Expenses	Q	86,38,435	83,27,149	169,65,584	76,12,902	71,22,088	147,34,990
Administrative Expenses	R	18,68,464	15,21,394	33,89,858	14,42,800	16,67,330	31,10,130
Depreciation	F	4,27,249	2,51,233	6,78,482	3,10,882	3,68,822	6,79,704
Total		233,46,948	240,71,078	474,18,026	191,75,108	220,97,441	412,72,549
Transfer to Unutilised Grant		327,12,072	74,84,006	401,96,078	237,79,251	165,25,877	403,05,128
Transfer to Campus Fund		-	181,17,011	181,17,011	-	-	-
Excess of Income over Expenditure		5,69,352	(9,07,590)	(3,38,238)	28,17,786	2,06,772	30,24,558
TOTAL		332,81,424	246,93,427	579,74,851	265,97,037	167,32,649	433,29,686
Significant Accounting Policies	S						
Contingent Liabilities & Notes to Accounts	T						

As per our report of even date attached

For Lodha & Co.
Chartered Accountants
FRN : 301051E

Gaurav Lodha

Gaurav Lodha
Partner

M. No. 507462

Dated : 27.09.2018

Place: New Delhi



Dr. Debashish Sen

Dr. Debashish Sen
Director

For People's Science Institute

Kanwarjit S. Chawla

Kanwarjit S. Chawla
President

A.K. Roy

A.K. Roy
Board Member