



**13 TH
ANNUAL
REPORT
2018-19**

**CENTRE FOR
ECOLOGY
DEVELOPMENT AND
RESEARCH**

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VOLUNTARY COMPLIANCE

A scenic view of a river flowing through a lush green valley. The river is muddy brown and flows over numerous rocks of various sizes. The surrounding landscape is covered in dense green vegetation, including trees and grasses. In the background, there are mountains partially obscured by a layer of mist or low clouds. The sky is overcast with grey clouds. The overall atmosphere is natural and serene.

ABOUT US

Centre for Ecology Development and Research (CEDAR) is a not-for-profit organisation registered under the Societies Act XXI of 1860 since 2006. CEDAR is recognized as a Scientific and Industrial Research Organisation (SIRO) by Department of Science and Industrial Research (DSIR), Ministry of Science and Technology, Government of India. The registered office of CEDAR is located in Delhi while the main office is based in Dehradun. CEDAR was formed by a group of academics and development practitioners to bridge the gap between applied research and field based interventions or, to put it differently, 'balance theory and practice'. In this respect, CEDAR is a novel initiative and, brings many years of diverse experience under one roof.



MANDATE

The development sector has, for long, been caught in the divide between theoreticians and practitioners where each group underrates the work of the other. This artificial divide has set the sector back and deprived it of the opportunity to continuously assess and improve its work. This has also had implications for policy formulation whereby the lack of a right blend of lessons from the field, properly documented and analysed, has led to information gap in policy formulation. Cedar sees it as a part of its mandate to straddle this divide and thereby plug the information gap in policy formulation. The need for an organisation like Cedar is especially acute in the Himalayan region, which suffers from limited capacity and a dearth of quality institutions.

FOCUS

CEDAR sees itself as being a platform to carry out research of relevance to people and their environment. We aim to get together a blend of researchers, development professionals, and visionaries to identify areas where gaps in information and knowledge exist. These gaps may then be filled by in-house resources, and by collaborating with like minded institutions and individuals.

VISION

CEDAR does not see itself as a research agency or a grassroots intervention agency, instead, as an agency with an ability to work closely with both. We link ecological knowledge to decision making by integrating biophysical and social science that untie today's complex environmental problems. CEDAR currently focuses on the Himalaya.

GOVERNING BODY



**Prof. S.P. Singh
(Chairman)**
Former Vice Chancellor,
HNB Garhwal University,
Srinagar
Chair of Excellence,
Forest Research Institute,
Deemed University



**Prof. B. K. Joshi
(Vice Chairman)**
Former Vice Chancellor,
Kumaun University,
Uttarakhand



**Dr. Ravi Chopra
(Member)**
Founder and Former
Director of PSI, Dehradun



**Dr. Rajesh Thadani
(Member)**
Centre for Ecology
Development and Research



**Dr. Ghazala Shahbuddin
(Member)**
Centre for Ecology
Development and Research



**Shri. S.T.S Lapcha
(Member)**
IFS, Former Managing Director
Forest Corporation



**Dr. Vishal Singh
(Secretary Ex-Officio)**
Executive Director,
CEDAR

RESEARCH ADVISORY BODY



Prof. J. S. Singh
FNA, FNASc, FASc, FTWA
Professor Emeritus
Department of Botany
Banaras Hindu University



Prof. K. Sivaramakrishnan
Dinakar Singh
Professor of India & South
Asia Studies, Anthropology;
School of Forestry &
Environmental Studies
United States of America



Dr. Margaret D. Lowman
Director of Environmental
Initiatives, New College of
Florida, USA



Dr. Bhaskar Vira
Director,
University of Cambridge
Conservation Research
Institute United Kingdom



Dr. Rajendra Dobhal
Director General,
U-COST, Dehradun



Dr. P. K. Champati Ray
Head, Geosciences and
Geohazards Department
IIRS



Dr. Himanshu Kulkarni
Director, (ACWADAM)
Pune- India

RESEARCH TEAM

Dr. Rajesh Thadani, Senior Fellow, Forest Ecologist

Dr. Ghazala Shahabuddin, Senior Fellow, Wildlife Ecologist

Mr. Chetan Agarwal, Senior Fellow, Policy Analyst

Dr. Vishal Singh, Executive Director, Forest Ecologist

Ms. Anvita Pandey, Senior Research Associate, Forest Ecologist

Dr. Nidhi Singh, Senior Research Associate- Soil Sciences and Nursery Management

Mr. Riyan Habeeb, Programme Specialist, Urban Planner & Architect

Ms. Manya Singh, Research Associate, Ecology and Environment Science

Mr. Himanshu Chinwan, Research Associate, Geo-Hydrologist

Ms. Yashi Gupta, Junior Research Associate, Forestry

Mr. Kshitz Dobhal, Knowledge Management and Communication lead

Mr. Narendra Singh Raikwal (Sr. Field Assistant)

Mr. Amit Bhakuni, Office Manager

Mr. Anil Tyagi, Finance Officer

Mr. Dharmendra Singh, Assistant Accountant

THEMATIC AREA

Centre for Ecology Development and Research (CEDAR) is a boundary spanning research organisation created to conduct actionable research in Himalaya. While early interventions focused on forests and allied areas, of late CEDAR has broadened its scope of work. In order to focus and give direction to the range of research activities undertaken by CEDAR, we have identified three key research thematic areas with climate change adaptation as an overarching theme to address the needs of society. Today, our work can be broadly grouped into these thematic areas:-

- Forest and Humans
- Urbanization and Water Security
- Wildlife, People and Land-use Change
- Climate Change Adaptation



FOREST & HUMANS

The Himalayan forest is crucial to life in this region providing direct ecosystem services like fuel and fodder and indirect services like water storage and soil stabilization. CEDAR is actively researching in the Himalayan forests on the topics of human disturbance, the impact of climate change and more sustainable management practices. Forests are an important natural resource which must be monitored and conserved. One ongoing project on this theme is, 'Understanding the impacts of Climate Change and Forest Degradation on carbon stock and population dynamics in the Oak zone of Central Himalayas, funded by Department of Science and technology, Government of India (DST).



URBANIZATION & WATER SECURITY

Rapid urbanization and unplanned development are putting huge pressure on urban water systems. This increased water insecurity is being exacerbated by climate change. CEDAR has been systematically researching Urban water management, demographic patterns and urban development. Stakeholder participation, expert knowledge and a multidisciplinary approach are paramount to understanding urban water issues and the identification of locally sustainable solutions. CEDAR is currently working on Climate Adaptive Water Management Practices (CAMPS) and conservation of Critical Water Zones (CWZ's) in small and medium towns of Western and Central Himalaya.



WILDLIFE, PEOPLE & LAND-USE CHANGE

The Himalayan region has a rich faunal diversity due to its ecosystem heterogeneity and diverse human and biogeographic influences. Land-use change including road and tourist resort building and deforestation are having a large detrimental impact on wildlife. Further stress is being caused by climate change. CEDAR has adopted a long-term monitoring approach that tracks local extinction trends and adaptation of bird species. One current prominent project on this theme is the 'Effects of Land Use Change and Fragmentation on Himalayan Bird Communities in Banj Oak Forests of Kumaon, Uttarakhand, funded by DST.



CLIMATE CHANGE ADAPTATION

Climate change adaptation is the cross-cutting theme of CEDAR's research. Climate change is already having serious impacts on Himalayan forests, wildlife and urban water supplies. The Himalayan region is warming above the global average rate, therefore, CEDAR places emphasis on adaptive solutions rather than mitigation. The organisation uses a climate change lens in all its research projects as we recognize a sustainable environment cannot be achieved without considering climate change.



ONGOING PROJECTS

Name of the Project: Climate Adaptive and Water Management Practices for Cities in South Asia (CAMPS)

Funding Organisation: International Development Research Centre (IDRC).

Duration of the Project: 3 years.

Water security is one of the biggest challenge faced by the major cities. The policies in India aims to benefit the metropolitan cites, large and rural areas whereas neglecting the small and medium cities. The following study has been conducted in small and medium cities i.e. Mussoorie and Haldwani. These cities are facing the problem of water security due to rapid increase in urbanization and changing climatic conditions. The aim of the project is to understand the problem of water security, institution building and transformation, informed by a diagnosis of social, political and biophysical dimensions of the two case study hence developing a Climate Adaptive Water Management Practice (CAWMP).

After two years of research work in the study sites, the main focus of research in this year was to implement climate adaptive solutions to overcome water security and gap in the study areas. We conducted water vulnerability index for wards in Mussoorie and Haldwani (Fig 1a, 1b). Our research since the beginning focused on user driven out puts, in order to achieve this water forums in each city was created which included members from different forms of life. People at the base of the pyramid and women were especially included in the water forum. Implementation along with knowledge products in the form of research publications, brochures, videos and policy brief were the main outcome of the project.



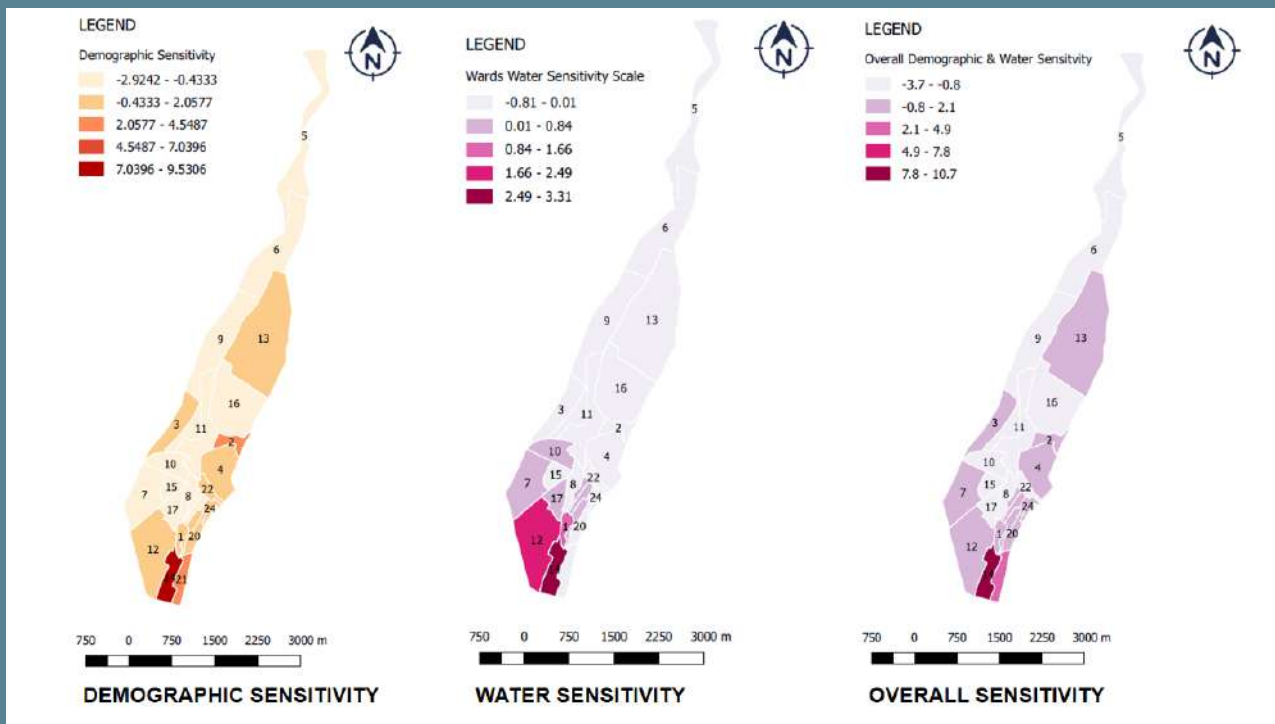


Fig 1. Haldwani Water Vulnerability Index

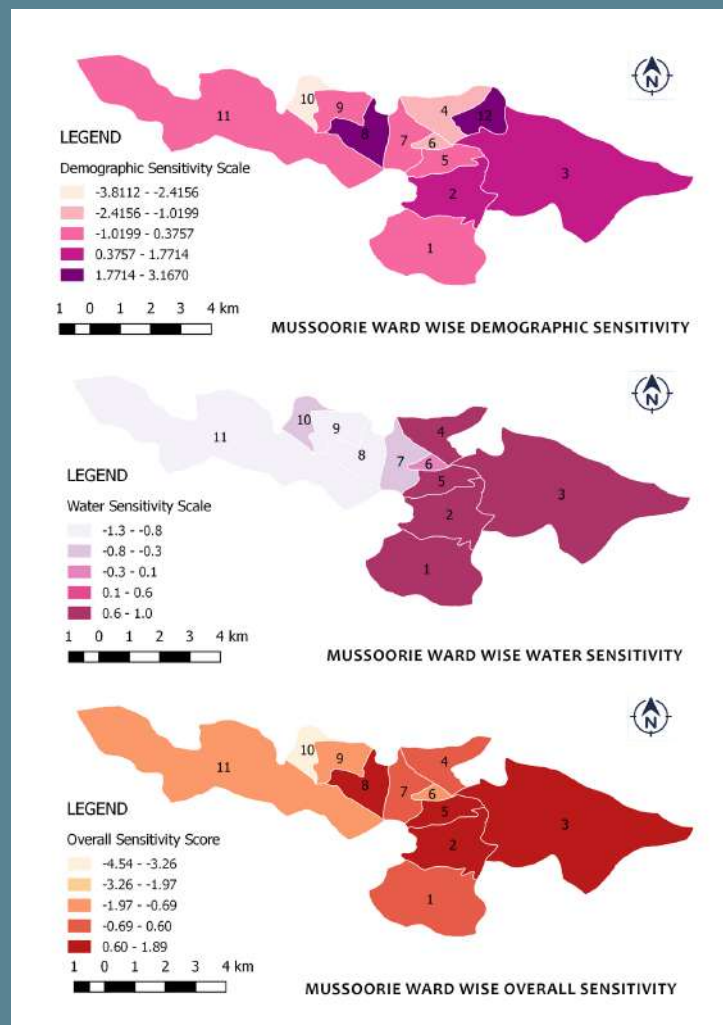


Fig 2. Mussoorie Water Vulnerability Index

In Mussoorie a Rainwater Harvesting structure (RWH) of 6000 litter capacity was constructed in a government college (Municipal Postgraduate College) with the help of the local government water department i.e. Jal Sanstan Mussoorie. The RWH structure aims to provide water to chemistry lab and toilets in the college during the times of distress water supply (May - June). CEDAR has also been working with Woodstock school as a knowledge partner to adapt and enhance the Rain Water Harvesting capacity within the school.



In Haldwani study area Dholak basti was considered as the target area for implementation of a Bio sand filter. CEDAR considered Dholak basti for implementation, as the residents in Dholak basti do not have access to clean drinking water in this areas is poor. Therefore, CEDAR designed and installed two Bio Sand filter of 1000 litre capacity in Dholak basti with the help of Haldwani Jal Sansthan. The Bio filter provides clean drinking water to approx. 40 families and sets a good example for stand alone water filtering system.

Name of the Project: Creating Climate-resilient Communities in Mid-Hills Interventions towards Forest, Water & Livelihood Security

Funding Organisation: National Mission on Himalayan Studies (NMHS) (MOEF,CC) Govt of India.

Duration of the Project: 3 years

In the mid-Hills of the Uttarakhand Himalayas, agriculture, animal husbandry and NTFP are all strongly linked to forests and water security and between 70-75% of the population practice hill agriculture. Most of the agriculturists depend heavily on forests for a large range of goods (both for subsistence and for cash). Depletion of glaciers, increasing frequency of natural disasters, unsustainable use and degradation of watersheds are reducing water availability, changing seasonal flow patterns and increasing conflicts over dwindling natural resources. These adverse changes will be felt disproportionately by poor mountain communities, who currently have little capacity to cope with and adapt to these changes. The fragility and inaccessibility of the Uttarakhand Himalaya, with scattered settlements and poor infrastructure, imply that these mountain areas are severely affected by combined impacts of climate change and forest degradation.



Spring Discharge Measurement

Besides warming, the Uttarakhand Himalayas are also experiencing dramatic change that is triggered by rapid economic growth, manifested in land use change, increased tourism and market linkages, changing employment patterns and increased commercial dependence on forests. Thus globalisation and increased mobility have exacerbated the marginality of the mountain valleys in some ways, though they have created new opportunities outside the region. However, our experience shows that marginalised sections of society in the hills are unable to take advantages of new opportunities while losing access to natural resources due to such depletion. More prosperous communities are more able to easily switch to market-based activities such as horticulture and tourism. Women, traditionally involved more in forest-based and household activities, are also bearing the brunt of resource depletion, as they have to work harder to obtain the same resources and maintain agricultural productivity.

The goal of this project is to facilitate forest- dependent rural communities in Uttarakhand hill districts to develop and implement need-based choices to build resilience against climate change through (a) the conservation of natural resources and ecosystem services and (b) improvement and expansion of livelihoods that are primarily sustained by natural resources and ecological integrity. The project is an attempt to seek a union between conservation and the local economy involving interaction among biophysical, social and economic components. Specifically, there will be 4 main foci for outcomes in this project:

- (1) Forests and Biodiversity Conservation;
- (2) Soil and Water Conservation
- (3) Improved/ Alternative Livelihoods and
- (4) Local capacity-building, with each of these 4 components feeding into, and strengthening the other two.



Community Training Workshop

The project will be implemented with the help of Central Himalayan Rural Action Group (CHIRAG) which is located in the project site. While CEDAR will act as technical partner CHIRAG will act as the implementing arm of the project (jointly with CEDAR).

Completed Project

Name of the Project: Himalayan Adaptation, Water and Resilience (HI-AWARE)

Funding organisation: International Centre for Integrated Mountain Development (ICIMOD)

Duration of the Project: 3 years

HI-AWARE is a research initiative aiming at developing climate change adaptation approaches and increasing the resilience of the poorest and most vulnerable women, men, and children in the mountains and plains of the Hindu Kush Himalayan (HKH) region. The HI-AWARE consortium is conducting integrative research across scales on the biophysical, socioeconomic, gender, and governance drivers and conditions leading to vulnerability in order to understand climate change impacts and to identify critical moments for adaptation. CEDAR was taken on board as a strategic partner for facilitating and assisting research in three altitudinal ranges, High-Hills (Rudraprayag), Mid-Hills (Tehri Garhwal) and Plains (Haridwar) of the Upper Ganga Basin in Uttarakhand in the year 2015. The team is engaged in an operational partnership in the Plains (Haridwar) and Mid-Hills (Tehri Garhwal) with TERI. With the help of HI-AWARE's ongoing research, CEDAR has been able to create awareness towards need for Climate Change Adaptation strategies at the State as well as community level through knowledge dissemination helpful in building resilience among communities. CEDAR built linkages at the State level through the Climate Change Cell of Uttarakhand under the State Forest Department. CEDAR carried out operations for the Expert Committee Consultation on 'Stakeholder prioritization of Adaptation Pathways and Turning Points in Upper Ganga Basin' in Dehradun.



Outreach, Workshops and Conferences

Outreach activity in Nainital highlighting “Save the Lake”

Project: ICLEI

Date: April 18th, 2018

CEDAR organised a cricket tournament in Nainital in order to sensitize the sport community as the District Sports Association is considered as an important and influential stake holder in the city. A tournament named “Save the Lake” under the project “Mainstreaming the Role of Ecosystem Services in Water Supply” of Nainital funded by ICLEI South Asia which is actively working on learning, models, approaches and best practices developed across 10 pilot cities in Asia and supplements these with other tested methods to build a tool to help cities develop Climate Resilience Strategy Plans under the ACCCRN, the Asian Cities Climate Change Resilience Network (www.accrn.org) funded by the Rockefeller Foundation.



The tournament was held at the completion stage of the project. The event was to motivate and spread the deliberations of the work to keep the dialogue alive for “Saving Naini Lake.” The final match of the first edition of “Save the Lake” Cricket Tournament was played between Mount Sheela and Winsom Cricketers in Nainital on the 18th of April 2018. The theme of the tournament “Save the Lake” was decided by the lovers of sports in Nainital to spread awareness on water-related issues and declining lake levels. 42 teams including 700 players participated in the month-long save the lake tournament. CEDAR took up the initiative to sponsor the event and felicitate the winners and runner-up with awards and trophies. With the help of local organizers, CEDAR was able to accomplish yet another milestone for Nainital’s Lake Conservation

SIAS Team Exchange Visit to India

SIAS team member: Dr. Chandra Pandey and Dr. Nani Raut

Venue: Haldwani and CEDAR Office

Date: August 1st – August 7th , 2018

The exchange visit was divided into two part i). Field trip to Haldwani ii) In-house discussion at CEDAR office. Field trip to Haldwani included stakeholder discussions followed by spring source visit. CEDAR and SIAS team members carried out discussions with various stakeholders on the issues related to water and solid waste management, some schools (Path Finder) and government agencies are planning to install Rain Water Harvesting structure in their campus. Interviews were held with various stakeholders on issues related to water availability, management, and distribution. Various Key Informant Interviews were also conducted in the 14 No. ward area to understand the gender component of the research. During the field trip Dholak Basti, (Haldwani) category 3 slum, was survey met with the Pradhan of the basti and later on we visited Rani Bagh area. Second half of the exchange visit was in Dehradun in which CEDAR and SIAS teams members deliberate upon sharing the ideas on proposed papers and getting inputs on the same.



State-level workshop on Spring Revival

Venue: Inderlok Hotel, Dehradun

Date: August 16th, 2018

CHIRAG collaborated with CEDAR to organize a state-level workshop on spring revival sponsored by Aarghyam. The meeting comprised of Hydro-geologists, ecologists, civil society and policymakers, members from DST NITI Ayog and participants from Ministry of Water Resources (MOWR) were present.

Key points:

1. More recognition to springs as 80 % mountainous community depend on springs for sustenance
2. Behavioral Change and communication is important
3. Call for citizen science for large scale data
4. Decentralized and participatory research
5. Based on NITI ayog report develop state-level program design



Experts Discussion on Spring Revival

Write shop in Nepal

Project: Climate Adaptive Water Management Practices, IDRC Canada

CEDAR Team member: Mr. Riyan Habeeb and Ms. Manya Singh

Date: December 23rd – December 28th , 2018

A write-shop was organized by SIAS, Nepal from 23rd to 28th December 2018 for advancing the article writing speed and quality of the articles by engaging with the lead and other authors. It was a residential program which focussed on an intensive writing routine, evaluation, editions, and re-evaluation with the help of academics from the team of SIAS-CEDAR-UNSW. Discussions over the conceptual framework and theoretical outlook were made, and a rough draft from each was produced. In total, Seven papers were laid with targeted journals. Along with writing workshop, field visits to Dhulikhel was made. A meeting with the municipal body was conducted, and implementation work was showcased.



Haldwani Water Forum Meeting

Venue: Hotel GenX Sundaram, Haldwani

Date: September 21st, 2018

2nd Haldwani Water Forum Meeting was organized on 21st September 2018 at GenX Sundaram in Haldwani where stakeholders from different government institutions, water-related industries, and media persons showed their esteemed presence. The forum aimed at getting perspective of demand-driven implementation of Climate Adaptive Management Practices in the city.



Haldwani Water Forum Meeting

Activities carried out during the Water Forum Meeting were:

1. Video Released: An in-house photo story was created by CEDAR team to showcase the water challenges and crisis in Haldwani with suggestive recommendations. It was released before the members of the meeting to create a backdrop of the forum.

Video link:

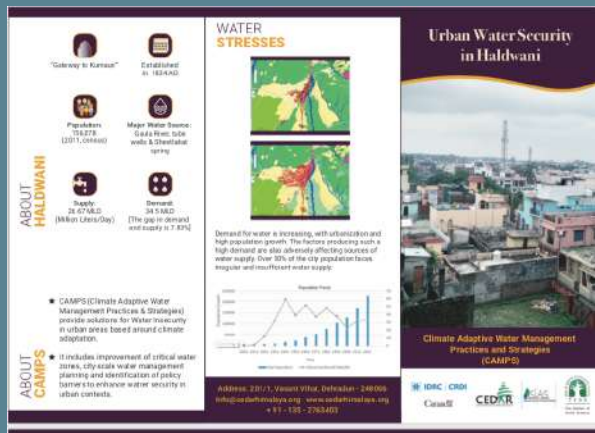
- Knowledge products/Videos/A City with Depleting Water Sources (Haldwani) CEDAR.mp4
- Knowledge products/Videos/Bio-Sand Filter.mp4

2. Knowledge Products:

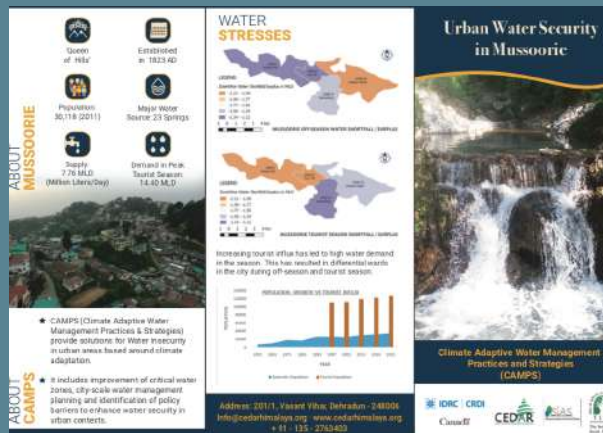
Articles:

- <https://medium.com/@singh.manya30/compassion-knows-no-scientific-boundaries-1e6edode1d61>
- Knowledge products/ढोलक बस्ती के सुर.pdf

Brochures were also released in the meeting where an informative content was circulated through brochures regarding the water situation in Haldwani.



Haldwani Brochure



Mussoorie Brochure

3. Research Outputs: Team Members presented the research findings of the IDRC project with a small presentation where Mr. Riyan Habeeb discussed the overall demographic-water sensitivity of Haldwani through GIS-based maps; Ms. Yashi Gupta talked about Gender-related issues and outcomes of the research study; Ms. Anvita Pandey discussed the institutional framework and impediments in proper functioning of the same and Ms. Manya Singh presented on the strategic implementation of pathways for integrated urban water management.



Haldwani Water Forum Meeting for Research Dissemination

Implementation Activities

Installation of BioSand Filter Pilot in Dholak Basti (slum), Haldwani

December 12th, 2018

Bio-sand filter was proposed in Dholak Basti through the water forum in, Haldwani under 'Climate Adaptive Water Management Practices & Strategies', (CAMPS) Project funded by IDRC, Canada. Dholak Basti is located in municipality ward number 22. As in the case of water sources and time spent in fetching water, access may worsen with climate change and urbanization, as both are accelerating water stress in Haldwani. If these stresses are not addressed residents may have to spend more time in collecting water which leaves less time for wage employment, education and leisure time and quality of water are also not good enough in this area. The percentage of residents affected in Dholak Basti to waterborne disease is also high thus the proposed strategy to overcome this problem is the installation and use of a bio-sand filter at the community level which helps in reducing the time involved in fetching water and could help in improving the health status of residents affected by the water-borne disease.



Installation of Rain Water Harvesting at Municipal Post Degree College, Mussoorie

Date: March 28th, 2019

A Rainwater Harvesting System (RWH) was proposed for Municipal Postgraduate College Mussoorie under the IDRC funded project. The main objective of the RWH structure was to store rainwater from the roof of the college which can be further used by the college during the water stress period of the year. The total storage potential of the RWH system is 6000 liters.

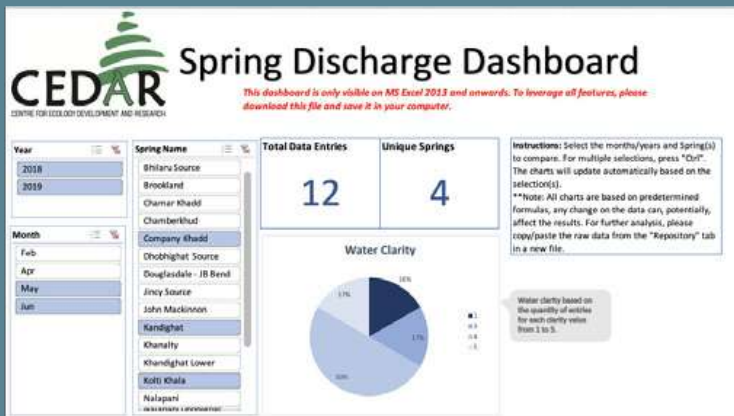


Collaboration with VSO-IBM



VSO-IBM Team at CEDAR Office

CEDAR has collaborated with VSO-IBM which is the world's leading international development organization. Under this collaboration volunteers of IBM created an online platform for Spring monitoring and data collection. The online platform aims to help researchers, students, government, local people etc. to monitor the spring data of their area and create a database, which will act as a data repository.



long term spring data through community and institutional engagements

| Date | Country | City/Town | Village/Wd | Spring Name | Latitude | Longitude | Altitude | Discharge (L/s) | Water Clarity | Temperature | Rainfall | Snowfall |
|------------|----------|-----------|------------|-----------------------|----------|-----------|----------|-----------------|---------------|-------------|----------|----------|
| 4/10/18 | Dehradun | Mussoorie | | Bansi | | | 44 | 4 | N/A | 3 | 0 | 0 |
| 5/8/18 | Dehradun | Mussoorie | | Bansi | | | 40 | 4 | 16 | 0 | 0 | 0 |
| 6/9/18 | Dehradun | Mussoorie | | Bansi | | | 12 | 4 | 16 | 3 | 0 | 0 |
| 2/26/19 | Dehradun | Mussoorie | | Ramu | | | 66 | 2 | 29 | 3 | 0 | 0 |
| 2/28/19 | Dehradun | Mussoorie | | Ramu | | | 66 | 2 | 29 | 3 | 0 | 0 |
| 4/18/18 | Dehradun | Mussoorie | | Bhilara Source | | | 495 | 4 | 29 | 0 | 0 | 0 |
| 5/14/18 | Dehradun | Mussoorie | | Bhilara Source | | | 482 | 4 | 29 | 0 | 0 | 0 |
| 13/06/2018 | Dehradun | Mussoorie | | Bhilara Source | | | 490 | 4 | 29 | N/A | N/A | 0 |
| 4/21/18 | Dehradun | Mussoorie | | Brookland | | | 125 | 5 | 31 | 0.53 | 0 | 0 |
| 5/14/18 | Dehradun | Mussoorie | | Brookland | | | 123 | 1 | 32 | 0.02 | 0 | 0 |
| 6/1/18 | Dehradun | Mussoorie | | Brookland | | | 129 | 3 | 23 | N/A | N/A | 0 |
| 6/14/18 | Dehradun | Mussoorie | | Brookland | | | 80 | 4 | 35 | 0 | 0 | 0 |
| 6/14/18 | Dehradun | Mussoorie | | Brookland | | | 80 | 4 | 35 | 0 | 0 | 0 |
| 2/21/19 | Dehradun | Mussoorie | | Brookland | | | 290 | 5 | 21 | N/A | N/A | 0 |
| 5/3/18 | Dehradun | Mussoorie | | Chamberkhud | | | 67 | 4 | 29 | 11 | 0 | 0 |
| 4/24/18 | Dehradun | Mussoorie | | Chamee Khadd | | | 70 | 4 | 29 | 0.53 | 0 | 0 |
| 5/11/18 | Dehradun | Mussoorie | | Chamee Khadd | | | 60 | 4 | 29 | 0 | 0 | 0 |
| 6/11/18 | Dehradun | Mussoorie | | Chamee Khadd | | | 65 | 1 | 29 | 0.53 | 0 | 0 |
| 4/21/18 | Dehradun | Mussoorie | | Company Khadd | | | 80 | 4 | 35 | 3 | 0 | 0 |
| 5/14/18 | Dehradun | Mussoorie | | Company Khadd | | | 77 | 4 | 35 | 0 | N/A | 0 |
| 6/14/18 | Dehradun | Mussoorie | | Company Khadd | | | 47 | 4 | 35 | 0 | 0 | 0 |
| 4/21/18 | Dehradun | Mussoorie | | Dobhighat Source | | | 690 | 3 | 27 | 0 | 0 | 0 |
| 5/14/18 | Dehradun | Mussoorie | | Dobhighat Source | | | 613 | 3 | 27 | N/A | N/A | 0 |
| 6/14/18 | Dehradun | Mussoorie | | Dobhighat Source | | | 685 | 2 | 27 | 0.03 | 0 | 0 |
| 4/21/18 | Dehradun | Mussoorie | | Douglasdale - JB Bend | | | 215 | 4 | 35 | 0.53 | 0 | 0 |
| 5/14/18 | Dehradun | Mussoorie | | Douglasdale - JB Bend | | | 211 | 4 | 35 | 0 | 0 | 0 |
| 6/1/18 | Dehradun | Mussoorie | | Douglasdale - JB Bend | | | 29 | 3 | 33 | N/A | N/A | 0 |
| 6/14/18 | Dehradun | Mussoorie | | Douglasdale - JB Bend | | | 136 | 4 | 35 | 0 | 0 | 0 |

Mobile data collector, Data repository and Dashboard for Mussoorie springs were developed under the project to collect

Mussoorie Springs Discharge Information

Please provide information regarding spring discharge, water clarity, and weather conditions.

For any questions or to provide additional information, please contact CEDAR at: cedarspringproject@gmail.com

***Required**

Email address *

Your email address

Are you an organization or individual?

Organization

Individual

If you are an organization, please enter your organization's name

Your answer

Publications

- **Title of the Paper:** Analysing Demographic and Water Sensitivities Arising due to Urban Water Insecurity in Haldwani, Uttarakhand (India): A GIS based Spatial Analysis

Published in the Journal: Journal of Geo-visualization and Spatial Analysis.

- **Title of the Paper:** Impact of Chronic Anthropogenic Disturbance on Soil Carbon and Macro Nutrient (N,P,K) Bank Oak *Quercus leucotrichophora* (A. Camus) forest of Central Himalayas.

Published in the Journal: Environment and Ecology

- **Title of the Paper:** Effects of extractive use on forest birds in Western Himalayas: Role of local and landscape factors

Published in the Journal: Forest Ecology and Management

- **Title of the Paper:** Assessing the vulnerability of socio-environmental systems to climate change along an altitude gradient in the Indian Himalayas.

Published in the Journal: Ecological Indicators

Donors

National Mission on Himalayan Studies (NMHS), MOEF, CC Govt. of India

Department of Science and Technology, (SERB), Govt. of India

International Development Research Centre (IDRC) Canada

International Centre for Integrated Mountain Development (ICIMOD),
Kathmandu, Nepal

M.G. Shahani & Co (Delhi) Ltd.

Pevibai Motiram Shahani Trust, Delhi

Partners

Himalayan Adaptation, Water and Resilience (HI-AWARE)

University of Cambridge, Department of Geography, United Kingdom

Yale Himalayan Initiative (YHI), Yale School of Forestry, USA

South Asia Institute of Advanced Studies (SIAS), Kathmandu Nepal

Central Himalayan Rural Action Group (CHIRAG), Odakhan, Nainital

The Energy Research Institute (TERI), New Delhi

University of New South Wales (UNSW), Australia

Tata Institute of Social Sciences (TISS), Mumbai

The Mountain Institute (TMI), Sikkim, India

Megh Payne Abhiyan (MPA), New Delhi

Himalayan Nature and Adventure Foundation, Siliguri, India

Memorandum of Understanding

Department of Forestry, Kumaun University, Nainital, Uttarakhand

Department of Forestry, HNB Garhwal University, Srinagar, Uttarakhand

Income and Expenditure Account
for the year ended at
31st March, 2019

BALANCE SHEET
As At 31st MARCH 2019

| PARTICULARS | CURRENT YEAR | PREVIOUS YEAR |
|--|------------------|------------------|
| | Rs. | Rs. |
| <u>LIABILITIES</u> | | |
| <u>Corpus Fund</u> | 200,000 | 200,000 |
| <u>Reserve Fund</u> | | |
| As per last Balance Sheet | 941,627 | 2,151,132 |
| Add: Transferred from Income and Expenditure Account | (126,612) | (1,209,505) |
| | 815,015 | 941,627 |
| <u>Current Liabilities</u> | | |
| Projects in Progress (Schedule - 1) | 559,589 | 525,836 |
| | 1,574,604 | 1,667,463 |
| <u>ASSETS</u> | | |
| <u>Fixed Assets (Schedule - 2)</u> | | |
| Gross Block | 844,595 | 991,357 |
| Less: Depreciation | 141,743 | 167,878 |
| Net Block | 702,852 | 823,479 |
| <u>Current Assets, Loans and Advances</u> | | |
| <u>Current Assets</u> | | |
| Bank Balances | | |
| With Scheduled bank - In saving accounts | 509,906 | 451,484 |
| Fixed Deposit | 213,846 | 200,000 |
| Tax Deducted at source | 50,000 | 100,000 |
| Advance to Others | 63,000 | 57,500 |
| Security Deposit | 35,000 | 35,000 |
| | 1,574,604 | 1,667,463 |

Significant Accounting Policies and Notes - Schedule 3

Chairman

Vice Chairman

Executive Director

In terms of our report of even date annexed.

For S. Ramanand Aiyar & Co.

Chartered Accountants

Firm Registration No - 000990N

R. Balasubramanian

Partner

Membership No. 080432

Place: New Delhi

Date:

CENTRE FOR ECOLOGY, DEVELOPMENT AND RESEARCH

**INCOME AND EXPENDITURE ACCOUNT
FOR THE YEAR ENDED 31st MARCH 2019**

| PARTICULARS | CURRENT YEAR | PREVIOUS YEAR |
|---|------------------|-------------------|
| | Rs. | Rs. |
| INCOME | | |
| <u>Project Funding</u> | | |
| <u>Receipts during the year</u> | | |
| ICIMOD (International Centre for Integrated Mountain Development) HI-AWARE | 239,914 | 498,501 |
| TERI (The Energy & Resources Institute) HI-AWARE : Himalayan Adaptation, Water and Resilience Research | - | 500,000 |
| DST WSS : Effects of land use and fragmentation on forest Biodiversity : case study of Himalyan bird communities in Oak-pine forest of Kumaon, Uttarakhand. | 850,000 | - |
| IDRC : Facilitating and Conductiing research on water security issues in four mid-sized cities in India. | 3,800,960 | 1,758,330 |
| ICLEI - Mainstreaming the role of eco-system services in water suply of Nainital. | 540,300 | - |
| ICIMOD-02 (International Centre for Integrated Mountain Development) HI-AWARE | 199,990 | 2,128,160 |
| MOEF : Monitoring of biomass stocks and forest community structures in temperate zone of western Himalaya. | 27,698 | 355,240 |
| IGF :- To conduct a action research study on "Gurugram city state of environment: water" with the support of Gurugram metropolitan development authority. | 1,500,000 | - |
| ICIMOD- RST Forum : Valley of words | - | 199,705 |
| UNDP Workshop : Rejuvenation of Naini Lake | - | 606,338 |
| SERB – Extinction vulnerability of bird communities along land use and management gradients : A Comparative approach in the forests of northeast and Central Himalaya regions of INDIA. | - | 910,000 |
| | 7,158,862 | 6,956,274 |
| <u>Projects in progress brought forward</u> (brought forward from unutilised funds of last year) | 525,836 | 2,944,964 |
| <u>Other Receipts</u> | | |
| Donation | 550,000 | 145,000 |
| Administrative cost Realised | 479,799 | 352,822 |
| Interest Income | 65,571 | 103,973 |
| Interest on income tax refund | 4,500 | - |
| | 1,099,870 | 601,795 |
| TOTAL INCOME | 8,784,568 | 10,503,033 |

CENTRE FOR ECOLOGY, DEVELOPMENT AND RESEARCH

INCOME AND EXPENDITURE ACCOUNT
FOR THE YEAR ENDED 31st MARCH 2019

| PARTICULARS | CURRENT YEAR | PREVIOUS YEAR |
|---|------------------|-------------------|
| | Rs. | Rs. |
| EXPENSE | | |
| Expenditure on Projects | | |
| DST (SERB)- Understanding the impacts of Climate change and Forest Degradation on carbon stock and population dynamics in the Oak zone of the Central Himalayas | - | 436,415 |
| IGF :- To conduct a action research study on "Gurugram city state of environment: water" with the support of Gurugram metropolitan development authority. | 1,042,060 | - |
| ICIMOD (International Centre for Integrated Mountain Development) HI-AWARE | - | 997,740 |
| ICIMOD-02 (International Centre for Integrated Mountain Development) HI-AWARE | 295,747 | 2,261,353 |
| TERI (The Energy & Resources Institute) HI-AWARE : Himalayan Adaptation, Water and Resilience Research | 315,617 | 571,215 |
| DST WSS : Effects of land use and fragmentation on forest Biodiversity : case study of Himalyan bird communities in Oak-pine forest of kumaon, Uttarakhand. | 827,402 | 81,322 |
| IDRC : Facilitating and Conductiing research on water security issues in four mid-sized cities in India. | 3,803,335 | 2,766,862 |
| ICLEI - Mainstreaming the role of eco-system services in water suply of Nainital. | 108,716 | 1,208,666 |
| MOEF : Monitoring of biomass stocks and forest community structures in temperate zone of western Himalaya. | 27,698 | 442,135 |
| SERB – Extinction vulnerability of bird communities along land use and management gradients : A Comparative approach in the forests of northeast and Central Himalaya regions of INDIA. | 23,025 | 834,976 |
| ICIMOD- RST Forum :Valley of words | - | 199,705 |
| UNDP Workshop : Rejuvenation of Naini Lake | - | 606,867 |
| | 6,443,600 | 10,407,256 |
| OTHER EXPENSES | | |
| Communication Expenses | 6,638 | 5,820 |
| Community Work Expenses | 31,000 | 24,750 |
| Consultancy and Honorarium | 12,400 | 53,800 |
| Depreciation (Schedule - 3) | 141,743 | 167,878 |
| Employee Costs | 1,056,500 | 15,000 |
| Office Expenses | 70,696 | 77,602 |
| Insurance | 25,801 | 40,449 |
| Audit Fees | 20,650 | 23,600 |
| Printing and Stationery | 1,865 | 11,814 |
| Rent | 304,850 | 194,018 |
| Travel and Conveyance | 132,099 | 107,078 |
| Fixed assets Written off | 62,732 | 27,990 |
| Telephone & fax | 22,490 | - |
| Other Expenses | 18,527 | 29,647 |
| | 1,907,991 | 779,446 |
| TOTAL EXPENSE | 8,351,591 | 11,186,702 |
| Balance | 432,977 | (683,669) |
| Less: Transferred to Project in Progress (As per Schedule - 1) | 559,589 | 525,836 |

| | | |
|-------------------------------------|-----------|-------------|
| Surplus transferred to Reserve Fund | (126,612) | (1,209,505) |
|-------------------------------------|-----------|-------------|

Significant Accounting Policies and Notes - Schedule 3

In terms of our report of even date annexed.

Chairman

For S. Ramanand Aiyar & Co.
Chartered Accountants
Firm Registration No - 000990N

Vice Chairman

R. Balasubramanian
Partner
Membership No. 080432

Executive Director

Place: New Delhi
Date

Registrations

Cedar is registered under Societies Registration Act XXI of 1860
Registered under Foreign Contribution Regulation Act (FCRA), Registration
in 80 G and 12 A.

The society holds a status of a Scientific and Research Organisation (SIRO)
registered under Department of Scientific and Industrial Research (DSIR),
Ministry of Science and Technology, Government of India

Voluntary Compliance

Voluntary Compliance with the Norms of Credibility Alliance The Credibility
Alliance has evolved minimum and desirable to promote better Governance
within the Voluntary sector. While CEDAR is not a member of the alliance,
we declare this information voluntarily to promote accountability and
transparency.

None of the Governing board members are related to each other or related to
any of the senior salaried staff by blood or by marriage. None of the
Governing Board members (including the Chairman and Executive Director)
have received any salary, consultancy or other remuneration from CEDAR.
Travel costs, as per actual ticket submitted that were budgeted into projects
were however reimbursed.

The Governing Board has met more than twice in the last year with the
required quorum.

12th Annual General Meeting held on September 25th, 2018

Time: 5 pm

Venue: 201, Phase I, Vasant Vihar, Dehradun

Salary: Maximum salary paid was of were Rs. 86,000 per month.

Travel: Maximum cost of any single rail ticket purchased was less than Rs.
1,520

National Travel: Maximum ticket was Rs. 7,111

International Travel: Maximum ticket was Rs. 19,697

Statutory Auditor: Mr. R.Balasubramanian Partner, S.Ramanand Aiyar &
Co. 708, Surya Kiran, Kasturba Gandhi Marg, New Delhi 110001

Our Bankers: ICICI Bank, N-138, Panchsheel Park Branch, New Delhi, 110017
Indian Overseas Bank, 305, Phase 2, Vasant Vihar, Dehradun,
248001



Centre for Ecology Development and Research (CEDAR)

201, Phase 1, Vasant Vihar, Dehradun

248006

www.cedarhimalaya.org

info@cedarhimalaya.org