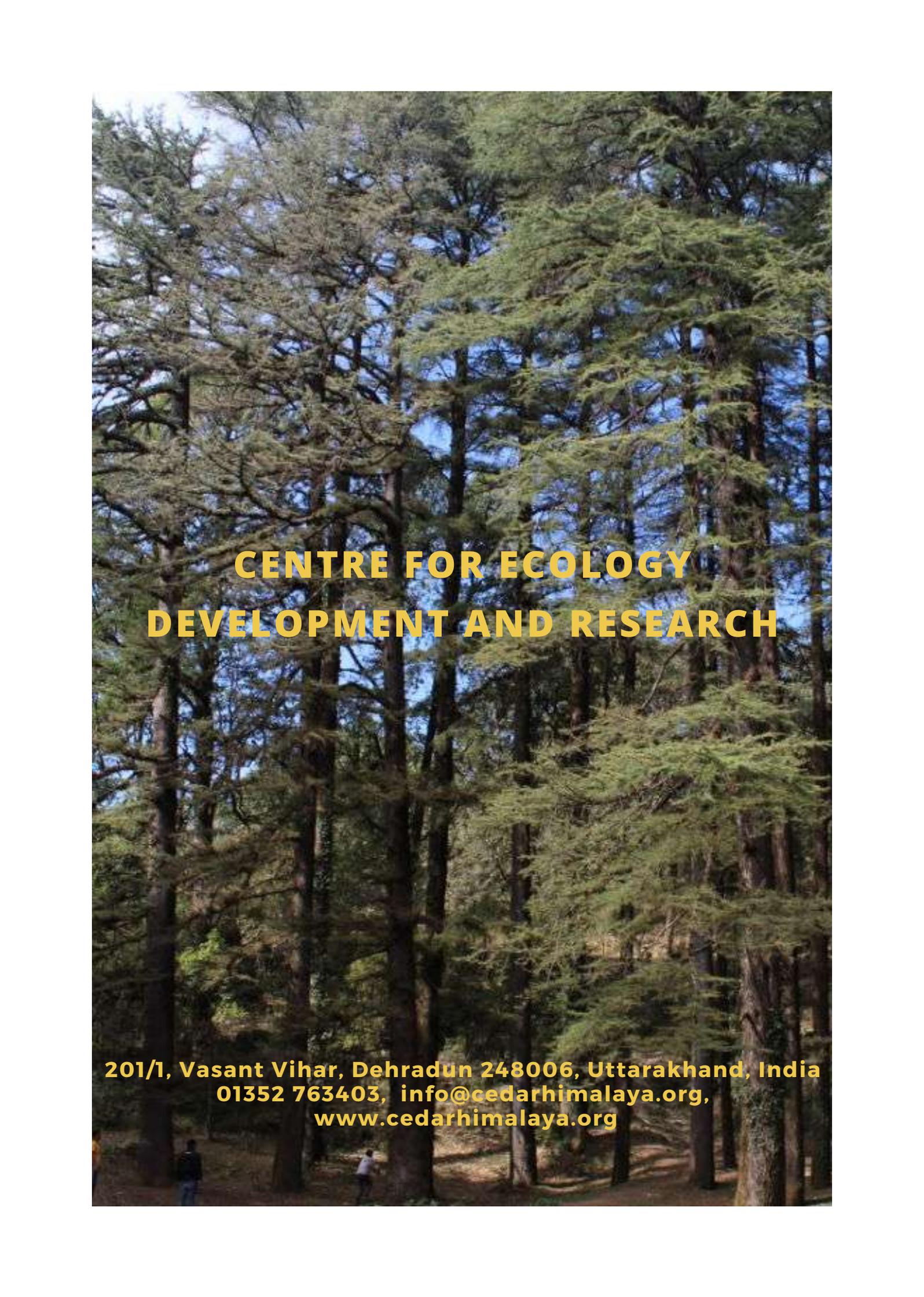


**SUSTAINING MOUNTAIN ECOSYSTEMS**



**ANNUAL REPORT**





**CENTRE FOR ECOLOGY  
DEVELOPMENT AND RESEARCH**

**201/1, Vasant Vihar, Dehradun 248006, Uttarakhand, India  
01352 763403, [info@cedarhimalaya.org](mailto:info@cedarhimalaya.org),  
[www.cedarhimalaya.org](http://www.cedarhimalaya.org)**

# Message from the Chairman



This year marks the completion of fifteen years of successful work by CEDAR. In terms of age, CEDAR would be counted as a young organisation, still in its teens. In terms of its work, especially research to understand the complex ecological processes at work in the Himalayas and their interface with human populations and societies who make Himalayas their home, it has established itself as a mature research centre. The credit for this goes to the small, but very competent and highly motivated team of young researchers in the organisation. The leadership and mentoring provided by the

senior management team consisting of Dr Rajesh Thadani, the founder and the Executive Director, Dr Vishal Singh have played a very important role in the evolution of CEDAR. Besides, significant guidance and support has also been provided from time to time by some eminent past members of the Governing Body viz., Prof. S. P. Singh who was the chair since it's inception till slightly over a year ago, and Dr Ghazala Shahabuddin, another well-known ecologist. In short the success of the organisation has been the result of dedicated team work.

The year 2020-21 has been a particularly difficult one for CEDAR, what with the virulent second wave of Covid-19 pandemic resulting in lockdown and curfew for extended period. To be sure CEDAR was not the only organisation to be affected. Covid restrictions affected all and sundry - institutions, organisations and individuals. A major casualty was field work for most of the research studies underway. It goes to the credit of our young researchers and field staff that despite all constraints and hazards they did manage to carry out field work, while taking all necessary precautions. We were lucky that no one fell a victim to the dreaded virus.

Funding has been yet another major problem faced during the year. Our major sources of project support have so far been either government agencies like Department of Science & Technology, Government of India, Uttarakhand government and foreign research support and funding agencies. Recent amendments to the FCRA rules have seriously impacted the latter. All organisations which have been in receipt of foreign funding have been facing major constraints. We are on the lookout for other permitted sources of funds to sustain our research activities.

I hope CEDAR will in course of time be able overcome these concerns which hopefully will be temporary blips. I have full confidence in the ability of our dynamic young staff to chart a new course.

**B. K. Joshi**  
Chairman

# Message from the Executive Director



I have a very optimistic view of CEDAR's future. Though I can't put aside how difficult the past year has been for the organisation and the individuals who have truly invested in the idea of CEDAR. The past year was shadowed with darkness, but CEDAR has embraced the challenges and emerged through this tough phase as a strong organization with a fresh sense of purpose. I want to thank the Chairman of CEDAR for his ongoing support, guidance, and patience with me. Finally, I want to express my gratitude to our funders.

**Vishal Singh**  
**Executive Director**  
(Till May, 2021)

# Acknowledgement

CEDAR believes in collaborative, participatory and multi-disciplinary research and to promote this notion, works in partnership with other organisations and individuals. Our donors, partners and collaborators are our pillars and without them, our work would just not be possible or of relevance. However, equally we would like to acknowledge all our civil society partners, particularly the citizen groups of Nainital, consistently being with us and supported our work on water, and the Van Panchayats of several villages, facilitated our forestry research. We are very grateful to all the experts from various research institutions, agencies and authorities who have supported us , and the Government officials, especially from the Forest Department, Jal Sansthan and allied departments of the areas where we work. Our sincere thanks to our Governing Board and Research Advisory Board for providing direction and keeping the organization motivated.

# Contents

## 1. ABOUT US

- Mission
- Focus
- Governing Board
- Research Advisory Board
- Team

## 2. THEMATIC AREAS

- Forest and Humans
- Urbanisation and Water
- Climate Change Adaptation
- Wildlife, People and Land-Use Change

## 3. ONGOING PROJECTS

- Creating climate-resilient communities in mid-hills of Uttarakhand: Interventions towards forest & water
- Planning plantations: Past learning, toward triple wins in carbon, biodiversity and livelihoods
- Hydro-geological assessment and socio-economic implications of depleting water resources in tourist towns of Uttarakhand
- Establishing a Low-cost sensors network for air quality monitoring in Gurgaon India
- Promotion of nature-linked ecotourism as a rural livelihood in Uttarakhand: A proposal for development of supporting training materials
- Implementing nature-linked tourism livelihoods: Evaluation of potential for forest conservation in the Western Himalaya

## 4. COMPLETED PROJECTS

- Feasibility assessment of biogas value chain in the mid mountainous region of Uttarakhand and development of a scale up strategy for biogas solutions
- Assessment of ecosystem services provided by the Renuka wetland and the surrounding communities dependence on these services for their livelihood and cultural practices
- Promotion of nature-linked ecotourism as a rural livelihood in Uttarakhand

## 5. OUTREACH

- Workshops
- Webinars
- Orientation Meeting
- Project Review Meeting
- Symposium
- Trainings
- Virtual Activity
- Covid Relief Activity
- Experts Talk

## **6. PUBLICATIONS**

- Research Papers
- Popular Press
- Knowledge Products
- Dissertations

## **7. COLLABORATIONS & MEMORANDUM OF UNDERSTANDING (MOU)**

## **8. DONORS & PARTNERS**

## **9. VOLUNTARY COMPLIANCE**

# About us

CEDAR is a not-for-profit organization registered in 2006 under the Societies Act of 1860. The registered office is located in Delhi, while the chief operations office is based in Dehradun. CEDAR was established when a group of academics and development

practitioners came together to bridge the gap between applied research and field based interventions or, to put it differently, 'balance theory and practice'. We are committed to inform environmental and development issues, reach out to stakeholders and policymakers, and create novel pathways for sustainable management of natural resources in Himalaya.

**With 15 years of experience on working at the interface of science and society, CEDAR is dedicated towards collaborative efforts to popularize knowledge and bring together science in policy and praxis.**

**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 (GoI).**

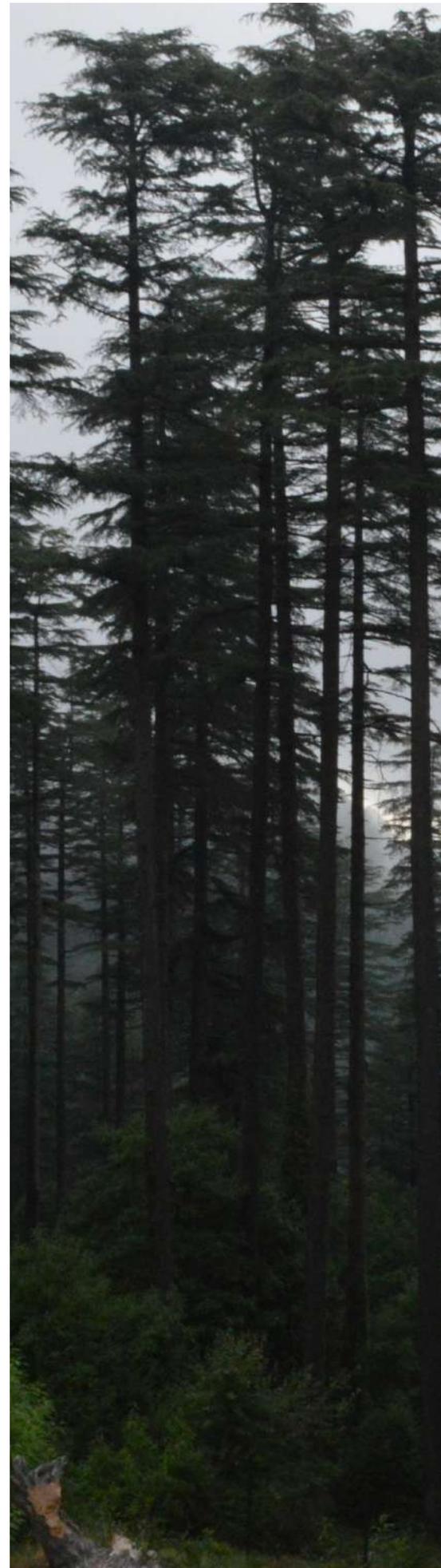
# Mission

Our mission is to foster awareness and understanding of the Himalayan ecosystem through trans-disciplinary knowledge generation and dissemination. In this respect, CEDAR is a novel initiative and, brings many years of diverse experience under one roof.



# Focus

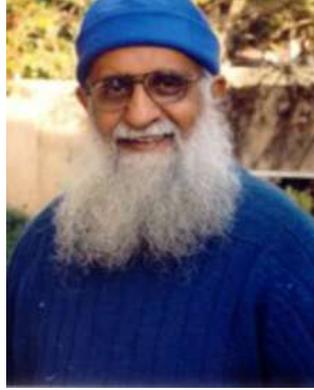
CEDAR envisions itself as the bridge between research and practice to facilitate socially just and equitable natural resource management in the Himalaya. We link ecological knowledge to decision making by integrating biophysical and social science that untie today's complex environmental problems.



# Governing Board



**Prof. B. K. Joshi (Chairman)**  
**Ex Vice Chancellor, Kumaun**  
**University Nainital, Director, Doon**  
**Library, Dehradun**



**Dr Ravi Chopra (Member)**  
**Founder, People's Science**  
**Institute, (PSI) Dehradun**



**Dr Rajesh Thadani,**  
**Vice Chairman (upto May, 2021)**  
**Executive Director (from**  
**May, 2021)**



**Mr S.T.S. Lepcha (Member)**  
**IFS, Former Managing Director Forest**  
**Corporation, Dehradun**



**Dr Ghazala Shahabuddin (Member)**  
**Wildlife Ecologist**  
**(Upto May, 2021)**



**Dr Vishal Singh**  
**(Secretary Ex-Officio) Executive Director**  
**CEDAR, Dehradun**  
**(Till May, 2021)**

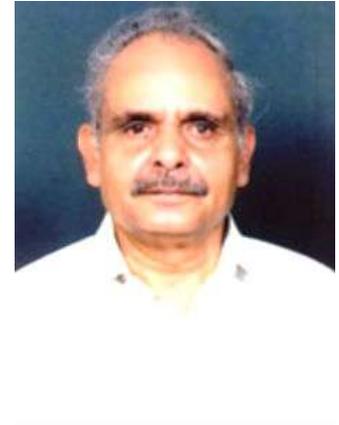
# Research Advisory Board



**Prof. K. Sivaramakrishnan**  
India & South Asia Studies, Anthropology;  
School of Forestry & Environmental Studies,  
Yale University



**Prof. Bhaskar Vira**  
Department of Geography, Cambridge  
University, United Kingdom



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



**Dr Meg Lowman**  
Director of Global Initiatives & Senior  
Scientist in Plant Conservation  
California, Academy of Sciences



**Dr Himanshu Kulkarni**  
Director, ACWADAM  
Pune



**Dr Ann M. Fraser**  
Ph. D. Professor and Chair of Biology  
Kalamazoo College, Michigan,  
USA



**Dr Rajendra Dobhal**  
Director General, Uttarakhand State Council  
for Science & Technology, Dehradun



**Dr P. K. Champati Ray**  
Head, IIRS  
Dehradun

# Meet The Team\*

**Dr Rajesh Thadani**  
Senior Fellow, Forest Ecologist

**Dr Ghazala Shahabuddin**  
Senior Fellow, Wildlife Ecologist

**Dr Pia Sethi**  
Senior Fellow, Ecologist

**Mr Chetan Agarwal**  
Senior Fellow, Policy Analyst

**Dr Vijay Ramprasad**  
Senior Fellow

**Dr Vishal Singh**  
Executive Director, Translational Ecologist

**Dr Anvita Pandey**  
Coordinator, Forest, Ecologist

**Mr Manish Kumar**  
Fellow

**Dr Nidhi Singh**  
Senior Research Associate

**Ms Manya Singh**  
Research Associate, Ecology & Environment Science

**Mr Laraib Ahmad**  
Research Associate, RS & GIS Lead

**Dr Seema Yadav**  
Research Associate

**Ms Sweksha Gupta**  
Junior Research Fellow

**Mr Narendra Singh Raikwal**  
Sr. Field Assistant

**Mr Anil Tyagi**  
Finance Officer

**Mr Dharmendra Singh**  
Assistant Accountant

\*As on March, 2021

# Thematic Areas



## Forest and Humans

**Theme Lead: Dr Rajesh Thadani  
(Senior Fellow)**

We are actively researching the impacts of human disturbance, the impact of climate change and more sustainable management practices in Himalayan forests.



## Urbanisation and Water

**Theme Lead: Dr Vishal Singh  
(Senior Fellow)**

We have been researching urban water management, demographic patterns and urban development in small & medium towns of Western & Central Himalaya.



## Climate Change Adaptation

**Theme Lead: Dr Vishal Singh  
(Senior Fellow)**

Conducting research to understand the impacts of climate change in the Himalaya and strengthening the capacities of communities through collaborations with grassroots organizations.



## Wildlife, People and Land-Use Change

**Theme Lead: Dr Ghazala Shahabuddin  
(Senior Fellow)**

Studying spatial patterns in biodiversity, their long-term responses to anthropogenic activities, land use and climate change, and the underlying ecological drivers.

# Ongoing Projects

## Creating Climate-Resilient Communities in Mid-Hills of Uttarakhand: Interventions Towards Forest & Water

**Project Duration: April 2019-March 2022**

**Donor/Funding Agency: National Mission on Himalayan Studies (NMHS)**

**Field Site: Nainital District, Uttarakhand**

**Project Investigator: Dr Vishal Singh**

The project aims at addressing the challenges of water security in the Himalaya. The project is led by CEDAR in partnership with the Central Himalayan Rural Action Group (CHIRAG), a Nainital based grassroots NGO. CEDAR is responsible for systematic documentation of climate adaptive solutions and springshed development whereas CHIRAG is the implementing partner for management of three springsheds in the Ramgarh Cluster.

Mountain springs are the primary source of water for rural households in the Himalayan region. Despite the key role that they play, springs have not received their due attention, and many are drying up. With climate change and rising temperatures, more intense but less frequent rainfall, and a marked decline in winter rain, the problem of dying springs is being increasingly felt across the Indian Himalayan Region.

CEDAR and CHIRAG have come forward in this initiative to revive Himalayan Springs and use their field experiences demonstrate to develop policy level

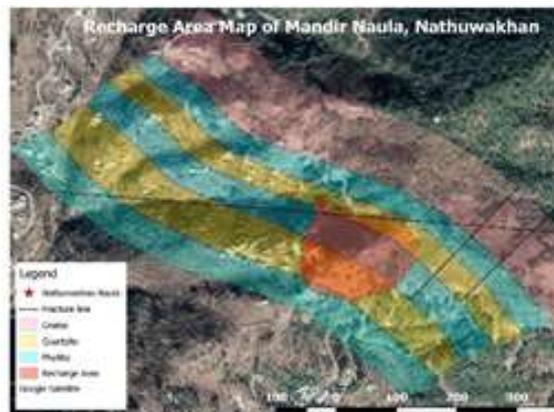
**CHIRAG's staff with community, digging a deep recharge pit for collecting rainwater**



inferences. This collaboration looks at the Springshed Management techniques in a 9-step approach that CHIRAG has pioneered, works towards building the capacity of local communities, apply a research-based intervention to revive three springs and in tandem, build community level youth leaders. The project also aims to inventory springs in the Ramgarh cluster, develop para-workers, involve students and produced knowledge materials for better awareness and communication.

## Findings and Achievements

- The spring of Nathuakhan village was mapped, Water User Committee were formed and Hydro-geological surveys were done in the year 2020-2021.
- 18 Water User Committee Members trained by CHIRAG for Spring Development Programme.
- A Junior project fellow at CEDAR trained for beginner level hydrogeological concepts and implementation model for spring rejuvenation.
- Bio-physical structures for development of Mandir Naula spring was completed and post-project sustainability model was implemented through Operation and Maintenance fund strategy.



**Recharge area map of Mandir Naula, Nathuwakhan**



**CEDAR and CHIRAG team interacting with villagers**

# Planning Plantations: Past Learning, Toward Triple Wins in Carbon, Biodiversity and Livelihoods

**Project Duration: November 2019 - October 2021**

**Donor/Funding Agency: Partnerships for Enhanced Engagement in Research (PEER) Cycle 8**

**Field Site: Kangra District, Himachal Pradesh**

**Project Investigator: Dr Rajesh Thadani**

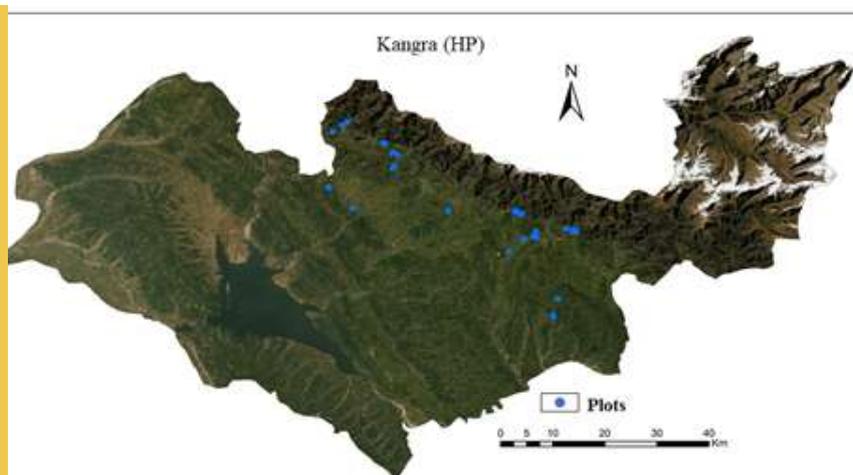
The PEER programme (Partnerships for Enhanced Engagement in Research) is managed by the National Academy of Sciences, USA. CEDAR has a PEER grant in collaboration with the Dept. of Forest Resources, University of Minnesota. The objective of this study is to understand the impact of plantations on land cover and livelihoods of poor, forest dependent people in the Indian state of Himachal Pradesh.

Under this project, CEDAR measured forest carbon stored in above ground biomass (AGB) after measuring tree diameters in over 40 large plots (1500 meters each) using already existing allometric equations. Smaller plots to assess mycorrhizal diversity, as evidenced by sporocarps monitored during the monsoon season, have also been initiated. These studies were carried out in plantation areas in Kangra district of Himachal Pradesh. Soil carbon measurements were made for each of these plantations at the CEDAR soil laboratory.

The project aims to evaluate when and how afforestation projects achieve the triple win of storing more carbon, protecting biodiversity, and enhancing rural livelihoods, more fully accounting for the potential benefits and costs of plantations in the Himalayas. The objectives include providing data on carbon and biodiversity in plantations of different age classes in different ecosystems.

**As a result of Covid -19 related interruptions in field work, the project has had to go into no cost extensions to complete the field studies**

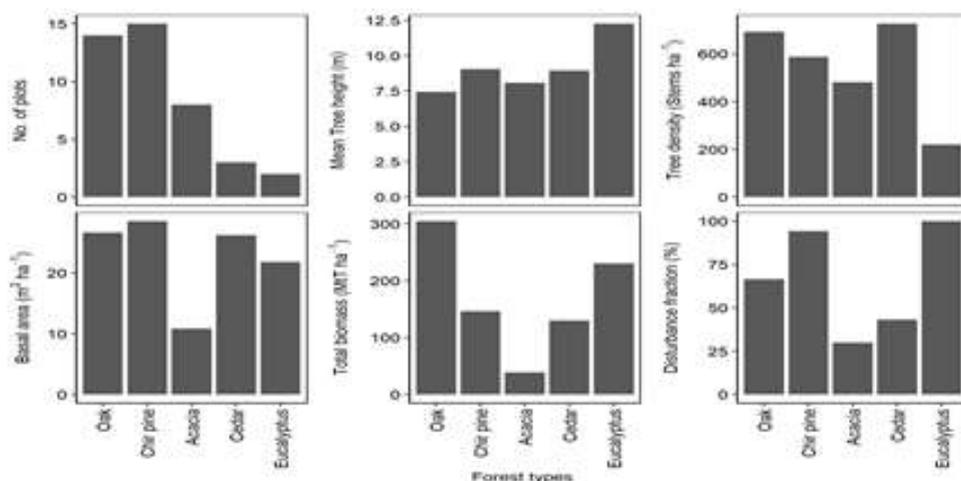
**Study site in Kangra, Himachal Pradesh**



# Findings and Achievements

## 1. Estimation of above ground carbon stock

- Collected data was analysed for biomass, basal area, tree density and disturbance index.



Graph showing the biomass, basal area, tree density and disturbance index for different species

- Carbon stocks per ha was found in the maximum in Oak followed by Eucalyptus, Chir pine, Cedar and Acacia.
- Tree diversity per ha was maximum for Acacia followed by Oak, Eucalyptus, Cedar and Chir pine.



Field assistance measuring the CBH (25 plots of 50m X 30m were measured)

## Hydro-Geological Assessment and Socio-Economic Implications of Depleting Water Resources in Tourist Towns of Uttarakhand

**Project Duration: January, 2020-December, 2022**

**Donor/Funding Agency: Ministry of Jal Shakti, MOWR, Dept. of Water Resources RD and GR**

**Field Site: Nainital, Uttarakhand**

**Project Investigator: Dr Vishal Singh**

In this project funded by the Ministry of Jal Shakti, Department of Water Resources (MOWR), Government of India, CEDAR is collaborating with the Indian Institute of Technology, Roorkee (IITR) and Forest Research Institute, Dehradun (FRI) with the objective of examining the drivers for the altered regimes of water supply in the lake town, Nainital.

Under this project, Water supply scenario for the town and possibility of using the 'carrying capacity' of the towns to estimate the limits for growth, will be analysed. The objectives include four major components.

- **Socio-economic**

(economic dependency on Naini Lake, socio-economic impacts and vulnerability assessment)

- **Ecological**

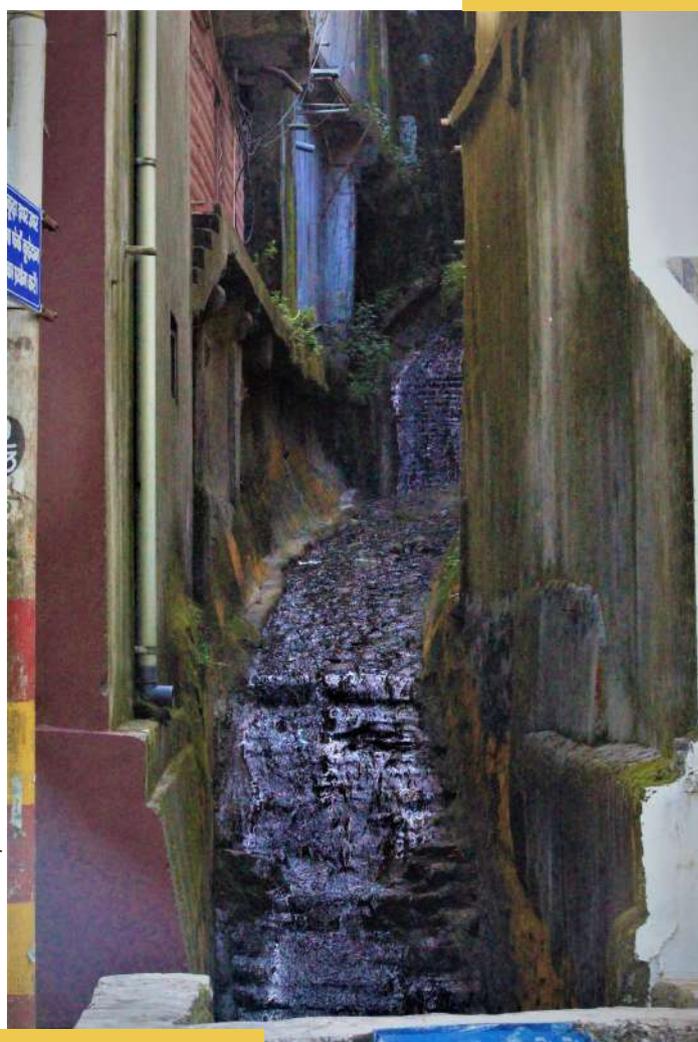
(water balance, biological condition, water recharge zones and forest/catchment degradation)

- **Technical**

(land-use change, water recharge zones, climate change variability w.r.t. rainfall and temperature)

- **Policy**

(citizen science initiative, pressure groups, policy change, which will further advocate better water governance and awareness)

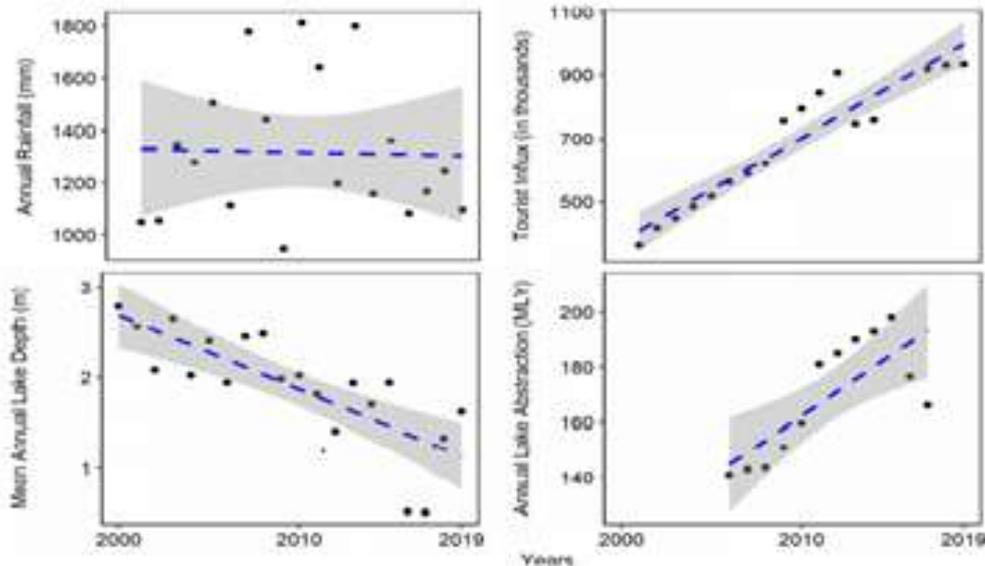


**There is 79 km of drainage network built during British period to channel surface flow and avoid land slides.**

# Findings and Achievements

## 1. Interpretation based on secondary data

- During the first phase of the project secondary data was collected from different departments, a mild decline in precipitation, decrease in lake depth, increase in water lake water abstraction through lake bank filtration and a steep rise in tourist influx has been seen.



**Variation of Annual Rainfall, Tourist Influx, Mean Annual Lake level, and Lake Abstraction**

- Preliminary analysis on Land Use/Land Cover change between 1990 and 2020 at 10 year interval indicates that the built-up area has increased by 91% over the 30 years while the water bodies, vegetation and barren land have declined by 2%, 15% and 19% respectively (Table 1). The majority of this change has occurred over the last decade (2010-2020).

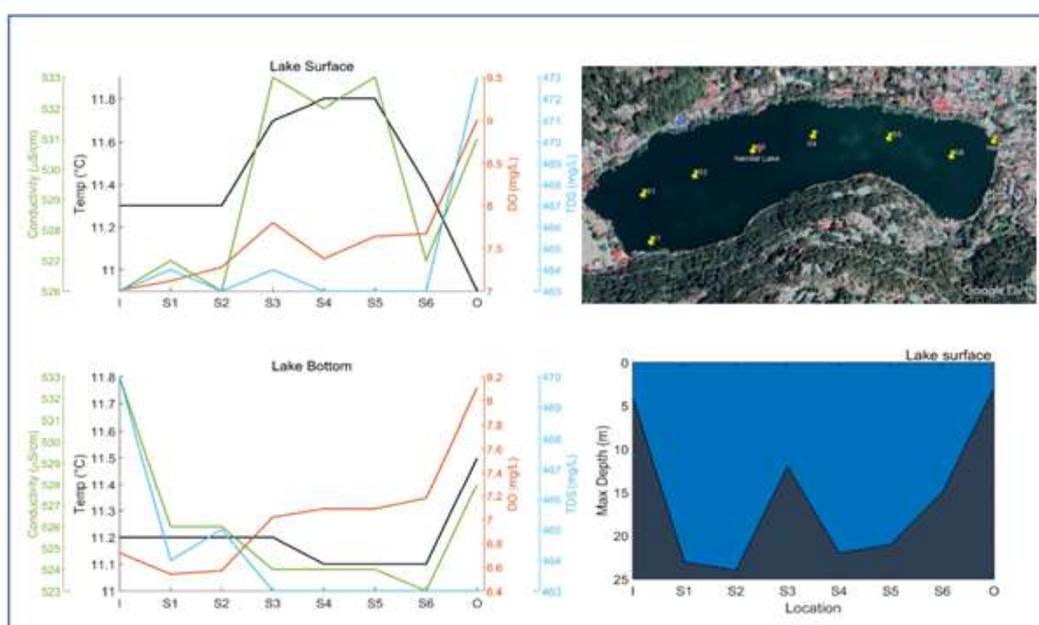
**Table 1: Percent Changes in Land Use and Land Cover Area in Nainital between 1990, 2000, 2010 and 2020\***

Class	Area 1990	Area 2000	Area 2010	Area 2020	% Change between 1990-2000	% Change between 2000-2010	% Change between - 2010-2020	% Change between 1990-2020
<b>Water Body</b>	0.43	0.41	0.45	0.41	-4.21	9.01	-7.06	-2.95
<b>Built Up</b>	1.72	1.93	2.13	3.31	12.11	9.96	55.55	91.75
<b>Vegetation</b>	6.64	7.10	6.98	5.64	6.84	-1.67	-19.22	-15.14
<b>Open Space/Barren Land</b>	2.89	2.24	2.13	2.32	-22.36	-4.94	9.00	-19.55

\*Findings of a dissertation completed under the project (Raghav, P. 2020)

## 2. Water quality assessment

Assessment of water quality variation at different sample points in Nainital Lake were undertaken by the IIT-R Team. A multi probe sonde was used to measure water quality through a vertically profile the lake at different locations in order to monitor variables such as water temperature, dissolved oxygen, total dissolved solids and conductance. The locations were selected longitudinally from the Northern shore of the lake to the Southern shore along with the locations near the perennial inflow and the outflow of the lake. Vertical profiling was done at an interval of 1m with the multi probe, starting from the lake surface and proceeding to lower the probe in the following depth sequence: 0.5 m, 1m, 2m, 3m, and all the way up to 0.5m above the lake bottom surface.



Graph and picture showing the water quality variation at sample points in Nainital Lake

## 3. Vulnerability assessment

For vulnerability assessment methodology, design, test tools were identified. The FRI team with CEDAR have developed eight questionnaires for identified entities. The detail of indicators is presented in the side table.

S.No.	Entity	Indicator Status
1	Household	Indicators identified
2	Academic Institution with Hostel	Indicators identified
3	Academic Institution with out Hostel	Indicators identified
4	Hotel	Indicators identified
5	Restaurant	Indicators identified
6	Shop	Indicators identified
7	Organization	Indicators identified
8	Water Department	Indicators identified

# Establishing a Low-Cost Sensors Network for Air Quality Monitoring in Gurgaon, India

**Project Duration: December, 2020-June, 2023**

**Donor/Funding Agency: Clean Air Fund**

**Field Site: Gurgaon, Haryana**

**Project Investigator: Mr Chetan Agarwal**

Gurgaon city has poor air quality, along with Delhi and other cities in the Indo-Gangetic plains. This project aims to support the expansion of Gurgaon's low-cost sensor air quality network, to complement the regulatory air quality monitoring stations of the state, and generate more reliable air quality data within Gurgaon; improve the understanding of air pollution hotspots in Gurgaon, both geographically and temporally, and make available air quality information for evidence-based policy decisions that catalyse interventions to reduce air pollution.

There are only four regulatory grade sensors for the city that are reference grade, and an additional about 20 Low Cost Sensors (LCSs) that generate unreliable data. This project proposes to improve and expand Gurgaon's low-cost sensor air quality network, ensuring it generates trusted and reliable data across the entire city. CEDAR is supporting the local Gurgaon Metropolitan Development Authority (GMDA) in the selection of suitable LCSs, and then help develop a network of 100 plus of these LCS. The large network of reliable sensors will enable more accurate identification of the key hotspots in the city both spatially and temporally. CEDAR is providing technical assistance to the GMDA to further develop the air quality platform that they host, and to build their capacity for managing the platform and interpret the data, ensuring sustainability of the work.

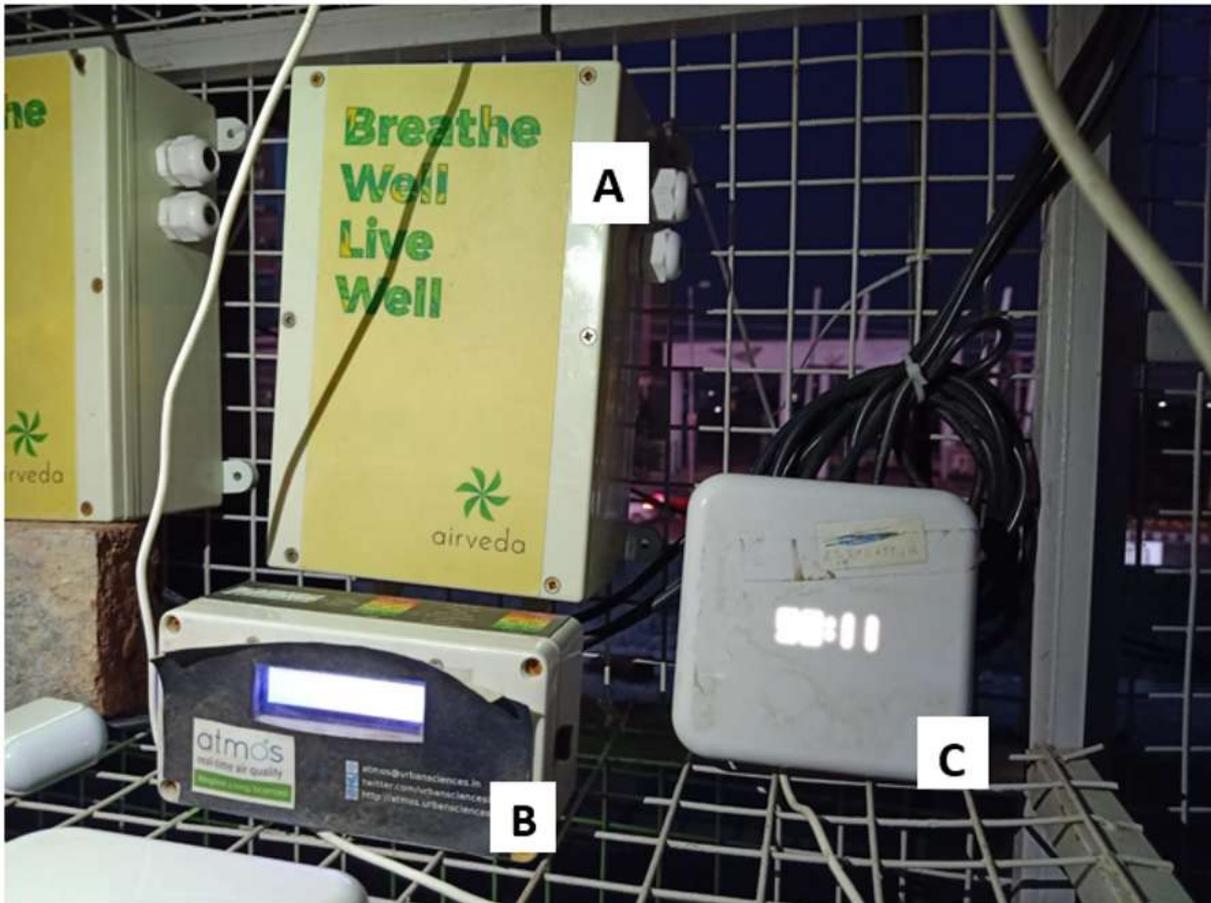
The three main objectives of the project are -

- **Generate more reliable air quality data within Gurgaon.**
- **Improve the understanding of air pollution hotspots in Gurgaon, both geographically and temporally.**
- **Enhance the uptake of air quality information by policymakers in Gurgaon, to inform evidence-based changes to policy that catalyse interventions to reduce air pollution.**

The project will also generate baseline data for future source apportionment studies. It will also contribute to the understanding of functioning of low-cost sensor in Indian conditions, involve scoping the most effective low-cost sensors with lower margins of error, expanding the low-cost sensor network in Gurgaon according to specified criteria, and facilitating the installing and calibration of the sensors. The findings will result in a publicly accessible database of air quality of the local authorities.

# Findings and Achievements

- Set up team and placed researcher at the GMDA Office in Gurgaon.
- Review of past air quality data in Gurgaon from 2020.
- Evaluation of low-cost sensors and ranking of sensors to shortlist sensors for testing.



**Low cost air quality monitoring sensors from three participants of the study installed at Gurugram University, Sector-51**

**A- Airveda**

**B- Atmos**

**C- Prana Air**

## **Promotion of Nature-linked Ecotourism as a Rural Livelihood in Uttarakhand: A Proposal for Development of Supporting Training Materials**

**Project Duration: August, 2020-December, 2021**

**Donor/Funding Agency: DBS Bank**

**Field Site: Mukteshwar, Uttarakhand**

**Project Investigator: Dr Ghazala Shahabuddin**

Himalayan communities are facing a decline in agrarian livelihoods due to a range of factors related to climate change, resource scarcity and social disruptions. CEDAR has been part of a consortium of NGOs in Uttarakhand that is actively promoting nature-linked ecotourism as a viable and sustainable rural livelihood through capacity-building of rural youth.

This project aimed to support the ecotourism activities of CEDAR through publication of outreach material such as posters, field guides and an anthology of Kumaoni bird stories, in addition to creation of a website and Facebook page for popularising guiding activities and nature in Uttarakhand. Such outreach material, geared towards the local context, will be used for both educational and training activities in the villages of Kumaon.

This project began on August 5, 2021, and is in process, having received an extension of 5 months (till December 31, 2021). CEDAR is collaborating with Titli Trust (Dehradun) in this project and involves leading naturalists and nature artists such as Sanjay Sondhi, Ms Suniti Bhushan Datta and Ms Anusha Menon. Dr Shahabuddin and Dr Nidhi Singh, at CEDAR worked on the content and design of the website and the Facebook page.

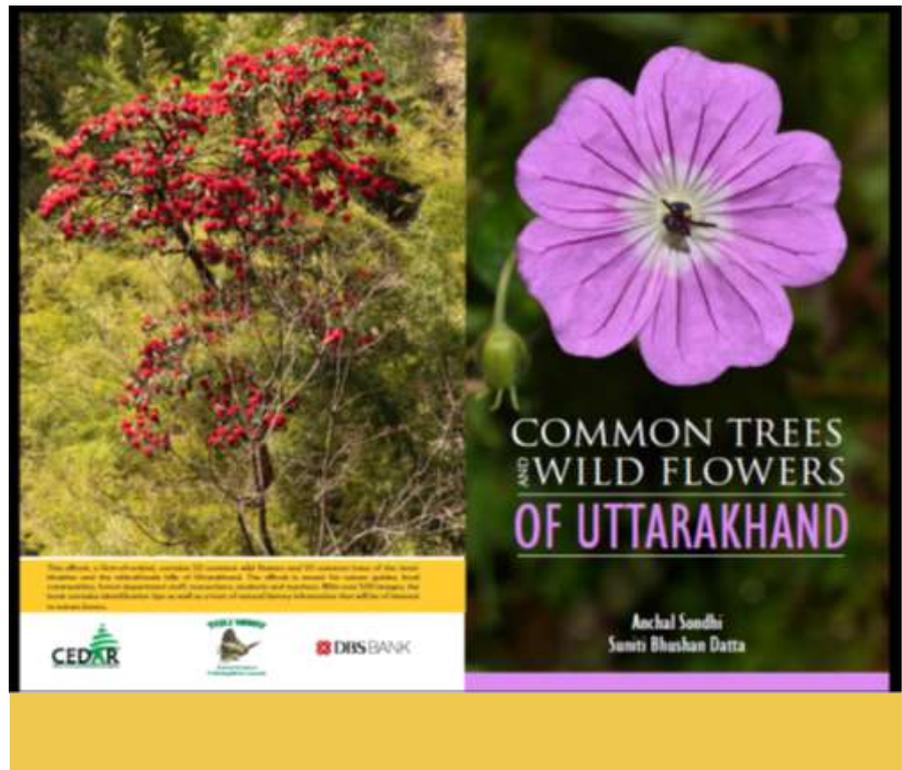
Wildlife, People and  
Land-Use Change

## **Findings and Achievements**

- Out of the proposed outreach products, a website [www.natureinmukteshwar.in](http://www.natureinmukteshwar.in) has been designed.
- To popularise nature and guiding activities in Mukteshwar, Facebook page [Nature\\_in\\_Mukteshwar](#) has been created.
- A book “Common Trees and Wildflowers of Uttarakhand” will be published as an e-Book. It will be available free to students, rural nature guides and NGOs in India, both in web- and phone app- formats.

**Cover page  
of an e book-**

**Common  
Trees and  
Wildflowers  
of  
Uttarakhand**



## **Implementing Nature-Linked Tourism livelihoods: Evaluation of Potential for Forest Conservation in The Western Himalaya**

**Project Duration: February-May, 2021**

**Donor/Funding Agency: The Nature Conservancy, USA**

**Field Site: Uttarakhand, India**

**Project Investigator: Dr Ghazala Shahabuddin**

The NGO consortium (including CEDAR and our partner Titli Trust) has been working to promote nature-linked tourism livelihoods in the state of Uttarakhand through training and outreach activities with rural youth, students and tourists, in collaboration with the Forest Department since 2012. The objective of this project was to evaluate the ongoing programmes of promotion of nature-linked tourism in Uttarakhand with which CEDAR has been associated, along three axes:

- **Learning** (i.e. quality and numbers of nature guides)
- **Livelihood** (i.e. significantly adding to livelihood options within village communities)
- **Conservation strategy** (i.e. contributing to local forest and water conservation)

The field work for the project involved interviews, observations and discussions at three sites in Kumaon – Munsiri, Mukteshwar and Pawalgarh, in addition to a

workshop with novice trainees at Devalsari in Garhwal. We found that the process of training was rigorous, field-based and scientific, based on a tested course curriculum. Yet, there remain significant limitations with respect to the number of trainees who are able to reach professional level. Expansion of nature tourism as a viable community-managed business also requires better marketing, tourist outreach, and synergism between various types of commercial activity at the village level. Based on our findings, we recommend upscaling of nature-linked tourism activities to many more sites of Uttarakhand so as to promote and sustain forest conservation in the state.

## Findings and Achievements

- Government facilitation is required by increasing employment opportunities for trained guides in wildlife reserves, providing better access to forest areas, enforcing ethical guiding practices and a fair certification process.
- We found that the guides who do complete the training are knowledgeable, ethical and remain connected with conservation in their respective villages. Improvements in training processes and outreach material may be needed to improve outcomes and reduce drop-out rates.
- Long-term consistent engagement with the trainees was found to lead to positive forest conservation outcomes, with a few even emerging as environmental leaders/responders within their communities.
- Community conservation at biologically important site Devalsari in Mussoorie Forest Division has also received an impetus through our activities with Titli Trust.



**Being the first evaluation of community-based nature tourism anywhere in India, we believe that our report has significant learnings for all the stakeholders involved in running, working in and promoting this business in Uttarakhand.**

**Final Advanced Training Camp held for trainees from three landscapes at Devalsari, Mussoorie Forest Division, March 19-21, 2021.**

# Completed Projects

## **Feasibility Assessment of Biogas Value Chain in the Mid Mountainous Region of Uttarakhand and Development of a Scale up Strategy for Biogas Solutions**

**Project Duration: July, 2020-December, 2020**

**Donor/Funding Agency: Sustain+**

**Field Site: Nainital, Pithoragarh, Almora, Rudraprayag and Uttarkashi**

**Project Investigator: Dr Vishal Singh**

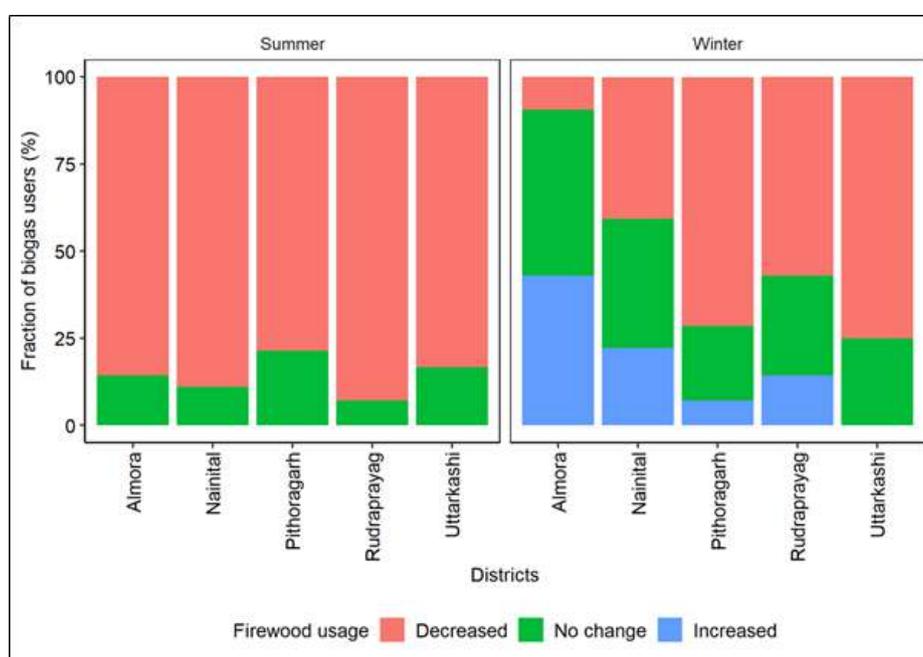
This study aimed to understand the socio-cultural-economic landscape and value chain for biogas as an energy solution in Uttarakhand at an elevation of 500 - 1500 masl, across five districts (Nainital, Pithoragarh, Almora, Rudraprayag and Uttarkashi) in Uttarakhand. The objective was to conduct a feasibility assessment of biogas-use, exploring the opportunities, threats and gaps in biogas energy usage and suggest a scale-up strategy based on a sustainable financial model, and align with existing policy benefits. CEDAR collaborated with implementing agencies such as CHIRAG, Grassroot and Himmothan Society in order to select sites and respondents. The study recommended the needs for proper knowledge transfer and training, the creation of a revenue-generating model and scope of benefits from the plant and quality maintenance by service providers are the entry points.

**A biogas user in village of Rudraprayag District**



# Findings and Achievements

- One significant product of this project is a diagnostic report of past and current practices of biogas energy, suggesting market strategies of “how it is likely to develop in near future”; keeping socio-ecological and cultural aspect in mind, and its implication on forest and alternate sources (pine needle briquetting and gasification).
- Team CEDAR has trained three field assistants for interviewing and surveying purposes.
- Our findings suggest that Deen Bandhu Model is the most abundant in the hills while the major load for operation and maintenance is with women of the household. Major requirements for biogas are dung and water which when mixed in a ratio, forms slurry.
- The results show that biogas usage has reduced dependence on firewood and LPG in summers which also reflects savings in terms of energy and money, but the winter’s firewood pattern has shown no change.



**The graph represents the household fuelwood consumption in summer and winter.**

- Knowledge products - A video documentary and user manual are generated as knowledge products. There are four user manuals available in both the languages English and Hindi. \*

**\*Video documentary and user manuals are available on line at our website**

**[www.cedarhimalaya.org](http://www.cedarhimalaya.org)**

## **Assessment of Ecosystem Services Provided by The Renuka Wetland and The Surrounding Communities Dependence on these Services for Their Livelihood and Cultural Practices**

**Project Duration: January 2020-December 2021**

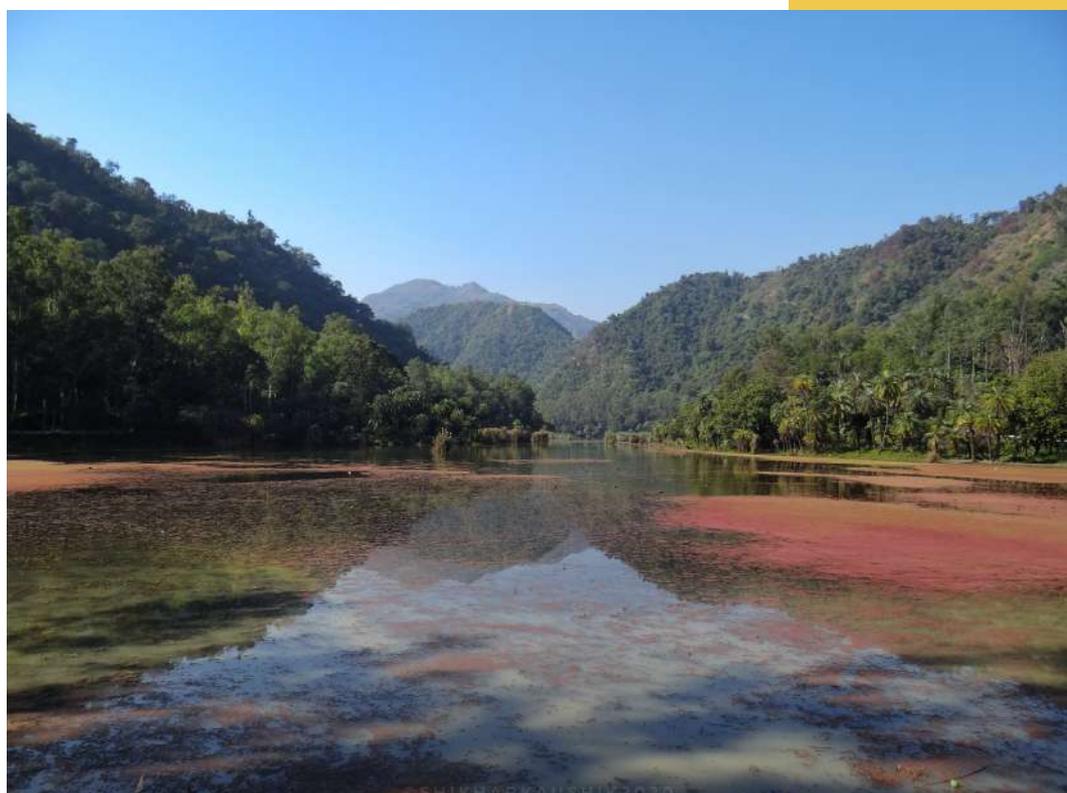
**Donor/Funding Agency: Led by People's Science Institute (PSI) and funded by GIZ**

**Field Site: Himachal Pradesh**

**Project Lead: Dr Vishal Singh**

The project was led by the People's Science Institute (PSI) in collaboration with the Centre for Ecology Development and Research (CEDAR). It aimed at understanding the interdependence and relationship between the Renuka wetland and the related stakeholders. The broad areas of study remained interlinkages between the wetland, communities and related stakeholders, livelihood dependence, perceptions about change in the landscape, and experienced challenges after the declarations of Sanctuary, Ramsar site, and a place of interest for the international fair.

**Renuka  
wetland, a  
sanctuary,  
Ramsar site  
located in  
Sirmour  
district of  
Himachal  
Pradesh**



CEDAR’s research entailed stakeholder mapping and consultations as part of the qualitative research methods. The stakeholders for Renuka wetland ecosystem assessment study was identified based on their responsibility for the lake and sanctuary. Our findings reflect a set of results that are crucial to the sustainable development of Renukaji wetland. We found that high priority Ecosystem Services are recreation, tourism and air quality which is also equivalent to visually identifying less pollution in the air, and religious belief. The other indirect services such as water quality, carbon reserve, habitat and regulating services had low scores. Also, the relationships among stakeholders reflected mainly negative interactions among the stakeholders or none. At a community level, the most prominent challenge was inaccessibility to fuelwood and fodder, and lack of employment opportunities in their own landscape.



**Figure showing the interdependence and relationship between stakeholders and Renuka wetland ecosystem**

## Findings and Achievements

- Successful surveys and stakeholders’ consultations during COVID 19.
- One Master’s Dissertation completed for Indraprastha University, Delhi.
- Better understanding of the beneficiaries and stakeholder’s priorities related to ecosystem services offered by Renukaji wetland.

- Action Plan Meeting and Coordination with Himachal Pradesh Tourism Department, Forest Department (Territorial and Wildlife) and Renuka Vikas Board.



**CEDAR staff interacting with Renuka Vikas Board**

## **Promotion of Nature-linked Ecotourism as a Rural Livelihood in Uttarakhand**

**Project Duration: September, 2019-December, 2020**

**Donar/Funding Agency: Silent Foundation, Singapore**

**Field Site: Benog Wildlife Sanctuary, Mukteshwar and Thano-Laldhang-Jhilmil landscapes**

**Project Investigator: Dr Ghazala Shahabuddin**

The fragile forests of the Himalayan region, necessitate developmental approaches that create least pressure on ecosystems, and provide sustainable livelihoods to local people. Further, the rich biodiversity, abundant forest trails and scenic landscapes allow for significant nature tourism activities in Uttarakhand. The principal aim of this project was to train rural youth from three different landscapes (Jhilmil Jheel-Rajaji, Mussoorie-Benog WLS and Mukteshwar-Maheshkhan) in the vocation of nature guiding for tourists. This project was carried out in collaboration with Titli Trust, an NGO based in Dehradun, and the Uttarakhand Forest Department, who has been our long-term collaborator. The training was undertaken through intensive bi-weekly field trainings held independently at each of the three sites, online quizzes and citizen science activities, as well as two joint cross-landscape workshops held at the beginning and end of the project.

**Wildlife, People and  
Land-Use Change**



**Training on bird identification, Jhilmil Jheel, March 2020**

**Training on butterfly identification, Mukteshwar landscape, September 2020**



## **Findings and Achievements**

- Two guides from Mukteshwar have also obtained top ranking in the Butterfly Month of India (September 2020), through their dedicated efforts to document butterfly fauna. Two guides from Mussoorie area have recently obtained employment with tourist resorts.
- Of the 75 rural youth who were initially recruited in the programme, CEDAR finally graduated 30 trained guides in March 2021.
- The citizen science activities based at Mukteshwar made enormous contributions to the documentation of floral and faunal species at the iNaturalist and eBird citizen science portals.
- The project has also led to an expanded network of trained nature guides who are expected to work together in training, education and research in Uttarakhand, apart from undertaking their own rural livelihood activities.

# Outreach

## 1. Workshop

- **CEDAR coordinated a workshop under the project - Assessment of Ecosystem Services Provided by the Renuka Wetland and the Surrounding Communities Dependence on these Services for their Livelihood and Cultural Practices.**

**Date: 28th January, 2021**

A project dissemination workshop was conducted by the lead organization PSI and CEDAR. The partners, stakeholders and community members of the projected attended the workshop for a lively discussion on the findings of the year-long study on Renukaji wetland and its ecosystem services. A presentation was made by Dr Debashish Sen (Executive Director, PSI), culminating the findings of the study.

- **Our partner organization CHIRAG conducted a village level workshop for developing youth-leaders and Para-hydrogeologist in Nathuakhan under the NMHS funded project - “Creating Climate-resilient Communities in Mid-Hills of Uttarakhand: Interventions Towards Forest & Water”.**



## 2. Webinar

- **A meeting was directed by the Indian National Committee On Climate Change (INCCC) for the project - Hydro-geological assessment and socio-economic implications of depleting water resources in Nainital.**

**Date: 21st January, 2021**

The 11th meeting of INCCC was scheduled on Virtual Mode (Webex). The meeting was Chaired by Additional Secretary & Mission Director, NWM. Dr. Sumit Sen (Co-PI) presented the research activities conducted in the project and shared the details of equipment installed near the lake and the drains.

- **A webinar was organised by CEDAR to present the findings of the project titled, - Feasibility Assessment of Biogas and Evaluating other Alternate Energy Sources in the Mid Mountainous Region of Uttarakhand.**

**Date: 10th January, 2021**

Final project dissemination was moved online due to the impacts of the corona virus. The webinar was attended by several NGOs and funding agency who collaborated throughout the project. A video documentary and a five-set user manual for biogas management system were also presented during the webinar.

## 3. Orientation Meeting

**An orientation meeting of village level was held for Gazar panchayat by our partner organization - CHIRAG under the project “Creating Climate-resilient Communities in Mid-Hills of Uttarakhand: Interventions Towards Forest & Water”.**



## 4. Project Review Meeting

**Date: 25th-26th March, 2021**

The progress of the project – “Hydro-geological assessment and socio-economic implications of depleting water resources in Nainital”, was review and evaluated by Shri Suneel Arora, Advisor, National Water Mission, Ministry of Jal Shakti. Detailed presentation was shared by Dr Anvita Pandey along with technical and financial reports. The evaluation was found satisfactory and the next phase of grant release was approved.

## 5. Symposium

**Date: 26th-27th March, 2021**

A symposium was organised with the partnership of [Bird Count India Nature Conservation Foundation](#) and [@LTEO India](#), aimed to bring researchers, citizen scientists and others together to facilitate conversations about bird monitoring.

## 6. Trainings

- **CEDAR researcher explaining about the field techniques for biodiversity estimation with respect to mycorrhizal sporocarp density**



**Dr Anvita Pandey showing the technique for biodiversity estimation with respect to Mycorrhizae**

A short video was made to train the other project participants on field techniques for biodiversity estimation with respect to mycorrhizal sporocarp density, under the project ‘Planning plantations: past learning, toward triple wins in carbon, biodiversity and livelihoods’ funded by PEER.

- **Training program on forest carbon measurement**

CEDAR carried out field training to measure carbon in forest plantations in Kangra district of Himachal Pradesh as a part of the project titled “Planning plantations: past learning, toward triple wins in carbon, biodiversity and livelihoods” being carried out with financial support from National Academy of Sciences (NAS), USA.



**Team  
CEDAR with  
the  
trainees in  
Kangra,  
Himachal  
Pradesh**

- **CHIRAG conducted a hydro-geological and water testing training for Water User Committee, Nathuakhan**

A hydro-geological and water testing training at Nathuakhan was held by Our partner organization CHIRAG. The activity came under the “Creating Climate-resilient Communities in Mid-Hills of Uttarakhand: Interventions Towards Forest & Water” project. The water end users were the beneficiaries of the training.



**Water testing kit used in the training organized by CHIRAG for water user committee**

## 7. Virtual Activity



Poster designing competition was organised under the project "Hydro-geological assessment and socio-economic Implications of depleting water resources in Nainital" on the World Water Day following the theme "Valuing Water". 20 entries were recorded, the winner was decided by a jury and name was announced on CEDAR's social portals.

**Announcement of Poster designing competition held at the World Water Day**

## 8. COVID – 19 Relief Activity

In CORONA virus pandemic situation, team CEDAR with the financial support from M.G. Shahani Trust, New Delhi, distributed essential items to the daily wage migrant labours without jobs in Selaqui, Industrial Area of Dehradun, Uttarakhand. 100 needy migrant labour families identified; the distribution of food items continued for 4 weeks.



**Team CEDAR distributing the food items in Selaqui, Dehradun**

## 9. Experts Talk

### Topic: Social and Environmental Issues

**Expert: Dr Vishal Singh**

**Organised by: Catfit**

**Link:**<https://www.facebook.com/watch/live/>

The poster is for a CATFIT webinar titled "INSPIRING REAL LIFE HEROES" with the subtitle "Journey from Ordinary to Extraordinary: Challenges to Opportunity". It features three speakers: Shefali Chopra (Motivational Speaker & Story Teller), Vishal Singh (Executive Director, Centre for Ecology Development and Research), and Arpan Dixit (Global Head, CatFit). The event is on 01 DEC 2020 at 6:00PM ONWARDS. It is associated with FB LIVE WEBINAR, THE PINK REVOLUTION, and LADLI FOUNDATION FOR RESTORING THE QUALITY OF UNDERPRIVILEGED. Contact information includes www.catfit.in, info@catfit.in, and @catfit.in.

### Topic: World of Woodpeckers

**Expert: Dr Ghazala Shahabuddin**

**Organised by: early bird**

**Link:**<https://www.facebook.com/watch/live/>

The poster is for a webinar titled "Knock-Knock! Who's there?" with the subtitle "A PEEK INTO THE WORLD OF WOODPECKERS". It features Dr. Ghazala Shahabuddin as the speaker. The event is on Sunday, 14 June 2020 at 11AM-12PM. There is a bonus quiz with prizes. Contact information includes Zoom ID: 8500-674-3198 and Facebook Live: @earlybirdindia.

# Publications

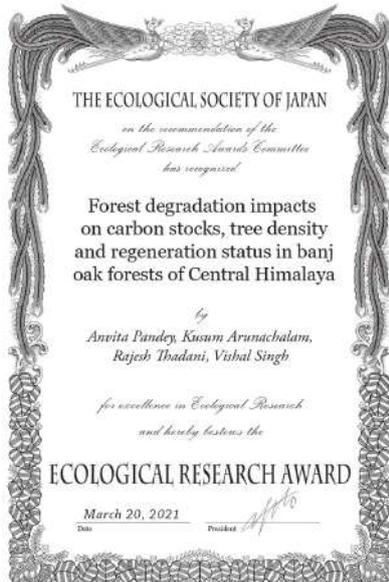
## 1. Research Papers

- Das, A., **T. Menon**, J. Ratnam, **R. Thadani**, G. Rajasekhar, R. Fararoda, and **G. Shahabuddin** 2021. Expansion of Pine into Mid-Elevation Himalayan Oak Forests: Patterns and Drivers in a Multiple-Use Landscape. *Forest Ecology and Management* 497: 119491.
- Fleischman, F., Basant, S., Fischer, H., Gupta, D., Lopez, G.G., Kashwan, P., Powers, J.S., **Ramprasad, V.**, Rana, P., Rastogi, A. and Solorzano, C.R. 2021. How politics shapes the outcomes of forest carbon finance. *Science Direct*, Vol. 51, 7-14.
- F. Fleischman, S. Basant, A. Chhatre, Eric, A. Coleman, H. W. Fischer, D. Gupta, B. Güneralp, P. Kashwan, D. Khatri, R. Muscarella, J. S. Powers, **V. Ramprasad**, P. Rana, C. R. Solorzano and J. W. Veldman. 2020. Pitfalls of Tree Planting Show Why We Need People-Centered Natural Climate Solutions. *BioScience*, 70: 11, 947–950.
- **Gupta, Y., Habeeb, R., Singh, M., Pandey, A., Singh, V.** and Barker, E. 2020. Gender Contribution in Household Management of Water and its Impact on Residents of Dholak Basti (Slum) in Haldwani City of India. *wH2O: The Journal of Gender and water*, Vol. 7.
- **Kumar, R., G. Shahabuddin** and A. Kumar. 2020. Foraging niche differentiation among sympatric woodpecker species in forests of North-western India. *Acta Ornithologica*, 55(1).
- **Menon, T.** and **Shahabuddin, G.** 2021. Assessing woodpeckers as indicators of bird diversity and habitat structure. *Biodiversity and Conservation*. <https://doi.org/10.1007/s10531-021-02164-0>.
- Ojha, H., Neupane, K. R., Pandey, C. L., **Singh, V.**, Bajracharya, R. and Dahal, N. 2020. Scarcity Amidst Plenty: Lower Himalayan Cities Struggling for Water Security *Water* ,12(2), 567; <https://doi.org/10.3390/w12020567>
- **Pandey, A., Singh, M., Habeeb, R.** and **Singh, V.** 2020. Mapping Institutional Landscape for Integrated Urban Water Management in Haldwani City, Uttarakhand. *New Angle: Nepal Journal of Social Science and Public Policy*. Vol. 6(1): 52-65.

- **Ramprasad, V.** 2021. Institutional benefit pathways in development. Science Direct, Vol. 142.
- **Ramprasad, V.,** Joglekar, A. and Fleicsman, F. 2020. Plantations and pastoralists: afforestation activities make pastoralists in the Indian Himalaya vulnerable. Ecology and Society, Vol. 25(4):1
- **Shahabuddin, G., R. Goswami,** M. Krishnadas and **T. Menon.** 2021. Decline in bird species and guilds due to land use change in Western Himalaya. Global Ecology and Conservation 25. <https://doi.org/10.1016/j.gecco.2020.e01447>
- **Singh, V. and Pandey, A.** 2020. Urban Water Resilience in Hindu Kush Himalaya: Issues, Challenges and Way Forward. Water Policy – IWA Publication <https://doi/10.2166/wp.2019.329/70239/Urban-water-resilience-in-Hindu->

## 2. Popular Press

- **Shahabuddin, G.** 2021. Sylvan suburbia: Why a forest corridor between Delhi and Haryana needs legal protection. Down to Earth, January 21.
- **Shahabuddin, G.** 2021. Why Uttarakhand should choose a more sustainable path to development in the post-Covid world. Scroll, January 15.
- **Shahabuddin, G.** 2020. Forests and Climate Change in the Anthropocene. IICQuarterly 46 (3-4): 72-82.
- **Shahabuddin, G.** 2020. Existential crisis in Indian forests. Mongabay.in, 8th December
- **Shahabuddin, G.** and **R. Thadani.** 2020. Giant Powerhouses: Secrets of the Himalayan Oak Forests. Roundglass, Sustain. <https://round.glass/sustain/habitat/himalayan-oak-forests/>
- **Shahabuddin, G.** 2020. At the Mercy of Development's Axe (Op-Ed). The Telegraph, June 30.
- **Shahabuddin, G.** 2020. Can woodpeckers be used as focal species for forest conservation in India? Cheetal 56-2 (May-October).
- **Singh, M.** 2020. Book Review - "Whose water is it, anyway? Taking water protection into public hands By - Barlow"



## Ecological Research Paper Award

A scholarly research paper "**Forest degradation impacts on carbon stocks, tree density and regeneration status in Banj Oak forests of Central Himalaya**" by **Dr Anvita Pandey** has been awarded as "Excellent Paper" by Ecological Research Journal (Japan) in their 21st Ecological Research Paper Award.

### 3. Knowledge Products

- **Video Documentary**

A small video documentary showcasing the experiences of biogas users. Describing the activities and operation of the project and giving overview of the biogas status in 5 District of Uttarakhand.

Video is available on the website [www.cedarhimalaya.org](http://www.cedarhimalaya.org)

- **User Manual**

Provides a summary of knowledge impartation in users about the operation and maintenance, visuals and illustrations are being used to make it more user friendly.

### 4. Dissertations

- **Title:** Impact of urbanisation on water resources & opportunity of RWH structure in Nainital  
**Name:** Raghav, P. 2020  
**Institution:** TERI, School of Advanced Studies, New Delhi
- **Title:** Impact of land cover changes on the ecosystem services provided by the Renuka Wetland  
**Name:** Gaur, A. 2020  
**Institution:** TERI, School of Advanced Studies, New Delhi

# Collaborations

## • IFSD + CEDAR

Institute for Study and Development Worldwide (IFSD) and Centre for Ecology Development and Research (CEDAR), have entered into this Memorandum of Understanding (MOU) in consideration of their complementary capacities and shared visions on sustainable development and natural resources management. This MoU reflects discussions held between the agents' representatives of the parties and formalizes a basis for cooperation, pursuant to the prevailing laws and regulations in Australia and countries of business operation.



## • SGT University + CEDAR

The partnership aims at quality research work on areas such as forests, wildlife, watersheds, etc. The collaboration will provide access to and linkages with researchers and varied research programs of mutual interest. This alliance will enable explorations of networks for understanding Himalayan systems, creating a scientific body of knowledge, and capacity building of the students and upcoming researchers.



# Memorandum of Understanding (MoU)

- Department of Forestry, HNB Garhwal University, Srinagar, Uttarakhand
- Forest Department, Uttarakhand
- Indian Veterinary Research Institute (IVRI), Mukteshwar, Uttarakhand

# Donors & Partners

## Donors

- National Mission on Himalayan Studies (NMHS),
- Ministry of Jal Shakti, National Water Mission, Govt. of India
- The Nature Conservancy (TNC), USA
- National Academy of Sciences, Washington, DC
- Clean Air Fund (CAF)
- The Development Bank of Singapore Ltd. (DBS) Bank
- North South Maritime (India) Pvt. Ltd.
- Sustain Plus Energy Foundation
- The Silent Foundation
- Kalamazoo Collage, USA
- Shree Guru Gobind Singh Tricentenary University, Gurugram
- M.G. Shahani & Co (Delhi), Pvt. Ltd.
- Pevibai Motiram Shahani Trust, Delhi
- K. J. Bhavnani, HUF

## 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
- Indian Institute of Technology, Roorkee Forest Research Institute, Dehradun
- FLAME University, Pune
- Kalamazoo College, USA
- People's Science Institute (PSI), Dehradun
- Himachal Pradesh Forest Department

# Voluntary Compliance

We are in voluntary compliance with the norms of the Credibility Alliance, which 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.

## Governance

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) 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.

**Annual General Meeting: 14th Annual General Meeting held on November, 24th 2020.**

**Time: 5 pm**

**Venue/Mode: Conducted online through Google meet.**

## Salary

Maximum salary paid was of were Rs 99,000 per month.

## Travel

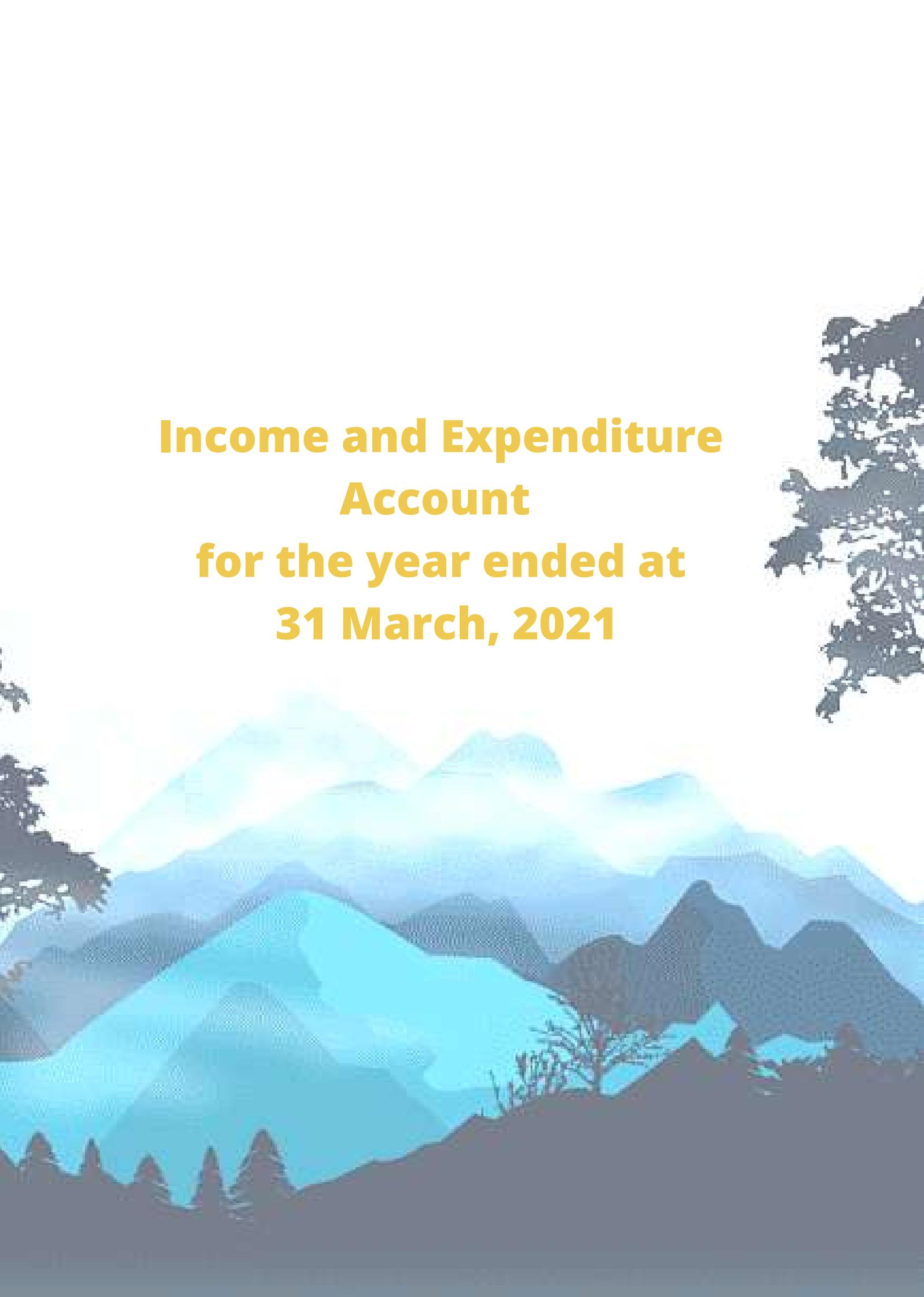
- Maximum cost of any single rail ticket purchased was less than Rs 2000.
- International Travel: Maximum ticket was NIL

## Statutory Auditor

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

## Our Bankers

- Industrial Credit and Investment Corporation of India (ICICI) Bank, New Delhi
- State Bank of India (SBI), Delhi
- Indian Overseas Bank (IOB), Dehradun
- Axis Bank, Dehradun



**Income and Expenditure  
Account  
for the year ended at  
31 March, 2021**

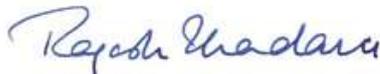
CENTRE FOR ECOLOGY, DEVELOPMENT AND RESEARCH

**BALANCE SHEET**  
As at March 31, 2021

PARTICULARS	CURRENT YEAR	PREVIOUS YEAR
	Rs.	Rs.
<b>LIABILITIES</b>		
<b>Corpus Fund</b>	2,00,000	2,00,000
<b>Reserve Fund</b>		
As per last Balance Sheet	(3,72,023)	8,15,015
Add: Transferred from Income and Expenditure Account	8,62,461	(11,87,038)
	4,90,438	(3,72,023)
<b>Current Liabilities</b>		
Projects in Progress (Schedule - 1)	62,11,310	74,93,967
	<b>69,01,748</b>	<b>73,21,944</b>
<b>ASSETS</b>		
<b>Fixed Assets (Schedule - 2)</b>		
Gross Block	11,68,890	9,33,394
Less: Depreciation	2,25,967	1,45,796
Net Block	9,42,923	7,87,598
<b>Current Assets, Loans and Advances</b>		
<b>Current Assets</b>		
Bank Balances		
With Scheduled bank - In saving accounts	57,04,689	62,89,628
Fixed Deposit	10,000	10,000
Tax Deducted at source	2,06,450	1,87,700
Advance to Others	2,686	12,018
Security Deposit	35,000	35,000
	<b>69,01,748</b>	<b>73,21,944</b>

Significant Accounting Policies and Notes - Schedule 4

  
Chairman

  
Executive Director

  
Senior Fellow

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: 09 NOV 2021



<b>CENTRE FOR ECOLOGY, DEVELOPMENT AND RESEARCH</b>		
<b>INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED MARCH 31, 2021</b>		
PARTICULARS	CURRENT YEAR	PREVIOUS YEAR
	Rs.	Rs.
<b>INCOME</b>		
<b>Project Funding</b>		
<b>Receipts during the year</b>		
<b>Local Grants</b>		
IGF :- To conduct a action research study on "Gurugram city state of environment: water" with the support of Gurugram metropolitan development authority.	-	5,00,000
UNDP :- (United Nations Development Programme) : Status of Plastic waste management in Char Dham Region	3,42,000	9,13,965
NHMS :- (National Mission on Himalayan Studies): Creating Climate-resilient Communities in Mid-Hills of Uttarakhand: Interventions Towards Forest & Water	14,78,277	12,46,746
MOWR :- Hydro-geological assessment and socio economic implications of depleting water resources in Tourist Towns of	19,64,167	32,19,668
TNC :- (The Nature Conservancy Centre) : Scoping and Prioritization of Assisted Natural Regeneration (ANR) opportunities in India	-	16,94,000
DBS Bank:- Promotion of Nature-Linked Ecotourism as a Rural Livelihood in Uttarakhand	4,88,750	-
HPFD :- (Himachal Pradesh Forest Department): Conducting socio-economic and livelihood assessment surveys of pastoralists of Himachal Pradesh	-	2,97,000
Sustain Plus :- Feasibility Assessment of Biogas value chain in the mid mountainous region of uttarakhand and development of a scale up strategy for biogas solutions	10,78,376	-
MANGAR :- Conservation of mangar bani, surrounding forests and ecosystem services in the gurgaon aravallis	1,26,000	-
SDTT :- (Sir Dorabji Tata Trust): Bridge grant to sustain CEDAR	-	9,30,000
<b>Foreign Contribution</b>		
PEER :- Planning plantations: past learning, toward triple wins in carbon, biodiversity and livelihoods	-	55,78,977
TSF :- (The Silent Foundation Ltd): Promotion on Nature-Linked Ecotourism as a rural livelihood in India Himalayas	5,24,731	5,08,807
CAF :- Gurgaon Sensors Project	29,21,540	-
TNC :- Evaluation of potential for Forest Conservation based on Natural-based tourism in Western Himalaya	1,58,400	-
Kalamazoo :- Apple & Bee Work	2,20,619	-
ICIMOD :- (International Centre for Integrated Mountain) Development Analysis of pollution related policies, India	-	8,23,915
	<b>93,02,860</b>	<b>1,57,13,078</b>
<b>Projects in progress brought forward</b> (brought forward from unutilised funds of last year)	74,93,967	5,59,589
<b>Other Receipts ( Schedule 3 )</b>		
Donation	10,86,000	10,15,000
Administrative Cost Realised	4,18,463	8,00,685
Facilitation & Support Cost	1,02,486	5,08,324



Project Consultancy Received	2,50,000	1,83,000
Interest on income tax refund	-	3,500
	20,04,805	26,04,632
<b>TOTAL INCOME</b>	<b>1,88,01,632</b>	<b>1,88,77,299</b>

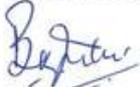


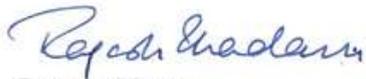
<b>EXPENSE</b>		
<b><u>Expenditure on Projects</u></b>		
<b><u>Local Grants</u></b>		
IGF :- To conduct a action research study on "Gurugram city state of environment: water" with the support of Gurugram metropolitan development authority.	80,000	6,63,442
UNDP :- (United Nations Development Programme) : Status of Plastic waste management in Char Dham Region	12,55,965	-
NHMS :- (National Mission on Himalayan Studies): Creating Climate-resilient Communities in Mid-Hills of Uttarakhand: Interventions Towards Forest & Water	10,54,769	10,53,991
MOWR :- Hydro-geological assessment and socio economic implications of depleting water resources in Tourist Towns of Uttarakhand	19,55,945	22,54,347
TNC :- (The Nature Conservancy Centre) : Scoping and Prioritization of Assisted Natural Regeneration (ANR) opportunities in India	33,048	12,42,535
DBS Bank:- Promotion of Nature-Linked Ecotourism as a Rural Livelihood in Uttarakhand	1,81,250	-
HPFD :- (Himachal Pradesh Forest Department): Conducting socio-economic and livelihood assessment surveys of pastoralists of Himachal Pradesh	2,97,000	-
Sustain Plus :- Feasibility Assessment of Biogas value chain in the mid mountainous region of uttarakhand and development of a scale up strategy for biogas solutions	10,54,376	-
MANGAR :- Conservation of mangar bani, surrounding forests and ecosystem services in the gurgaon aravallis	1,14,000	-
SDTT :- (Sir Dorabji Tata Trust): Bridge grant to sustain CEDAR	2,26,280	7,03,720
DST WSS :- Effects of land use and fragmentation on forest Biodiversity : case study of Himalyan bird communities in Oak-pine forest of kumaon, Uttarakhand.	-	65,294
<b><u>Foreign Contribution</u></b>		
PEER :- Planning plantations: past learning, toward triple wins in carbon, biodiversity and livelihoods	22,91,069	13,44,797
TSF :- (The Silent Foundation Ltd): Promotion on Nature-Linked Ecotourism as a rural livelihood in India Himalayas	5,24,731	4,39,282
CAF :- Gurgaon Sensors Project	7,64,473	-
IDRC :- Facilitating and Conducting research on water security issues in four mid-sized cities in India.	-	4,85,612
ICIMOD :- (International Centre for Integrated Mountain) Development Analysis of pollution related policies, India	-	8,23,915
TNC :- Evaluation of potential for Forest Conservation based on Natural-based tourism in Western Himalaya	1,55,000	-
Kalamazoo :- Apple & Bee Work	2,20,619	-
	<b>1,02,08,525</b>	<b>90,76,935</b>
<b><u>OTHER EXPENSES</u></b>		
Communication Expenses	6,922	23,649
Community Work Expenses - Covid-19	1,17,900	-
Consultancy and Honorarium	24,000	-
Depreciation (Schedule - 2)	2,25,967	1,45,796
Employee Costs	8,71,369	23,93,290



Office Expenses	9,740	95,162
Insurance	19,142	21,541
Audit Fees	23,600	20,650
Printing and Stationery	-	15,810
Rent	1,47,400	3,36,000
Travel and Conveyance	59,602	3,18,346
Other Expenses	13,694	1,23,191
	15,19,336	34,93,435
<b>TOTAL EXPENSE</b>	<b>1,17,27,861</b>	<b>1,25,70,370</b>
<b>Balance</b>	<b>70,73,771</b>	<b>63,06,929</b>
Less: Transferred to Project in Progress (As per Schedule - 1)	62,11,310	74,93,967
Surplus transferred to Reserve Fund	8,62,461	(11,87,038)

Significant Accounting Policies and Notes - Schedule 4

  
Chairman

  
Executive Director

  
Senior Fellow

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

09 NOV 2021





**Centre for Ecology Development and Research**

**201, Phase 1, Vasant Vihar,  
Dehradun-248006**

**[www.cedarhimalaya.org](http://www.cedarhimalaya.org)  
[info@cedarhimalaya.org](mailto:info@cedarhimalaya.org)**