

# CHEA

Central Himalayan  
Environment  
Association

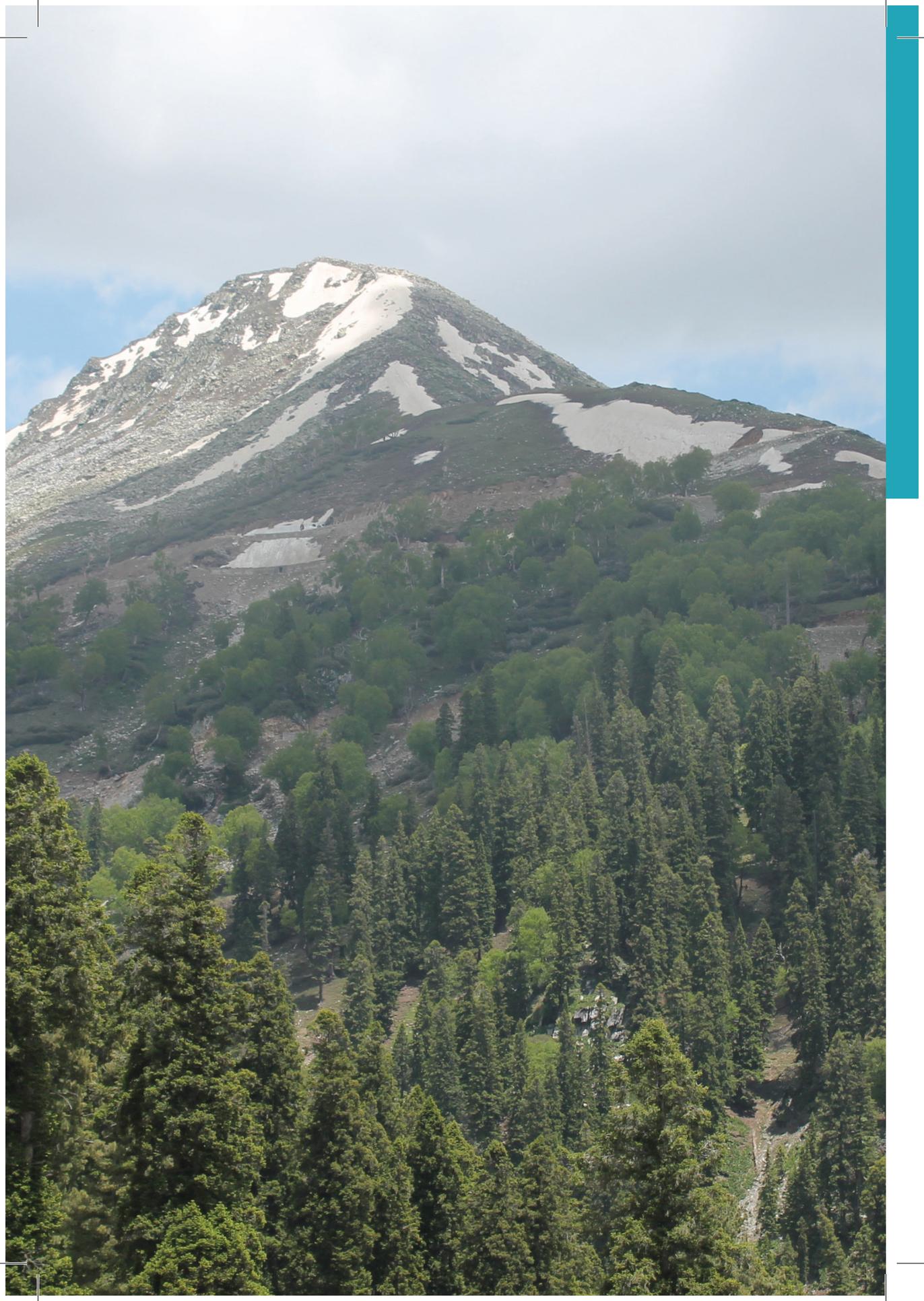
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## 39<sup>th</sup> ANNUAL REPORT 2020-21

### **Acknowledgement**

We dedicate this Annual Report to the community members with whom we work; the grant-extending agencies who trusted our endeavours; partner organisations who came forward to collaborate and collectively achieve a sustainable future for the generations to come; life members and Council of CHEA for handholding and mentoring our pathways to up-scale the learning captured from field actions; and finally the staff of CHEA who have served in far-flung areas as 'catalysts of change' to facilitate the rural communities in meeting their developmental aspirations, as well as conserve the fragile ecosystems of the Indian Himalayan region.





# Chair's Page



I am pleased to share 39th Annual Report of the Central Himalayan Environment Association (CHEA) for the financial year 2020-2021. In between COVID-19 pandemic and the lockdown imposed by the Government, CHEA has worked hard to exhibit its commitment towards the endeavour for the well being of the rural communities residing in the far-flung areas of the Indian Central Himalayan Region.

*“Timberline and Altitudinal Gradient Ecology of Himalayas, and Human Use Sustenance in a Warming Climate”* research project under the MoEF&CC's National Mission on Himalayan Studies (NMHS) fulfilled its objectives. Women of the Dhari (Nainital) and Lamgara (Almora) development blocks well adopted a new approach of animal husbandry; they are now soaking, chuffing and mixing the feed of their animal and serving it on to them by using mangers. They are also benefiting from the activities initiated under the DST's TIME-LEARN funded project titled *“Livelihood Improvement & Drudgery Reduction through Appropriate Livestock Technologies and Biomass Enhancement in Kumaun Himalayas”*.

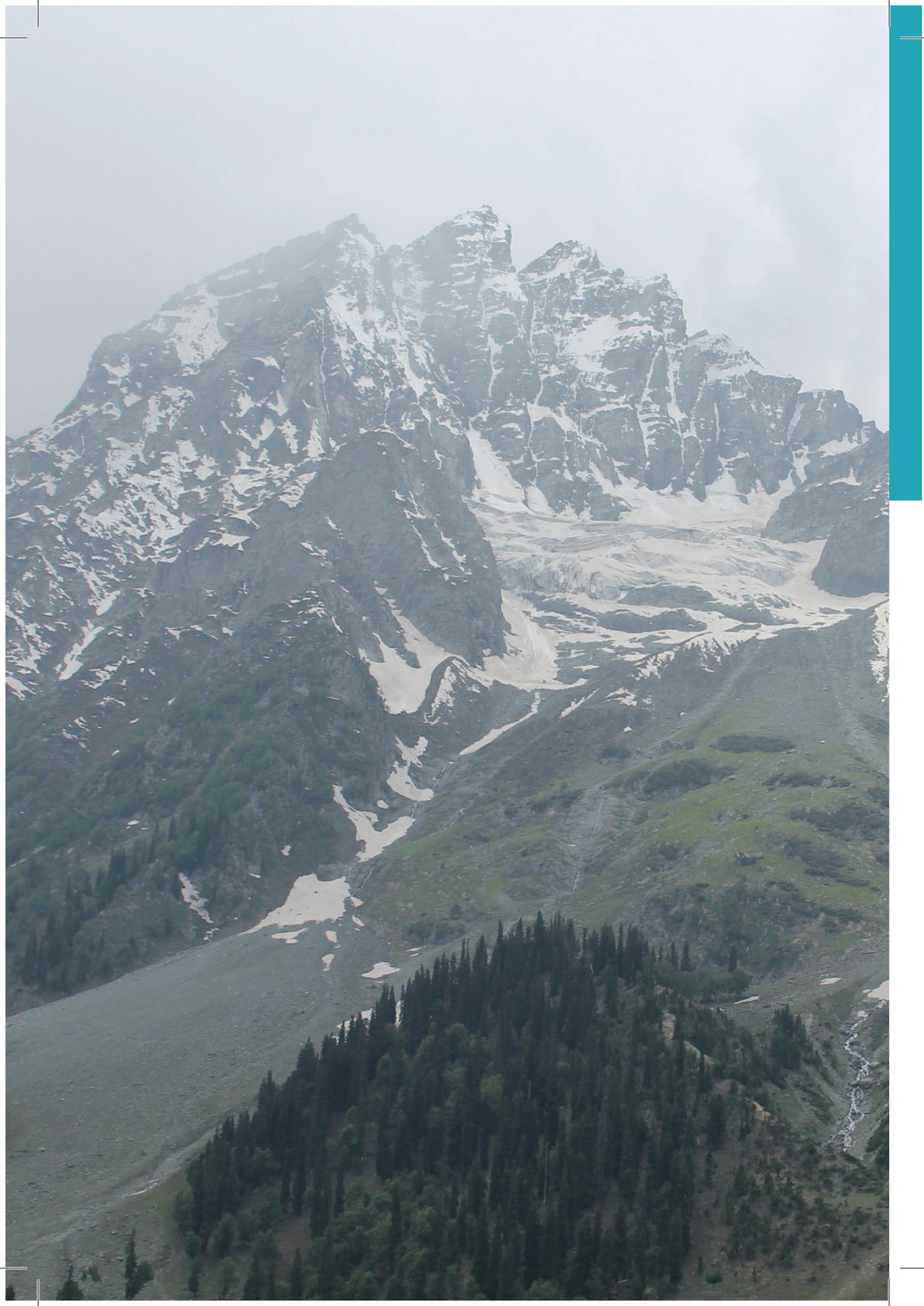
Members of Women of Self Help Group (SHGs) of Ancholi, Pithoragarh (Narayani Swayam Sahayata SamooH) were trained under the *“Kailash Sacred Landscape Conservation and Development Initiative Phase – II”* project to produce handmade Chyura (*Diploknema butyracea*) soap and lip balm. CHEA with the support of its partners is also working on the issue of household energy, sustainable use of natural resources and its implication in the rural communities. Under the project *“Clean Energy Solution for Sustainable Use of Natural Resources and Improvement of Women Health”*, supported by the Adobe Employee Community Fund, the modern energy-efficient cook stoves have been introduced to the villagers residing in the Bhimtal Development block of the Nainital district. The cook stove has reduced firewood consumption by 40% and also improved health of community mainly of women. The project has helped in generating health awareness by organizing health camps. CHEA is also closely working with *Van Panchayats* of Almora, Nainital and Pithoragarh districts for the restoration of Himalayan Oak (*Quercus leucotrichophora*) with the financial support of Value Network Venture (VNV) Advisory, Bengaluru. Under the project, the work of direct sowing of Oak seeds is under progress in 500 ha of *Van Panchayat* managed forests.

CHEA is continuously working to encourage the rural communities of Uttarakhand towards a climate-resilient sustainable livelihood. The world is still struggling with the COVID-19 pandemic and in this time of struggle and pain we are altogether more committed to the well beings of the rural hill communities and continuously working to minimize the impact of the pandemic.

In the end, I would like to express my gratitude, on behalf of the CHEA Council, to all life members, the funding organizations, well-wishers and the village communities for their kind support.

*Best Wishes*

*P.P. Dhyani*



# *A Note by the Secretary*



In the last four decades since its formation in 1981, CHEA has been aligned to the national and international scenario of mountain issues and sustainable development. Despite the COVID-19 pandemic, the annual reporting year 2020-21 has been quite productive and CHEA tried its best to complete various activities in a timely manner by following the COVID guidelines issued by the State Government of Uttarakhand.

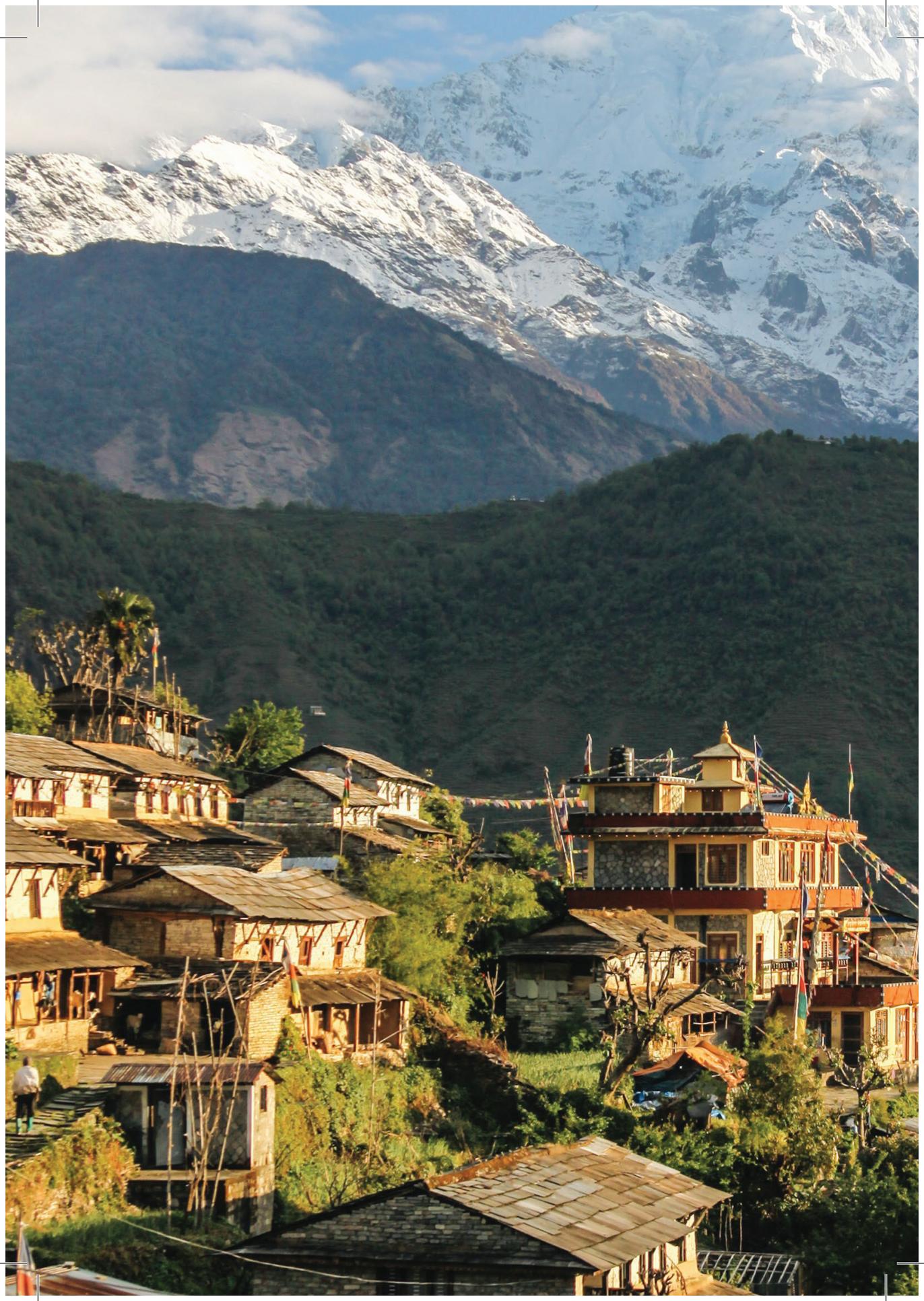
Under the thematic action group to promote rural livelihood based management of natural resources, villagers residing in 20 villages of Almora and Nainital districts were encouraged under the DST (TIME-LEARN) project to adopt Appropriate Livestock Technologies and Biomass Enhancement to enhance their livelihoods and reduce drudgery particularly faced by hill's women. Under this project grass and legume-based fodder and in-situ soil-water conservation, systems have been developed in Van Panchayat as well as in private lands to ensure quality fodder production. Vaccinations and artificial insemination of cattle were also conducted under the project. Women of Self Help Group "Narayani Swayam Sahayata Samooh" of Ancholi trained under the "Kailash Sacred Landscape Conservation and Development Initiative Phase - II" project are now venturing into the area of Chyura by-products such as handmade soap, lip balm, etc.

This is the fifth year for the multi-partner and multi-institutional coordinated Indian Himalayan Timberline Research Project supported by MoEFCC, GoI under the National Mission of Himalayan Studies (NMHS). The project has been able to achieve all its research objectives focused on the Indian Timberline. With the support of Adobe Employee Community Fund the modern energy-efficient cook stove has been promoted among the villagers residing in the villages that come under Khurpatal Naya Panchayat in Nainital, under the project villagers also planted various forest tree species on their community forest, and various fruit species have also been distributed to them. More than 130 hectares area of 05 Van Panchayat of Nainital and Pithoragarh district has been covered under the direct seed sowing of oak acorns with support of Value Network Venture (VNV), Bangalore. CHEA is also collaborating with other organizations of the region to fulfil its objectives and for extending its approach.

The progress made during the reporting year has been possible through the continuous encouragement and trust of the people, partners, funding agencies, etc., associated with CHEA. On behalf of the CHEA council, its life members, and staff I extend our gratitude to the support and trust shown by all the partners, funding agencies, and communities towards CHEA. The CHEA team and particularly the field staff deserve special appreciation for continuously accomplishing their task, and working hard towards meeting CHEA's objectives to make it another productive year.

*Ashish Tewari*

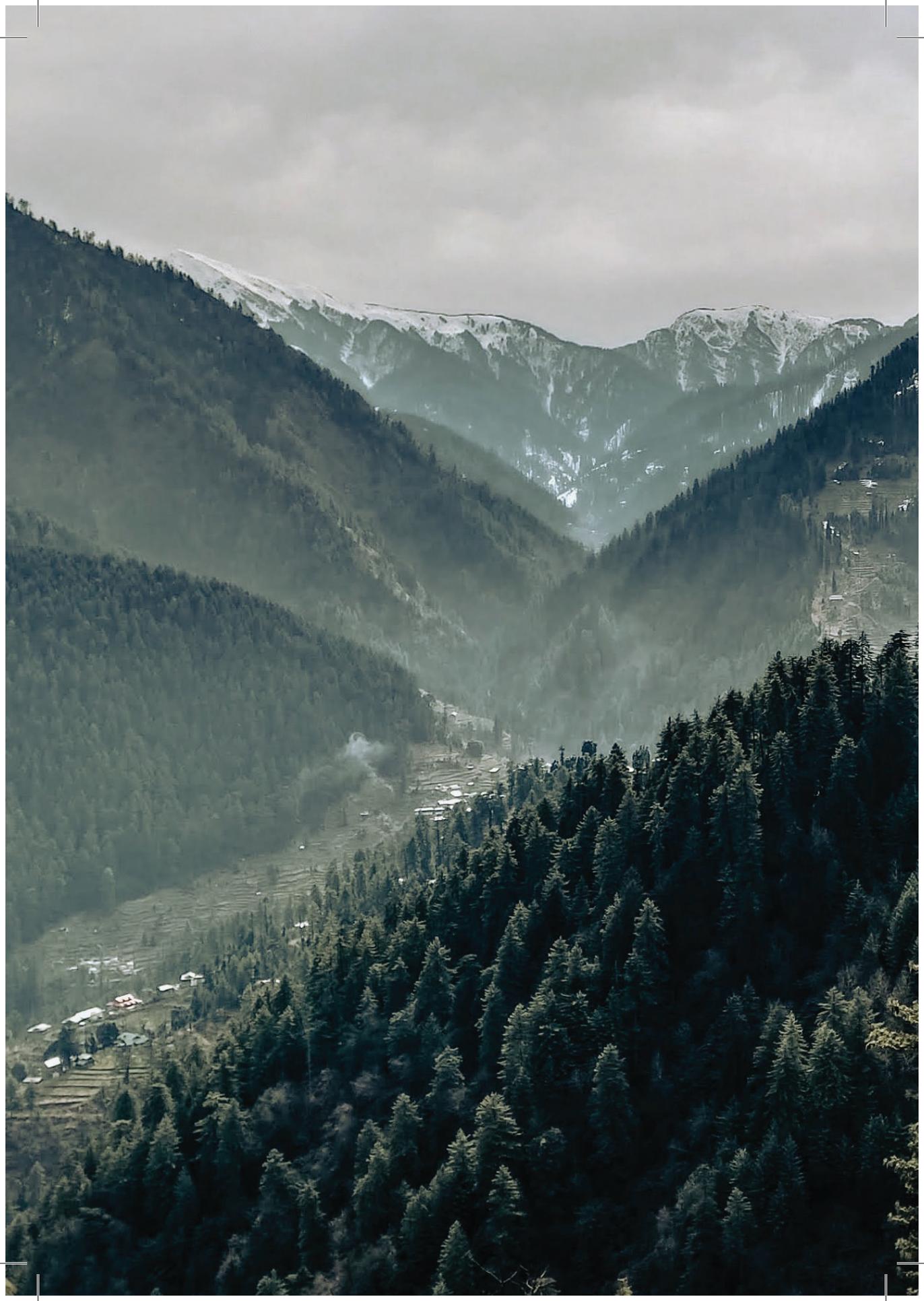
*Hony. Secretary*

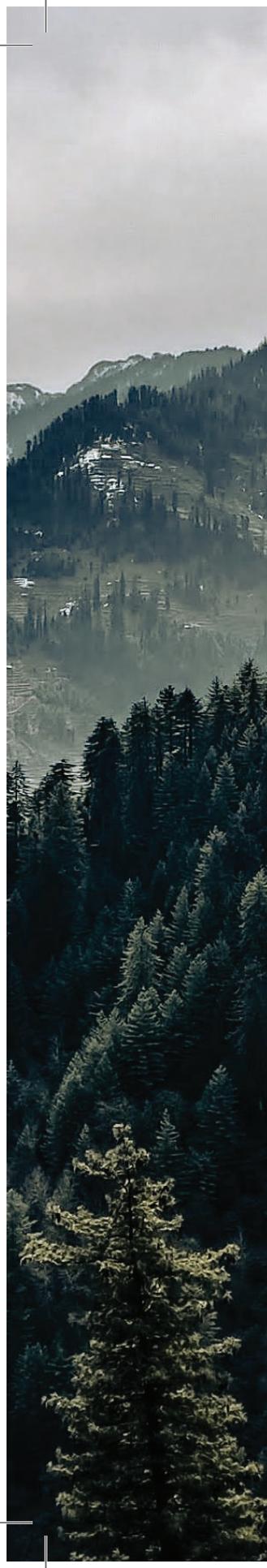




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## Organization

The Central Himalayan Environment Association, CHEA in short, was founded on October 2, 1981, on a day which has a special significance for India, being the birthday of the Father of the Nation, Mohandas Karamchand Gandhi. The society was registered soon after in May, 1982. Arguably CHEA is one of the earliest Societies founded in the Northern India which had '*Environment and Livelihood of the people of Himalayas*' as its core concern.

Much water has flown in the great Himalayan rivers and the Indian Himalayas have since been a witness to much distress, conflict, degradation, demographic dynamics, political restructuring and impacts of various global revolutions and their regional and local impacts. CHEA has since espoused many mountain causes, engaged itself actively in scores of action-research on human and environmental aspects and livelihood-related projects and continues to be so involved to this day.

Since the Rio Earth Summit in 1992 with the inclusion of Chapter 13- 'Managing Fragile Ecosystems : Sustainable Mountain Development' in the UN Conference on Environment and Development (UNCED), the importance of mountain social-ecological systems have been acknowledged for the first time on a global scale. Establishment of CHEA, let it be recalled, pre-dated the Rio Summit by more than a full decade. To ensure solution for increasing pressure on natural resource for rural livelihoods CHEA has developed strategies for strengthening grassroots environmental governance and undertaking need based action research.

## Prominence

- Environment
- Human Resources Development
- Livelihood and sustainable development
- Infrastructure development
- Social development
- Research and Development



## Thematic Groups

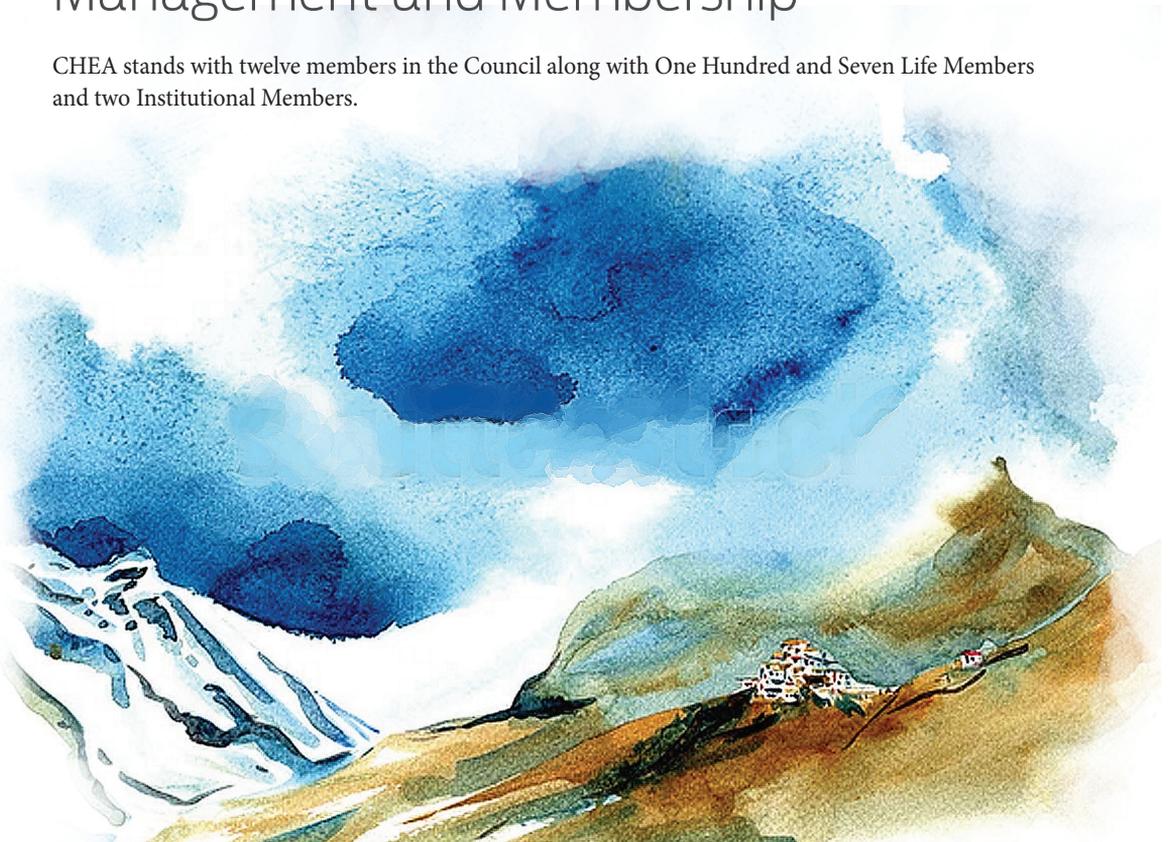
- **CLIMATE CHANGE**, with special reference to Mountains and Adaptation Interventions for Mountain Region
- **RURAL LIVELIHOOD** Initiatives in Mountain Regions for Reducing Rural Poverty
- **ART, CULTURE AND HANDICRAFTS** Promotion in Mountains
- **RESEARCH AND DOCUMENTATION** on the Mountains and the Regional Best Practices

## Our Mission

Our mission is to integrate rural livelihoods and sustainable conservation practices to reduce the environmental, economic, and social vulnerabilities of the mountain people. In cooperation with regional and international partners, and working with the communities, we aim to develop and provide integrated and innovative solutions that guide policy change and inspire action to directly benefit the mountain people and their environments. The Himalayas are the principal home of glaciers and the source of water for over 1 billion people living in connected river basins. They are also extremely vulnerable to climate change. Thus, there is a critical need to guide development that incorporates and is compatible with the threat of a changing climate.

## Management and Membership

CHEA stands with twelve members in the Council along with One Hundred and Seven Life Members and two Institutional Members.



# CLIMATE CHANGE (with special reference to the Mountains and Adaptation Interventions for the Mountain Region)



It's been about 26 years since the first UNFCCC Conference of the Parties took place in Berlin, Germany on 7<sup>th</sup> of April, 1995. Discussions were made of dangers of climate change, however, since then 26 such COPs were organized and the historic Paris accord happened. Unfortunately, planet earth is still the impact of climate change which is worsening exponentially with time. The assumptions made 26 years ago are now coming to be true. For starters, in the recent past Greenland has received rain instead of snow, it was the first in its history. Extreme climatic events such as flooding, drought, storms, abrupt rain are now more frequent and intense. Condition is becoming worse as now it has been projected by the scientists that over the period of next 30-40 years the snow accumulation will decrease by 30-38%, the temperature will increase from 2.7- 4.4° C. This 1°C increase in temperature is equivalent to the 9% decrease in Stream flow.

Since its inception, CHEA has been vocal about climate change and its impact on the environment,



humanities in the Himalayas. In 1983 CHEA organized the Seminar with the objectives to identify the status and causes of degradation in the Himalayan environment; to contribute towards evolving strategies for regeneration of the impaired environment, and to suggest the value systems for the overall development of the mountains of the world. And the volume of the collection of the papers contributed by the various acclaimed scientists, academicians, experts, etc., from India and abroad in the seminar edited by the eminent ecologist Prof. J.S. Singh was published as



## “Environment Regeneration in the Himalayas – Concept, and Strategies”

In the coming years, these seminars guided the path for evolving CHEA’s thematic Action Groups in which one is TAGCC “Thematic Action Group for Climate Change - with relevance to mountain and adaptation activities for mountain region”. Under the TAGCC, Chea conducted various projects which have been recognized by the various agencies from time to time. While developing the document for Green India Mission in 2000, the Ministry of Environment, Forest, and Climate Change referred to the CHEA’s work as an example for the successful implementation of the mission in which CHEA had developed the cadre of villages youth as field Investigators in Lamgara of Almora district who collected the biomass data and developed the inventory of their Van Panchayats (Community Forest). Since then Chea has taken a big leap forward in conducting a multi-partners and multi-institutional coordinated project “Timberline and Altitudinal Gradient Ecology of the Himalayas and Human use Sustenance in a Warming Climate” under the National Mission for Himalayan Studies of Ministry of Environment, Forest and Climate Change, GoI. The project was initiated in 2016 with the objective to understand the impact of climate change on Himalayan ecology and on the communities residing in the high Himalayan region. This is its fifth year and the outcome of the project is under compilation.

### Mitigation Measures

During the period, direct seed sowing of oak acorn has been completed in the approximately 134 hectares area of the 05 Van Panchayat of Nainital and Pithoragarh districts under the project “Restoration of Himalayan Oak” with the support of Value Network Venture (VNV), Bangalore. In 2021 it will be extended to another 291 hectares, and for that, the collection of the oak seed has been done by the villagers of 28 VPs of Almora, Nainital, and Pithoragarh districts. Under the project overall 470 hectares of 32 Van Panchayats will be covered in three districts of the Kumaun region of Uttarakhand i.e., Almora, Nainital, and Pithoragarh with the collaboration of the Village Forest Council and Self Help Groups (SHGs).



## Chea has initiated the project with the support of Adobe Employee Community Fund “Clean Energy Solutions for Sustainable Use of Natural Resources & Improvement of Women Health”

During the study conducted jointly by the EVS and CHEA on Energy Use Patterns in the higher Himalayan region for UNDP, it has been observed that the Forest has a significant impact on the rural community of Uttarakhand, as they depend on natural resources to fulfil their daily needs. Despite the availability of various commercial energy sources such as electricity, LPG, etc, the majority of the rural households in the hills still depend on fuel woods as the main source of domestic energy needs. Their foremost priority is to meet energy needs for cooking & heating. The stove they are using is old traditional, consumes a lot of



Approximately 134 hectares area of the 05 Van Panchayat of Nainital and Pithoragarh districts under the project **“Restoration of Himalayan Oak”** with the support of **Value Network Venture (VNV), Bangalore.**



firewood, produces smoke & pollution. Premature deaths from indoor air pollution due to wood or coal use are the sixth-largest health risk factor in developing countries. In view of the finding of the study in 2020, Chea has initiated the project with the support of Adobe Employee Community Fund “Clean Energy Solutions for Sustainable Use of Natural Resources & Improvement of Women Health” in the villages of Khurpatal Nyaya Panchayat fell under Bhimtal Development Block of Nainital district. The main objective of the project is to promote awareness about clean energy as well as to promote the mitigation and adaptation measures for climate change. Under the proposed project to fulfil the requirements of the household energy, energy-efficient smokeless cook stoves were provided to the villagers. For the promotion of conservation of natural resources with sustainable use of resources, various trees of forest and fruit species have been planted in the community forest as well as in private lands.

### Water Conservation & Harvesting

In hilly terrain storing and conserving water has always been a challenge and with erratic rainfall, the situation further turns problematic due to topographic conditions. With the help of the Department of Science and Technology, Ministry of Science and Technology, (GoI), CHEA has initiated the activity of reviving traditional Khal (micro reservoirs) and Khanti (contour trenches) for water conservation and harvesting. Micro-reservoir (MR) or Khal and Contour-trench (CT) or Khanti facilitates groundwater recharge through the infiltration of surface runoff in the soil. The reservoirs are also assisting the undergrowth in the surrounding areas, along with saving time downhill by increasing the water supply. During heavy rains, all these reservoirs act as a barrier for reducing the runoff of water, thus, resulting in controlling the landslide and soil erosion. Under the project, 535 Khals (MRs) and 9220 Khantis (CTs) have been created covering 48 hectares of the area in 14 project villages. During the project implementation overall 5339 cubic meter area has been covered under micro-reservoirs and contour trenches which have been storing 5339 kiloliters of water.

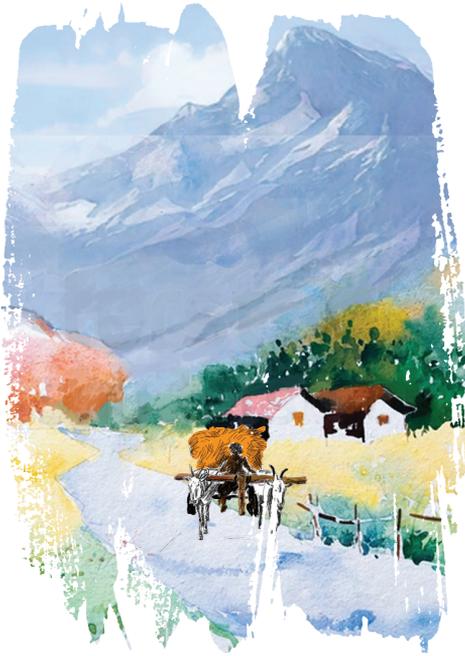


Overall 5339 cubic meter area has been covered under **micro-reservoirs and contour trenches which have been storing 5339 kiloliters of water.**





## RURAL LIVELIHOOD INITIATIVES FOR Reducing Poverty in the Mountain Regions



The second COVID-19 wave in India was more severe than the first wave and again the Government of India imposed lockdowns, although, Central government has given more authority to the State government to implement and manage the lockdown. The impact of this wave is the same as the first wave, the middle class and the poor suffer more, millions of workers both in the organized and unorganized sector became jobless and returned back to their

**TAG “Rural Livelihood Initiatives in Mountain Region for Reducing Rural Poverty” of CHEA addressed the issue of livelihood of rural communities by adopting a sustainable development model**

native place. Uttarakhand economy’s main drivers are the industry and service sector., out of which tourism is the driving force for Service Sectors which has an overall contribution to Uttarakhand GDP is almost 38% (Source: Uttarakhand MTFP Statements 2020-21) and due to various restrictions and lockdown, the tourism sectors have been the most affected, leading to thousands of peoples losing their earnings, forcing them to return their villages and towns, the places which already depend on remittance.

Nevertheless, the rural hill of Uttarakhand has the potential to generate opportunities for livelihood and employment. The thematic action group “Rural Livelihood Initiatives in Mountain Region for Reducing Rural Poverty” of CHEA addressed the issue of livelihood of rural communities by adopting a sustainable development model.

In 2017, CHEA was entrusted by Watershed Management Directorate, Dehradun as Agribusiness Support Organization (ABSO)-GRMAYA – II for Almora division. Considering the importance of generating livelihood opportunities in the higher Himalayan region the component of livelihood as a subproject has been also included in the NMHS supported multi-partner multi intuitional coordinate projects.

### Livestock Management

The importance of Livestock in the livelihood of the rural community of Uttarakhand is immense and the majority of families are engaged in animal husbandry. In 2017, CHEA initiated the project “Livelihood Improvement & Drudgery Reduction through Appropriate Livestock Technologies and Biomass Enhancement” in 20 villages of Dhari (Nainital) and Lamgarah (Almora) development blocks with the support of the Department of Science and Technology, Ministry of Science and Technology, GoI under its TIME-LEARN programme. The overall objective of the project



is to develop the grass and legume-based fodder and in situ soil-water conservation system in community forests (Van Panchayats) and private lands for quality fodder production. Encouraging and demonstrating the appropriate management techniques for reducing fodder wastage is also being carried out among the selected households.

**Nutritious fodder grass:** Improved fodder grass is key to promote livestock for commercial gains and also to supplement natural resource management. Almost 25 hectare area has been covered by nutritious fodder grass. The fodder varieties such as Rai (*Lolium perenne*), Broom (*Bromus inermis*), and Dolani/Tall Fescue (*Festuca arundinacea*) have been demonstrated in project's Van Panchayats and private land. In villages Kaltani and That the villagers collected 15 kg of fodder grass seed and sowed it in close vicinity. Emphasis has been given to promote nutritious grasses by direct seed sowing in the vicinity of trenches, and the results have been encouraging with 70% germination and 50% of survival.

**Manger:** Under the project, 50 mangers were constructed. Villagers are using manger and

25 hectare area has been covered by nutritious fodder grass. **The fodder varieties such as Rai (*Lolium perenne*), Broom (*Bromus inermis*), and Dolani/Tall Fescue (*Festuca arundinacea*)**

feeding their cattle sprouted nutritious fodder while also practicing chafing, soaking, and mixing the fodder. The activity has significantly reduced the wastage of fodder.

**Vaccination and Artificial Insemination:** Since the inception of the project all about 2,500 cattle have been vaccinated for curing different diseases (FDM disease). Till the project period 483 Artificial Inseminations (AIs) have been conducted with a success rate of around 65-70%. The technical services of vaccination have been availed through the veterinary department. The purpose of all these activities has been to ensure



additional income from the dairy sector in the future for diversifying the option of income and to have a better livelihood.

### Farm-based Livelihoods

As Agri-business Support Agency (ABSO) under GRAMYA-II in Almora Division when CHEA initiated its activities in the project villages, the poly houses were not too popular among the farmers and if there some existed were not in use up to the capacity. At present around 415 poly houses have been established in the project area and the overall 1.30 hectare area has been covered with the opportunity to increase the productivity by 6 to 8 times rather than open-field cultivation. During the period the main crops growing under the poly houses are Tomato, Capsicum, and Cucumber in Kharif season while Pea, Cabbage, and Leafy vegetables in Rabi season which have total sale value of Rs. 3,174,368/-.

Around 80 farmers of 7 villages have been involved in floriculture activity in project villages in the Dhauladevi development block under the GRMAYA-II project. In the villages of the Dhauladevi development block, a total of 3.2 hectares has been covered under the Marigold and 11.20 quintals of flowers have been produced in two seasons which had a sale value of Rs. 1.62 laces. Besides Marigold, Lilium has been cultivated in poly houses and produced around 3860 sticks having an overall value of more than Rs. 1.15 laces. The purpose of initiating the floriculture with Marigold is that it is easier to cultivate with little technical know-how and that could easily convince the farmers to grow for demonstrating it. Besides, the crop has the potential to grow almost round the year.

### Off Farm Livelihoods

In 2018, the initiative of developing the Prasad using locally available Amaranthus (Ramdana) Prasad through women Farmer Interest Group (FIG) was taken up under the GRAMYA-II project. The initiative of Holy Prasad in Jageshwar Dham temple is now regularly providing income to the women FIG. However, various changes have been taken in accordance with the feedback received from the customers and shopkeepers. Women





work only 1 to 2 hours per day for producing the Prasad and during the reporting period, they have produced 383 kg of Prasad which had a sale value of Rs. 74,635/-.

### Promotion of Agribusiness

For promoting the value chains, to enhance the quality and quantity of different products, Value addition, Processing, Branding, Packaging and for Marketing, the construction of a multi-facility centre i.e., Agribusiness Growth Centre (ABGC) has been almost completed at the centrally located place in Gram Panchayat Falyat (Almora) and will be fully operational in coming months.

At present, certified seed collection, packaging, and marketing work are in progress from the ABGC. The overall 80 FIGs are linked with ABGS. A total of 1,111 families are directly involved in various activities of agribusiness, and to sustain their activities, contribution towards inputs and market services has resulted in developing a financial pool among different FIGs. Although the agribusiness activities have been undertaken in 100 selected villages, the remaining villages, i.e., other than ABSO villages have also been supported through the inputs and technical assistance for surplus production.

### Certified Seed Production

Seed production of millets, pulses, and grains has been initiated under GRAMYA II in selected villages of Almora. In 2020-21 around 25,234 kg of certified seed of Finger millet, Barnyard millet, Amaranthus, Maize, Paddy, Wheat, Mustard, Garlic and Lentil have been produced by 39 farmers having a total value of INR 1749,522/-. Seed production provided an opportunity for a premium, and through which the income of the farmers has been increased on a per unit area basis. It also provides recognition as well as self-reliance to the farmers. The productivity and rate increase due to quality seed and premium price for certified seed. The activity of production, collection, cleaning, packaging, transportation has been managed by the farmers' cooperative.



## ART, CULTURE AND HANDICRAFTS

### Promotion in the Mountains



**N**ature and Agro-Based Cultural and Heritage Tourism (responsible tourism with a focus on agro-based diversity) have been identified as an important option with a high potential to become a sustainable mode of livelihood, it also reduces the negative impact on biodiversity, and creates opportunities for youths. To promote nature and heritage-based village tourism, 10 homestays have been initiated in Almora and Pithoragarh as a pilot. In Almora, 3 villages of the Jageshwar complex (Almora) i.e. Jageshwar, Kujagunth, and Dhaspad were identified for piloting the concept under Gramya II, 3 homestays have been developed in the Gangolihat to take advantage of the opportunity

offered by the Gangolihat Heritage Complex and 4 homestays developed in village Lumti of Lower Gori Ganga region by considering the potential of the Orchid Park developed in the Van Panchayat by the Biodiversity Management Committee of Lumti with support of Wildlife Institute of India (WII). All these villages are rich in terms of diverse and niche agriculture crops, natural, cultural, spiritual, and sacred values and offer a variety of opportunities for tourism development like nature-based tourism, agro-based village tourism, and heritage tourism. It provides significant opportunities for communities to get involved in the Nature-Based Agro and Cultural Heritage Tourism industry.



To promote  
nature and  
heritage-based  
village tourism,  
**10 home stays have been  
initiated in Almora  
and Pithoragarh  
as a pilot**





# RESEARCH AND DOCUMENTATION ON THE MOUNTAINS and the Best Regional Practices

## Timberline and Altitudinal Gradient Ecology of Himalayas and Human Use Sustenance in a Warming Climate

The research project “Timberline and Altitudinal Gradient Ecology of Himalayas and Human Use Sustenance in a Warming Climate” is now in its fifth year. In 2016 the coordinated project was entrusted to CHEA by the Ministry of Environment, Forest and Climate Change, Government of India under its ambitious programme National Mission for Himalayan Studies to address the key issues of tree-line responses to climate change. For the research project six institutes/organizations (i.e., G.B Pant National Institute of Himalayan Environment and Sustainable Development (GBPNIHESD), University of Kashmir, Kumaun University, Wildlife Institute of India (WII), and Birbal Sahni Institute of Paleobotany (BSIP)) and 10 Principal Investigators (PIs) came together and partnered with CHEA.

The underlying philosophy of the project follows the basic understanding that, to capture variation occurring in the Himalayas makes generalizations representing the region, multisite and long term studies are required. Therefore, the project focuses on three study sites located in Kashmir, Uttarakhand, and Sikkim, which broadly encompasses much of the range of variations in climate and vegetation across the Himalayan East and West Arc. The project consists of 6 components i.e., (i) Timberline Mapping, (ii) Temperature Lapse Rate (TLR) and Precipitation Gradient, (iii) Vegetation and species diversity along elevational gradient, (iv) Phenology, (v) Tree Water Relations, and (vi) Livelihood Intervention.

21 research scholars under the PIs are working hard to fulfil the objectives of the project. The data collected has been shared through poster presentations and several presentations were made at different platforms to share the findings of



A special issue of Tropical Ecology was also devoted to the studies conducted **under this project and 14 research papers were published for wider dissemination**





the project. A special issue of *Tropical Ecology* was also devoted to the studies conducted under this project and 14 research papers were published for wider dissemination. Under the project for sharing the learnings and research output and to benefit the diverse stakeholders, an interpretation centre has been established at Dehradun.

### Fire Adaptation Features of Important Tree Species of Himalayas and Strengthening Community Participation in Preventing Forest Fires

Forest fires have become more frequent and intense in much of the world due to interactions between drought and land use, which lead to a reduced moisture content of fuels (Cochrane 2003, Settele et al. 2014). Apart from the release of tons of carbon and damage to other environmental, and recreational amenities, wildfires are a threat to human lives and wildlife (Davidenko and Eritsov 2003; FAO 2005). On average, about 6,70,000 km<sup>2</sup> of forest land (about 2% of the world's forested areas) are burned each year (van Lierop et al. 2015). About 67.5 million hectares of forests (55% of the forest cover) is being subjected to burning each year in the country (Gubbi 2003).

The study to understand forest vegetation patterns along with the adaptive traits adopted by plant species to adapt themselves against fire was initiated in 2017 with support of GBPNiHE (then GBPNiHESD). The project sites for research were located in the Nainital district of Kumaun Himalayas and lie between 1000-1800 m elevations. The sites were thoroughly surveyed and selected in three different forest types on the basis of the fire history of the sites, i.e., (i) *Pinus roxburghii*-*Quercus leucotrichophora* (Pine-oak) forest; (ii) *Pinus roxburghii* Sarg (Pure-pine) forest; and (iii) *Shorea robusta*-*Pinus roxburghii* (Sal-pine) forests. Mostly the south and southwest aspects experienced the fire situation in the selected sites while the northern slopes were less affected by fires during the summers.



## Project 2020-21

Project	Funder/Partner	State/District	Development Block
Fire Adaptation Features of Important Tree Species of Himalayas and Strengthening Community Participation in Preventing Forest Fire	GB Pant National Institute of Himalayan Environment and Sustainable Development (GBPNIHESD), Kosi-Katarmal, Almora under its Integrated Eco-development Research Programme (IERP)	Uttarakhand	-
Livelihood Improvement & Drudgery Reduction through Appropriate Livestock Technologies and Biomass Enhancement in Kumaun Himalayas	Department of Science and Technology (Seed Division), Ministry of Science & Technology, GoI	Almora	Lamgarah
		Nainital	Dhari
Mainstreaming landscape approach for Biodiversity Conservation, Improved Livelihoods and Ecosystem Health in Indian part of Kailash Sacred Landscape)	NMHS-SBB Coordinated project State Bio-diversity Board	Pithoragarh	Dharchula, Gangolihat, Bin
Restoration of Himalayan Oak	VNV Advisory, Bangalore	Almora	Lamgarah
		Nainital	Dhari
		Pithoragarh	Bin
SUNRAISE - Sustainable Natural Resource Use in Arctic and High Mountainous Areas.	University of Bremen, Germany and Erasmus+ programme of the European Union	Indian Himalayan Region	-
Timberline and Altitudinal Gradient Ecology of Himalayas, and Human Use Sustenance in a Warming Climate	GBPNIHESD under National Mission for Himalayan Studies (MoEFFCC)	Pan Himalaya	-
Uttarakhand Decentralized Watershed Development Project (GRAMYA – II)	Watershed Management Directorate, Dehradun	Almora	Dhauladevi
		Nainital	Dhari

Note: The aforesaid list of projects during 2020-21 is in alphabetical order and does not represent any preference.

# FINANCIAL SUMMARY 2020-21

## INDEPENDENT AUDITOR'S REPORT

मनीष खन्ना एण्ड क.  
सनदी लेखाकार

**Manish Khanna & Co**  
Chartered Accountants

30, 1<sup>st</sup> Floor, Pichari Bazaar, Mallital, Nainital 263001, Uttarakhand  
Telefax: +91 5942 238757  
email: manish@mkca.net  
website: www.mkca.net/

### INDEPENDENT AUDITOR'S REPORT

To The Hony Secretary, Central Himalayan Environment Association, Nainital

#### REPORT ON THE AUDIT OF FINANCIAL STATEMENTS

##### Opinion

We have audited the statement of utilization of grant titled "Central Himalayan Environment Association" for the period ended 31 March 2021.

In our opinion, and according to the information and explanations given to us, the accompanying said financial statement, including a summary of significant accounting policies and other explanatory information, give a true and fair view of the financial position and the financial performance for the year then ended in accordance with the Accounting Standards issued by the Institute of Chartered Accountants of India (ICAI).

##### Basis for Opinion

We conducted our audit in accordance with the Standards on Auditing (SAs) issued by ICAI. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the entity in accordance with the Code of Ethics issued by ICAI and we have fulfilled our other ethical responsibilities in accordance with the Code of Ethics. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

##### Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation of these financial statements that give a true and fair view of the financial position, financial performance and cash flows of the entity in accordance with the accounting principles generally accepted in India. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation and presentation of the financial statements that give a true and fair view and are free from material misstatement, whether due to fraud or error. In preparing the financial statements, management is responsible for assessing the entity's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the entity or to cease operations, or has no realistic alternative but to do so. Those charged with governance are responsible for overseeing the entity's financial reporting process.





मनीष खन्ना एण्ड क.  
सनदी लेखाकार

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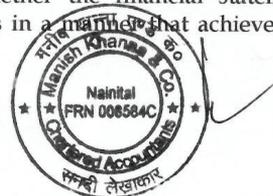
### Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about the entity's presentation and fair representation of the financial statements and that the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with SAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to

Influence the economic decisions of users taken on the basis of these financial statements the entity's presentation and fair representation of the financial statements

As part of an audit in accordance with SAs, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion.
- Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the entity to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.



मनीष खन्ना एण्ड क.  
सनदी लेखाकार

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website: www.mkca.net/

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit. We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

#### Other Matters

Grant titled "Timberline and Altitudinal Gradient Ecology of Himalayas, and Human Use Sustenance in Warming Climate by GBPNIHESD" (please refer schedule 4) is executed by CHEA, as Project Management Unit, in partnership with other partner institutions (PI). Under terms of grant, CHEA's responsibility is inter alia restricted to coordinating the grant activities between several PI who are charged with the financial responsibility of incurring the expenditure for the purpose of grant.

We did not audit the financial statements/information of the Partner Institutions which have reported to have spent a sum of Rs.62,37,992.64 included in a sum of Rs 94,05,091.02 spent on account of grant. The financial statements/information of these Partner Institutions have been audited by internal auditor/ self certified by the PI, and in one case whose total outlay amounts to Rs 7,51,574 the accounts have been audited by an independent auditor whose reports have been furnished to us. Our opinion in so far as it relates to the amounts spent by these PIs, is based solely on the statement of utilization of grant which is self certified, or audited by internal auditor or independent auditor as the case may be,

Our opinion is not qualified with respect to matter stated here

For Manish Khanna & Co.  
Chartered Accountants  
Firm Registration Number : 008584C


Manish Khanna, FCA, LL.B., (ICAI) (CMA)  
Partner  
Membership Nos- 077858  
Place: Nainital  
Dated: 05.10.2021  
UDIN - 21077858AAAAER8125



## Accounts

Central Himalayan Environment Association  
Balance Sheet as on 31st March 2021

<b>Liabilities</b>	Current Year (RS)	Previous Year (RS)
Corpus Fund	1,43,47,138	1,36,12,819
Capital assets - assets funded by internal accruals	2,53,55,714	2,53,55,641
Capital Reserves - assets funded by donor agencies	65,14,605	51,55,582
General Reserves	95,09,873	77,72,033
Unspent grants	59,73,296	1,30,34,728
Sundry Creditors	9,71,710	4,24,902
<b>Total</b>	<b>6,26,72,335</b>	<b>6,53,55,705</b>
<b>Assets</b>		
Fixed Assets - assets funded by internal accruals	2,53,55,714	2,53,55,714
Fixed Assets - assets funded by donor agencies (Note : Assets are stated at cost. Please refer significant accounting policy on accounting of fixed assets)	65,14,605	51,55,737
<b>Current Assets, Loans and Advances</b>		
Deposits with banks	2,66,30,258	2,11,59,608
Interest and implementation cost receivable	4,90,300	22,55,285
Advances including income tax recoverable	36,81,459	1,13,79,361
Security Deposit (endorsed in favour of Government Authorities)		50,000
	<b>6,26,72,335</b>	<b>6,53,55,705</b>

## Signed on Behalf of CHEA

Chairman :

Secretary:

Executive Director :

Manager Accounts and Administration :

## Central Himalayan Environment Association (CHEA)

Receipts and Payments Accounts for the year ended as on 31st March 2021

### Receipts

Opening balance in bank 1,14,21,884.69

### Income

Interest 14,29,490.00

Implementation charges for executing grant 4,21,168.30

**Total** 18,50,658.30

### Project Funding

Foreign Contribution Grants 23,92,310.26

Government Grants 1,43,68,851.68

Other Non foreign Contribution & Non government Grants 2,53,795.00

**Total** 1,70,14,956.94

**Operational Receipts** 3,37,686.0

**Grand Total** 3,06,25,185.93

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### Payments

Environmental activity 2,04,090.40

Administrative Expenses met from income 7,61,106.56

Advances 2,07,829.68

Income tax deducted at source 1,58,226.00

**Total** 11,27,162.24

### Project Funding

Foreign Contribution Grants 32,99,266.96

Government Grants 1,31,10,468.02

Other Non foreign Contribution & Non government Grants

**Total** 1,64,09,734.98

**Investment** 45,00,000.00

### Closing balance

Cash in bank 85,88,288.71

**Grand Total** 3,06,25,185.93



**CENTRAL HIMALAYAN ENVIRONMENT ASSOCIATION, NAINITAL**  
**Annexure to Balance sheet - Unspent Grant-in-aid for the year ended 31 March 2021**

S#	Name of grant	Opening Balance 01.04.2019	Amount received during current year	Amount spent	Amount written off	Closing Balance 31.3.2020
<b>Preservation of environment (including watershed and Forest)</b>						
1	Fire adaptation features of important tress species of Himalayans and strengthening community participation in preventing forest fire funded by IERP, GBPNIHESD	56,487.62	1,246.00	31,593.86	-	26,139.76
2	“Identification, demonstration and implementation of climate smart and energy efficient solutions to reduce stress on natural ecosystems in selected project landscapes of SECURE Himalaya project in Uttarakhand”, funded by EVI	(4,57,835.00)	2,53,795.00	-	2,04,040.00	-
3	Mainstreaming Landscape approach for Biodiversity Conservation, Improved Livelihoods and ecosystem health in Indian part of Kailash Sacred Landscape funded SBB-NMHS	(4,54,139.50)	6,09,113.00	2,11,403.00	-	(56,429.50)
4	Description of Area for Oak Acorn Sowing by VNV	14,671.00	5,20,187.00	4,40,895.00	-	93,963.00
5	Clean Energy Solutions for Sustainable Use of Natural Resources & Improvement of Women Healthby ADOBE	-	14,69,332.26	11,32,752.96	-	3,36,579.30

6	Sustainable Natural Resource use in Arctic and high Mountainous area by SUNRAISE	21,48,287.37	-	15,25,576.00	-	6,22,711.37
7	Kailash Sacred Landscape Conservation and Development Initiative (KSLCDI) funded by ICIMOD	3,80,379.03	1,60,000.00	2,00,043.00	-	3,40,336.03
8	Strengthening of ABS mechanism through development of Value Chain of Bio resources in identified Districts of Kumaon (Almora, Pithoragarh) Uttarakhand by GIZ	(2,42,841.00)	2,42,791.00	-	50.00	-
9	Uttarakhand Decentralized Watershed Development Project by Almora Division funded by UPWDP	(3,85,582.36)	29,01,302.00	27,10,065.02	-	(1,94,345.38)
10	Timberline and Altitudinal Gradient Ecology of Himalayas, and Human Use Sustenance in Warming Climate by GBPNIHESD	39,15,480.73	1,01,50,912.68	94,05,091.02	-	46,61,302.39
11	Livelihood improvement and drudgery reduction through appropriate livestock technologies and biomass enhancement in Kumoun Himalayas by DST	1,94,424.88	7,06,278.00	7,57,664.06	-	1,43,038.82
	<b>Total</b>	<b>51,69,332.77</b>	<b>1,70,14,956.94</b>	<b>1,64,15,083.92</b>	<b>2,04,090.00</b>	<b>59,73,295.79</b>

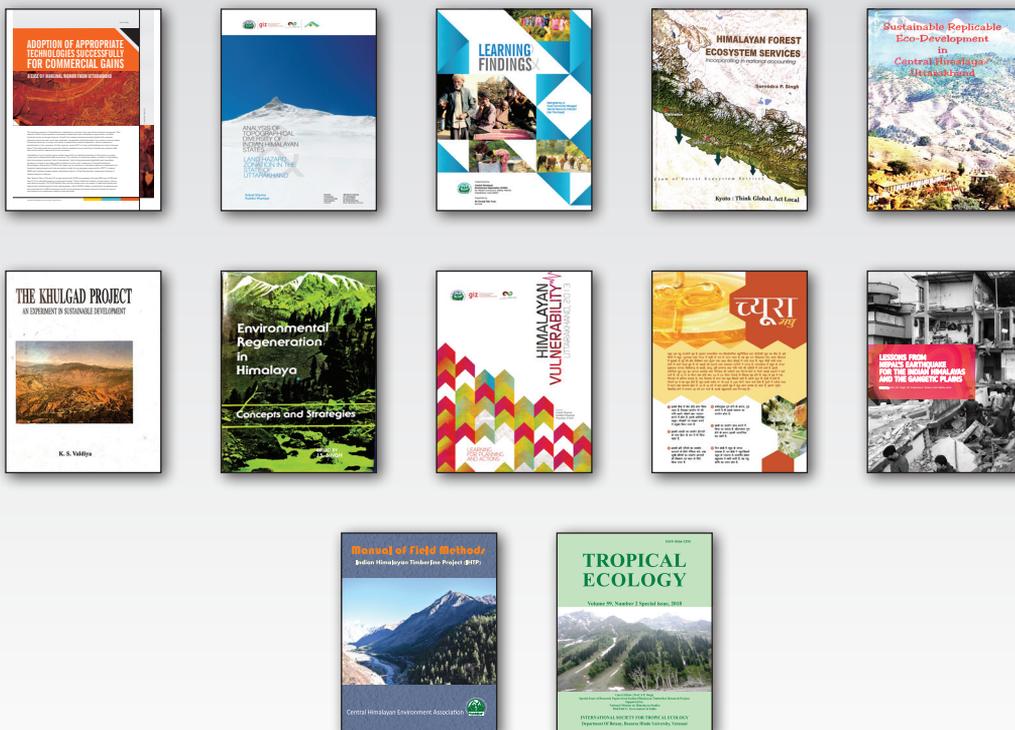


## Abbreviations & Notes

- a GBPNIHESD means G.B. Pant National Institute of Himalayan Environment & Sustainable Development, Kosi Katarmal, Almora
- b Emergent Ventures India Pvt Ltd (EVI), B-408, Unitech Business Zone, Sector-50, Nirvana Country, Golf Course Extension road, Gurgaon: 122018, Haryana
- c VNV means Value Network Venture Advisory services LLP, Bangalore
- d Clean Energy Solutions for Sustainable Use of Natural Resources & Improvement of Women Health
- e Adobe Employee Community Fund (ECF) is an employee-driven grant making program that supports organizations
- f SBB-NMHS Means State Biodiversity Board, NMHS, Dehradun
- g SUNRAISE, University at Bremen Bibliothekstr-128359 Bremen
- h ICIMOD is International Centre for Integrated Mountain Development, Nepal
- i GIZ Office, New Delhi, B 5/1 Safdarjung Enclave , New, Delhi- 110029
- j Uttarakhand Diversity Watershed Development Project, GRAMYA-II, Karbla, Almora
- k DST means Department of Science of Technology, New Delhi

## PUBLICATIONS

CHEA has undertaken a wide range of publication to capture field lessons, findings of various action researches and training manuals for capacity building of the rural communities.



**Books / Booklets** - 39 The first publication “Environment Regeneration in Himalayas – Concepts and Strategies was made in 1985, edited by Prof. J. S. Singh, eminent ecologists, followed by series of publication on contemporary issues)

**Training manual** - 31 (covering various topics of Appropriate Technologies in Horticulture, Water Conservation and Harvesting, Animal Husbandry, Fodder Development, Irrigation Technologies, Pre and Post Harvesting, Beekeeping etc.)

**CHEA Bulletin** Vol. - 1 to 11

**Research Papers** – 51 published in various peer reviewed journals and accepted in national and international workshops/ seminars

**Event and workshop reports** -15

**Case Studies** on Climate Change Adaptation, rural livelihoods, art handicraft and culture -16

The aforesaid publications are available on request and details of most of them are available on [www.cheaindia.org/publication.php](http://www.cheaindia.org/publication.php)

## CHAIR OF CHEA



**Late Shri A. D. Moddie**  
(1982-1988)  
*Formerly ICS & Founder  
Member of ICIMOD*



**Late Shri D.P. Joshi**  
(1988-2006)  
*Formerly PCCF, UP*



**Prof. A.K. Pant**  
(2006-2009)  
*Formerly Director, Birla Institute  
of Applied Sciences*



**Late Dr. R.S. Tolia**  
(2009-2013)  
*Formerly Chief Secretary & Chief  
Information Commissioner,  
Uttarakhand*



**Late Prof. T.S. Papola**  
(2013-2015)  
*Formerly Chairman, 14<sup>th</sup> Finance  
Commission, Uttarakhand*



**Prof. S.P. Singh**  
(2015-2018)  
*Formerly VC, HNB Garhwal  
University, Srinagar*



**Dr. P.P. Dhyani**  
(2018- continue)

*Vice Chancellor, SDSU  
University, Badshahithaul,  
Tehri & VMSB Uttarakhand  
Technical University,  
Sudhowala, Dehradun, and  
Formerly Vice Chancellor,  
SGRR University, Dehradun  
& Director, GBPNiHE, Kosi-  
Katarmal, Almora.*

## COUNCIL MEMBERS (2020-21)

### Chair:

**Dr. P. P. Dhyani**, Vice Chancellor, SDSU University, Badshahithaul, Tehri & VMSB Uttarakhand Technical University, Sudhowala, Dehradun, and Formerly Vice Chancellor, SGRR University, Dehradun & Director, GBPNIHE, Kosi-Katarmal, Almora.

### Vice Chair:

**Mr. Anup Sah** (Padam Shree), Horticulturist & Nature Photographer, Nainital.

### Secretary:

**Dr. Ashish Tewari**, Associate Professor, Department of Forestry and Environment Science, Kumaun University, Nainital.

### Jt. Secretary:

**Prof. Uma Malkania**, Retired Professor, Environmental Science & Ex-Dean CBSH, G. B. Pant Agri & Tech University, Pantnagar.

**Prof. S. P. S. Mehta**, Retired Professor, Department of Chemistry, Kumaun University.

### Councillor:

**Mr. Sushil Bahuguna**, Output Editor, NDTV, Delhi

**Dr. Deepak Bhatt**, Head, Department of Geology, PGDAV College, Dehradun, Uttarakhand.

**Prof. S. C. Garkoti**, Pro Vice Chancellor, JNU, New Delhi.

**Dr. G. C. S. Negi**, Scientist-F, G.B. Pant National Institute of Himalayan Environment (GBPNIHE), Kosi-Katarmal, Almora.

**Dr. B. R. Pant**, Associate Professor, Geography Department, MBPG College, Haldwani.

**Dr. S. P. Sati**, Head, Department of Basic and Social Sciences, College of Forestry (VCSG Uttarakhand University of Horticulture and Forestry, Bharsar), Rani Chauri Campus, Tehri Garhwal, Uttarakhand.

## RESEARCH ADVISORY BOARD

### Chairperson:

**Dr. G. S. Rawat**, Dean, Wildlife Institute of India, Dehradun, Uttarakhand.

### Special Invitee/Advisor:

**Prof. S. P. Singh**, FNA, Formerly Vice Chancellor, H.N.B. Garhwal University.

### Member Secretary:

**Executive Director (Ex Officio)**, Central Himalayan Environment Association (CHEA), Nainital.

### Member:

**Dr. Navin Juyal**, Ex-Scientist, Physical Research Laboratory, Ahmadabad, Gujarat.

**Dr. G. C. S. Negi**, Scientist-F, G.B. Pant National Institute of Himalayan Environment (GBPNIHE), Kosi-Katarmal, Almora .

**Dr. Amit Pande**, ICAR-National Fellow, ICAR-Directorate of Coldwater Fisheries Research, Nainital, Uttarakhand.

**Prof. Jeet Ram**, Department of Forestry and Environmental Sciences, D.S.B. Campus, Kumaun University, Nainital.

**Prof. C. M. Sharma**, Veer Chandra Singh Garhwali Uttarakhand University of Horticulture & Forestry, Bharsar, Pauri, Uttarakhand.

**Prof. P. C. Tiwari**, Department of Geography, D.S.B. Campus, Kumaun University, Nainital.

## CHEA TEAM

- Anil Kanwal
- Deepa Upadhyaya
- Dhiraj Joshi
- Dharendra Joshi
- Ganesh Lal
- Girish Chandra Joshi
- Harshita Joshi
- Krishna Kumar Tamta, PhD
- Kundan Bisht
- Manoj Negi
- Mohan Bhatt
- Narendra Singh
- Neema Rautela
- Pammi
- Pawan Kumar
- Pratap Dhaila, PhD
- Ram Singh
- Ripu Daman Singh
- Satish Joshi
- Surendra Bhandari
- Surabhi Gumber
- Vinita Verma

**107 Life Members of CHEA**, representing academia, university, social work and institutions, contributes through extending their voluntary services to CHEA's programme and interventions on regular basis and forms the core competency of the organisation.

## DISCLOSURE

### Governance

All the members of the Governing Council are unrelated to each other by blood and marriage. The Executive Director is not related to any member of the Governing Council by blood and marriage.

Elections to the Governing Council are held as per the rules of the Society and in accordance to the constitution and memorandum of association of the organisation. After three terms each members go for a "cooling off" period. No members of the Governing Body received any remuneration during the year.

The Governing Body met more than thrice in the last year with the requisite quorum. Minutes of the meeting were documented, read out and approved in the subsequent meeting and were also circulated in advance.

### Our Statutory Auditor

Manish Khanna, FCA, DISA (ICA)

### Our Legal Status, Accreditation and MoU

Central Himalayan Environment Association (CHEA) is a Society registered under the Indian Societies Registration Act of 1860. Registration No. 222/1982-83., dated 2nd October, 1982.

Central Himalayan Environment Association (CHEA) is authorized to receive foreign contributions as per the Foreign Contribution Regulation Act 1976.

CHEA is registered under Sections 12A and 80G of the Income Tax Act, 1961, and is a not for profit entity.

CHEA is accredited as Scientific and Industrial Research Organisation (SIRO), by Department of Scientific and Industrial Research, Government of India.

CHEA has Memorandum of Understanding with Department of Forest and Environment Science, Kumaun University, Nainital for collaborated action research.

CHEA is Founder Member of Himalayan River Alliance (HIRA), a South Asian Alliance for working on livelihood and environmental issues of Ganga and Brahmaputra River Basin.

CHEA is Member of Mountain Partnership, Food and Agriculture Organization (FAO) of the United Nations.

CHEA is Member of Global Alliance for Climate-Smart Agriculture (Facilitation unit based at FAO).