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33rd ANNUAL REPORT 2014-15



CENTRAL
HIMALAYAN
ENVIRONMENT
ASSOCIATION



...creating synergies between the environment and the well-being of mountain people

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.

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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.

MESSAGE FROM THE CHAIRMAN

04

The 33rd annual report of the Central Himalayan Environment Association (CHEA) for the financial year 2014-2015 is now in your hands. It presents a succinct account of the major interventions, with details of field activities taken up by the Association during the reporting year. While doing so, it reflects the journey of CHEA since its inception in 1981 - now more than three decades back!

All these years, CHEA has continued to address the challenging situations faced by marginalized communities in the mountains and tried to help them respond to the changing conditions and needs of the mountain regions. The core of CHEA's work consists of action research around key thematic areas in the mountain regions, which are climate change with special focus on adaptation; rural livelihood

initiatives; art, culture and handcraft promotion; documentation of best practices. As the name indicates, CHEA's interventions are mainly focused in the Central Himalayan Region. However, it also actively networks with other regions of the Himalayas and other mountains so as to develop a more holistic understanding of mountain systems and the problems faced by its communities. CHEA believes that in order to bring out solutions for a specific geographic area, an understanding that widens horizons and increasingly connects the smaller worlds to a global world is important.

Consistent with this approach, CHEA has taken up significant responsibilities in a transboundary project titled 'Kailash Sacred Landscape Conservation and Development Initiative' which

involves China, Nepal and India and is regionally led by the International Centre for Integrated Mountain Development (ICIMOD), Nepal. Initial experiences with the project demonstrate that there is huge untapped potential of leveraging from the existing knowledge on common issues such as value chain development and marketing of products made of natural resources. I am particularly happy to note that CHEA has made considerable progress in engaging youth in mountain issues. For instance, training workshops conducted at different locations of the Indian Himalayan Region have helped in exposing young minds to climate change issues with respect to its manifestation in the mountains and building their capacities for mitigation and adaptation. Another programme where I see



encouraging progress is reaching out to the youth living beyond the mountainous geography through CHEA's Volunteer and Intern Programme. Under this initiative, individuals and students come from national and international universities such as Mumbai University and Cambridge University. Such initiatives for the engagement of youth is expected to help in building a well informed and positive perspective about mountains and emphasizing their importance as providers of ecosystem services and issues, concerning development of mountain areas and mountain people among those living outside mountain areas, within the country and abroad.

The growth of CHEA can also be seen in the widening networking opportunities, particularly with

regard to sharing knowledge. The organization of the Uttarakhand Outreach event for Assessment Report 5 of The Intergovernmental Panel on Climate Change (IPCC) by CHEA, with its partners Climate Development and Knowledge Network (CDKN), Uttarakhand Forest Department, Forest Research Institute and Doon University, provided a forum for sharing of global knowledge relevant to the Indian Himalayan Region. The outreach event enabled a high level policy dialogue among diverse groups of stakeholders such as political leadership, administrators, academicians, global experts on climate change and scientists. Here too, it organized a special programme dedicated to university students. My colleagues on the Council have been actively supporting and guiding various activities of CHEA. I would like to

place on record their contribution to the growth of the organisation. The credit for its achievements, however, primarily goes to Dr. Pushkin Phartiyal, the Executive Director, for providing a dynamic and inspiring leadership, and to the CHEA team. The field staffs in particular deserves our special appreciation for carrying out their tasks, often in adverse and challenging conditions, with exemplary devotion and commitment, and for contributing immensely towards meeting the organisational objectives to make it yet another productive year.

T. S. Papola
Chair, CHEA

A NOTE BY THE EXECUTIVE DIRECTOR

06

CHEA's innovations stem from the concept that there is a potential for creating synergies between the environment and the well-being of people. In a way, it amounts to treating the environment as an enabling factor, rather than a constraining factor, to achieve sustainable development. To achieve the above synergies, we focus on working with small communities living in a watershed or in other such small units. This enables us to perform despite the constraints of finances and infrastructure. To create sizable area impact, we use our learnings to influence planning and policies at the national and sub-national levels. For instance, while working on a multinational community carbon forestry project, we first enabled local communities to measure carbon sequestration in their community forests and then built-up a case to reward them for

carbon mitigation and other ecosystem services from their forests. In a way, it led to the incorporation of ecosystem services in the national accounting.

CHEA follows a two-pronged strategy in its programmes and activities. The first one focuses

on applying innovative solutions by collaborating with local mountain communities and grassroots environmental governance institutes such as Van Panchayats to address the challenges faced by indigenous people such as the 'Van Raji' and socially-economically deprived groups such as bamboo artisans. While doing so, we pay attention to the issues of livelihood, energy, water, and sustainable resource management. In this regard, the management of spring sanctuaries, sustainable use of biodiversity, interventions for fodder

development, and reduction of the drudgery of women are some of the principal programmes.

The following is an example of our holistic approach. In a watershed project, the revival of spring water was connected to cultivation of fruit trees. This in turn was connected to the practice of stall feeding of livestock. Thus, CHEA focuses on functional systematic changes, which could diffuse widely.

CHEA believes that the involvement of development professionals and academicians, and providing space to volunteers/ interns from Indian and foreign universities bring a fine blend of experiences, ideas and energy on the table.

Global warming, reported higher in the Himalayan region than the global averages, aggravated the impact of climate change on



agriculture production, water resources etc. In the Indian context, attention to the Himalayan region has also grown in recent years, which is evident by the presence of the National Mission on Sustaining Himalayan Ecosystem, the only location specific mission among eight missions under the National Action Plan on Climate Change and the establishment of the Mountain Division in the Ministry of Forests, Environment and Climate Change Government of India. CHEA has been working on mountain issues by linking experiential learning captured through grassroots action research with policy advocacy efforts at regional and national levels.

In 2014 CHEA, took up a new initiative of building the capacities of youth with regard to climate change adaption and mitigation in mountain regions. Training

workshops, one each for youths of Uttarakhand and Himachal Pradesh were organized by CHEA in 2014 . In addition, the first Himalayan Youth Forum involving youths from all 12 mountain states of the Indian Himalayan Region was attained in partnership with GBP Institute of Himalayan Environment and Development. Building on potential of the youth offers hope for sustainable mountain development and will to be a long term programme of the organisation.

Since its very inception, CHEA has recognized the key role of women in the mountains in managing resources and bringing about social reforms. For example, CHEA has been able to bring the Van Raji, a primitive, endangered hunter-gatherer tribal community, closer to mainstream civilization and socio-economic development pathways,

largely because of involvement of their women as agents of change. In fact, one of the major achievements of CHEA during the year 2014-15 was to facilitate the Van Raji, a primitive indigenous community in the Uttarakhand Himalayas who have come to mainstream socio-economic developmental pathways from being forest dwellers just a few decades back, to initiate agrarian practices. In 2014 they harvested their first crop of Kidney beans and other pulses. We dedicate our report to this community and trust that collectively, we will continue to bring positive changes in our society and people.

Pushkin Phartiyal,
ED, CHEA



ORGANIZATION

08

The Central Himalayan Environment Association (CHEA) was established on October 2, 1981 by a group of people who deeply cared about the preservation of the environment and responsible development of the Himalayan region. The founding of CHEA deliberately coincided with the national holiday to celebrate the birthday of Mahatma Gandhi, the father of the nation. CHEA was registered as a not-for-profit autonomous body in May 1982, full ten years before the Rio Earth Summit where the importance of mountain socio-ecological system was recognized for the first time.

CHEA is one of the earliest organizations founded in Northern India with a core concern for environmentally-sustainable development of the Himalayan region. Since its inception, CHEA has taken up several mountain issues, engaged in scores of action-research and livelihood-related projects, and in so doing, has helped to create conditions that enable local communities to sustainably manage natural resources while benefiting from them.

THEMATIC GROUPS

- Climate change, with specific reference to mountain adaptation and mitigation interventions.
- Rural livelihood initiatives for reducing rural poverty, specifically with interventions related to livelihood-based management of natural resources in mountain regions.



OUR VISION

Ensure the development of prosperous and secure mountain communities that are peaceful, equitable, and environmentally sustainable.

MANAGEMENT AND MEMBERSHIP

CHEA stands with twelve members in the Council along with one hundred and eighteen Life members and two Institutional members.

PROMINENCE

Environment

1

Human Resources Development

2

Livelihood and Sustainable
Development

3

Infrastructure Development

4

Social Development

5

Research and Development

6

09

- Art, culture, and handicrafts promotion of products made from natural resources, supported by the development of the needed biomass inputs.

- Research and documentation of mountain and regional best practices to guide informed policy decision making at regional and national levels.

CLIMATE CHANGE

(with special reference to Mountain and Adaptation Interventions for Mountain Region)



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The Jammu & Kashmir experienced one of its worst disasters in September 2014 almost a year after the Uttarakhand flash floods of June 2013. An unprecedented rise in the level of River Jhelum due to torrential rains washed out the capital city Srinagar. Large number of houses sunk or damaged especially in low lying areas, thousands of lives were lost, several thousands were displaced and the financial loss from the disaster was unaccountable. In recent years these extreme episodes of abrupt heavy and very heavy rainfall have witnessed a rise while

the moderate events, for which community has had a historic preparedness, have seen a decline.

Both Uttarakhand and Jammu & Kashmir disasters were triggered by torrential rains, something that has been usual in the area. As predicted in the Fifth Assessment Report of Intergovernmental Panel on Climate Change (IPCC) this scenario will grow worse with a projected rise in the heavy rainfall on one hand and decrease in number of rainy days on the other.



This change in weather pattern is the indication of changing climate on Earth and there is sufficient scientific evidence to prove that it is primarily the influence of human activities which is changing our climate (IPCC. 2013. Climate Change 2013: The Physical Science Basis. Headline Statements from the Summery for Policymakers.). The impact of climate change is influencing flood, food security, availability of potable water, etc. Agriculture is also widely affected by uncertainty of weather, prolonged dry days, shorter rainy period and

thus creating hostile conditions for the farmers.

Communities residing in the hills particularly in rural areas are highly vulnerable to this trend of fast changing climate. In Uttarakhand, 12,558 Van Panchayats (VPs) are the key for survival of rural hill communities as they depend heavily on the natural resources available through it. The conservation and sustainable management of these natural resources get impacted in this struggle against climate change. Indian Himalayan Region in general and Uttarakhand in particular,

providing ecosystem services to the billions of population residing down in Indo-Gangetic plains of India, stands vulnerable to these scenarios. CHEA's endeavour has thus been to promote sustainable use of Natural Resources which is slowly making its mark in the rural community with them coming forward to accept, participate and adopt initiatives of CHEA to fight against climate change.

MONITORING AND ESTIMATION OF CARBON SEQUESTRATION

In Lamgarah development block (Almora District) field investigators annually collect biomass data to monitor and estimate the health of their Van Panchayats. Every year biomass data of 15 VPs is collected and analysed by putting them in the pre defined allometric equation for different tree species. The data collected from the VPs suggest that the VP forests have been accumulating CO₂ at the rate of 2.78 c t/ha/yr.

ADAPTATION & MITIGATION MEASURES

Whenever we discuss about climate change, two broad approaches surface, viz. **Adaptation** (adjustment in natural or human system in response to actual or expected climate change or their effects, which moderates harm or exploits beneficial opportunities (IPCC, 2001a)) and **Mitigation** (an anthropogenic intervention to reduce the source or enhance the sinks of greenhouse gases (IPCC, 2001a)) and these two are keys to counter climate change.

Increasing vegetation can be a tool to mitigate climate change in longer run and bamboo species are one of the best sequester of CO₂, therefore, various species of bamboo such as *Dendrocalamus hemiltonii*,

Bambosa balcooa, *B. bamboos*, *D. strictus*, *B. tulda*, *Phyllostachyus nigra* and *Arundenaria falcata* (ringal) were planted in 30 ha area both at the VP and at household levels (fig 1. & fig 2.). About 44,350 seedlings of different species were distributed to the bamboo artisans, which were planted in their homestead and VP areas after carrying out the advance soil work. The plantation and nursery raising of these bamboo species were taken up under the Tata Social Welfare

Trust (TSWT), Mumbai funded project titled “Improving Livelihood of Bamboo Dependent Communities and Enhancing Forest Conservation through Promotion of Bamboo Plantation in the Himalaya”. After plantation, the intercultural operations were carried out in all plantation plots. Village level consultations were organized in project villages to ensure protection and maintenance of planted species.

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Fig 1. Cluster wise plantation detail

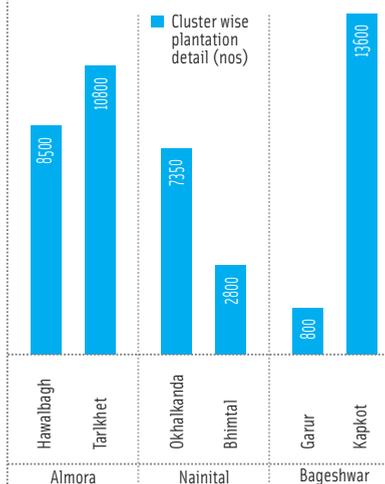
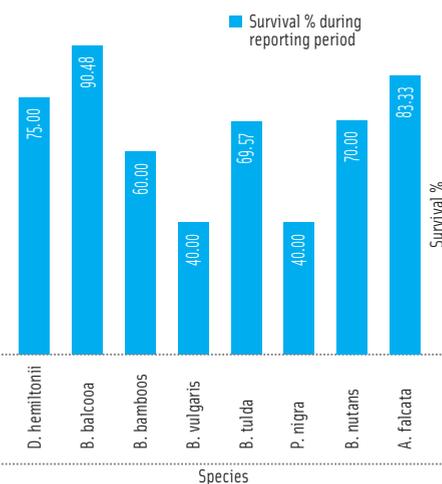


Fig 2. Species performance





One central Nursery has been established in Almora cluster having 5,000-8,000 plants of 2 bamboo species. Besides this, backyard nurseries have also been developed in two sites which have 2,000-3,000 seedlings each for Maloccana beccifera, B. tulda, and D. strictus. This is for assured supply of quality planting material in the next planting season. To enrich backyard garden, high value vegetable seeds of specific crops were demonstrated amongst 100 marginal artisan families in 4 ha area. In addition to this, 2,900 fruit plants were planted during winters with active participation of 400 families to diversify the livelihood options. For protection and management, there has been an increase in the level of interest and participation by communities which is manifested through active involvement of labours and 6 Rural Resource Persons (RRPs) in all three clusters to facilitate the project activities effectively.

The direct sowing of oak acorn (*Quercus leucotrichophora*) in upper hills along with seed of *Bahunia*

variegata in warm valleys was another initiative undertaken by CHEA in Bajina village of Tarikhet development block (Almora district) with active involvement of Self Help Group (SHG) members.



The rehabilitation of any kind of waste/barren land depends highly upon plant species and thus its selection is intricate and significant. In all 1000 seedlings were planted along with direct sowing of 12,000-14,000 oak acorns. The species will be useful in meeting the requirements of fodder and also in soil and water conservation. Approximately 80% of seedlings planted are now well established with 75-80% germination of oak acorn with 60-65% survival.

Improved nutritious fodder promotion is one of the priority focus activities undertaken by CHEA across all of its programmes. Fodder species like Napier was promoted in project villages across Tarikhet, Didihat, Kanalichina and Dharchula development blocks, wherein 220 families became beneficiaries of the initiatives.

Water Conservation & Harvesting

According to IPCC's fifth assessment report the impact of climate change will increase frequency of extreme weather events in near future as well as the period of rainy days will decrease at the same pace. Consequently, rural hill community will be worse affected with these changing conditions and shall thus adversely affect the life and livelihoods in mountain villages making water availability as one of the most vulnerable issues. Excessive run off of water during rains is common and harnessing this water is one of the easy and immediate solutions required to deal with water scarcity, especially during prolonged dry periods for irrigation and domestic purposes. Rain Water Harvesting Tank (RWHT) helps in increasing the productivity from cultivable land thereby provides livelihood possibilities to the beneficiaries. RWHT strengthens the ability of community in promoting cash crops such as off-season vegetable cultivation with assured water availability for irrigation.



For instance, **Bajina** a village in Tarikhet Development Block has been facing acute water scarcity since last two decades. In February 2014, project titled “**Expanding the Natural Resource Base for Easy Access to Water and Green Fodder: Supplementing Marginal Community for Livelihood Promotion**” was initiated in a village with support of Aquamall Water Solution Ltd., Dehradun. Under the project community has been motivated to adopt best practices of water management with a collective approach of implementation. The preliminary outcomes of the project are encouraging which show highly positive response from community towards natural resource management and also contributes in helping adapt to climate change and make the village more resilient.



Promotion of water harvesting is one of the essential and cross cutting components in CHEA's work and efforts are being made to improve better implementation processes in consultation with experts and village community.

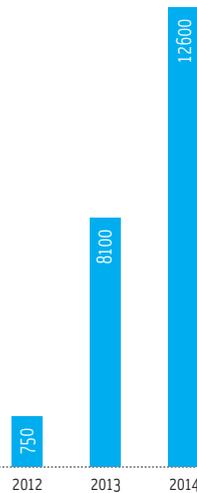


Fig 3.
Area covered under micro-reservoirs & contour trenches (cubic meter)

Besides creating awareness towards water management, 155 RWHT were constructed in 63 villages of Nainital, Almora, Pithoragarh and Bageshwar districts. During the financial year, in all 10,980 micro reservoirs (MRs) and trenches were created which have a cumulative capacity to hold about 17,000 cubic meter water across 21 VPs.



Direct seed sowing has been done in exposed top soil placed around the trenches. Results of MRs and trenches are now visible at downstreams with water discharge in natural springs witnessing a significant increase. The reservoirs also help in growth of plants in the surroundings while increased water availability saves time of community living down hills. During heavy rains all these reservoirs act as barrier for reducing the surface runoff thus helping control soil erosion. Maintenance of reservoirs was undertaken by the communities by regularly removing stones, flooded soil, biomass, etc. without disturbing the bottom layer of reservoirs.



Under the TSWT supported project alone, 75 skilled beneficiaries have been selected for establishing roof water harvesting tanks. To address the need for timely irrigation of bamboo plants and meet the basic requirement of communities, irrigation pipe and 180 plastic drums of 500 litre capacity are also introduced in the area.



Alternative Energy Resources

According to the Sustainable Development Knowledge Platform, of United Nation Department of Economic and Social Affairs, two billion people have no access to modern energy services and it is a known fact that energy is central for achieving sustainable development goals. Energy demand of the community residing in far flung areas of the Indian Himalayas is met by the forests. Fire wood collection is one of the routine activities of community, particularly women, to gather fuel wood for kitchen. Women of these hinterlands walk

daily far distances to collect firewood. Providing alternative energy sources could be a key to address this problem. CHEA undertook a programme intervention focusing on providing low cost alternative energy to meet the needs of the community with

optimal use of available resources. Under this initiative, bio-gas units have been introduced as a measure which shall foster forest conservation and also meet the growing energy demands of villages.

A total of 35 bio-gas units of one cubic meter capacity were installed in different areas of Kumaun region, to demonstrate the efficacy of the technology. The intervention has shown positive impacts on natural resources, women health, etc.



Awareness Generation & Capacity Building of Stakeholders

Strengthening capacities of rural community is a core mandate of CHEA as an essential strategy to create mechanisms for sustaining the programme interventions. It is a vital tool to build confidence amongst the community and disseminate information on multiple aspects of the project, along with creating a greater sense of ownership.

In Bin development block (Pithoragarh district) the project area lies in pine forest areas and thus ample amount of pine needles are

available which acts as one of the major causes of forest fire. Keeping in view the above and also the scarcity of fuel wood, it was decided to convert pine needles into bio fuel. It was also factored that the pine briquette making will reduce women drudgery. Trainings on producing Pine Needle Briquette were organised in Bans and Jajurali villages. Village community was

trained in pine briquette making which involved steps like collection of the pine needles, burning them under controlled conditions, mixing char coal in appropriate ratio with water, cowdung and soil. Participants took keen interest in the training and it was observed during follow-up visits that they have begun to make the briquette.



Furthermore under trainings, 46 SHGs and Joint Liability Groups (JLGs) have been formed which are now well aware of inter-loaning, credit linkages and also necessary know how for record keeping and approaching different institutions for different interventions. RRP's were encouraged to take up this intervention in their respective clusters which also helped in boosting their confidence. Currently, 14 RRP's are able to serve the communities and are recognized for their expertise with 45 additional RRP's assisting the community in the area. The RRP's have generated an income of approximately INR 1.76 lakh against services being provided in VPs and at household level for various activities.

Presence of more than 40 community leaders in these villages is creating a positive environment of trust and solidarity towards VPs and for village development interventions being anchored by them. Significant support from students in restoring the plantation

is a promising development assuring bright prospects in terms of protection and conservation in future. Gradually the community leaders have started approaching the government line departments to mobilize resources in diverse sectors. There is a growing trend wherein

the community is found pursuing an integrated approach with efforts to leverage any available opportunity has to adopt appropriate technologies that helps them cope better with climate change.



RURAL LIVELIHOOD INITIATIVES IN MOUNTAIN REGIONS FOR REDUCING POVERTY



According to the World Bank, sustainable development recognises that the growth must be both inclusive and environmentally sound to reduce poverty and build shared prosperity for today's population and while doing so continue meeting the needs of future generations. When we go through most of the definitions of sustainable development, the single core concern has been to utilize the resources judiciously through careful planning which ensures both short term and long term benefits to the community.

Communities inhabiting the mountain region are more vulnerable to climate change in many ways, but essentially in terms of their livelihoods which primarily depends on the available natural resources. Participatory management through direct and active involvement of communities is an integral part of the project implementation. Empowering women and weaker sections of the society by providing them opportunities to adopt livelihood activities and reducing their drudgery by introducing appropriate technologies has been the key focus.



NON FARM SECTOR

Apiculture is one of the allied activities which can support agriculture as approximately 90% of agricultural crops require pollination through honey bees. With support of International Centre for Integrated Mountain Development (ICIMOD) and National Bank for Agriculture and Rural Development (NABARD) modern beekeeping practices have been promoted in selected villages of Bin, Didihat, Dharchula and Munakot development blocks of Pithoragarh district. Main objectives of the project have been to improve beekeeping status through adoption of appropriate technologies and to enhance bee based livelihood activities. The project has been instrumental in providing basic

infrastructure to promote modern beekeeping using movable hives, equipment and appropriate feeding and harvesting technologies. To ensure sustainability of the project around 10 RRP's have been developed who would be replicating and up-scaling the initiative.

Beekeeping Groups are the pivotal structure of the whole exercise through which all activities have been accomplished effectively. The outcome after promoting of beekeeping is visible in terms of increased level of awareness, use of modern methods, movable hives, adoption of pre and post harvest methods, etc.

Communities have been encouraged to develop beekeeping as a source of additional income. In all 18 villages have been covered under the project and 150 hives along with equipments were distributed through partial contribution from 80 families.



AGRI-HORTICULTURE

Project titled “Livelihood Improvement of Tribal Community through Promotion of Appropriate Technologies in Rural Hills of Pithoragarh District” was initiated in 2011 with a key objective to uplift the Tribal community. Main focus of the project is to improve the living condition of one of the most backward communities of Uttarakhand, called as the Van Rajis, through interventions around Agro Forestry (Wadi) model for sustainable livelihood along with Bhutiyas. The project is being implemented in three development blocks viz., Didihat, Kanalichina and Dharchula with support from NABARD under its Tribal Development Funds (TDF). Under the project 700 families of 20 villages have been benefited since 2011.

Within the span of last three years, 80 ha land has been converted into agri-horti-silvi forest system. In addition to developing wadi, irrigation facilities through RW/HT/LDPE tanks and vermi composting has also been taken up with 80 families as steps to supplement the process.





OFF-SEASON VEGETABLE CULTIVATION

Horticulture is most appropriate option for diversified agriculture land-use primarily due to greater possibility of assured remuneration to the farmers. In Uttarakhand, per household landholding is very small and also scattered thus resulting in low production. A majority of communities in remote areas practice vegetable cultivation in their kitchen garden from generations for subsistence, however, commercial gains from the same were not thought of. Under this initiative, villagers are motivated to practice commercial vegetable cultivation by

adopting high value crops and their appropriate Package of Practice (POPs).

20 villages under TDF project benefited 180 families with 20 acre area have been covered under high value crops. The value chain of off season vegetable cultivation selected in two villages is based on rapid survey conducted under Kailash Sacred Landscape Conservation and Development Initiatives (KSLCDI) with priority to high value crops following Integrated Pest Management to ensure biodiversity conservation and also to reduce the ill effects of chemicals on bees. The purpose to



identify this particular area is to create an integrated model for diverse components in a cluster. Two pilot villages Bans & Jajurali, covering 100 farmers have been selected for implementation under KSLCDI. These farmers have been provided with high value vegetable seeds i.e., French bean, Tomato, Chilly, etc. along with vermi beds. 24 Poly Tunnels have been installed by members representing 5 JLGs, which are well in use for nursery raising of vegetables. 90 vermi beds have been provided to JLGs which benefit 90 farmers and are well in use for making high quality manure.





INNOVATION AND ADAPTATION

ICIMOD, with financial and technical support from the Department for International Development (DFID) and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), has initiated a five year Phase-One Implementation Plan under the KSLCDI. In India, G.B. Pant Institute for Himalayan and Environment Development (GBPIHED), Kosi-Katarmal is the nodal agency. There are five programme components in this transboundary project, viz.,

1

Innovative Livelihood Options and Climate Change Adaptation,



2

Management of Ecosystems for Sustaining Services;

3

Access and Benefit Sharing;

4

Long term Biodiversity Conservation and Monitoring;

5

Regional Cooperation, Enabling Policies and Knowledge Management.

CHEA has been entrusted the tasks for Component 1 (Innovative Livelihood Options and Adaptation) as lead organisation. The Kailash Sacred landscape, spread over an area about 31,175 sq kms having entire Pithoragarh district and a part of Bageshwar district in Uttarakhand state, the Tibet Autonomous Region of China, and the adjacent districts in the far-western region of Nepal, represents a diverse, multi-cultural and fragile landscape. The key objective of the initiative aims to achieve long-term conservation of ecosystems, habitat, and



biodiversity, while encouraging sustainable development, enhancing the resilience of communities in the landscape and safeguard the cultural linkages among local populations.

Component 1 focuses on Innovative livelihood inputs to engage the community in alternate income generation activities and reduce pressure over natural resources to sustain the diverse ecosystems. The focus of component 1 is to streamline five identified value chains viz., chyura ghee and by products, chyura honey, kidney bean, bamboo/ringal handicrafts and off-season vegetable cultivation. Promoting a site for heritage tourism is additionally being taken up. Objective of the project is to initiate interventions to create additional income opportunities for mountain communities and build their adaptive capacities.



Development of value chain by experts and scientists in a holistic manner is the key approach for successful implementation of the project. Involvement of women for value chain development and improving livelihood is being attempted through focused attention and by involving female facilitators at field level. The individual beneficiaries have been federated into JLGs to ensure cooperation and also to enhance the bargaining power of the village communities.



Chyura Honey & Ghee by-products

Based on discussions with all stakeholders Chyura honey and ghee by-products have been suggested as useful in developing two value added products, viz., Chyura Vaseline and Chyura Soap, which are likely to have a potential as viable products. These two by-products are being considered to be developed. At present backward and the forward linkages are being explored for the proposed value chain. The test of honey and ghee was conducted for quality assurance and endorsement as a niche product.

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Kidney Bean

This value chain has shown some positive results in 2014 and also fetched additional income for the first time to Van Rajis. Based on this success and to sustain the process, three advance trainings at cluster



level on kidney bean cultivation were organized to disseminate appropriate PoPs. Inputs based on field learning were provided by the representative of Him Kutir federation from Munsyari, an area, well known for kidney bean cultivation. This approach allowed transfer of knowledge and skills in cultivation, harvesting, packaging and storage of beans at household level. The focus has been on enhancing the quality and quantity of kidney bean production.

An annual calendar for kidney bean cultivation cropping cycle got chalked out during the participatory training conducted with the community. Different cultivation

practices required at various stages of kidney bean production to maximize profit and production, was disseminated to the trainees. The outcome of the initiative has been very encouraging as 3 ha area was covered under the kidney bean cultivation and 5 quintals of kidney bean was harvested by the Van Rajis.

The value chain work on off-season vegetable cultivation and ringal handicraft is progressing well and has been detailed at relevant section of this report.

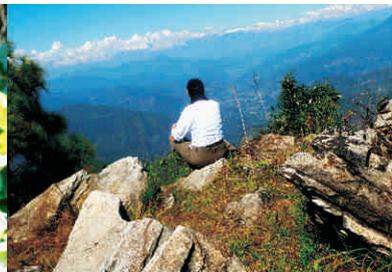


Heritage Tourism

The Cave temple situated at Patal-Bhuvneshwar in Gangolihaat development block has been identified as potential Heritage tourism pilot site. An initial survey has been carried out to assess the potential and for mapping the willingness of local communities. A joint meeting was conducted with different stakeholders including members of Temple Committee. To

support the project and to fulfil the core objective of the project, various trainings on different skills were conducted in the cluster and also at different venues with focus on youths and women. To promote the heritage tourism concept and the area as a tourist destination, efforts are being made by developing publicity material and information documents. Mr. Anup Sah, a

renowned photographer, conducted a comprehensive photo shoot of the cave temple after CHEA obtained permission from the Archaeological Survey of India. A detailed map of Patal-Bhuvneshwar and Gangolihaat is being developed for market outreach and attract tourist to this destination.





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CAPACITY BUILDING

Capacity development is a key to engage rural community in strengthening the livelihood activities and their overall development. CHEA endeavours to strengthen capacity of rural community which has been an integral part of the all programme/project run by the organisation. In the year 2014-15

series of trainings, workshops, seminars, etc. were organised.

The workshops were conducted with an objective to enhance participation of community particularly that by women in project implementation whereby the work related to diversification of Chyura products and value chain development is also popularized. During these trainings and workshops in all 700 community

representatives participated from 14 villages.

The village communities in Van Raji dominated areas are still in the process of learning. The cultivation practices are primarily carried out for the purpose of self consumption within limited area. Keeping in view the above and based on need of the Van Raji, a one day workshop was organized at Jauljibi. The purpose of the workshop was to motivate and familiarize the participants with appropriate technologies to increase crop production from the small and scattered landholdings.

Capacity building program for the community members including those from outside the selected project villages has been conducted with the support of experts from State Beekeeping Centre, Jeolikote (a centre of Department of Horticulture and Food Processing, Govt. of Uttarakhand). In all 21 community members of project area





participated in a 10 days Master Training course on advance apiculture at the centre. Purpose of the program was to enhance the production of honey by adopting modern technologies which could be linked with marketing of surplus produce and developing the area to facilitate villages as a hub and spoke model.

Basic Tour Guiding and Bird Watching:

The need of training around such a theme emerged from various consultation meetings and visioning processes taken up with local community and the temple committee for planning promotion of building heritage tourism. Thus, the training on Nature Guide for the local youth of Patal Bhuvneshwar area was organised. Total 35 members participated in the training program. Training focused on inputs like: desired behaviour of a Nature Guide, Do's and Don'ts, Basic Safety in the work area, Basic First Aid, Life saving techniques and a summary of the Flora and Fauna of the area.

Expert on Eco-Tourism and Disaster Management delivered the training to the youth of Bhuvneshwar village.

The idea behind training is to build knowledge and skills of local community; specially unemployed youths and help them to groom as professional nature guides, bird watching experts and adventure sports trainers so that they can develop alternative tourism service

attractions in the area and thus generate income from these while contributing in conserving the Bio-Diversity of the area.

Bird Watching: After receiving a positive feedback and realizing their interest with scope for developing the area as a bird watching site, a three day intensive training on bird watching was organized. This training was conducted with support of experts suggested by



Ecotourism wing of Uttarakhand Forest Department. The experts delivered an in-depth training for identifying different birds and developing a comprehensive understanding on local and migratory birds with specific information. Local community, especially youth, of Patal Bhuvneshwar and nearby villages took deep interest in the first training session. This inspired project team to organize another advance training program for the villagers. Hence a second Bird Watching training at Patal Bhuvneshwar was organised. Total 16 youth participated in this training where they learned about the basic techniques of Bird Identification, Bird Nomenclature, and Trails to spot birds as well as about the flora and other fauna of the area. During the field visit under training, participants spotted a large number of bird species such as Blue Whistling Thrush, Common Myna,



Red Vented Bulbul, Himalayan Bulbul, Kalij Pheasant, Grey Bush Chat, Russet Sparrow, etc.

The key objective of conducting the Bird Watching training is to develop Patal-Bhuvneshwar area as a bird watching destination. The area is bio-diversity rich and is a habitat of an around 250 bird species (including migratory birds), which makes the project both feasible and desirable.

Rock Climbing for Youths: To promote adventure sports as an income generating activity, local youth of Patal Bhuvneshwar were trained in basics of rock climbing at Nainital. The seven days basic training course on Rock Climbing was conducted by Nainital Mountaineering Club which helped youth to develop skills of rock climbing and thus enable them to explore the possibilities of pursuing this as a career or source of an alternative livelihood option. Youth





were also exposed to different equipments, safety regulations and procedures for operating rock climbing as a tourist/ commercial activity. Participating youngsters were motivated to take advanced training in rock climbing and gradually popularize the course in project area. Visit to the village at Choti Haldwani with Home Stay facilities was also organized to demonstrate its potential and to supplement the income of community members at village level from eco tourism promotion.

NETWORKING & MARKETING

Understanding the international nature of fair and transboundary approach of KSLCDI, it was believed that participation from partner countries to share the experiences will be key to further strengthen landscape based sharing and to gain precious learning for future strategy development. CHEA, GBPIHED, Wildlife Institute of India (WII), ICIMOD and Project Partners from Nepal participated in the Jauljibi International Trade Fair

during November, 2014, to share a common platform to promote sales of different products and exchange successful practices across the region (India and Nepal). This event facilitated better publicity of the KSLCDI project and provided exposure and visibility among the multiple stakeholders at large including politicians, academicians, traders, etc. Broadcaster like All India Radio Station at Almora was leveraged to expand the outreach of the project objectives by giving radio talk.



Bamboo is associated with the culture of many countries as it plays an important socio-economic role in countries like India, China, Indonesia, Vietnam, etc. Technically, bamboo is a grass belonging to the subfamily Bambusoideae providing considerable environmental and ecological benefits viz. contributing to the biodiversity of the region, soil stabilization and prevention of soil erosion on hill slopes and verges.

Over 1,200 different species of bamboo grow worldwide and 18 million ha of bamboo are distributed in world forest ecosystems across Asia, Africa, and America. Over 600 million people around the world generate income from bamboo based activities.

In India, there are 136 species of bamboo with two major types i.e., Sympodial bamboo that grows in clumps, and Monopodial bamboo

which grows individually. In India, majority of bamboo is Sympodial which is difficult to harvest unlike China which has Monopodial bamboo culture. Bamboo is a multipurpose, fast growing woody species, which occupies an important place in diverse phases of life and culture of the people. Bamboo portrays plethora of uses in different fields like agriculture, architecture, housing, furniture,



ART, CULTURE AND HANDICRAFT PROMOTION IN MOUNTAINS

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basket making, food material, paper industry, etc. It is fascinating to the craftsman, artist and act as a resource for poverty alleviation.

These multiple uses of bamboo and its role in preventing soil erosion make it an ideal choice for social and agro forestry plantations. Bamboo in the Uttarakhand state is categorized into two groups, the bamboo and the ringal-bamboo. Bamboo is found in Shivalik forests at low hill

areas and at high hills, only ringal-bamboo species are found in reserve or VP forests. Ringal is a species of bamboo that is typically thin, reedy, shrubby, and clump forming. It is distributed over 66,000 ha at elevations between 1,500–3,500 meters in Garhwal and Kumaun region of Uttarakhand. Major three issues related to bamboo management are over exploitation, lack of management and poor

harvesting technology and pest and disease attacks. The main bottle necks in bamboo management are the low production of bamboo which is around 1.5 ton/ha in India, whereas in China it is 1,822 tonnes/ha.

BAMBOO HANDICRAFTS OF KUMAUN



Bamboo can be considered as the nature's gift to supplement the livelihoods of the craftsmen associated with this trade. Socio-economically bamboo artisans are poor and belong to the backward classes of the society. Over last few decades the natural bamboo resources have been shrinking due to high exploitation. The indigenous knowledge about the use of bamboo species is declining amongst youth because of low profit margins and labour intensive

work. These factors have caused much pressure on artisans to switch over to other occupation for their subsistence. Therefore, an urgent need was felt to develop livelihood opportunities through bamboo crafts by resolving the scarcity of raw material and also improving the quality of products. The project has been designed to improve the livelihoods of artisans by diversifying the product range and also creating a biomass pool through plantation.



Under the project supported by TWST, a variety of interventions were made by CHEA through a participatory approach. Support and convergence with external agencies i.e., Development Commissioner, Ministry of Textiles, GOI, District Industry Centre, Small Scale Industry Corporation; Agriculture/Horticulture department and Uttarakhand Bamboo and Fibre Development Board (UBFDB) is attained. Providing artisans cards by Office of the Development Commissioner

(Handicrafts) Ministry of Textiles, Government of India to bamboo artisan has been initiated.

Through CHEA's facilitation more than 100 artisan cards during the financial year 2014-15 were issued to the bamboo artisans. Professional students from reputed institutes like the Indian Institute of Management, Kolkata, National Institute of Designing, Ahmadabad and Kumaun University have been engaged in the project. They have contributed by documenting the reports on marketing, new craft designs and performance of diverse bamboo species planted in the project area.



CAPACITY BUILDING

Structured and customized capacity building programs were imparted through organizations of village consultations, trainings on skill up gradation, exposure to various institutions/organization for getting familiar with modern technology and crafts. In all 27 women SHGs have been formed for mainstreaming them in the project activities and strengthen them financially by linking with different development programmes and microfinance institutions/banks. 51 village consultation workshops were organized for developing close association with communities and to boost their confidence to enhance the natural resource base in private land/VPs and to conserve bamboo crafting.

An exposure visit was made to Aagaaz Foundation, Pipalkoti in Chamoli district for 10 artisans from Bageshwar cluster. The visit aimed at enhancing their existing knowledge in terms of developing modern crafts and providing hands on experience to use advance tools and technology for producing better finished crafts. In all, 30 artisans participated in Shastri Mistri Workshop organized by Sampurna Bamboo Kendra (SBK) at Amravati (Maharashtra) for special skill development in diverse sectors. The workshop focused on using improved tools and technologies for bamboo handicrafts, bamboo housing, natural dyeing, bamboo jewellery, and bamboo plantation.





During the workshops participants visited the demonstration sites where the crafts work was in progress. Now six artisans are serving as master trainers and are recognized as RRP in their respective project areas.

Two separate training programmes for traditional artisans were conducted at Hawalbagh and Tarikhet clusters of Almora district for 15 days with the support of a trainer from UBFDB, Dehradun. Training was focused on bamboo processing, weaving and souvenirs.



NETWORKING AND MARKETING

The program has been shared with NABARD and Chief Development Officer, Bageshwar for additional support. Efforts are ongoing to explore possibilities for development of proposal under National Horticulture Mission (NHM) and in this regard discussion with District Horticulture Officers in all the clusters has been continued. Forest department officials have been approached for VP strengthening and the process of its re-constitution as per the Uttarakhand Forest Panchyat Rules, 2012 has been initiated in 27 VPs. During the project period required representation of women and weaker section in management committee was completed in 9 VPs along with 5 reconstitutions.

Two artisans from project participated in the Craft Bazaar

organized by Craft Council of India at Chennai during where they exhibited 25 diverse bamboo items. The articles were highly appreciated in the Craft Bazaar and net income earned was over Rs. 35,000.00. Besides this, participation in International trade fair at Jauljibi, Pithoragarh with diversified bamboo product further facilitated marketing access. The shopkeepers and retailers have also identified in different potential locations in Almora, Bhimtal, and Ranikhet for marketing of products.

Participation in China Annual Bamboo Tour of International Network for Bamboo and Rattan (INBAR) provided an opportunity to learn from the extensive experiences of bamboo development in China.



RESEARCH AND DOCUMENTATION: MOUNTAINS AND REGIONAL BEST PRACTICES

UTTARAKHAND OUTREACH EVENT ON IPCC – FIFTH ASSESSMENT REPORT

Asia has witnessed a steep rise in CO₂ emission levels in the last decade. The CO₂ emissions by 2100

could more than double from today. Furthermore, the change in rainfall (2081 -2100) indicates a pattern where regions receiving a good rainfall get richer and poor rainfall regions get scantier rainfall. The projections suggest that temperature may increase by 4-6 °C in Uttarakhand while the national

monsoon precipitation may increase by the end of this century. The scenario of world clearly indicates that climate change is a global commons problem that requires international cooperation and coordination.

The aforesaid are the key findings of IPCC. A high level public event was organised by Climate Development and Knowledge Network (CDKN), CHEA with support from Forest Department, Uttarakhand and Forest Research Institute, Dehradun to share these findings of IPCC AR 5. This was first time when IPCC AR 5 reached out to sub-national level at Indian Himalayan Region of the country.

Chief Guest of the event Mr. Govind



IPCC was represented by Dr. Youba Sokona, Co Chair Working Group (WG) III and authors Dr. Akhilesh Surjan, Associate Professor, Kyoto University, Japan and Prof. G. Bala, Indian Institute of Science, Bangalore.

Singh Kunjwal, Hon'ble Speaker of Uttarakhand Legislative Assembly stressed upon the need for greater collaboration between science and policy. He further suggested that on the lines of IPCC Assessment Report there should be efforts by Scientist working for Himalayan region to develop assessments report for this region.

Speaking at the event Guest of Honour and Hon'ble Minister for Forest and Environment, Uttarakhand Mr. Dinesh Agarwal said the state has strong social capital in the form of 12,500 Van Panchayats covering more than 0.5 million ha area that accounts for almost 16% forest area of the state. The appropriate design and planning will be required to take

optimum advantage of REDD+ to protect vulnerable communities and their forest Agarwal added.

The three presentations made by IPCC authors highlighted that the actual measurements of climate parameters suggest that the earth is warmer by 0.74 °C today than it was a century ago and twelve of the last thirteen years have been the warmest on record. It is widely believed that in the years to come earth will warm at a faster rate, sea-levels will rise further, extreme weather events will become more frequent and intense and global reserves of ice will dissipate.

Technical session and stakeholder session were chaired by Chief Secretary, Uttarakhand Mr. N. Ravi

Shankar and Mr. Indu Kumar Pande, Advisor to Chief Minister respectively. Mr. Jai Raj, Additional Principal Conservator of Forest, shared an overview of the purpose of the outreach event and presented the Uttarakhand State Action Plan on Climate Change.

A dedicated programme for University students and researchers was organised at Doon University in which 250 students from various universities and institutions participated and got the chance to interact with the IPCC authors. Inaugural session Chief Guest Prof. A. N. Purohit and Dr. R. S. Tolia, Chair at Centre for Public Policy at Doon University expressed their appreciation for the event.



CAPACITY BUILDING INTERVENTION FOR YOUTH ON CLIMATE CHANGE ISSUES IN THE INDIAN HIMALAYAN REGION

Climate change is a fundamental threat for sustainable economic development. There is a science base consensus about human activities being the primary reason for climate change. Over the last century, burning of fossil fuels has greatly increased the concentration of atmospheric carbon dioxide and other heat-trapping (or greenhouse) gases in the atmosphere.

The 5th Assessment Report (AR) of

IPCC released recently clearly states that "Climate Change poses challenges to growth and development in South Asia and will cause a decline in agricultural productivity in many sub-regions of Asia, for crops". The Indian Himalayan Region (IHR) is one of the most fragile and vulnerable ecosystems which need immediate action to combat the visible impacts of climate variability on various sectors. As many as nine river basins have their sources in the Himalayan region, of which the Ganga basin alone supports about 500 million people (nearly 8% of the global population).

Demographic statistics reveal that India has more than 50%

population under 25 years and about 30% between 10-25 years which approximately gives a figure of about 40% population being in the young age group of 16-30 years. Hence perception of youth with regard to climate change and proactive action from their end is of utmost importance.

Considering the present scenario of research in the Himalayan region, there was a need felt to motivate young researchers to take up research that would innovate technological solutions.

In 2014, CHEA collaborated with GBPIHED, as a knowledge and Institutional partner for capacity building intervention for Himalayan



Youth. The initiative was given funding support from Friedrich Ebert Stiftung (FES), Germany. Under this intervention, CHEA organised a series of focused learning events for the Youth of Indian Himalayas to understand and deal with issues related to Climate Change in different sectors.

In this series, an inaugural workshop around the theme titled **“Unlocking potential of youth in context of climate change in Indian Himalayan Region”** was organised at Nainital (Uttarakhand). Second workshop on **“Youth and Climate Change”** was organised at Mohal-Kullu in Himachal Pradesh. The workshop was aimed at developing

a comprehensive understanding of 96 young participants representing various universities, scientific institutes and non-profit organisations of Uttarakhand and Himachal Pradesh on climate change adaptation and mitigation.

Another event titled **'Himalayan Youth Forum'** was organised by GBPIHED, Kosi-Katarmal (Almora) which saw active participation from 70 young researchers from across institutions and universities of all the 12 states of the IHR.

These events saw a multi-disciplinary, cross-sectoral group of young dynamic minds being oriented, sensitized and adequately informed about the projected

impacts of Climate Change and the strategies and approaches commonly used to deal with the same.

Encouraging results of the three events has reinforced the faith on potential of youth and this process will be continued in 2015 with partner organisation. The programme aims to act as a bridge to bring together youths involved in research at various institutions/ universities and professionals working with developmental organisations at grass root level.

ECOLOGICAL IMPLICATIONS OF FOREST FIRE REGIME ON CHIR-PINE AND OAK-PINE MIXED FORESTS IN UTTARAKHAND

Every year during summer season the threat of human caused forest fires looms large over fire prone chir-pine and adjacent oak-pine mixed forests of Uttarakhand Himalaya. Human influence or interference is inevitable and is now seen as a key force that drives the evolution of ecological systems. However, effective resource management facilitates this influence to enter on a scale that does not disturb the structural and functional performance of the ecosystem and the goods and services it provides.

In Uttarakhand Himalayas, one of the most important causes of setting intentional fires in chir-pine (*Pinus roxburghii*) and its spread in adjacent oak (*Quercus leucotrichophora*) forests in summer season has been to promote growth of under storey herbaceous species harvested extensively for fodder by local communities. Thus, fire has been influencing the vegetation composition, structure and nutrient cycles of many forest landscapes in Uttarakhand particularly between 300 m and 1,800 m altitude above mean sea level where these forest

types dominate the landscape.

A few studies on seasonal (summer) forest fires from the region highlight some of the major causes of their occurrence its periodicity, type, pattern of spread, size, effects on vegetation such as species composition, species diversity, and net primary productivity. Further, studies from outside and those from the region reveal that the impacts of fire on a given forest ecosystem depends on various components of a fire regime such as fire frequency, type, intensity, size, seasonality, and severity. In Uttarakhand, chir-pine is one such species adapted to fire dominating the densely populated mid altitude (1,000-1,800 m) forest landscapes of approximately 4,000 km². This self immolator owing to recurrent forest fires has been expanding its territory by encroaching upon socially and ecologically valued oak forests every year in Uttarakhand Himalayas.

In November, 2014 CHEA initiated a research project funded by GBPIHED under its Integrated Eco-development Research Programme (IERP). The research project is titled "Ecological Implications of Forest Fire Regime on Chir-Pine and Oak-Pine Mixed Forests in Uttarakhand". Main goal of the research project is to compare the impact of winter and summer fires on the plant

species diversity, biomass and productivity, and soil carbon. In Uttarakhand, lack of in-depth understanding on the ecology of seasonal (summer) forest fires in general and in the wake of changing climate increasing non-seasonal (winter) fire regimes in particular is a serious hindrance in making efforts to convert this perceived challenge into an opportunity for the better management of forest resources in the state. A few micro level location specific studies have documented the impact of forest fires occurring during summer season on the vegetation of the region (Tiwari et. al., 1986, 1987, 1989; Semwal, 1990; Semwal and Mehta, 1996) in the past. However, new and integrated studies are still lacking to build upon this knowledge for informed decision making.

During the period different experimental sites have been identified in Almora, Bageshwar and Nainital districts along with survey of Chamoli. Stakeholder meetings were conducted to share the objectives of the research project. One experimental laboratory and weather station has been established for conducting various tests.

AGRO ADVISORY SERVICE TO FARMERS FOR LIVELIHOOD IMPROVISATION

In consultation with RML Information Services (RML) Pvt. Ltd., an exhaustive field survey was conducted covering 250 beneficiaries located across 100 project villages known for Chyru based products in Pithoragarh. Mobile SMS (short message service) on agro-advisory is being provided by RML an initiative, which was launched by the District Magistrate. The idea is to introduce the rural communities to the concept of receiving advisory services on their mobile phones through SMS and once they experience the utility of such advice, they may consider continuing subscribing to the same. Hence a free trial service is extended only during the first year. The 250 beneficiaries (2014) and 125 beneficiaries (2015) are availing service that provides timely information regarding market rates, weather and technical advice related to major crops they cultivate.

PROF. S.L. SHAH MEMORIAL LECTURE

On 13 Sept, 2014 Mr. Tarun Vijay, Hon'ble Member of Parliament (Rajya Sabha) delivered a lecture at Chellet Hall, Nainital Club. In the lecture, in memory of CHEA's member and agricultural-economist late Prof S. L. Shah, he emphasized that the well being of India depends on the well being of the Himalayan Region. Mr. Tarun stressed that efforts to save the environment, natural resources and culture of the Himalayas and its people is the need of hour and India calls on youth to initiate actions in these directions.

Quality education, health services, effective transportation and well established infrastructure are the key to initiate development in the Indian Himalayan region and to check migration. Sharing his grass-roots experiences in the mountains he expressed concern that the Himalayan region has yet to receive attention from various levels of the government. He spoke about Prime Minister Mr. Narendra Modi's recent initiatives to address developmental aspirations of mountain regions and their people. The lecture was attended by academicians, public representatives, students, faculty of universities and schools.





2014 ENVIRONMENT AWARENESS AND COMPETITION

The response of 2014 Environment Awareness and Competition was overwhelming with a total 1000 entries in various competitions received from 21 schools of Nainital. The event was launched in the month of April 2014 at Pt. G.B. Pant High Altitude Zoo through a drawing competition. A series of competitions such as Painting, Caption the Photographs, Story Writing, Poetry both in English and Hindi were organised at schools in

three categories viz Junior (Class I-V), Middle (Class VI-VIII) and Senior (Class IX-XII).

On 13th September, 2014 winners from different categories were honoured in the presence of Mr. Tarun Vijay, Hon'ble Member of Parliament (Rajya Sabha) and other distinguished guests. Over all school championship trophy of 2014 competition was won by St. Mary's Convent with 24 wins in various categories, first and second runner up trophies were won by All Saints' College and M.L.S. Bal Vidya Mandir, Nainital, respectively.



PROJECT 2014-15

Project/Assignment	Funder/Partner	State/District	Development Block
Capacity Building of Youth on Climate Change in the Indian Himalayan Region (IHR)	Friedrich Ebert Stiftung (FES) & CHEA	IHR	-
Direct Sowing of Oak Acorn and Appropriate Fodder Species	CHEA	Almora	Lamgarah
Ecological Implications of Forest Fire Regime on Chir-Pine and Oak mixed forests in Uttarakhand	GB Pant Institute of Himalayan Environment and Development (Kosi- Katarmal, Almora) under its Integrated Eco-development Research Programme (IERP)	Uttarakhand	-
Expanding the Natural Resource Base for Easy Access to Water and Green Fodder: Supplementing Marginal Community for Livelihood Promotion	Aquamall, Dehradun	Almora	Tarikhet
Financial Literacy	NABARD	Nainital	-
Improving Livelihood of Bamboo Dependent Communities and Enhancing Forest Conservation through Promotion of Bamboo Plantation in the Himalayas	Tata Social Welfare Trust, Mumbai	Nainital Almora Bageshwar	Okhalkanda, Bhimtal Hawlbagh, Tarikhet Garur, Kapkot
Kailash Sacred Landscape Conservation and Development Initiative	International Centre for Integrated Mountain Development (ICIMOD)	Pithoragarh & Transboundary collaboration among China, Nepal & India	Bin, Munakot, Kanalichina Didihat Dharchula
Livelihood Improvement of Tribal Community through Promotion of Appropriate Technologies in Rural Hills of Pithoragarh District - Under Tribal Development Funds	Tribal Development Fund- NABARD	Pithoragarh	Didihat, Kanalichina, Dharchula
Strengthening of Van Panchayats for Livelihood Based Management of Natural Resources	CHEA	Uttarakhand	-
Uttarakhand AR5 Outreach Event on IPCC - Fifth Assessment Report	Climate Development and Knowledge Network (CDKN), Forest Department, Uttarakhand and Forest Research Institute, Dehradun	-	-

FINANCIAL SUMMARY 2014-15

INDEPENDENT AUDITOR'S REPORT

To The Members of Central Himalayan Environment Association

We have audited the accompanying financial statements of Central Himalayan Environment Association which comprise the Balance Sheet as at March 31, 2015, and the Income and Expenditure Account, Receipt and Payment account for the year then ended, and a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation of these financial statements. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation of the financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with the Standards on Auditing issued by the Institute of Chartered Accountants of India. Those Standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error.

In making those risk assessments, the auditor considers internal control relevant to the Company's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of the accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion and to the best of our information and according to the explanations given to us, the accounts, read together with the Statement on Accounting Policies and Notes to Accounts attached thereto give a true and fair view in conformity with the accounting principles generally accepted in India:

- a. in the case of Balance Sheet, of the state of affairs of the entity as at the end of its financial year; and
- b. in the case of the Income and Expenditure Account, the surplus for its financial year.
- c. in the case of receipt and payment account for the receipts and payment reflected therein.

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

Manish Khanna, FCA, DISA (ICAI)
Partner
Membership Nos 077858

Dated: 16th May, 2015
Place: Nainital

BALANCE SHEET AS AT 31ST MARCH, 2015

Particular	31.3.2015	31.3.2014
Liabilities		
Corpus Fund	12,880,268	12,640,254
Reserve Fund	14,185,753	12,269,449
Capital Reserved (assets funded by donor agencies)*	1,915,389	1,721,104
Unspent grants	3,693,816	14,876,798
Sundry Creditors	108,224	1,643
Accumulated Depreciation	6,893,507	6,893,504
Total	39,676,956	48,402,752
Assets		
Fixed Assets - Acquired from own funds	6,893,544	6,893,544
Fixed Assets - Acquired from funds of donor agencies	1,915,487	1,721,139
Current Assets, Loans and Advances		
Grant Receivable	2315420.94	
Deposits with banks	28,257,949	39,380,401
Advances including income tax recoverable	257,455	370,568
Security Deposit (endorsed in favour of Government Authorities)	37,100	37,100
	39,676,956	48,402,751

* Assets are stated at cost. Please refer significant accounting policy on Accounting of fixed assets

Signed on behalf of CHEA				
Sd/- For Manish Khanna & Co., Chartered Accountants	Sd/- Manish Khanna Partner	Sd/- Secretary	Sd/- Executive Director	Sd/- Manager, Accounts and Administration

RECEIPT AND PAYMENTS ACCOUNTS FOR THE YEAR ENDED AS ON 31ST MARCH, 2015

Receipts	
Balance as on 1st April 2014	14,489,667.99
Income	Received
Interest	2,442,953.00
Others	4,020,790.20
Income tax refund	69,680.00
Advances recovered/ adjusted	43,433.00
Total	65,76,856.00
Project Funding	
Foreign Contribution	47,99,136.72
Trust/ Association's Grants received	31,55,727.87
Government	24,51,805.00
Total	10,406,669.59
Grand Total	31,473,193.61
Payments	
From Associations' Specific Purpose Reserve	721,817.00
Cash in bank	6,209,288.91
Total	6,931,105.91
Project Funding	
Foreign Contribution	9,661,322.21
Trust/ Association's Grants received	8,067,853.64
Government	6072,529.85
Expenditures	740,382.00
Total	24,542,087.70
Grand Total	31,473,193.61

EXTERNALLY FUNDED PROJECTS/ ASSIGNMENTS: FINANCIAL STATUS AT A GLANCE*

Sr.	Project/ Assignment	Opening 01.04.2014	Receipts current year	Expenditure current year	Closing 31.03.2015
1.	Financial Literacy, NABARD	0.00	170,000	170,000	0.00
2.	Livelihood of bamboo dependent communities, TSWT	8,167,728	2,498,767	7,424,779	3,241,716
3.	TDF, NABARD	3,925,700	1,440,235	5,376,144	-10,209
4.	Integrated watershed planning, IWMP	-74,251	347,570	273,319	0.00
5.	Fires research project Uttarakhand, GBPIHED	0.00	494,000	253,067	240,933
6.	Easy Access to water and fodder, Aquamall	203,648	531,961	524,442	211,167
7.	Vulnerability assessment methodology for Uttarakhand, ICF India	0.00	125,000	125,000	0.00
8.	Learning from Uttarakhand Disaster, 2013 GIZ	-355,356	352,395	-2,961	0.00
9.	Mountain cities case study ICIMOD	-123,012	122,760	-252	0.00
10.	KSLCDI, ICIMOD	3,132,342	2,783,127	7,703,860	-1,788,391
11.	IPCC AR 5 Uttarakhand Outreach Event, CDKN	0.00	320,733	818,404	-497,671
12.	National Training Session LEAD India	0.00	353,613	353,613	0.00
13.	Training Workshop for youth on climate change, FES	0.00	866,509	866,509	0.00
14.	Research on adaption to climate change ICIMOD	0.00	0.00	19,150	-19,150
Total		14,876,799	10,406,670	23,905,074	1,378,395

* Progress/completion reports of all assignments/projects are available on request.

Signed on behalf of CHEA				
Sd/- For Manish Khanna & Co., Chartered Accountants	Sd/- Manish Khanna Partner	Sd/- Secretary	Sd/- Executive Director	Sd/- Manager, Accounts and Administration

CHEA'S PARTICIPATION IN TRAINING/SEMINAR/WORKSHOP/MEETING

- National Orientation Workshop - Programme Awareness and Field Implementation Strategy, organised by ICIMOD, April, 2014, Dhangadi, Nepal.
- Synergos Senior Fellows Global Meeting, 2014, May, 2014, Kathmandu.
- Workshop on "Value Chain Development for Kailash Sacred Landscape", organized by ICIMOD, May 2014, Kathmandu, Nepal.
- Partnership Forum of the World Bank's Climate Investment Fund, June, 2014, Jamaica.
- Kailash Mansarover Exposure Visit under KSLCDI, July, 2014, Tibet Autonomous Region of China.
- Base of Pyramid World Convention and Expo, under KSLCDI with support of Synergos Institute, USA, August, 2014, Singapore.
- Workshop on "State and Perspectives for Bamboo Value Chain Development in South Asia" organized by INBAR, September, 2014, New Delhi.
- Seminar on "Tourism and Community Development" organised by PHD Chamber of commerce and Industry (PHDCCI) and Uttarakhand Tourism Development Board, September, 2014.
- "2014 Annual Bamboo tour in China", organized by INBAR and supported by TSWT, September, 2014.
- International workshop on "State and Perspectives for Bamboo Value Chain Development in South Asia." organised by INBAR South Asia Regional Office, September, 2014, New Delhi.
- Workshop on "Piloting Ecosystem Management Frame work in Transboundary Landscape", organized by ICIMOD, September, 2014, Kathmandu.
- Workshop on "Loss and Damage in Urban Areas" organised by International Institute for Environment and Development (IIED), October, 2014, New Delhi.
- Workshop on "Climate Change & Adaptation in Rural Areas of India", organised by Ministry of Environment, Forests and Climate Change, GOI and GIZ, October, 2014, New Delhi.
- International Conference on "Mountain People Adapting to Change Solutions Beyond Boundaries Bridging Science, Policy, and Practice" organized by ICIMOD, November, 2014, Kathmandu.
- Workshop on "Development of Heritage Tourism in the Kailash Sacred Landscape", held at Lijiang (China), November, 2014.
- Workshop on "Stakeholder Collaboration Course", organized by GIZ, November, 2014, Siem Reap, Cambodia under KSLCDI.
- Consultation on the Uttarakhand Development Forum, organised by Oxfam, December, 2014, Dehradun.
- Release of Odyssey in Tibet (Chinese language) by Mr. Tarun Vijay at Rashtrapati Bhawan, New Delhi, December, 2014.
- International Mountain Forestry Symposium related to Hindu Kush Himalayas (HKH), organised by ICIMOD, January, 2015, FRI Complex, Dehradun.
- Meeting of Global Philanthropy Circle, organised by Synergos Institute, USA, January, 2015, Mumbai.
- Workshop on "Sustainable Development Goals and Dealing with Climate Change, Delhi Sustainable Development Summit" organised by TERI and supported by Ministry of Environment, Forests and Climate Change, February, 2015, New Delhi.
- Workshop on "Role of Private Sector in Sustainable Ecosystem Goods and Services in India" organised by ICIMOD and FICCI, February, 2015, FICCI House, New Delhi.
- World CSR Day, organised by WCSR, February, 2015, Mumbai.

VISITORS AT CHEA AND ITS EVENTS/ FIELD OPERATIONS 2014-15

- Dr. A. K. Gupta, Director, Wadia Institute of Himalayan Geology, Dehradun.
- Dr. Akhilesh Surjan, Associate Professor, Kyoto University, Japan.
- Mr. Ashok Gurung, Senior Director, India China Institute and Professor of Practice, The New School, New York, USA.
- Ms. Bhawana Luthara, Director Programme and Operations, LEAD, India.
- Mr. C.M. Mohan, Chief General Manager, NABARD, Dehradun.
- Mr. Dinesh Agarwal, Hon'ble Minister for Forest and Environment, Uttarakhand.
- Prof. G. Bala, Indian Institute of Science, Bangalore.
- Mr. Govind Singh Kunjwal, Hon'ble Speaker, Legislative Assembly, Uttarakhand.
- Mr. Indu Kumar Pande, Advisor, Hon'ble Chief Minister, Uttarakhand.
- Mr. Jai Raj, Additional Principal Chief Conservator of Forests (Environment), Uttarakhand.
- Mr. Jean-Christophe Ygré and a group of students, French institutions and universities under Indian network Co-coordinator (France's agricultural education), Animateur Project Moveagri, France.
- Ms. Mauve Letang & Mr. Mohit Kapoor, University of Paris, Naviterre, France.
- Mr. Mihir Bhatt, Senior Advisor of CDKN.
- Mr. N. Ravi Shankar, Chief Secretary, Uttarakhand
- Dr. P. P. Dhyani, Director, GBPIHED, Kosi-katarmal, Almora.
- Prof. Peter Z. Fule, School of Forestry, College of Engineering, Forestry and Natural Science, Northern Arizona University, USA.
- Dr. R.S. Bisht, Chief Conservator of Forests (Kumaun), Uttarakhand.
- Ms. Rati Mishra, The Resource Alliance, India.
- Dr. Satish Garkoti, Professor, School of Environmental Science, Jawahar Lal Nehru (JNU) University, New Delhi.
- Prof. Shekhar Pathak (Padamshree), Editor Pahar, Nainital.
- Mr. Suresh Rayudu, Executive Director, CSR - Aquamall Water Solution Ltd., Dehradun.
- Mr. Tarun Vijay, Hon'ble Member of Parliament (Rajya Sabha).
- Dr. Tripta Garg, SIRO, Department of Science and Technology, New Delhi.
- Ms. Vijaya Velhal, Tata Social Welfare Trust, Mumbai.
- Dr. Youba Sokona, Co Chair, IPCC Working Group III.

Note: The aforesaid list of visitors to CHEA during 2014-15 is in alphabetical order and does not represent any preference while does not includes local administrative officials and public representatives.

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.

1. **Books/ Booklets** - 37 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)

2. **Training manual** - 30 (covering various topics of Appropriate Technologies in Horticulture, Water Conservation and Harvesting, Animal Husbandry, Fodder Development, Irrigation Technologies, Pre and Post Harvesting, Beekeeping etc.)
3. **CHEA Bulletin** Vol. - 1 to 11
4. **Research Papers** - 31 published in various peer reviewed journals and accepted in national and international workshops/ seminars

5. **Event and workshop** reports - 13
6. **Case Studies** on Climate Change Adaptation, rural livelihoods, art handicraft and culture - 15

The aforesaid publications are available on request and details of most of them are available on www.cheaindia.org/publication.php

COUNCIL MEMBERS (2014-15)

Chairman:

Dr. T.S. Papola, Honorary Professor, Institute for Studies in Industrial Development (ISID), New Delhi

Vice Chairman:

Dr. G.L. Shah, Professor, Department of Geography, Kumaun University Nainital*

Hony. Secretary:

Dr. P.D. Pant, Professor, Department of Geology, Kumaun University, Nainital

Jt. Secretary:

Dr. Harshwanti Bisht, Principal, S.D.G.P.G. College, Dehradun*

Dr. Ashish Tewari, Asst. Professor, Department of Forest and Environment Science, Kumaun University, Nainital

Councillor:

Prof. S.P. Singh, FNA, Chair of Excellence, Forest Research institute, Dehradun

Dr. P.P. Dhyani, Director, GBPIHED, Kosi-Katarmal (Almora)

Mr. Sushil Ramola, Social Entrepreneur, Palam Vihar, Gurgaon, Haryana

Mrs. Sonali Bisht, Adviser, Institute of Himalayan Environment Research and Education (INHERE), Uttarakhand

Dr. Subrat Sharma, Scientist, GBPIHED, Kosi-Katarmal, Almora

Mr. Amba Jamir, Director, The Missing Link, Assam/ Nagaland*

Dr. Rajendra S. Koshiyari, Tata Trusts, Dehradun, Uttarakhand

* Upto December 31, 2014.

RESEARCH ADVISORY COMMITTEE

Prof. S.P Singh, FNA, Chair of Excellence, Forest Research Institute, Dehradun.

Prof. R.P Singh, Former Head, Department of Forestry, Kumaun University, Nainital.

Dr. P.P Dhyani, Director, GBPIHED, Kosi-Katarmal, Almora.

Prof. Jeet Ram, Head, Department of Forest and Environment Science, Kumaun University, Nainital.

Prof. P.D. Pant, Department of Geology, Kumaun University, Nainital.

Dr. Ashish Tewari, Asst. Professor, Department of Forest and Environment Science, Kumaun University, Nainital.

Dr. G.C.S. Negi, Scientist 'E', GBPIHED, Kosi - Katarmal, Almora.

Dr. Subrat Sharma, Scientist 'D', GBPIHED, Kosi - Katarmal, Almora.

118 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

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CHEA TEAM

Anil Kanwal
Anil Kumar
Arjun Singh Dhami
Bhawana Joshi
Deepa Upadhyaya
Deewan Singh
Devendra Singh
Dhiraj Joshi
Dhirendra Joshi
G.C. Joshi
Ganesh Lal
Govind Nagarkoti
Ghanshyam Pande
Jagdish Kandpal
Jeevan Singh Chausali
Kavindra Singh Bisht
Kundan Bisht
Mohan Bhatt
Narendra Singh

Naveen Joshi
Neema Rautela
P. S. Nagarkoti
Pallavi Tiwari
Pankaj Tewari, PhD
Pratap Dhaila, PhD
Pushkin Phartiyal, PhD
Rajendra Singh Dhaila
Ram Singh
Ripu Daman Singh
Satish Joshi
Surendra Bhandari
Surbhi Gumbhar
Swati Bisht
Vijay Adhikari
Vikram
Vinita Verma
Yogesh Nagarkoti

Volunteers/Interns

Throughout the year we had pleasure to host volunteers/interns from following institutes:

Cambridge University, United Kingdom.

Delhi University.

Indian Institute of Management (IIM), Kolkata.

Indira Gandhi National Open University (IGNOU), New Delhi.

Kaivalya Education Foundation, Ahmadabad, Gujarat.

Kumaun University, Nainital.

School of Agro International Development (ISTOM), France.

Rural Resource Persons

Agro forestry model and Assistance to Natural Regeneration (ANR) **19**

Alternative energy promotion and infrastructure creation **08**

Apiculture **29**

Appropriate technology transfer (Horticulture) **40**

Art and culture **14**

Bio-gas **02**

Carbon forestry (Field investigators) **07**

Community leaders **50**

Livestock management **12**

Market linkages & entrepreneurs **08**

Nursery development of tree species **06**

Strengthening of the Van Panchayats **30**

Value addition of agro product **11**

Water conservation techniques **10**

DISCLOSURE

Governance

- All the members of the Council (Board) are unrelated to each other by blood and marriage.
- The Executive Director is not related to any member of the Council by blood and marriage.
- Elections to the 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 Council received any remuneration during the year.
- The Council met more than thrice in the last year with the requisite quorum.
- The General Body of the Society approves the Annual Report and the audited statement of accounts.
- Minutes of the meeting of Council and General Body were documented, read out and approved in the subsequent meeting of the Council/General Body 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.

CHEA is authorized to receive foreign contributions as per the Foreign Contribution Regulation Act 1976.

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

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

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

Memorandum of Understanding with G.B. Pant Institute of Himalayan Environment and Development, MoEFCC, GoI, Kosi-Katarmal, Almora for Lab-to-Land approach.

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

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

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



Dr. Pushkin Phartiyal, Executive Director, CHEA receiving Social Innovator Award from Member of Singapore's Parliament Ms. Peeni Lee on the occasion of Global Corporate Social Responsibility Congress in Mumbai.



India NGO Award 2013-14, CHEA finalists in medium category



**CENTRAL
HIMALAYAN
ENVIRONMENT
ASSOCIATION**

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The paper used in printing of this Annual Report is chlorine free. We ensure that the pulp used in the manufacture of paper is derived from environmentally certified forests.

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