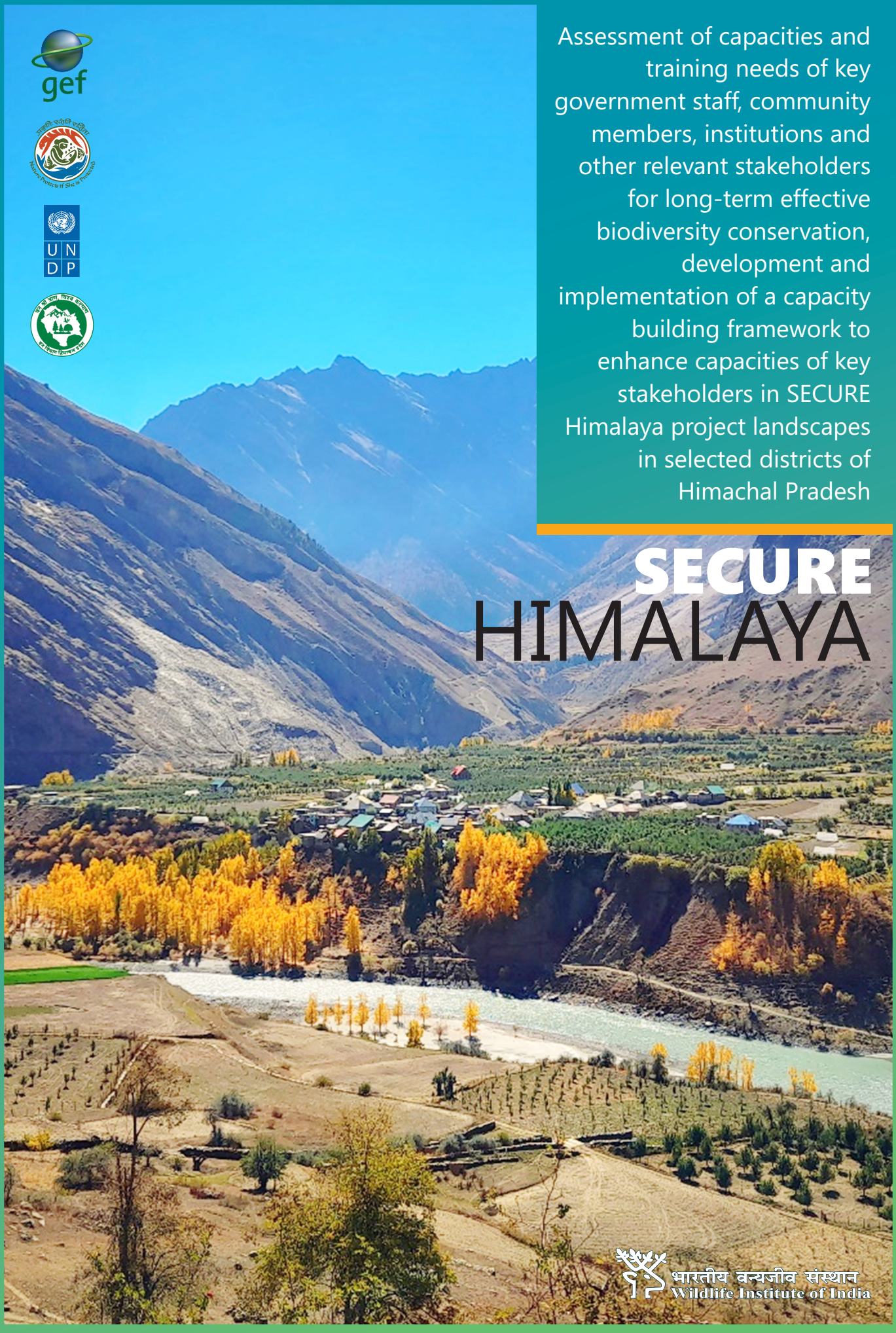
Assessment of capacities and training needs of key government staff, community members, institutions and other relevant stakeholders for long-term effective biodiversity conservation, development and implementation of a capacity building framework to enhance capacities of key stakeholders in SECURE Himalaya project landscapes in selected districts of Himachal Pradesh

SECURE HIMALAYA



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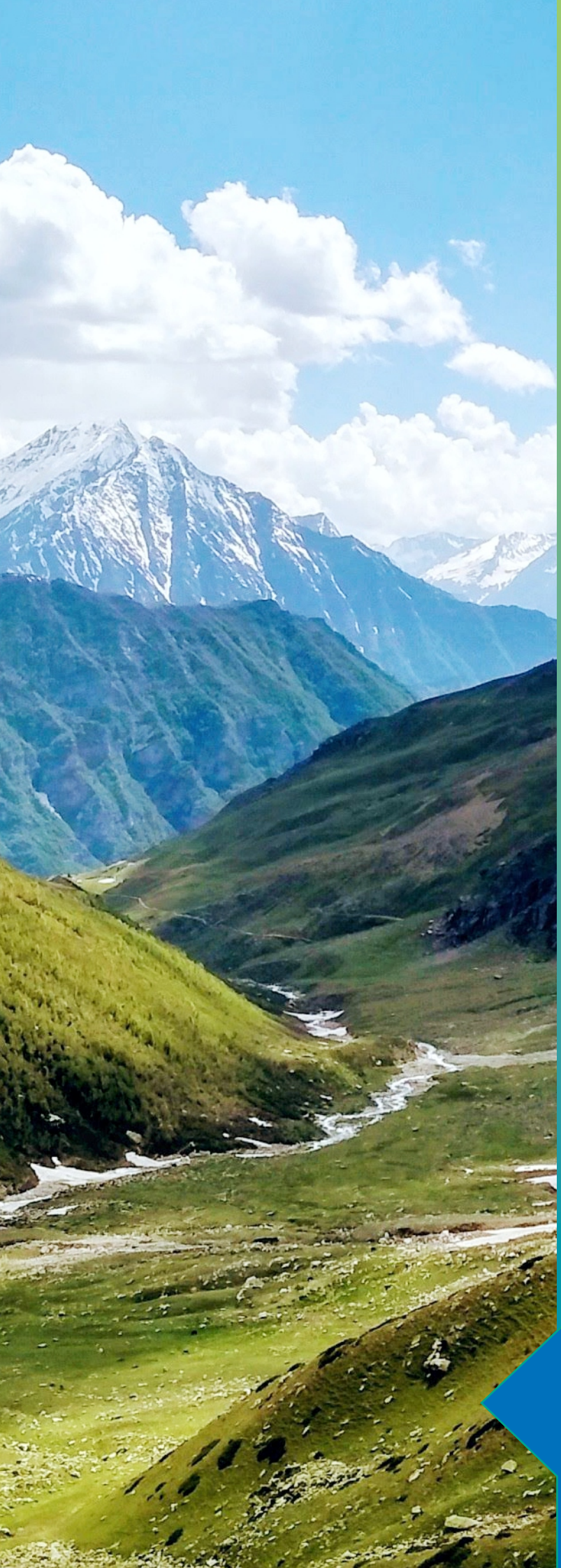

SECURE Himalaya

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भारतीय वन्यजीव संस्थान
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LIST OF ABBREVIATIONS

Sr. No.	Abbreviations	Full forms
1	AVIMAS	Atal Bihari Vajpayee Institute of Mountaineering and Allied Sports
2	AEO	Agriculture Extension Officer
3	BMC	Biodiversity Management Committee
4	BDC	Block Development Council
5	CB	Capacity Building
6	CITES	Convention on International Trade in Endangered Species
7	CMS	Convention on Migratory Species
8	DFO	Divisional Forest Officer
9	FTI	Forest Training Institute
10	FAM	Foot and Mouth
11	GBPNIHED	Govind Ballabh Pant Institute of Himalayan Environment and Development
12	GEF	Global Environmental Fund
13	GHNP	Great Himalayan National Park
14	GOI	Government of India
15	GPS	Global Positioning System
16	HCV	High Conservation Value
17	HEO	Horticulture Extension Officer
18	HPAU	Himachal Pradesh Agriculture University
19	HPSBB	Himachal Pradesh State Biodiversity Board
20	HPSFDC	Himachal Pradesh State Forest Development Corporation
21	IAS	Invasive Alien Species
22	IHBT	Institute of Himalayan Bioresource Technology
23	ITBP	Indo Tibetan Border Police
24	IUCN	International Union for Conservation of Nature
25	IVRI	Indian Veterinary Research Institute
26	MAPs	Medicinal and Aromatic Plants
27	MOEFCC	Ministry of Environment, Forests and Climate Change
28	NGO	Non - Government Organizations.
29	NRM	Natural Resource Management.
30	PBR	People's Biodiversity Register
31	RO	Range Officer
32	SAMETI	State Agricultural Management and Extension Training Institute
33	SOP	Standard Operating Protocol
34	TAC	Tribal Advisory Committee
35	TNA	Training Needs Assessment
36	TOR	Terms of Reference
37	TOT	Training of Trainers
38	UNDP	United Nations Development Program
39	UNFCC	United Nations Framework Convention on Climate Change
40	WII	Wildlife Institute of India


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EXECUTIVE SUMMARY

The SECURE Himalaya project pertaining to the high-altitude Trans-Himalayan region for the improved demand management of high range Himalayan landscapes for the conservation of Snow Leopard, other endangered species, their habitats, and sustaining ecosystem services in a novel initiative aimed at achieving conservation goals through a holistic approach. A major component of the project, titled "Assessment of capacity and training needs of key government staff and community members/institutions for long-term effective biodiversity conservation, and development of a framework for implementation in SECURE Himalaya Project landscapes (Lahaul, Pangi and Kinnaur) of Himachal Pradesh" was undertaken by the Wildlife Institute of India (WII, Dehradun).

This component aims to assess the capacities and training needs of key stakeholders and develop a framework and specific training modules for the targeted stakeholders' capacity development. This report conceptualizes the approach of capacity development through training need assessment of identified stakeholders. It outlines the methods adopted based on consultations with various stakeholders, experts, managers and policy makers. Major gaps documented in the landscape with respect to various stakeholders were identified. Modules and capacity development schedules have been suggested to meet the needs for awareness on biodiversity conservation, enhanced training on wildlife monitoring techniques, interventions for reducing human-wildlife conflict and strengthening enforcement.

We mapped and categorized each stakeholders and their roles in the landscape. A training Need Assessment (TNA) of the target stakeholder through local meetings, workshops and focal as well as instead with the stakeholders documented opportunities for national and state training and research institutions to contribute to the capacity development of the landscape. We prepared detailed and specific training modules for multi-stakeholders through the TNA exercise. Training have been designed to meet the needs concerning their role in long-term biodiversity awareness, conservation, monitoring and enforcement. Hitherto, training modules were categorized into three themes: Biodiversity conservation, Biodiversity monitoring and Sustainable management and livelihood. Pilot training of trainer's workshop on one of the modules, "Human-wildlife conflict mitigation," for relevant stakeholders from the forest and different line departments was undertaken to further refine a capacity development framework, timeline and module development. The capacity development framework suggested in this report has been aligned with the indicators and outcomes of the SECURE Himalaya objectives. It is hoped that the exercise undertaken in this assignment will yield significant results with respect to enhancing the capacities of various stakeholders.


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1 INTRODUCTION

As a part of the SECURE Himalaya project, led by the Government of India, in partnership with United Nations Development Program (UNDP) and support from the Global Environment Facility (GEF), The Wildlife Institute of India (WII) was assigned the task titled 'Assessment of capacity and training needs of key government staff and community members/ institutions for long-term effective biodiversity conservation, and development of a framework for implementation in SECURE Himalaya Project landscapes (Lahaul, Pangi and Kinnaur) of Himachal Pradesh.'

The SECURE Himalaya project is aimed at promoting sustainable management of alpine pastures and forests in the high range Himalayan ecosystems to secure the conservation of globally significant wildlife, including endangered snow leopard and its habitat and ensure sustainable livelihoods and community socio-economic benefit. The Capacity Building component of the project aims to assess key government staff members and community stakeholders' capacity and training needs for long-term biodiversity management.

Capacity building is a process through which individuals, organizations and societies obtain strength and maintain the capabilities to set and achieve their development objectives over time. This assignment aims to carry out TNA for various stakeholders in project landscapes to develop capacity development framework and relevant modules and curriculum on biodiversity conservation, participatory natural resource management, livelihood enhancement, and others.

It is indicated that various state training agencies/ institutes will incorporate these modules and impart training for meeting relevant capacity shortfalls. The deliverables will assist in achieving the output "Capacity development for key government staff, and community members for effective long-term conservation of biodiversity developed and implemented" under outcome "Improved management of high range Himalayan landscapes for the conservation of snow leopard and other endangered species and their habitats and sustaining ecosystem services."

1.1 Objectives

The main aim of the assignment was to identify capacity gaps and training needs of key government stakeholders and present a needs-based training strategy that will ensure effective program implementation. By developing the capacity of target stakeholders, training packages will effectively promote the long-term sustainability of SECURE project initiatives.

Specific objectives of the assignment are as follows:

i. To assess the capacities and training needs of key stakeholders for long-term biodiversity conservation, livelihood enhancement and natural resource management.

ii. To develop a framework and strategies for capacity development of the target stakeholders.

iii. Understanding gaps and training needs to develop a framework for various modules towards important sectors/stakeholders.

iv. To validate UNDP Capacity Development Scorecard and conduct pilot training program in each of the landscapes.

1.2 Scope of work

To achieve the project objectives, the following probable steps and deliverables were envisaged to be undertaken in this regard:

i. Assessment of current capacities of government agencies and community institutions

ii. Collection of primary and secondary information regarding existing capacity building activities for the stakeholders

iii. TNA of multi-stakeholders involved in contributing to the outcome of the project.

iv. Capacity development strategy and framework for multi-stakeholders

v. Identification of specialized training institutions for the implementation of the strategies



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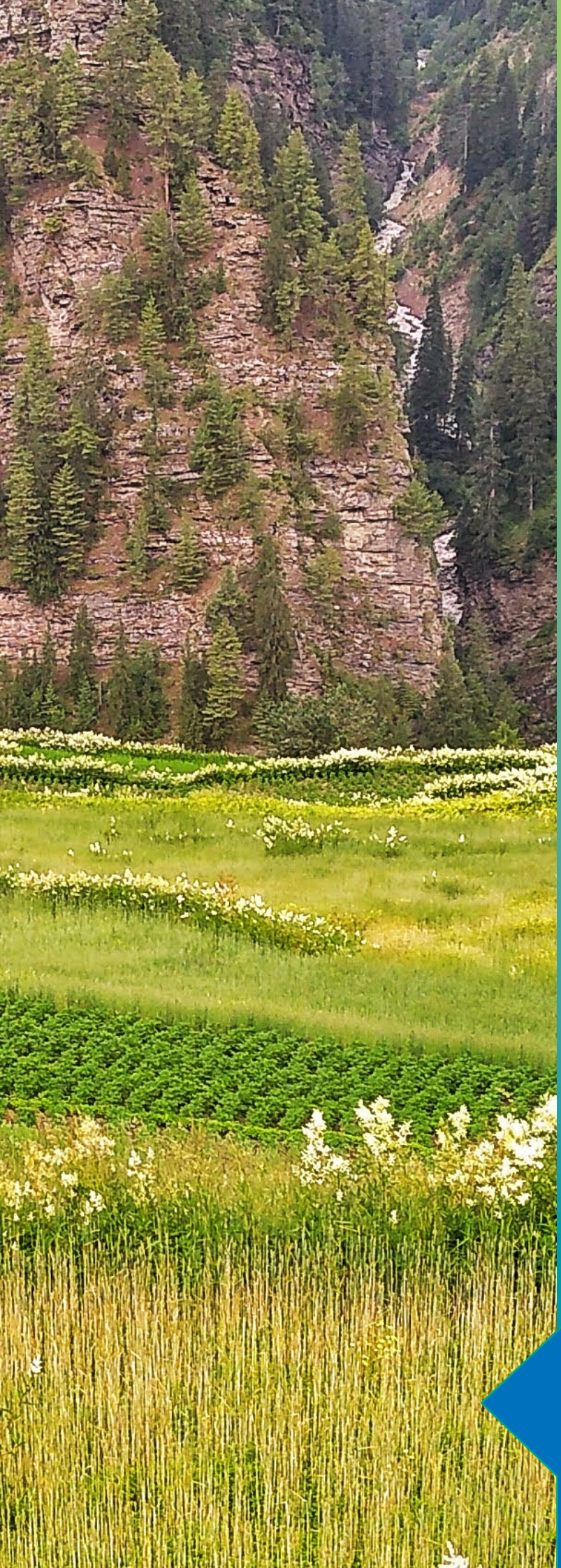

2
STUDY LANDSCAPE

2.1 Geographic and Biological features of the landscape

The Lahaul Pangi Landscape is bordered by Jammu and Kashmir on the north, Punjab on the west, Haryana on the southwest, Uttarakhand on the southeast, and Tibet, Autonomous Region of China in the east (Figure 1). The entire region of Himachal Pradesh is hilly, with an altitude ranging from 350 meters to 7000 meters above sea level. Lahaul-Pangi landscape forms the upper catchment of Chandrabhaga (Chenab) river and is flanked by the Pir Panjal and Greater Himalayas in the south and north, respectively. The mean elevation ranges from 3,000 – 5,500 m. The landscape area harbors scattered sub-alpine conifer forests dominated by *Juniperus semi-globosa*, *Pinus wallichiana*, *Cedrus deodara and Betula utilis*. Alpine dry and moist scrub and Alpine mixed pastures also occur in the landscape. The snow leopard, brown bear, Asiatic black bear, blue sheep, Himalayan ibex, Himalayan tahr and Himalayan musk deer are the characteristic mammalian fauna. The higher altitudes of Kinnaur district, especially the alpine areas adjacent to Spiti and Raksham Chitkul represent important wildlife habitat, bio-corridors and junctions of biogeographic provinces will be included in the baseline monitoring, conservation awareness and community-based monitoring activities.

2.2 Socio-Economic features of the landscape

The target landscape areas include state-owned and managed protected areas and reserved forests and community agricultural and grazing lands, etc. Heavy livestock grazing by local pastoralists (Pangwals) and migratory pastoralists (*Gaddi*), excessive collection of high-value medicinal plants, and human-wildlife conflicts, especially crop-raiding by Asiatic black bear are serious problems. The rugged terrain, small and under-developed markets, poor connectivity and inadequate general infrastructure are compounded by limited capacities and skills and governance deficits entailing a high cost of public services delivery, thereby acting as a constraint for improving the livelihoods of local communities. Business approaches and opportunities to enhance and mobilize funds (tourism, sustainable hunting, production of local crafts, catering, etc.) in a more systematic manner that would enhance local revenues are limited. All these factors act as barriers to developing sustainable alternative livelihood options for local communities, thereby making them further dependent on natural resources.



ToT meeting at Khanjar Village
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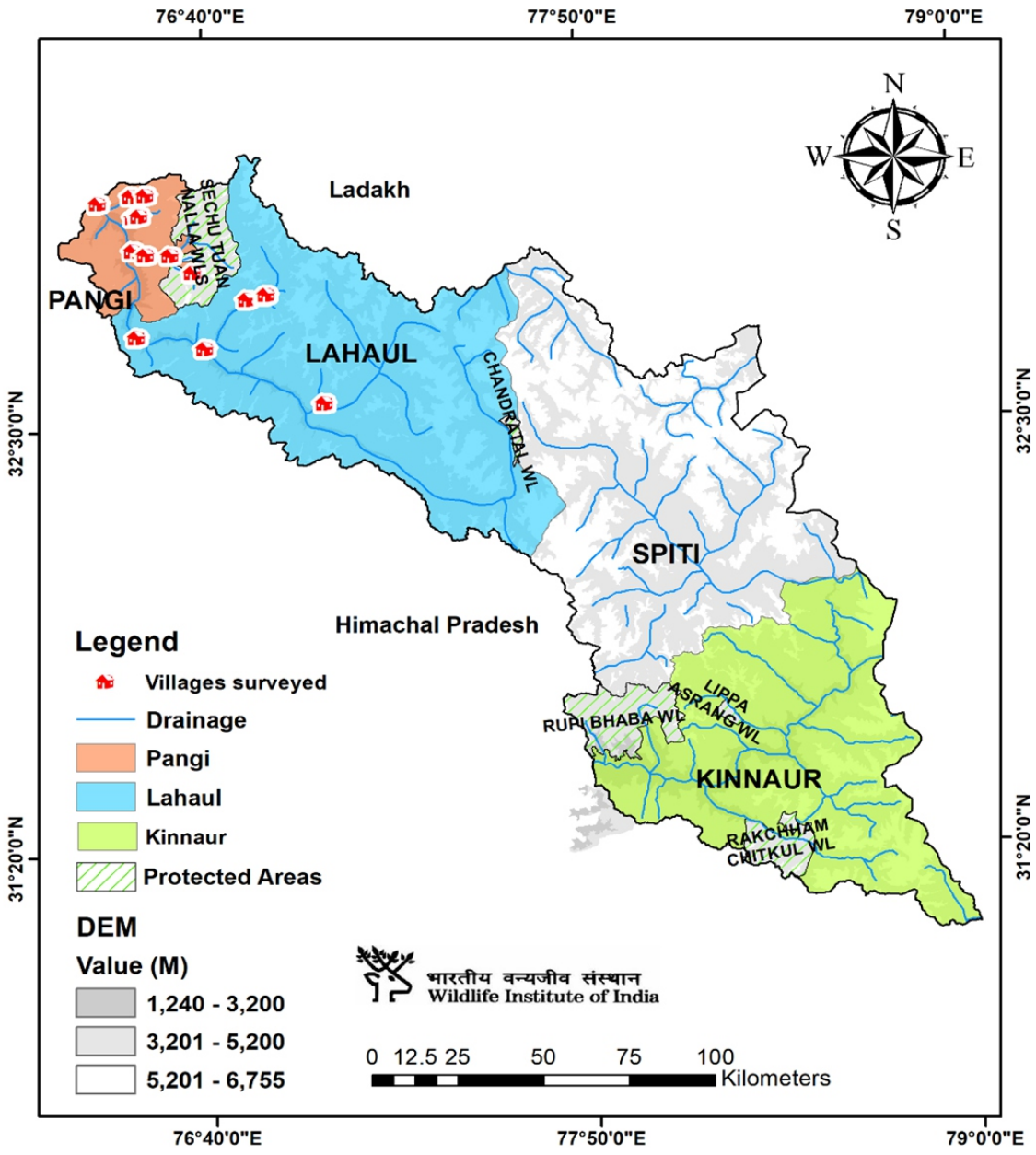

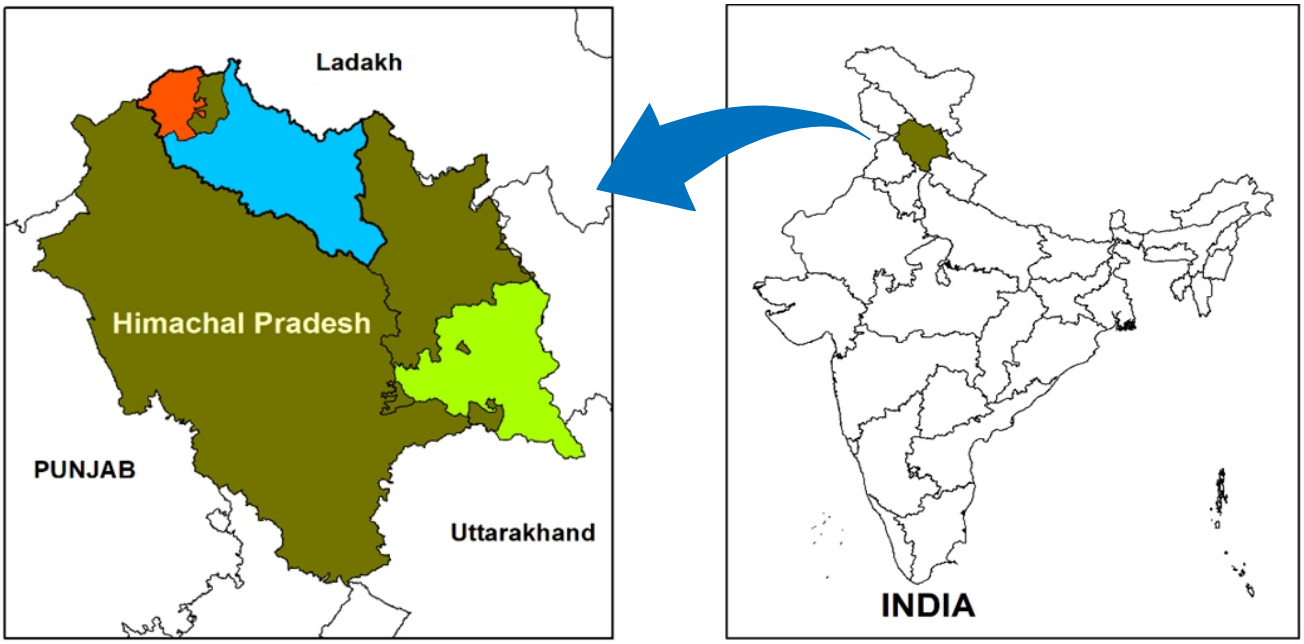

Figure 1: Map of study area illustrating the villages visited in the landscape



Consultative workshop with stakeholders at Lahaul

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3
METHODOLOGY

The capacity assessment in 7 villages of the Lahaul (Udaipur, Urgos, Keylong, Shoukto, Khanjar, Kuthal and Bhujund) and 10 villages of Pangi (Chasak Bhatori, Purthi, Killar, Karyas, Sural Bhatori, Dharwas, Hudan Bhatori, Sach, Sechu and Moji) districts were carried out. The villages were selected based on the aim to ensure balanced coverage of each landscape and cover areas with various ecological features and geography. The availability of key stakeholders for district and regional level consultation was taken into consideration. Table 1 presents the key points of the interactions that were undertaken as part of the assessment. Table 2 presents the distribution of respondents various sectors. The methodological framework and procedural flow chart used for this assessment outlines various obejctives and the tasks associated with them (Fig 2 – 3).

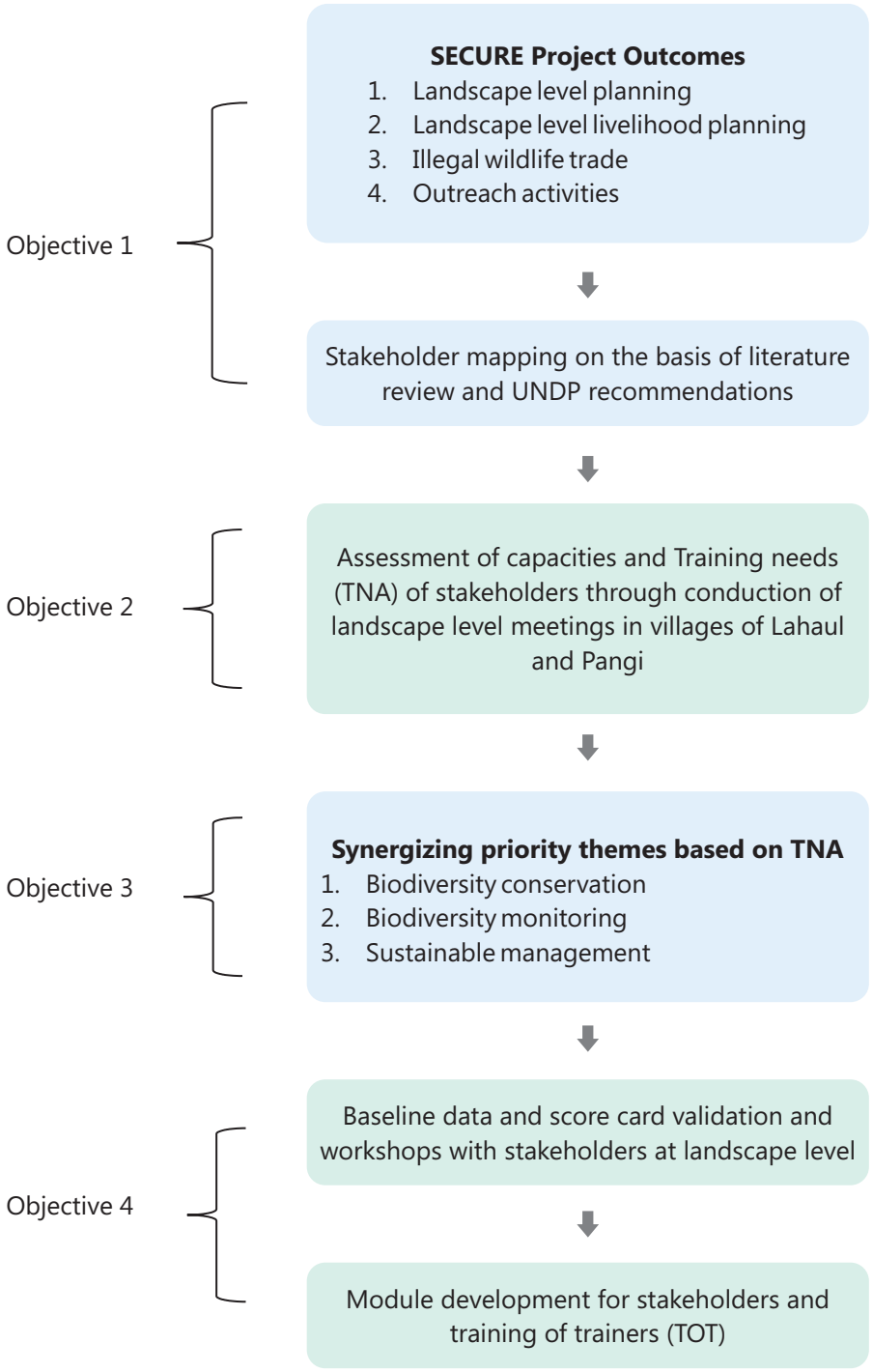

Figure 2: Methodological framework of the capacity assessment of stakeholders

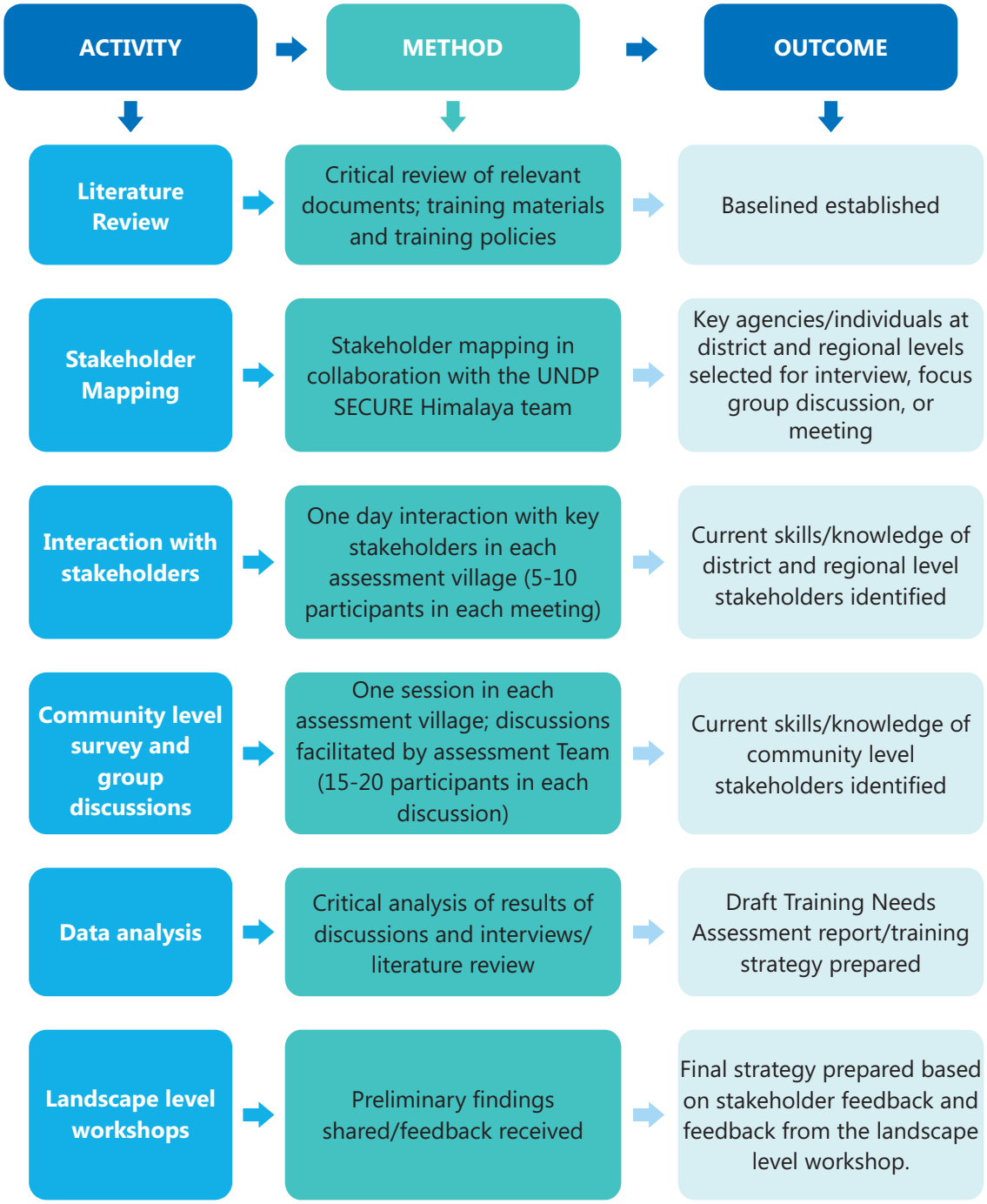

Figure 3 : Procedural flow chart for training need assessment of the stakeholders

3.1 Objective 1: Mapping of Stakeholders

Stakeholder mapping is a collaborative process of research and discussion that draws from multiple perspectives to determine a key list of stakeholders across the entire spectrum. Mapping of stakeholders was undertaken in the following four steps:

1) ***Identifying:*** Multiple stakeholders in the SECURE landscape identified and listed based on stakeholder involvement plan (SIP) prepared by UNDP and field surveys conducted by the team. During the survey, all the state (forest, wildlife, agriculture, horticulture, district administration, animal husbandry, police, judicial, tourism, state medicinal plant board and education department) and local (CBOs, NGOs, religious institutions, women groups) agencies associated with SECURE objectives and outcomes were visited and listed as per their roles and responsibilities in the project.

2) ***Analysing:*** The second step involved understanding the responsibilities, perspectives and interests of the identified stakeholders towards SECURE project outcomes.

3) ***Mapping:*** This step was adopted to visualize stakeholders' relationship with SECURE objectives and coordination with other stakeholders.

4) ***Prioritizing:*** The last step involved ranking relevant stakeholders and identifying challenges and issues they faced to accomplish their responsibilities.

The stakeholders were mapped from different agencies and categorized based on their involvement in the SECURE project's outcomes in the Lahaul-Pangi landscape(Figure 4).

District level stakeholders (Policy level)

District level professionals are responsible for making decisions that can bring changes at ground level. The major stakeholders under this category include:

1. PCCF and Chief conservator of forests (CCFs)
2. Senior forest officers
3. Directors and HODs of key training institutes (HPSBB, SMPB, etc.)
4. HODs and secretaries from Agriculture, Horticulture, Animal Husbandry, Veterinary, Rural development, Revenue, Tourism, Irrigation, Health, tribal welfare and Education department.

Mid-level professionals

Mid-level professionals are vital elements in ensuring effective implementation of policies, rules and regulations as they act as a bridge between the policymakers and field-staff. The major stakeholders under this category include:

1. Divisional Forest Officers (DFOs)
2. Field Directors (FDs)
3. District Collectors (DCs)
4. Technical officers, Sub Divisional Soil Conservation Officer, Plant Protection Officer, Subject Matter Specialist, Soil testing officer from the department of agriculture
5. Middle supervisory, technical officers, Subject Matter Specialist, Fruit Technologist, Bee Keeping Development Officer, Mushroom Development Officer, Assistant Floriculturist from the department of horticulture
6. Officers and staff veterinarians
7. District planning officers
8. Local prominent NGOs (Lahaul Spiti Pariyavaran Suraksha Samiti, Salgran, Lahaul)
9. Officials of the Police department

Frontline staff professionals

The frontline staff is responsible for executing the programs at the ground level and interacting with the public, local communities and other stakeholders. The major stakeholders under this category are as follows:

1. Range Forest Officers (RFOs)
2. Deputy Range Officers (DROs)
3. Block Officers (BOs)
4. Foresters and Beat forest guards
5. Block development officers
6. Block-level officers of Agriculture (AEOs, ADOs), Horticulture (HEOs, HDOs), Animal Husbandry, Veterinary, Rural development, Revenue, Tourism, Irrigation, Health, tribal welfare and Education department.
7. Representatives of Community-based organizations (Sarpanch, Village Pradhan, Praja mandal, Mahila mandal, Yuva mandal)
8. Representatives of religious and cultural groups (Young Drukpa Association, Lahaul)
9. Local farmers and Homestay owners
10. Pastoralist groups (*Gaddis* in Lahaul and Pangi)

Biodiversity monitoring and conservation approach will require development of human capacities for different stakeholders. For the purpose of capacity building, the stakeholders have been categorized into three levels viz. policy level, implementation level and execution level.

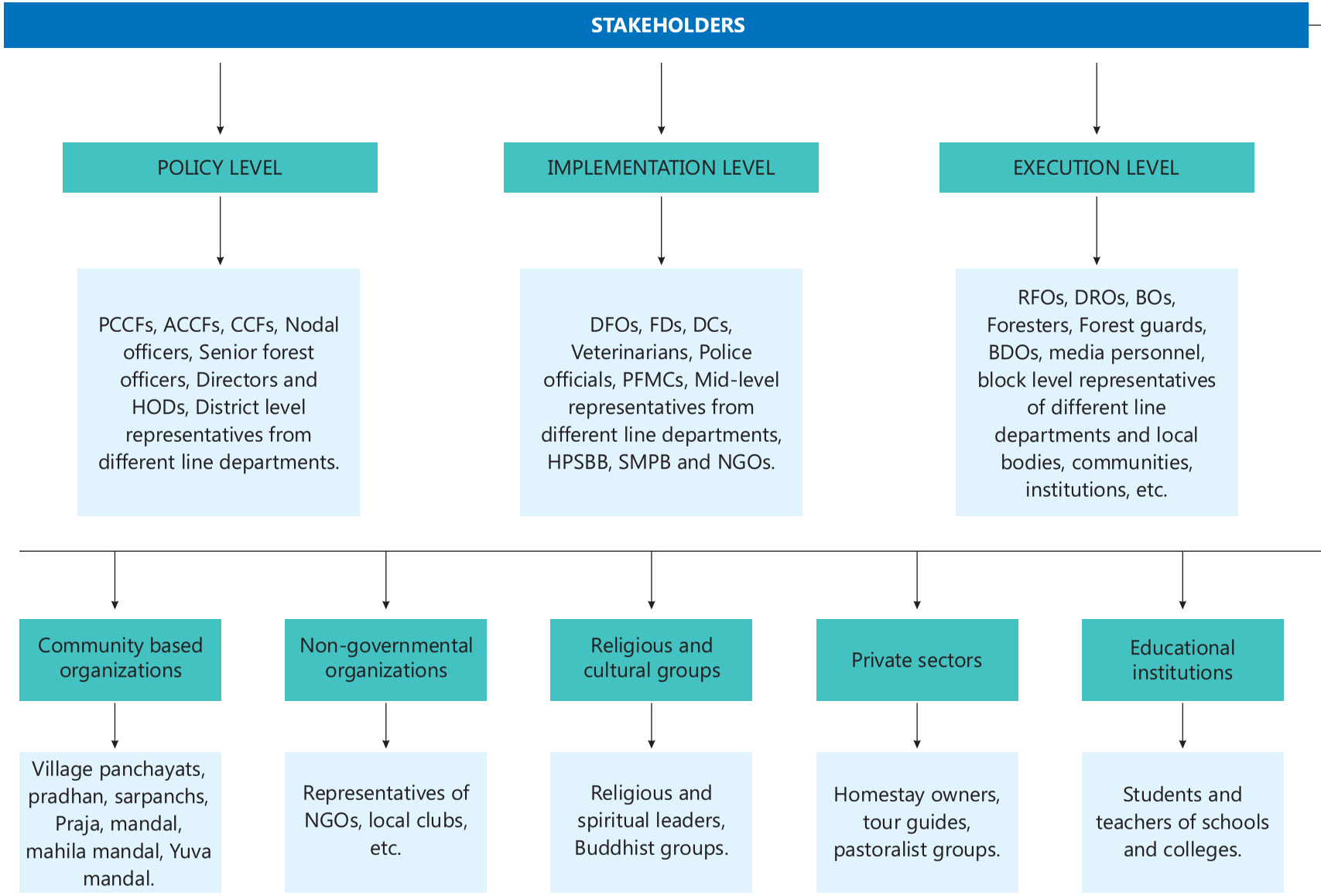

Figure 4: Hierarchical and sectoral categorization of identified stakeholders in Lahaul-Pangi landscape

3.2 Objective 2: To develop a framework and strategies for capacity development of the target stakeholders.

The need for integrating various stakeholders for the achievement of SECURE outcomes is paramount in the current landscape. From the aforementioned methods and mapping, the current approach attempts to collate information on various stakeholders in the landscape. As stated earlier that the major outcomes of the SECURE project are related primarily towards landscape level planning, livelihood, conservation, extraction and extension or outreach. The flow of a framework thus identifies various stakeholders in terms of their linkages to each or many outcomes. The step will be followed by profiling of the stakeholders, identifying their gaps and their strengths. These are linked to the landscape threats and needs. Finally, each capacity development framework is a vertical and horizontal integrative process which targets keys messengers or trainers through specific training modules via diverse and effective delivery mechanisms (Figure 5). Analysis of the approaches (policies and strategies) dealing with the respective sector, existence of the principles of sustainability of Natural Resources in the existing programs, capacities of integrating sustainability (as a parent of conservation) in the plans and protocols of the sector has been done (Figure 6).

Methods:

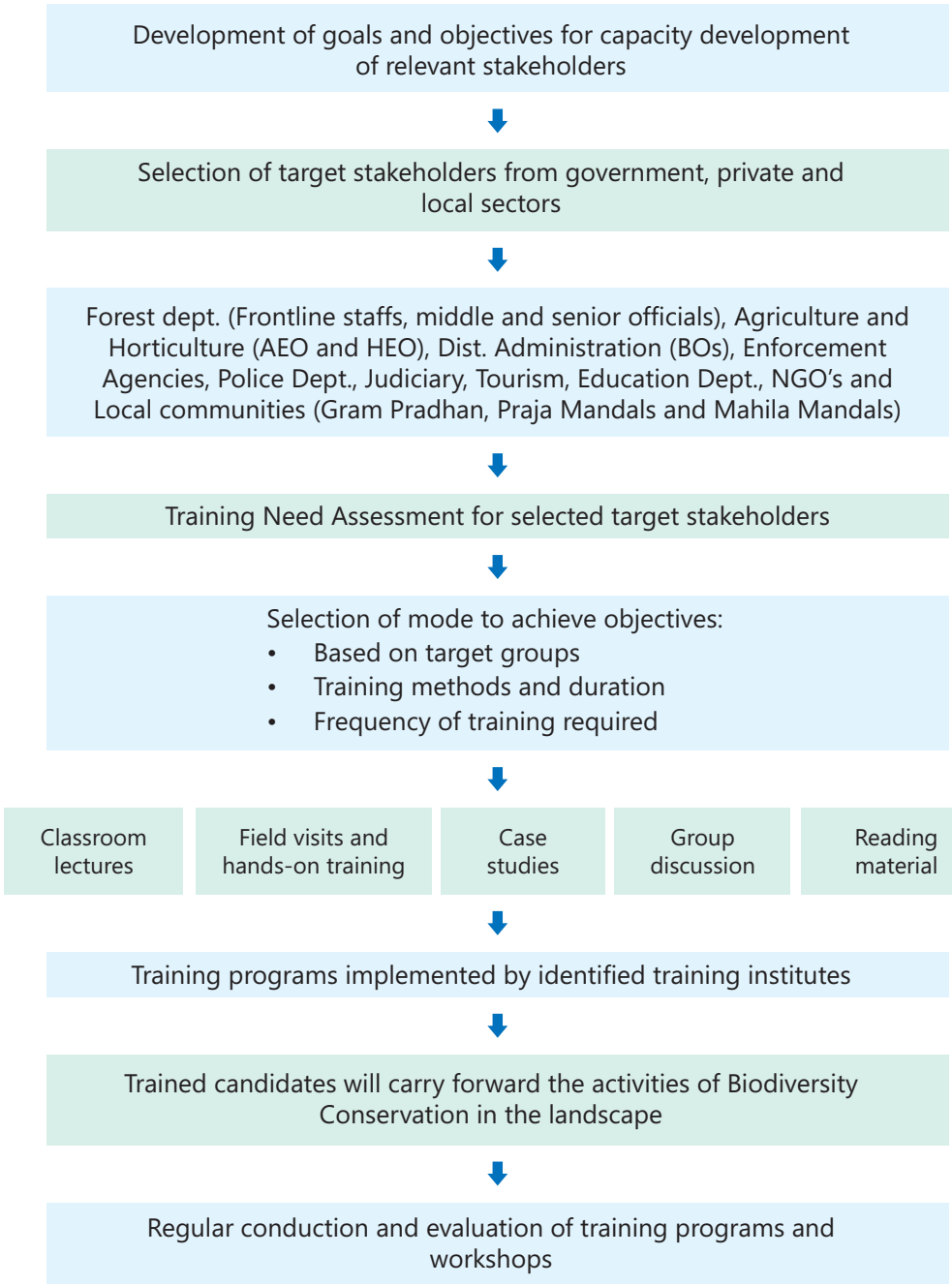

Figure 5: Framework and strategies for capacity development of the target stakeholders

OUTCOMES	STRATEGIES
Outcome 1 Improved management of high range Himalayan landscapes for conservation of Snow Leopard and other endangered species and their habitats and sustaining ecosystem services	1. Identify, assess and engage relevant stakeholders in Lahaul and Pangi Landscape for the wildlife conservation 2. Generate awareness and skills to manage landscapes in terms of an integrated landscape management approach in Lahaul and Pangi 3. Identify trainers such as organization and experts for imparting such management skills
Outcome 2 Improved and diversified livelihood strategies and improved capacities of community and government institutions for sustainable natural resource management and conservation	1. Identify, assess and engage relevant stakeholders that have linkages with natural resource conservation 2. Identify diversification options and enhancement options in terms of sustainable possibilities of current technologies through gap analysis. 3. Align vision and mandate of such organizations with secure outcomes. 4. Generate awareness and skills with respect to adopting available technologies, processes and lifestyles improves and diversified livelihoods
Outcome 3 Enhanced enforcement, monitoring and cooperation to reduce wildlife crime and related threats	1. Engage stakeholders identified in Outcome 1 through awareness and knowledge sharing. 2. Enhance capacities in terms of relevant aspects of enforcement related to wildlife values and their safeguarding in the Lahaul-Pangi Landscape.
Outcome 4 Effective knowledge management and information systems established for promotion of sustainable management practices in the High range Himalayan-ecosystems	1. Link components and assignments under the landscape of Lahaul and Pangi 2. Align plans and desired outcomes of existing departments and their mandates and promote usage of relevant modules through easy access of knowledge products

Figure 6:
Capacity development strategies concerning SECURE outcomes

3.3 Objective 3: Understanding gaps and training needs to develop a framework for various modules towards important sectors/stakeholders.

Methods:

i. Training Need Assessment (TNA): Training Needs Assessment is the method of determining if a training need exists and, what training is required to fill the gap. TNA seeks to accurately identify the present situation's levels through the target surveys, interviews, observation, secondary data, and workshop. The gap between the present status and desired status indicates the problems that in turn can be translated into a training need. TNA of the target stakeholders was done through meetings, questionnaires, workshops and focal discussions with the stakeholders (Annexure 2-4). The meetings were conducted involving more than 20 participants from each village and stakeholders from the forest and other line departments.

The process of TNA was divided into following steps:

Identifying the problem needs: Realizing the policy direction of the organization, performance analysis/gap analysis conducted to look at an official's current working performance and knowledge and identify whether an official is performing as desired, based on the stated roles and responsibilities.

Determine the design of need analysis: The second step in TNA is to determine the following: i) target groups to be trained (stakeholders of government and local agencies) ii) interviewees (staff of forest and line departments, local communities, Praja and Mahila mandals); iii) survey methods; iv) survey plan. These items become the basis for a training course to either create a new training course, identify an existing one that can fulfill the need, or obtain one externally.

Data collection: The third step is to collect data through i) reviewing documents on existing training (secondary data and information) and ii) surveying through interviews and observation at work. A field visit was conducted by the WII team from June 2019 to August 2019 in both Lahaul and Pangi's landscapes. During the period, preliminary data were collected on the target stakeholders' capacity gaps and identified the training needs on respective gaps. The team visited a total of 17 villages in both the landscape of Lahaul and Pangi. The team conducted Village level meetings and workshops in all the seven villages in Lahaul and ten villages of Pangi (Annexure 5).

These social surveys comprised administering 117 questionnaires in Lahaul and 139 in the surveyed villages of Pangi (Table 1). Focus Group Discussions were organized for all the surveyed villages in Pangi to gauge community perception. In Lahaul - Pangi, a total of 32 semi-structured interviews were recorded.

Table 1: Number of respondent and type of interaction in villages sample villages

S. No.	Villages	Key informant interviews	Focal group discussions	Interaction workshops
Lahaul				
1	Udaipur	30	2	1
2	Urgos	14	1	
3	Keylong	20	1	1
4	Shoukto	10	1	
5	Khanjar	15	1	1
6	Kuthal, Tindi	16	1	1
7	Bhujund, Tindi	12	1	1
	Total	**117**	**8**	**5**
Pangi				
1	Chasak Bhatori	12	1	1
2	Purthi	15	1	1
3	Killar	34	2	1
4	Karyas	10	1	
5	Sural Bhatori	8	1	1
6	Dharwas	10	1	1
7	Hudan Bhatori	10	1	
8	Sach	12	1	1
9	Sechu	18	1	1
10	Moji	10	1	1
	Total	**139**	**11**	**5**

Table 2: Number of respondent and type of interaction in different sectors

S. No.	Villages	Key informant interviews	Focal group discussions
Lahaul			
1	Forest department	12	3
2	Agriculture department	5	1
3	Horticulture department	4	1
4	Animal husbandry and veterinary department	3	1
5	Police department	3	
6	District administration	5	1
7	Community based organizations	25	5
8	NGO	3	
9	Pastoralist groups	9	1
10	Religious groups	5	1
	Total	**74**	**14**
Pangi			
1	Forest department	14	3
2	Agriculture department	3	1
3	Horticulture department	3	1
4	Animal husbandry and veterinary department	4	1
5	Police department	2	
6	District administration	4	
7	Community based organizations	22	4
8	NGO	3	
9	Pastoralist groups	7	1
10	Religious groups	4	
	Total	**66**	**11**

ii. Identification of Gaps: We identified gaps in technical management and social skills, conservation awareness and capacities, and leadership skills of the above stakeholders. The assessment of government agencies, relevant stakeholders, their responsibilities, and current status in the landscape led to identifying the target stakeholders' capacity gaps from different sectors. Major gaps in the landscapes were identified based on information collected from primary and secondary sources. The stakeholders were categorized and linked with the gaps, and their capacities were assessed accordingly. These gaps were identified from various desktop studies and consultations on a preliminary basis of the landscape.

iii. Mapping of training and research institutes: To fulfill the stakeholders' capacity gaps, various training/research institutes and agencies were visited with close associations with human resource development in such aspects. A total of 10 training institutes were identified in various themes such as biodiversity conservation, biodiversity monitoring and sustainable management of natural resources, which have relevant expertise in the field domain (Table 3). Meetings were conducted with these institutes' representatives (Annexure 6) from 10th May 2019 till 30th May 2019. We generated the information on the agency profile, vision, mandate, training program conducted regularly, target stakeholders, and estimated budget details for the exercise. Based on this information, a list of essential and indicative agencies is tabulated to establish linkages to current capacities and training needs.

iv. Drafting training modules: After assessing target stakeholders' capacities and identifying training needs, theteam suggested modifications in the existing training modules and curricula. To address the capacity gaps, six different modules to for different stakeholders were designed. The major issues of concern flagged from interactions with the multiple stakeholders were considered for example'handling of rising human-wildlife conflict

situations'; 'awareness regarding ill-effects of over-exploitation of the landscape biodiversity; appreciation, protection and monitoring of different wildlife species', 'disease management and handling of wild animals in emergencies'; 'increase in illegal trade activities and identification of the trade routes for the conservation of the rich natural resources of the landscape'. Based on such needs, the team formulated four different modules synergized into three priority theme categories *viz* Biodiversity conservation, Biodiversity Monitoring and Sustainable Management & Livelihood. Each module has been comprised of with objectives, targeted stakeholders, specifically designed course content and its expected outcomes. The course content was organized into a time frame of 3-4 days with a specific allotted time for each topic. Each topic's delivery mode is mentioned and includes- classroom lectures, field visits and demonstrations, hands-on training, group discussions, exposure visits and documentaries. Group discussions were put as an everyday exercise to give the stakeholders enough space and opportunity to put their perspectives across. Exposure visits and hands-on training have been given more priority so that the target stakeholders can enhance greater understanding for innovative approach and relate to real world scenarios.



Discussion with stakeholders during workshop.
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Table 3: Mapping of training and research institutes to meet the training needs of the stakeholders

S.No.	Training Institutions	Vision and mandate of the institution	Existing training programs	Training cost (indicative)	Contact details
1.	Himachal Pradesh State Biodiversity Board (HPSBB)	• To conserve and sustainably use biological diversity of the state. • To respect and protect the knowledge of local communities related to biodiversity. • To secure sharing of benefits with local people as conserve biological resources and holders of knowledge and information.	• Formation and maintenance of Biodiversity Management Committees (BMCs) • Preparation of People's Biodiversity Registers (PBRs). • Basic plant taxonomy • Interpretation techniques for youth	Approx. INR 2000 per participant per day, including travel, lodging and food facilities.	Ms. Priyanka Sharma, Sr. Scientific Assistant cba_ps@yahoo.com Ph. No. - 9418134944
2.	Indian Veterinary Research Institute (IVRI), Palampur/Bareilly	• Harness veterinary and animal science research and education for sustainable growth in the livestock sector to ensure food and income security. • Research and Development in veterinary and animal science to promote livestock and poultry health and production.	• Prevention and control of animal diseases • Hands-on training on production and standardization of vaccines • Advances in livestock management technologies.	Approx. INR 1200 per participant per day for registration. (Travel and lodging facilities not included).	Dr. G. Mal, Station Incharge and Principle Scientist, IVRI, Palampur Gorakh14@yahoo.com Ph. no.- 0184230526
3.	Himachal Consultancy Organization Limited (HIMCON)	• To provide the technical, managerial and financial consultancy to the government departments and entrepreneurs. • To play a major role in Skill India Initiative of the Govt of India.	• Development Programmes and Skill Development Trainings in various Modern and traditional trades (Fruit Processing, Food Processing, Fast Food Operations, Tourism and Allied activities).		himcon77@rediffmail.com Ph. no.- 0177-2627537, 2629488,2629799
4.	Atal Bihari Vajpayee Institute of Mountaineering and Allied Sports (ABVIMAS)	• Endeavour to be role models for those around us and hope that our travels contribute to awareness and change needed for reducing the impact of future tourism.	• Provide trainings on eco-tourism, agro-tourism, nature tourism etc.		Director, ABVIMAS abvimasmanali@gmail.com dmas_manali@yahoo.com Training Branch Ph. no.- 01902-255316

S.No.	Training Institutions	Vision and mandate of the institution	Existing training programs	Training cost (indicative)	Contact details
5.	Wildlife Institute of India (WII), Dehradun	• To nurture the development of wildlife science and promote its application in conservation, in consonants with our cultural and socio-economic milieu. • Build up scientific knowledge on wildlife resources.	• Train personnel at various levels for conservation and management of wildlife. • Provide information and advice on specific wildlife management problems.		wii@wii.gov.in https://wii.gov.in
6.	State Agricultural Management and Extension Training Institute (SAMETI), Shimla	• The institute is associated in developmental programmes of rural areas for last 50 years and continues to spread its rays of knowledge and experience through trainings in agriculture management and extension services.	• Training on market led extension • Training on climate change and agriculture. • Training on developing HRD skills • Training on extension management skills		Dr. Jarnail Singh, Training Officer himsameti@gmail.com Ph.no.- 94185-72034
7.	Himachal Pradesh Agriculture University (HPAU), CSKHPKV, Palmpur	• To coordinate, plan, execute and monitor various extension education programmes for the benefit of field officers in these fields so as to update their knowledge.	• Trainings to farmers, farm women, orchardists, animal keepers etc. on various aspects of agriculture as well as vocational training on agriculture-based occupations. • Referral services in the fields of soil, plant and animal health. • Publish farm literature, prepare audio and video cassettes and ensure their sale/distribution among stake holders.	Approx. INR 1000 per participant per day including travel, lodging and food facilities.	Director of Research, CSKHPKV, Palampur, dr@hillagric.ac.in Ph.no.- 01895- 230406, Dr. Surendra Kumar Thakur, Programme Coordinator CSKHPKV, Kukumseri (Lahaul-Spiti)
8.	Forest Training Institute (FTI), Sundernagar	• FTI and RC conducts training Induction as well as In-service training of Forest Personnel.	• Training on Biodiversity Conservation and Wildlife Management including the control of poaching and		

S.No.	Training Institutions	Vision and mandate of the institution	Existing training programs	Training cost (indicative)	Contact details
			prosecution of offenders (rules and laws) • Training on Wildlife Monitoring and Forest Surveying Techniques including basics of GPS, group patrolling and strengthening of communication networks within forest areas. • Capacity Building on Forest Protection- effects, extents and regulations of Grazing rules, soil erosion and watershed management • Capacity Building on Rural Development through community forestry, alternative sources of income through Eco-tourism, role of men and women in forestry and role of women in effective management of forest resources		
9.	G.B Pant National Institute of Himalayan Environment and Sustainable Development (GBPNIHED), Kullu	• Undertake in-depth research and development studies on environmental problems of the Indian Himalayan Region (IHR).	• Capacity building of local inhabitants through promotion of ecotourism and trainings on hill-specific low-cost technologies. • Livelihood and Natural Resource Management of Rural Communities focussing on community Forestry and traditional knowledge of local people.	Approx. INR 2000 per participant per month for training (Travel and lodging facilities are not included).	Dr. Kishor Kothari, kishorkkothari5@gmail.com Research and Development Ph. no.- 7831018384

S.No.	Training Institutions	Vision and mandate of the institution	Existing training programs	Training cost (indicative)	Contact details
			• Training on Approved Rural Technologies for Livelihood Enhancement like water conservation, Integrated Fisheries Management and Apiculture by people's participation. • Women's Participation for Biodiversity Conservation.		
10.	H.P. Institute of Public Administration (HIPA), Shimla	• To ensure a state of art facilities for capacity building of employees of the state government through training, in periodic and planned manner.	• Stakeholder engagements in managing Natural Resources • Participatory Tools for Stakeholder Analysis • PRA exercise -overview and practical session • Livelihood options through NRM • Disaster Management for managing Natural Resources • Land and Water Management (low-cost technology adoption) • Integration of NRM based activities,NRLM-Concept, Objectives and Need • Participatory identification of poor (PIP/PPA) • Concept of Village Organization		Dr. Rajeev Bansal, Jt. Director (Taining and research) rajeev.bansal@nic.in Ph. no. - 94180-14610

3.4 Objective 4: To Validate UNDP Capacity Development Scorecard and conduct pilot training (Training for Trainers) program in each of the landscapes.

Methods:

i. Sharing workshops: Two district-level sharing workshops were conducted in Lahaul and Pangi's landscapes with all stakeholder groups to finalize the draft capacity development strategy and framework of the project landscapes and validate the prepared framework of training modules. The team organized a workshop in Pangi and Lahaul's landscapes on 24 – 25th September and 11th October 2019, respectively. A total of 70 participants, including stakeholders from the forest and different line departments and the local community, actively participated in the workshop. The workshop's primary aim was to validate our learning and finalize the strategy and framework for capacity building, modules and curriculum.

ii. Validation of baseline data and monitoring indicators: The UNDP capacity development scorecard and baseline information regarding the current knowledge and understanding as per the stakeholders' roles and responsibilities were validated through the landscape workshops. A set of indicators identified to measure capacity development activities' contribution toward the achievements of expected environmental outputs and outcomes. The scorecard presents descriptive sentences for each capacity development indicator with four numerical ratings (0 to 3). Using a scorecard approach, the ratings were validated with the stakeholders through landscape-level workshops, discussions and meetings

Capacity development indicator: Degree of environmental awareness of stakeholders. This indicator measures stakeholder's awareness of global environmental issues and the extent to which they participate in the development and implementation of solutions. Scorecard rating:

- 0 Stakeholders are not aware of global environmental issues and their related possible solutions
- 1 Stakeholders are aware of global environmental issues but not of the possible solutions
- 2 Stakeholders are aware of global environmental issues and the possible solutions but do not know how to participate
- 3 Stakeholders are aware of global environmental issues and are actively participating in the implementation of related solutions

iii. Training of Trainers: A two-day pilot training workshop for about 40 trainees across different hierarchical levels of the organizations on the training module "Human-wildlife conflict mitigation and monitoring' was conducted in the Lahaul landscape on 6th and 7th November 2020. Participants in the workshop included divisional forest officer, range officers and forest guards from forest department; HODs/ representatives from animal husbandry, veterinary, agriculture, horticulture, home guard, fire chowki, police department and district administration; village heads, head of mahila Mandal, head of Vyapar Mandal, NGO and community members from the Lahaul-Pangi landscape. The workshop was divided into two technical sessions. Session I focused on presentation, case studies and discussion on human-wildlife conflicts in the Himalayan region and their mitigation strategies while session II focused on group discussion and hands-on training on techniques to monitor, handle and mitigate human wildlife conflicts SECURE landscape.



Chhungil lake
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4

RESULTS AND KEY FINDINGS

4.1 Capacity Assessment and Training Needs of the Stakeholders

We identified three major and three minor threats in the landscape. The major threats included Human-wildlife conflicts, especially with brown bears, poaching and illegal wildlife trade by outsiders and exploitation of medicinal aromatic plants (Annexure 7).Based on their participation in managing the threats to biodiversity in the landscape, the capacity gaps of the stakeholders from different departments were identified. The capacity gaps in the landscape where no training activities are available and require urgent attention are categorized as major gaps. Whereas the capability gaps in the landscape on which the training program already exists but are not applied as needed are retained under minor or partial gaps. A suggestive curriculum is provided for such training programs to be introduced according to the training needs of the stakeholders. The minor gaps identified included the awareness on sustainable agricultural and horticultural practices, identification of medicinal aromatic plants and their uses, BMC and PBR formation and skill development for sustainable natural resource management. Based on these threats, several capacity gaps of the relevant stakeholders were identified and tabulated. These gaps were associated with key stakeholders, related directly or indirectly to them and training needs on respective gaps were finalized.

Some of these gaps include:

- Need of awareness program on the biodiversity of the landscape like invasive alien species, medicinal plants and their uses;
- Need for training in advanced techniques for wildlife monitoring and census;
- Skill development to identify and handle legal situations in case of illegal wildlife trade and coordinate with departments like Indo-Tibetan Border Police (especially musk deer and brown bear gall trade);
- Skill development in processing agricultural products;
- Development of capacity to network mainline tourism with eco-tourism;
- Establishing market strategies for the better sale of the handloom products;
- Advanced skills of handling Human-Wildlife Conflict situations
- Opportunities in diversification of relevant conservation policies, legislation, and their enforcement mechanism at the local level.

The following table presents a detailed illustration of different stakeholders, their capacity gaps and the requirement of training programs to be implemented at the landscape level.



ToT field visit in Lahaul
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Table 4 : Gap analysis and training needs of the identified stakeholders based on preliminary assessment conducted after the field visits in the Lahaul-Pangi region of SECURE landscape

Departments	Stakeholders	Existing training programs	Capacity Gaps	Training needs
Forest Department	**Policy level**			• Site-specific natural resource management plans for key biodiversity areas (HCVAs) • Role of negotiations in mainstreaming biodiversity conservation in development • Modification in grazing permits for better management of migratory livestock
	Mid-Level	• Remote sensing and GIS in forestry • Forest resource assessment • Forest survey • Forest policy and laws • Soil and water conservation and management • Land use and watershed management • Forest utilization (NTFP and medicinal plants)	• Skill development in wildlife monitoring and census techniques • Monitoring of illegal wildlife trade in the landscape with particular reference to medicinal plants • Skills in rescue, capture and handling of wild animals during a conflict situation • Human-wildlife conflict mitigation and monitoring techniques • Limited infrastructure and human resources • Limited awareness of wildlife-related laws and legislation.	• Training on working in coordination with local communities for ensuring long term protection of the landscape biodiversity • Understanding of relevant conservation policies, legislation, and their enforcement mechanism at the local level • Development of scientific skills for resolving HWC, including capture, handling, care and management of wild animals. • Wildlife Health Management and Monitoring to prevent the spreading of fatal diseases among wild animals. • Designing monitoring frameworks in WL areas
	Frontline staff	• Biodiversity survey methods • Status of wildlife in H.P. • Management of wildlife (collection of field evidence, wildlife census, compensationschemes,people's participation in management) • Soil and water conservation • Forest surveys	• Skill development in wildlife monitoring and census techniques • Monitoring of illegal wildlife trade in landscape with special reference to medicinal plants • Skills in rescue, capture and handling of wild animals during a conflict situation • Human-wildlife conflict mitigation and monitoring techniques	• Hands-on training in the use of modern scientific methods, techniques and tools that are required for biodiversity assessment and monitoring of conservation goals (e.g., camera trapping, GPS, traps and other monitoring and sample collection tools) • Basic field identification skills in threatened species in the landscape • Capture handling and transportation of animals during emergencies

Departments	Stakeholders	Existing training programs	Capacity Gaps	Training needs
		• Forest enginnering and utilization • Forest laws	• Limited infrastructure and human resources • Limited awareness about major Laws and Legislations related to wildlife.	• Hands-on training on tools and techniques in wildlife population estimation and monitoring • Medicinal plant identification knowledge
Agriculture department	**Senior level officers**	• Advanced course in Agriculture knowledge Management • Market Led Extension • Office procedure & financial administration • Promotion of sustainable Agriculture		
	Middle level officers	• Organic Farming management • Integrated pest Management & Biocontrol • Safe & Judicious use of pesticides • General Green House management • Principle and Practices, Management of cereal/veg. crop	• Difficulties in cataloging existing assets and assessing existing threats to biodiversity • Challenges in dealing with farmers and users' questions on the introduction of alternative species and protection of current species	• Training on conservation and rainwater harvesting techniques • Efficient processing of agricultural products, organic certification and applications • Training on Improved Marketing Strategies for increment in income. Certification and other procedural aspects that can help individuals better marketing and reduce impacts
	Technical OfficersUptoA ADO/AEO/ Surveyor	• Latest Techniques in crop production • Weed control in vegetable crop • Integrated nutrient management & balance use of fertilizer • Soil sampling, soil testing & soil health card	• Identification and prevention of crop diseases • PBR formation for identification and registration of plant species and medicinal plants • Harvesting and marketing techniques of MAPs • Physical gaps	• Identification of medicinal plant species and their uses • Training on sustainable agricultural techniques (e.g., crop rotation, planting cover crops, reducing tillage, applying integrated pest management, integration of livestock and crops, Agroforestry practices, organic agriculture and certification, value-added marketing products)

Departments	Stakeholders	Existing training programs	Capacity Gaps	Training needs
				• Compost making and dairy and poultry management. Green skill development programs.
Horticulture department	**Senior level officers**	• Advanced training course in Horticulture • Advances in flower cultivation • Office Procedure & financial administration		
	Middle level officers	• Model Integrated training course on Horticulture • Advances in Flower cultivation • Integrated training course in beekeeping	• Difficulties in cataloging existing assets and assessing existing threats to biodiversity • Challenges in dealing with farmers and users' questions on the introduction of alternative species and protection of current species	• Training on Improved Marketing Strategies for increment in income. Certification and other procedural aspects that can help individuals better marketing and reduce impacts
	Technical officers up to HEO level	• Training course in commercial floriculture • Refresher training course in Fruit Processing • Integrated training course in beekeeping		
Animal husbandry and Veterinary department	**Technical officers, Sub-divisional officers, Supervisors and frontline staff**	• Refresher training in latest trends in Veterinary surgery • Nutrition and Management of various Animal /Poultry disease out breaks • Training of veterinary workforce in preparedness,	• Coordination with forest department • Infrastructural and physical gaps • Skill development on techniques for rescue and capture-handling of conflict animals • Health management and disease surveillance of wild animals	• Capture handling and transportation of animals during emergencies • Approach and handling of animals for different situations like conflict mitigation; distress, and environmental disasters • Principles of situation analysis and management for ensuring safe and successful animal capture

Departments	Stakeholders	Existing training programs	Capacity Gaps	Training needs
		control and containment of avian influenza in the state	• Roles and responsibilities of an emergency response team (ERT) during a human-wildlife conflict situation	• Tools and techniques for restraint and immobilization- wildlife immobilization drugs used and classification • Veterinary aspects of in-house care of rescued animals before and post-release • Long term strategy for the health of landscape- surveillance and monitoring
Police department	**Mid-level and frontline staff**		• Awareness on major laws and legislations related to wildlife • Skill development to identify and handle legal situations in case of illegal wildlife trade • Coordination with other enforcement agencies to monitor and prevent illegal trade of MAPs	• Biodiversity Awareness, CITES and other conventions • Identification of protected wildlife species under the WPA-1972 with a focus on species in high demand • Field exercise including the practical of wildlife crime, information gathering and surveillance
District administration	**Technical officers, Sub-divisional officers, Supervisors and frontline staff**		• Awareness and outreach in terms of linkages of various state-level programs in conjunction with conservation and natural resource management	• Site-specific natural resource management plans especially for buffer zones of high altitude protected areas, key biodiversity areas including HCVA's, • Management of biodiversity heritage sites and critical snow leopard corridors for ensuring optimal allocation of land resources to generate developmental benefits and critical environmental benefits in tandem.
Tourism department			• Strategy development for sustainable eco-tourism program • Limited knowledge on biodiversity conservation through nature tourism and allied activities	• Training on principles and strategies for developing sustainable eco-tourism programs. • Building capacity in the networking of mainline tourism with eco-tourism. • Modules on adventure tourism, nature tourism, interpretation etc.

Departments	Stakeholders	Existing training programs	Capacity Gaps	Training needs
				• Awareness towards eco-friendly approaches to their daily mandates.
Community members	**Village Pradhan, Praja mandal, Mahila mandal, youth groups, NGOs, School teachers and Gramin Vikas samitis**		• Awareness on biodiversity conservation • Skill development on modern scientific methods for biodiversity assessment and monitoring • Development of scientific skills for handling human-wildlife conflict situations • Understanding of various conservation policies, legislation and enforcement mechanism	• Biodiversity Awareness and Conservation, laws and policy basics • Awareness ofthe impact of overgrazing of systems. Innovations for reducing grazing impacts. • Generating awareness for livestock and other relevant insurance schemes. • Training on sustainable harvest and useful post-harvest handling techniques. • Management and promotion of community-based eco-tourism services. • Training on basic hotel/homestay management skills for better employment of youth for empowerment • Exposure visits to well- known ecotourism destinations for the inculcation of new ideas • Formation and maintenance of Biodiversity Management Committees (BMCs) • Preparation of People's Biodiversity Registers (PBRs) • Understanding of relevant conservation policies, legislation, and their enforcement mechanism at the local level. • Building capacity to create public awareness and develop community organizations in handling community-based eco-tourism programs.

Departments	Stakeholders	Existing training programs	Capacity Gaps	Training needs
	Local villagers, farmers, homestay owners, MAP collectors, Pastoralists, etc		• Importance of biodiversity and need for its conservation • Knowledge on market strategies for the better sale of the handloom products. • Awareness about the landscape biodiversity and participatory monitoring of their landscape. • Skills on handling conflict situations and awareness about compensation schemes related to livestock due to wild animal attack.	• Training to farmers, farm women, orchardists, animal keepers etc., on various aspects of agriculture and vocational training on agriculture-based occupations. • Sustainable practices for the cultivation of medicinal plants like Mithi patish (*Chaerophyllum villosum)*/ Kala Zeera (*Bunium persicum*), *Pinus gerardiana* in the Lahaul-Pangi landscape sustainable use of other non-timber forest products. • Training and awareness on sustainable harvesting of medicinal plants. • Need for expanding range of product development for Sea- buckthorn (*Hippophae salicifolia*) • Training on advanced marketing skills for handloom products. • Generating awareness for livestock and other relevant insurance schemes.

4.2 Training Need Assessment of the stakeholders

We carried out the training need assessment for various stakeholders in project landscapes to develop a capacity development framework and relevant modules and curriculum on biodiversity conservation, participatory natural resource management and livelihood enhancement. The details of some of the meetings where major issues are listed in the following table. The following table summarizes meetings conducted in villages of Lahaul-Pangi and the major outcomes from the discussions.

Table 5: Major outcomes of the meetings conducted in villages for TNA

S.No.	Village	No. of Participants	Major Issues Discusses
1.	Killar Panchayat, Pangi	40	• Training of frontline staffs of the forest department on wildlife monitoring techniques (GPS, wildlife census and patrolling vast forest stretches, use of camera traps) • Human-wildlife conflict Management and Resolution (predominantly brown bear) • Handling of problematic wild animals by forest department and animal husbandry department.
2.	Hudan Bhatori, Pangi	25	• Awareness among frontline staff, local communities, school children, teachers and NGO's regarding the importance of biodiversity conservation. • Over-exploitation of MAPs and their illegal extraction (especially junglee lehsoon, kuth, karu, kaala jeera, gucchi)
3.	Karyas Panchayat, Pangi	58	• Awareness among frontline staffs, local communities, school children, teachers and NGO's regarding the importance of biodiversity conservation. • Handling of problematic wild animals (especially brown bear) by forest and animal husbandry department.
4.	Sural Panchayat Pangi	42	• Human-wildlife conflict management and resolution • Management of natural resources for protection of key Biodiversity areas.
5.	Dharwas Panchayat Pangi	30	• Human-wildlife conflict management and resolution • Over-exploitation of maps and their illegal extraction (especially junglee lehsoon, kuth, karu, kaala jeera, gucchi) • Training of frontline staffs of the forest department on wildlife management techniques (GPS, census, patrolling of vast stretches of forests)
6.	Saach Panchayat, Pangi	35	• Training of frontline staffs of the forest department on wildlife monitoring techniques (GPS wildlife census and patrolling vast forest stretches) • Awareness among frontline staffs, local communities, school children, teachers and NGO's regarding the importance of biodiversity conservation.
7.	Kuthel and Ghisel Panchayat, Pangi	86	• Human-wildlife conflict management and resolution • Training of frontline staffs of the forest department on wildlife monitoring techniques (GPS, wildlife

S.No.	Village	No. of Participants	Major Issues Discusses
			census and patrolling vast forest stretches) • Over-exploitation of maps and their illegal extraction (especially junglee lehsoon, kuth, karu, kaala jeera, gucchi)
8.	Sechu Tuan Panchayat, Pangi	50	• Training of frontline staffs of the forest department on wildlife monitoring techniques (GPS, wildlife census and patrolling vast forest stretches, use of camera traps) • Monitoring illegal trade especially from areas like dharSidhani, which is extremely biodiversity rich. • Human-wildlife conflict management and resolution. • Handling of problematic wild animals by forest department and animal husbandry department.
9.	Chasak and Chasak Bhatori, Pangi	68	• Over-extraction of forest products especially timber from adjacent forests by local communities could lead to extinction of plant species like , if not paid stopped immediately.
10.	Tindi Panchayat, Lahaul	44	• Disease management of wild animals especially ibex. • Awareness regarding rules and laws related to grazing in the high-altitude range lands. • Human-wildlife conflict management and resolution • Handling of problematic wild animals by forest department and animal husbandry department. • Overexploitation of MAP, could lead to their extinction in the near future.

4.3 Validation of UNDP Capacity Development Scorecard

Incorporating the capacity development framework into project design, implementation, and monitoring will provide a comprehensive monitoring framework to assess the range of needed capacities to achieve project outcomes.The scorecard was validated based on capacity indicator "Existence of operational co-management mechanisms for environment" through stakeholders' consultation of different governments, including forest, agriculture, horticulture, tourism, animal husbandry, police, and district administration. The existing capacities on management of environment were assessed and score was validated as per UNDP score guidelines. The average score after the consultation from different departments was 2 and the total score was 19/45. Based on the survey and consultations, it was concluded that there are state-level organizational co-management arrangements, but the coordination between departments needs to be increased. Local village co-management mechanisms, although they exist to some extent but are weak and unstructured. The total score after validation and subsequent steps are presented in the following table (Table 6).

Table 6: Validated UNDP Capacity Development Scorecard

Capacity Result/ Indicator	Staged Indicators	Score	Comments	Next Steps	Contribution to which Outcome
CR 1: Capacities for engagement					
1.1. Degree of legitimacy/ mandate of lead environment organizations	Authority and legitimacy of lead organization responsible for environmental management recognized by stakeholders	3	The National Implementing agency i.e., MoEFCC is the highest and legitimate authority for overseeing environmental related activities at national level. Similarly, the State Forest and Wildlife Departments are the mandated agencies for forest and wildlife conservation.	Constitution and early notification of a National Project Steering Committee and State Project Coordinating Committees under the leadership of the mandated agencies with clear Terms of Reference would help in supervision, oversight, monitoring and ensure project outcomes are met.	All
1.2 Existence of operational co-management mechanisms for environment	Some co-management mechanisms are formally established through agreements, MOUs, etc.	2	State-level government schemes in different departments (compensation due to loss of livestock, horticulture development schemes, plant nutrition schemes, establishment/maintenance of govt. orchards/nurseries) but limited coordination among different government sectors and local community in Lahaul-Pangi landscape.	Coordination and convergence of different sectors for an integrated conservation of project landscapes and co-management would be established through (i) awareness programs on various government schemes for local communities (ii) identification of collective roles and responsibility of government and local sectors through training programs at landscape level	1 and 2
1.3. Existence of cooperation with stakeholder groups for environment management	Stakeholders are identified, but their participation in decision-making is limited	1	In some of the Pas there is resentment among the buffer zone villagers over rights to extraction of bio-resources and livestock grazing. Their involvement and participation in the decision-making varies from site to site.	Based on landscape level collaborative planning efforts, institutional arrangements to engage local stakeholders and build commitment and ownership would strengthen cooperation through appropriate incentive mechanisms	

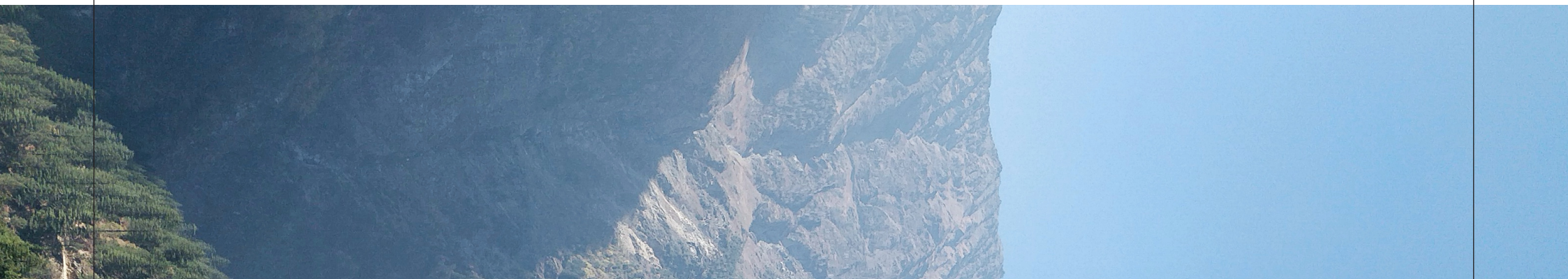
Capacity Result/ Indicator	Staged Indicators	Score	Comments	Next Steps	Contribution to which Outcome
				such as through (i) participation of stakeholders in landscape planning and decision-making; (ii) allocation of roles and responsibilities to different stakeholders; (iii) agreements with communities for village level microplanning and wildlife crime surveillance and monitoring and (iv) investment support for sustainable grazing and livelihood improvements	
CR 2: Capacities to generate, access and use information and knowledge					
2.1. Degree of environmental awareness of stakeholders	Some stakeholders are aware about environment issues but not about the possible solutions	1	Degree of environmental awareness among stakeholders is low at local level, and most local stakeholders are unaware of the linkages between unsustainable practices in the landscape and the productivity of their grazing and agricultural practices and lack incentives or knowledge to participate in resource solutions. At state and national levels, awareness is better on account of access to education and media.	Local stakeholders especially the CBOs and other SHGs require tailored environmental awareness to help create awareness of linkages between their actions and environmental degradation as well as revitalization of their traditional ecological knowledge so as to mitigate the impacts of environmental changes. This would entail (i) environmental outreach ; (ii) skills developed for sustainable ; resource use; and (iii) increased emphasis on traditional practices and products	2 and 4
2.2. Access and sharing of environmental related	The environmental information needs are identified but the information	1	Landscape sites are remotely located, hence there is limited access and sharing of environmental information among the site managers and local stakeholders. Further	Development and implementation of communication strategy for improving access to information and sustainable resource management	4

Capacity Result/ Indicator	Staged Indicators	Score	Comments	Next Steps	Contribution to which Outcome
information by stakeholders	management infrastructure is inadequate		there is no comprehensive informational sources developed at the national level, state or local level on good practices and experiences on sustainable grazing and resource extraction practice, sustainable harvest regimes for NTFPs, traditional cultivation practices etc. Hence promotion of sustainable practice remain under capacitated as existing knowledge and information will not be readily accessible to all stakeholders and no comprehensive source of information exist.	practice; and documentation and dissemination of lessons and best practice. Secondly, policy analysis and knowledge events will allow both managers and policy makers to better understand environmental aspects in the Himalayas and improve development and implementation of regulations, policy and field actions throughout the country to address conservation, sustainable use and livelihood improvement	
2.3 Extent of inclusion/use of traditional knowledge in environment decision making	Traditional knowledge is identified and recognized as important but is not collected and used in relevant participative decision-making processes	1	Traditional livestock herding practices in almost all the project landscapes are said to be sustainable. In recent decades due to sedentarization of herders and influx of migratory herders from other areas have led to degradation of pastures. At present there is limited attempt to use such traditional knowledge in decision making. Further, the introduction on improved crop varieties has eroded traditional cropping practices and varieties.	A focused study on the traditional ecological knowledge pertaining to natural resource use in the project landscape would help identify wise practices that can be included in the landscape level conservation strategies and site-specific management plans. Further, the value chain component of the project would seek to identify and promote niche markets for traditional products (rajma, etc.) and services (ecotourism). Communication strategy will promote interest in traditional	2 and 4
2.4. Existence of environmental awareness and	Environmental education programs are partially developed and partially	1	Environmental awareness programs are available at the local level, but only at a few places – at school level. For majority of local stakeholders there is no such awareness	Implementation of project communication and outreach strategy with targeted awareness and education programs and material	2 and 4

Capacity Result/ Indicator	Staged Indicators	Score	Comments	Next Steps	Contribution to which Outcome
education programs	delivered		program. Environmental awareness programs exist at the state and national levels	would help reach local stakeholders (pastoral and agropastoral and communities), general public and school children and policy makers.	
2.5. Extent of the linkage between research/science and environment policy development	Research needs for environmental policy development are identified but are not translated into relevant research strategies and programs	1	Most of the project landscapes have not been studied comprehensively in terms of integrated conservation and development and hardly any attempts have been made to establish linkages among conservation science, policy and practice.	Targeted efforts (with the help of an identified professional) to bridge the gap between the conservation science, livelihood needs and policies at the state level.	All
CR 3: Capacities to strategy, policy and legislation development					
3.1. Extent of environment planning and strategy development process	The environmental planning and strategy development process does produce adequate environmental plans and strategies but there are only partially implemented because of funding constraints and/or other problems.	2	While environmental (forest and wildlife planning are done at the state and national level, and partially limited, capacity and financial constraints prevent full implementation. At the community level, community-based organizations in all project sites have been consulted in detail about the project goals and objectives. They have shown keen interest in working for a holistic environmental planning and strategy development.	Preparation of a comprehensive multi-stakeholder developed strategy for landscapes, management plans and protocols for sustainable management of land units, creation of multisectoral coordination mechanisms and project funding to provide enabling environment for planning and implementation	1 and 4
3.2. Existence of an adequate environment policy and regulatory frameworks	Adequate environmental policy and legislation frameworks exist but there are problems in implementing and enforcing them	2	Implementing environmental policies and regulatory frameworks in the project landscapes is a challenge in the absence of adequate alternatives and better livelihood options. Similar gaps in legislation and policy preclude specific actions	Establishment of a national level coordination mechanism, review of policy and regulations will improve mechanisms for comprehensive action. Support for identification of potential gaps in existing policy,	3 and 4

Capacity Result/ Indicator	Staged Indicators	Score	Comments	Next Steps	Contribution to which Outcome
				legislation and regulation in regards to management of the high Himalayas provides an opportunity for negotiating changes.	
3.3. Adequacy of the environmental information available for decision making	Relevant environmental information is made available to environmental decision-makers but the process to update this information is not functioning properly	2	There is comprehensive environmental informational sources developed at the national level, but it is variable across states and project landscapes	The development, population and enabled access to the national and state databases will support environmental management across multi-sectorial efforts and allow both managers and policy makers to better understand environmental issues, particularly at the local and state levels.	4
CR 4: Capacities for management and implementation					
4.1. Existence and mobilization of resources by relevant organizations	The resource requirements are known but are not being addressed	1	While there are some resources available through national and state programs, these are only partly resourced, and that particularly only for a few Pas.	Concerted efforts to leverage additional revenue to support Pas and surrounding lands will be made through; (i) identification of national and state programs that could complement efforts in the landscape; (ii) state steering committees to help leverage and channel these funds; (iii) ensure complementarity of efforts through multi-stakeholder and multi-sector efforts, etc.	1 and 2
4.2. Availability of required technical skills and technology transfer	The required skills and technologies needs are identified as well as their sources	1	Project sites lack adequately trained field staff and skills for implementation of conservation and development programs.	Training of frontline staff and local volunteers on basic tools and techniques of habitat assessment, population monitoring and record keeping needed, as well as use of	1,2 and 3

Capacity Result/ Indicator	Staged Indicators	Score	Comments	Next Steps	Contribution to which Outcome
				expertise within national (WII), and state agencies and NGOs to supplement existing skills	
CR 5: Capacities to monitor and evaluate					
5.1. Adequacy of the biosecurity monitoring process	Irregular monitoring is being done without an adequate monitoring framework detailing what and how to monitor a particular activity or program	0	All proposed project sites are understaffed and institutional mechanism for monitoring are not in place Any monitoring data records are at best scattered in notebooks or non-existent	Establishment of an institutional mechanism (with the support of Wildlife Institute of India) for monitoring the key biological and environmental parameters (including snow leopard and wild prey populations) as well as management actions in the field. Development of community monitoring networks to monitor wildlife and wildlife crime.	1,2 and 3
5.2. Adequacy of the biosecurity evaluation process	Presently none or no evaluations are being conducted without an adequate evaluation plan; including the necessary resources	0	There is no comprehensive system to evaluate impacts and outcomes in the landscapes	Project evaluation and performance would be undertaken through independent mid-term and terminal evaluations	All
	Total Score	**19/45**			





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5

BASELINE DATA VALIDATION AND MODULE DEVELOPMENT

A Consultative and sharing Workshop on validation of the Draft Capacity Development Strategy and framework and training modules for both Landscapes in **Pangi and Lahaul on 24 – 25th September and 11th October 2019** was held respectively. A total of 70 participants, including stakeholders from the forest and different line departments and local community, actively participated in the workshop (Annexure 8-10). The workshop's primary aim was to validate our learning and finalize the strategy and framework for capacity building, modules and curriculum. Capacities of the training institutes in terms of the existing training schedule, duration, number of participants, training modules and curriculum were also assessed during the workshop. The workshop was mainly divided into two technical sessions. Technical session 1 focused on presenting the draft Strategy and Framework for Capacity Building and technical session 2 focused on aligning training institutions/ agencies with subsequent training topics and modules for different stakeholders.

Table 7: Summary of important takeaways from district level sharing and consultative workshops conducted in landscape

S.No.	Workshop Conducted	Important takeaway points
1	Consultative workshop in Pangi	• Premature and over extraction of MAPs especially junglee lehsoon (*Fritillaria roylei*), kala zeera (*Bunium persicum*) and ban kakdi (*Podophyllum hexandrum*). • Proper monitoring and managing of permits for grazing livestock in meadows to avoid over-grazing practices by herders. Need for studies on grazing responses of flora and fauna. • Training on managing illegal activities in forests to both the forest and the security department in coordination with community groups (Praja Mandal)
2	Consultative workshops in Lahaul	• Coordination among community-based groups and forest department for proper monitoring of illegal activities in vast forest areas. • Training on handling human-wildlife conflict, especially by brown bear in villages of Pangi. • Control of over grazing in meadows by proper monitoring of grazing permits issued to gaddis for limited number of livestock and preventing violation of rules.

5.1 Module Development

Subsequently after the TNA, training modules were prepared for multiple stakeholders to meet their training needs concerning their long-term biodiversity conservation role. Based on the identified training needs and major gaps of the stakeholders, a total of 6 training modules are prepared. The training programs on partial gaps were suggested based on existing modules and training already being imparted by different institutes in the landscape. The major gaps *i.e.* gaps that needed detailed and specific interventions were identified and these included- awareness on biodiversity conservation in the landscape, awareness about modern wildlife monitoring techniques for Himalayan regions, handling of rising human-wildlife conflict situations of the landscape, awareness regarding the long term conservation of MAPs, monitoring of grazing permits to the Gaddis to prevent over-grazing and its impacts, controlling illegal wildlife trade activities and identification of the trade routes for the conservation of the rich natural resources of the landscape and generating alternative sources of income.

Based on these gaps, the modules are divided into three major themes: Biodiversity Conservation, Biodiversity Monitoring and Sustainable Management and Livelihood. Biodiversity Conservation comprises two modules: i) the training module on Landscape Level Conservation in the Trans-Himalayan region of Lahaul-Pangi ii) Training module for Human-wildlife conflict management in Trans-Himalayan Landscape. Biodiversity Monitoring in the Himalaya comprises of two modules: i) Training module on Snow Leopard Monitoring and prey abundance

Estimation in the Himalayan landscape of Himachal Pradesh ii) Training manual for Capture, Handling, Transportation and Health Management of Wild Animals in Trans-Himalayan Landscape. Sustainable Management and Livelihood also comprises of two modules: i)Training module on sustainable Agriculture and horticulture techniques in Lahaul-Pangi landscape and ii)Training module on Monitoring, management and conservation of plant species in Lahaul-Pangi Landscape. The training programs on partial gaps are already existing and run by different institutes in the landscape.

5.1.1. Biodiversity Conservation

The major gaps that were flagged through consultations were a series of modules or program that could enhance - appreciation of nature and conservation of biodiversity, better handling human-wildlife conflict situations, best practices for livestock management and awareness of grazing rules for long term protection of high-altitude rangelands, natural resource management for crucial biodiversity areas and sustainable use of forest resources. All the above issues are related to the broad topic of Biodiversity Conservation which was selected as one of the priority themes.

Biodiversity is the variety and variability of life on Earth's face, and its conservation is of utmost importance. Biodiversity is the broad umbrella term for the degree of nature's variety within a natural system. Modules under this theme have been formulated with the expectation that the targeted stakeholders (forest department, animal husbandry department, local communities, local NGO's, local schools) may have increased awareness to local wildlife and appreciate the need for wildlife conservation. The major objective of these modules is to make the stakeholders more aware of the landscape's biological diversity, the importance of its conservation, their linakges to its management, and reduce conflict situations efficiently.



Table 8: Categorization of Training modules based on identified gaps and training needs of the stakeholders

Themes	Major Gaps	Suggested training needs	Suggested training Institute	Proposed training curriculum
Biodiversity Conservation	• Awareness on biodiversity conservation • Over- exploitation of natural resources	• Importance of wildlife in ecosystem • Site specific natural resource management plans for key biodiversity areas • Sustainable use of forest resources	**WII - Dehradun,** **HPSBB- Shimla,** **FTI – Sundernagar/Chail**	Conservation biology, IUCN categories, diversity of Lahaul-Pangi, GPS hands on training, Habitat fragmentation, Participatory biodiversity conservation
	Man–animal conflict management	• Livestock management and grazing rules • SOPs on handling of conflict situations mainly due to bear and snow leopard	**WII – Dehradun,** **WWF – Dehradun/Delhi**	Human wildlife conflict issues due to Snow leopard and bear, livestock management and grazing rules, compensation schemes, SOPs for Dos and Don'ts while handling conflict situations.
Biodiversity Monitoring	Awareness about wildlife monitoring and census techniques	• Hands on training on tools and techniques in wildlife population estimation and monitoring • Basic field identification knowledge	**WII, Dehradun** **HPSBB, Shimla**	Snow leopard and associated species, existing threats, importance as indicator species, Snow leopard population estimation (occupancy based and camera trap), prey population estimation, Data management.
	Handling, management and transportation of injured animals	• Capture handling and transportation of animals during emergencies • Responsibilities of different departments and stakeholders involved	**WII-Dehradun,** **Indian Veterinary Research Institute – Palampur/Bareilly**	Importance of wildlife health, Awareness on zoonotic diseases, Importance of vaccination of livestock and issue of vaccination permit., Wildlife casualties (causes and management), Capture handling and transportation, Coordination among forest and veterinary department.

Themes	Partial Gaps	Existing Training Programs	Training Institutes	Proposed training topics
Biodiversity Conservation	BMC formation and PBR formulation	• Formation and maintenance of Biodiversity management Committees (BMCs) • Preparation of People's Biodiversity Registers (PBRs)	**Himachal Pradesh State Biodiversity Board (HPSBB)**	Awareness on biodiversity Act, ABS, BMC and PBR and their role in conservation, training on formation of BMC and PBR preparation, hands on training on identification of plant species, documentation of species.
Biodiversity Monitoring	Monitoring, management and conservation of plant species of Himalayan ecosystem	• Training program on Basic Plant Taxonomy • Training on Biological diversity Act	**Himachal Pradesh State Biodiversity Board (HPSBB)**	Plant diversity in relation to habitat types, Identification of plant species, biodiversity assessment survey, MAP harvesting techniques, ecosystem services.
Sustainable Management and Livelihood	Eco-development for biodiversity conservation	• Training on market led extension • Training on climate change and agriculture. • Training on developing HRD skills • Training on extension management skills	**State Agricultural Management and Extension Training Institute (SAMETI), Shimla**	Areas of ecodevelopment interventions, significance of local communities, importance of traditional knowledge, linkage between conservation and development.
	Sustainable agricultural and horticultural management	• Trainings to farmers, farm women, orchardists, animal keepers etc. on various aspects of agriculture as well as vocational training on agriculture-based occupations. • Referral services in the fields of soil, plant and animal health.	**Himachal Pradesh Agriculture University (HPAU), Palampur**	Zero budget farming concept, identification of plant disease, pest management, marketing strategies, government schemes in landscape, home-scale preservation of products.

Themes	Partial Gaps	Existing Training Programs	Training Institutes	Proposed training topics
	Natural resource management and livelihood enhancement	• Capacity building of local inhabitants through promotion of ecotourism and trainings on hill-specific low-cost technologies.	**G.B. Pant National Institute of Himalayan Environment and Sustainable Development (GBPNIHED), Kullu**	People's participation in natural resource management, water and soil conservation, Eco- tourism and livelihood, advancement of rural technologies.
	Skill development for sustainable management of natural resources	• Development Programmes and Skill Development • Trainings in various Modern and traditional trades	**Himachal Consultancy Organization Limited (HIMCON)**	Awareness andhands on training on reuse and recycling of waste, Processing and marketing of food products

Module 1: Training module on "Landscape Level Conservation in Trans-Himalayan region"

Objectives:

1) To create an understanding of the basics of conservation biology and ecology
2) To provide an orientation to the stakeholders for different components of the ecosystem and its monitoring
3) To sensitize the education department and locals about wildlife conservation

No. of Days	Time	Mode of Delivery	Module content	Indicative Departments
Understanding the landscape level approach for conservation				
2 days	5 hours each day	The module's delivery will be through video clips, lectures by prominent speakers, PowerPoint presentations, Group discussions, and field visits.	This module will provide an overview of the concept, history and ecosystem services of the Trans-Himalayan landscape. It is designed to impart essential information on conservation, biodiversity, and the need for landscape-level conservation approaches. The resource person will deal with the following- a. Landscape concept and history: History and dynamics of Trans Himalayan region, ecosystem services provided by the landscape (supporting and regulating services, provisioning services and cultural services). b. Landscape-level Conservation (LLC): What is LLC, need for LLC, Examples of LLC from global, national and local practices (case studies), basic information on key biodiversity of the landscape (floral and faunal).	**Forest department:** ACFs, DCFs, DFOs **Line departments:** District level officers from the Department of Agriculture, Horticulture, Animal Husbandry, Veterinary, Police, Tourism, Rural Development, District administration Tribal welfare, Education and Health.
Integrating and mainstreaming biodiversity conservation				
2 days	5 hours each day	The module's delivery will be through video clips, lectures by prominent speakers, PowerPoint presentations, Group discussions, and field visits.	This module will discuss opportunities for intra-departmental collaboration to mainstream biodiversity conservation and deal with the following aspects: a. Key streams of biodiversity conservation: State-driven (National parks, conservation reserves, protected areas) and community-based conservation (conserved community areas, sacred groves, joint forest management), Examples of best practices in the landscape (state-driven conservation programs in H.P., Praja Mandal system in Pangi) b. Potential roles and responsibilities of the forest department, line	**Forest department:** ACFs, DCFs, DFOs, RFOs and forest beat officers. **Line departments:** District level officers from the Department of Tourism, Rural Development, District administration Tribal welfare, Education.

No. of Days	Time	Mode of Delivery	Module content	Indicative Departments
			agencies and local community-based organizations, understanding how different line agencies can contribute and support biodiversity conservation initiatives. c. Principles for integrating conservation and development efforts- aiming for development that is conservation positive or conservation neutral to avoid net loss of biodiversity and ecosystem services.	**Community-based organizations:** Praja mandal, Mahila mandal, religious groups, youth groups, etc.
Conservation concerns				
2 days	5 hours each day	The module's delivery will be through video clips, lectures by prominent speakers, PowerPoint presentations, Group discussions, and field visits.	This module will provide an overview of the trans-Himalayan region's biodiversity assets and major conservation concerns/threats. The module will deal with: a. Extent and representation of existing protected area network in the landscape, biodiversity opportunities outside PAs (HCVAs, MPCDAs, managed forests, private and community lands, areas of cultural significance, etc.). b. Major conservation concerns/threats: Habitat loss, fragmentation and degradation, illegal wildlife trade of different faunal species (snow-leopard skin, musk pod musk deer, gall bladder of bear, etc.) and medicinal plants (*Aconitum heterophyllum*, *Picorrhizakurrora, Fritillaria cirrhosa*, etc.), human-wildlife conflict and ecotourism. c. Existing national and state level conservation initiative in H.P. (Project snow leopard, SECURE Himalaya project, Integrated forest management system, Biodiversity tourism parks, etc.)	**Forest department:** ACFs, DCFs, DFOs and frontline staff **Line departments:** District level officers from the Department of Agriculture, Horticulture, District administration.
Laws and policies for managing biodiversity				
1 day	5 hours each day	The module's delivery will be through video clips, lectures by prominent speakers, PowerPoint presentations, Group discussions, and field visits.	This module will provide insight into existing national and state level laws and policies to support and protect the key biodiversity assets. a. National conservation laws: Indian Forest Act, 1927 to consolidate and reserve the areas having forest cover; Wildlife Protection Act, 1972 to protect wild animals, birds and plants; CITES convention to control the trade of wild species; CBD convention, 1992 to conserve the biodiversity; The Biological Diversity Act, 2002 for preservation of biological diversity.	**Forest department:** Frontline staff **Line departments:** District level officers from the Department of Tourism, Rural Development, District administration Tribal welfare, Education.

No. of Days	Time	Mode of Delivery	Module content	Indicative Departments
			b. State level policies: Policy on collection and removal of chir pine from forest land, Policy on development of eco-tourism in H.P., H.P. forest sector medicinal plant policy, Policy on payment for ecosystem services in H.P., etc.	
Biodiversity conservation and Human welfare				
2 days	5 hours each day	The module's delivery will be through video clips, lectures by prominent speakers, PowerPoint presentations, Group discussions, and field visits.	The module is designed to emphasizethe greater involvement of local people in the management of natural resources and extends beyond protected areas' boundaries. This will cover community-based conservation strategies and generating alternate livelihood opportunities through conservation. a. Compensation or substitution when denied to access to resources, Direct stake in conservation for local people by promoting access and sustainable use. b. Alternative livelihood opportunities (wool handicraft like pashmina shawls and other products, food processing and marketing like jellies and jams from sea buckthorn, bakery products from hazelnut in Pangi, NTFP, etc.). c. Discussion on case studies from the landscape on community-based conservation (e.g., Use of sea buckthorn by people of Tingret village of Lahaul and creating income source from various products)	**Forest department:** ACFs, DCFs, DFOs, RFOs and forest beat officers. **Line departments:** District level officers from Department of Tourism, Rural development, District administration Tribal welfare, Education. **Community-based organizations:** Praja mandal, Mahila mandal, religious groups, youth groups, etc.

Module 2: Training module on "Human wildlife conflict management and monitoring in Trans-Himalayan Landscape"

Objectives:

1) To identify and assess the issues in human wildlife conflicts.
2) To come up with conflict mitigation measures.

Day	Time	Mode of Delivery	Module Information	Participating Department
Introduction to Human-wildlife Conflict (HWC) in the Trans Himalayan landscape concerning selected species				
Day 1	2.5 hrs	The module's delivery will be through video clips, lectures by prominent speakers, PowerPoint presentations, Group discussions, and field visits.	This module will provide an overview of HWC in the trans-Himalayan landscape and the selected species involved in HWC. The resource person will deal with the following- a. Human wildlife relations: Historical overview of human wildlife relations in Himalayan landscape; Human wildlife conflict and its major drivers across Himalayan region. b. Understanding different conflict scenarios based on landscape, location, species involved and community involved; species attributes and identification, natural history, behavior.	All agencies (Forest department, veterinary officers of FD and AH department, line agencies)
Human wildlife conflict management				
	1.5 hrs		This module will deal with the basic concepts and issues during HWC management using a landscape approach - a. Overview of HWC management policies (Global, National and regional level). b. Outline existing and potential HWC mitigation strategies in the landscape.	All agencies (Forest department, veterinary officers of FD and AH department, line agencies)
	3-4 hrs		Field visit to a protected area or wildlife sanctuary	
Human wildlife mitigation strategies and stakeholders involved				
Day 2	2 hrs	The module's delivery will be through video clips, lectures, PowerPoint presentations, Group discussions, and field visits.	This module will deal with the key elements of HWC and identification of stakeholders responsible for HWC management- a. Concept and importance of Rapid Response Teams (RRTs); responsibilities and role of each member b. Involving local community leaders; importance of Community Response Teams (CRTs); responsibilities and roleinking with FDs c. Crowd control and management	Forest department, Animal husbandry department, other line agencies

Day	Time	Mode of Delivery	Module Information	Participating Department
			Human wildlife mitigation measures concerning key species involved (I)	
	3 hrs		This module will deal with the HWC mitigation measures with reference to key species involved in conflict- a. Conflict species and major damages: Human- Snow leopard conflict; Human bear conflict (Black and brown bear); Human-leopard conflict (lower regions of Pangi), Human-wolf conflict (Lahaul) and Human-macaque conflict. b. Mitigation measures: Before conflict- Preventive measures (Use of deterrents, barriers, fences, capture and translocation of animals); During conflict- Handling measures (Rescue of the animas, Crowd management); After conflict- Compensatory measures (Financial assistance for loss, care and rehabilitation of victim, capture handing of animal).	Forest department and veterinary officers of FD and AH department
			Human wildlife mitigation measures (II)	
	2 hrs		This session will deal with community-based conflict mitigation (CBCM) measures- a. Introduction to CBCM: Concept and importance of CBCM b. Common methods of HWC mitigation: Landuse planning; compensation schemes, community insurance schemes; Do's and Don'ts during animal encounter.	Forest department and veterinary officers of FD, AH department and community representatives
			Field visit	
	1 hr		Recapitulation of observations in field and group discussions	Forest department and veterinary officers of FD, AH department and community representatives
			Long-term HWC mitigation strategies	
	3 hrs	The delivery of the module will be through video clips, lectures, presentations, Group discussions and field visits.	The module will cover the following aspects- a. Analysis of legal opportunities and limitations in HWC management; Future role of RRT in mitigating HWC in the landscape. b. Monitoring HWC: Recording and reporting HWC incidents in the landscape; outline why monitoring is important for conflict management; timely revision and implementation of compensation schemes.	Forest department and veterinary officers of FD and AH department and other line agencies.

5.1.2 Biodiversity Monitoring

The major gaps identified during stakeholders' consultations included lack of awareness regarding wildlife monitoring and population estimation techniques, protection of snow leopard and associated species, combating illegal wildlife trade, wildlife disease management and vaccination and coordination among line departments while handling of wild animals during emergency situations.

Biodiversity Monitoring provides a basis for evaluating the integrity of the ecosystems, their responses to disturbances and the actions that must be taken in order to conserve or recover biodiversity. The Trans-Himalayas of Lahaul and Pangi is rich in biodiversity and hence extremely vulnerable to wildlife trade and exploitation of its natural resources mainly of the high-value medicinal and aromatic plants and also a few faunal species, hence, their monitoring and protection becomes utmost important. This module is developed for generating awareness among local communities and line departments (forest department, animal husbandry department, police department and other enforcement agencies) so as to curb any illegal trade going on in the landscapes, monitor snow leopard and its associated species for their better protection, handle wildlife animals during emergency situations and proper disease management of the wild animals.



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Module 3: Training module on "Snow leopard monitoring and prey abundance estimation in trans-Himalayan region of Himachal Pradesh"

Objectives:

1) To monitor the habitat and distribution of Snow Leopard and its prey species.
2) To provide a better understanding of different methods for population estimation of snow leopard and ungulates

Day	Time	Mode of Delivery	Module Information	Participating Agency
Sensitization, importance and distribution of snow leopard				
Day 1	2.5 hrs	The delivery of the module will be through video clips, lectures by prominent speakers, PowerPoint presentations, Group discussions and field visits.	This module will provide an overview on sensitization, importance and distribution of snow leopard and prey species in the landscape. The resource person will deal with the following- a. Snow Leopard- Prey, Associated species and Habitat; Behaviour and importance as indicator species; Threat to snow leopard and challenges in monitoring and population assessment. b. Introduction to Snow leopard population assessment in India (SPAI)	Forest department frontline staff
	1.5 hrs		**Snow leopard monitoring: Why and How** a. Occupancy Survey for Snow Leopard monitoring: Survey planning, survey line selection within grids, sign survey and questionnaire surveys. b. Data Formats discussion, Camera Trapping exercise and Scat sample collection and storage procedure	Forest department frontline staff
	3 hrs		Group exercise and demonstration of techniques	
Day 2	2 hrs	The delivery of the module will be through video clips, lectures by prominent speakers, PowerPoint presentations, Group discussions and field visits.	Prey population estimation This section will deal with the methods for estimating the abundance of wild ungulate prey of snow leopard - a. Double observer survey method b. Data Organization and Management	
	3 hrs		c. Group exercise, survey line delineation and planning –Division wise	Forest department frontline staff

Module 4: Training module on "Capture, Handling, Transportation and Health Management of Wild Animals in Trans-Himalayan Landscape"

Objectives:

1) To provide skills for handling wildlife in distress.

2) To provide knowledge about transportation and post- capture care of wild animals.

3) To provide hands-on training on wildlife immobilization techniques.

Day	Time	Mode of Delivery	Module Information	Participating Agency
Introduction to Trans Himalayan Wildlife species with special reference to selected species				
Day 1	2 hrs	The delivery of the module will be through video clips, lectures by prominent speakers, PowerPoint presentations, Group discussions and field visits.	This module will give an overview of the biodiversity of the Trans-Himalayan region, basic information on the selected species of the region. The resource person will deal with the following- a. Animal ecology: Biodiversity of Trans Himalayan region and threats to conservation, species attributes and identification, natural history, behavior. b. Understanding basic anatomy and physiology of selected species; unique biological traits for consideration under capture, rescue and rehabilitation operations	All agencies (Forest department, veterinary officers of FD and AH department, line agencies)
Principles of wildlife capture operations (I)				
	2 hrs		This module will deal with the basic principles of wild animal capture, rescue and rehabilitation for various purposes - a. Approach and handling of animals for different situations- conflict mitigation; distress; environmental disasters; research purposes. b. Principles of wildlife rescue: Assess and identify animals in distress and when to intervene; causes of distress	All agencies (Forest department, veterinary officers of FD and AH department, line agencies)
Principles of wildlife capture operations (II)				
	3 hrs		This module will deal with the principles of situation analysis and management for ensuring safe and successful animal capture a. Importance of Rapid Response Teams (RRTs); responsibilities and role of each member b. Involving local community leaders; importance of Community Response Teams (CRTs); responsibilities and role; linking with FDs c. Crowd control and management	Forest department, Animal husbandry department, other line agencies

Day	Time	Mode of Delivery	Module Information	Participating Agency
Principles of wildlife immobilization and restraint (I)				
Day 2	3 hrs	The delivery of the module will be through video clips, lectures by prominent speakers, PowerPoint presentations, Group discussions and field visits.	This module will deal with the procedural and veterinary details of immobilization and restraint of animals for various purposes - d. Principles of wildlife rescue: Identifying animals in distress, clinical assessment and intervention e. Tools and techniques for restraint and immobilization- wildlife immobilization drugs used and classification f. Hazards, precautions and safety measures to be considered during handling of immobilization drugs and animals for animal and personnel safety.	Veterinary officers of FD and AH department
Principles of wildlife immobilization and restraint (II)				
	3 hrs		This module will deal with the basic principles of wild animal capture, physical and chemical restraint and transport for various purposes- a. Tools and techniques for restraint and immobilization- introduction to remote darting systems; hazards, precautions and safety measures to be considered during handling of immobilization drugs and animals for animal and personnel safety. b. Physical restraint; handling; transport unit construction and designs.	Forest department and veterinary officers of FD and AH department
Capture and handling practical				
	3 hrs		This field practical will deal with training participants on- a. Handling, use and maintenance of equipment related to physical and chemical restraint, immobilization, capture, rescue and rehabilitation of wild animals b. Preparations for chemical immobilization of wild animals	Forest department and veterinary officers of FD and AH department
Rehabilitation and release				
Day 3	2 hrs	The delivery of the module will be through video clips, lectures by prominent speakers,	This module will cover the in-house care of rescued animals prior to-, and post-, release- c. Post capture/ in-house care of animals; common causes of injuries; interaction with injured/sick animals; dealing with stress; understand special requirements of rescued animals (e.g. hibernating animals).	Forest department

Day	Time	Mode of Delivery	Module Information	Participating Agency
		PowerPoint presentations, Group discussions and field visits.	d. Release: Methods and tools for release and post release monitoring.	
	2 hrs		This module will cover the veterinary aspects of in-house care of rescued animals prior to-, and post-, release- a. Post capture/ in-house care of animals; causes of common injuries; interaction with injured/sick animals; dealing with stress; understand special requirements of rescued animals (e.g. hibernating animals); triage and treatment b. Release: Methods and tools for release and post release monitoring.	Veterinary officers of FD and AH department
Health and hygiene				
	2 hrs		The module will cover the following aspects- a. Zoonotic diseases pertaining to conflict situations and interface. b. Signs of disease in rescues; prevention of spread of infections in rescue centers/ animal holding facilities; occupational zoonoses. c. Long term strategy for health of landscape; surveillance and monitoring; health management of PAs and interface areas using One Health approach	Forest department and veterinary officers of FD and AH department

5.1.3 Sustainable Management and Livelihood

Livelihood secures people's daily bread and fits into the construct of sustainable management. As livelihood is tethered with the notion of bearing necessities in an environment covered with the likes of basic comfort, it needs to be in tandem with the concept of sustainable management. The modules under this theme have been dedicated to the local communities to inculcate the concept of sustainability among them at par with their livelihood enhancement.

The stakeholders' identified capacity gaps have been categorized into major and partial gaps based on training programs available in the landscape. The capacity gaps on which no training program exists but are required, are kept under major gaps and training modules for different stakeholders have been developed accordingly. The capacity gaps on which training program already exists in the landscape but are not implemented as required are kept under partial gaps. For these training programs to be implemented as per the stakeholders' training need, a suggestive curriculum is provided.

Module 5: Training module on "Sustainable Agriculture and horticulture in Lahaul-Pangi landscape"

Stakeholders: Frontline professionals

Line departments: Block level officers from the departments of Agriculture and Horticulture.

Local community: Sarpanch and Gram Pradhan, Women groups and Local farmers.

Days	Time	Curriculum	Training Institute
Day 1		**Sustainable Agriculture and Horticulture**	
	3 hrs 2 hrs	The resource person will deal with the following- a. Sustainable agriculture: Definition, why sustainable agriculture, Ecological sustainability, Economic sustainability, Social sustainability, approaches to sustainable agriculture (improving agricultural productivity in the landscape, develop and conserve natural resources, expanding market access). b. Elements of sustainability: Soil conservation, Crop diversity, Integrated pest management, Cover crops, rotational grazing, Water conservation, Agroforestry and Marketing.	1. CSK-HPAU, Palampur 2. SAMETI
Day 2		**Agricultural Management Techniques**	
	2 hrs 2 hrs 1.5 hrs	a. Crop cultivation: Commercial crops for improving crop productivity and generating employment, Organic farming quality and quantity produce of agriculture, Protective cultivation, Farming system approaches, Soil health management. b. Crop management: Post harvest management, Crop pest management, disease identification and management, home scale preservation of fruits and vegetables in rural areas especially for women folk. c. Governmental schemes: Scheme for farm mechanization, National watershed development project for rainfed areas, Scheme for promotion of organic farming, Crop insurance scheme, etc.	1. CSK-HPAU, Palampur
Day 3		**Horticultural management Techniques**	
	2 hrs	a. Management practices: Orchard management practices for cultivation fruits, nursery management, Integrated pest and disease management, Production of compost, Knowledge of Budding and Grafting techniques in nursery fruit plants, training and pruning of fruit trees.	1. CSK-HPAU, Palampur 2. HIMCON

Days	Time	Curriculum	Training Institute
	2 hrs	b. Commercial practices: Mushroom cultivation, commercial bee keeping and honey production, flower cultivation, processing techniques for developing various fruit products (jellies, jams, squash etc.).	
	2 hrs	c. Governmental schemes: Plant Protection scheme, Horticulture Development scheme, Development of Fruit Production, Development of Apiculture, Development of Floriculture scheme, Establishment/maintenance of government orchards /nurseries (PCDOS), Development of Mushroom Scheme, General Marketing Scheme, etc.	

Module 6: Training module on "Monitoring, management and conservation of plant species in Lahaul-Pangi Landscape."

Stakeholders: Frontline professionals

Forest department: RFOs, deputy range officers and Beat forest guards

Line departments: BDOs, Block level officers from departments of Agriculture, Horticulture, and Education.

Local community: Sarpanch and Gram Pradhan, School teachers, Women groups, Praja mandal, Local NGOs and BMC members.

Days	Time	Curriculum	Training Institute
Day 1		**Biodiversity of Lahaul and Pangi**	
	2 hrs	The resource person will deal with the following-	1. HPSBB, Shimla
		a. What is biodiversity? Importance of biodiversity and status of biodiversity in Lahaul-Pangi landscape	2. FTI, Sundernagar
	2 hrs	b. Biological diversity Act, 2002: Salient features, why this act, provisions under the act.	
	2 hrs	a. Floral biodiversity and identification: Trees and plants in forests, Medicinal aromatic plants in the landscape and their importance, Identification and documentation of plant species and their uses, plant diversity in relation to habitat type, biodiversity assessment survey.	
Day 2		**Biodiversity conservation in the landscape**	
	2 hrs	a. Biodiversity conservation: Threats to MAPs in the landscape like premature and over extraction, illegal trade etc., Need for their conservation, biodiversity initiatives in the landscape, Harvesting techniques of MAPs	1. HPSBB, Shimla
	1 hr	b. Cultural Linkage with biodiversity: Social and cultural linkage with biodiversity like sacred groves, protection of forests near temple and cultural heritage sites etc., ecosystem services	2. FTI, Sundernagar
	2 hrs	c. Biodiversity Management Committee (BMC): What is BMC and its role in conservation, Formation of BMC, important stakeholders in BMC.	
	1 hr	d. People's Biodiversity Register (PBR): What is PBR? Need and importance of PBR, PBR preparation and maintenance.	

5.2 Five-year tentative landscape-level training calendar for stakeholders of Lahaul and Pangi

A five-year tentative training calendar is prepared for the stakeholders from different sectors involved in biodiversity conservation in the Lahaul-Pangi landscape. This calendar indicates the frequency of training programs to be conducted in the landscape for regular monitoring and implementation of landscape-level management plans. The calendar has been prepared based on training needs and capacity assessment of target stakeholders. The training institute may modify the given plan as per their schedule, curricula, stakeholder's demand and accessibility of the landscape.

Table 9: Five-year tentative landscape-level training calendar for stakeholders of Lahaul and Pangi

Training on major gaps	Duration and stakeholders	Year 1	Year 2	Year 3	Year 4	Year 5
Module 1- Training module on landscape level conservation in trans-Himalayan landscape of Lahaul and Pangi	3 days **Stakeholders:** Forest department staff, NGOs and local communities	April-May in Lahaul and Pangi	April-May in Lahaul and Pangi	April-May in Lahaul and Pangi	April-May in Lahaul and Pangi	April-May in Lahaul and Pangi
Module 2- Human wildlife conflict in high altitude range lands: Causes and Management	1 day **Stakeholders:** Forest department, Local communities	June-July in Lahaul and Pangi	June-July in Lahaul and Pangi	June-July in Lahaul and Pangi	June-July in Lahaul and Pangi	June-July in Lahaul and Pangi
Module 3- Training guide for Snow Leopard Monitoring and Population Estimation	2 days **Stakeholders:** Forest and Wildlife department	August – September in Lahaul and Pangi	August – September in Lahaul and Pangi	August – Septembe r in Lahaul and Pangi	August – September in Lahaul and Pangi	August – September in Lahaul and Pangi
Module 4- Training manual for capture, handling, transportation and health management of wild animals in trans-Himalayan landscape	2 days **Stakeholders:** Forest department (Range officers), Police department, local traders	July in Lahaul and Pangi	July in Lahaul and Pangi	July in Lahaul and Pangi	July in Lahaul and Pangi	July in Lahaul and Pangi
Module 5- Training module on Sustainable Agriculture and horticulture in Lahaul-Pangi landscape	3 days **Stakeholders:** Forest department, Gram Pradhan, Praja mandals, Mahila mandals and NGOs	May-June in Lahaul and Pangi	May-June in Lahaul and Pangi	May-June in Lahaul and Pangi	May-June in Lahaul and Pangi	May-June in Lahaul and Pangi

Training on major gaps	Duration and stakeholders	Year 1	Year 2	Year 3	Year 4	Year 5
Module 5- Training module on Sustainable Agriculture and horticulture in Lahaul-Pangi landscape	3 days **Stakeholders:** Forest department, Gram Pradhan, Praja mandals, Mahila mandals and NGOs	May-June in Lahaul and Pangi	May-June in Lahaul and Pangi	May-June in Lahaul and Pangi	May-June in Lahaul and Pangi	May-June in Lahaul and Pangi
Module 6- Training module on Monitoring, management and conservation of plant species in Lahaul-Pangi Landscape	2 days **Stakeholders:** Gram Pradhan, Praja mandals, Mahila mandals, MAP collectors, traders	August in Lahaul and Pangi	August in Lahaul and Pangi	August in Lahaul and Pangi	August in Lahaul and Pangi	August in Lahaul and Pangi

5.3 Training of Trainers (ToT) Workshop

The Wildlife Institute of India (WII) Dehradun organized a two-day training of trainers (ToT) workshop on 'Human-Wildlife Conflict Mitigation and Monitoring in Lahaul-Pangi region, Himachal Pradesh' for identified stakeholders on 6th and 7th November 2020 at the KVK hall, Kukumseri, Lahaul. The workshop's primary aim was to impart training to the forest and line departments' stakeholders on monitoring and mitigating human-wildlife conflict in the landscape(Annexure 13).

Outcomes of the training workshop

The training workshop's major outcomes were recognized based on feedback received from the participants after the workshop. After the technical sessions, the participants were engaged in an intensive discussion and were asked to state any HWC specific problems. Many concerns were voiced in the plenary, discussed and finally a feedback form was shared with all the 20 participants and questions were asked to fill the form based on their learning and experiences during the training program (Attached in annexure).The feedback response and suggestions received from the stakeholders helped in modifying and enhancing the training module as per their current capacities in dealing with HWC situations in the landscape.The feedback response from participants concluded that this program increased their sense of safety when living with wildlife, and enabled them to learn skills and gain confidence in using mitigation tools.

Table 10: HWC cases, animals and types of damages caused in the past 2 years in Lahaul (Reported by participants (n= 25))

Area/range/Beat	No. of cases	Conflict animal	Type of damage
Bardang	2	Brown bear	Crop damage
Salpat	3	Brown bear	Damageto apple orchards
Pattan	4	1. Wolf 2. Ghoral	1. Livestock loss 2. crop damage
Thirot	1	Wolf	Livestock loss
Keylong	1	Unknown	Livestock loss
Tindi	4	Brown bear, Rhesus macaque	Crop damage
Jobrang	1	Black bear	Livestock loss
Trilokinath	1	Brown bear	Crop damage
Udaipur	1	Brown bear	Livestock loss

A majority of participants (total participants, n=25) in the training workshop had reportedly faced conflicts with wild animals. Among theparticipants who faced conflict, the animal species of conflict reported the most frequently in Lahaul was the brown bear (38%), followed by black bear (21%), wolf (13%), monkeys (11.11%), ungulates (9%) and snow leopard (8%) (Fig.7).

Crop depredation by wild animals was the most prevalent type of conflict reported by the participants in different villages of Lahaul. Brown bear was reported to be the most prominent conflict species causing crop and orchard loss across Lahaul. Black bear, monkeys and ungulates like ghoral were also reported for crop depredation. Livestock depredation was the second type of conflict the respondents encountered in the villages of Lahaul. Livestock loss or depredation was caused most prominently by brown bear. Black bear was another livestock predator reported in last 2 years. While, wolf was responsible for livestock loss only in pattan range of Lahaul (Table 9).

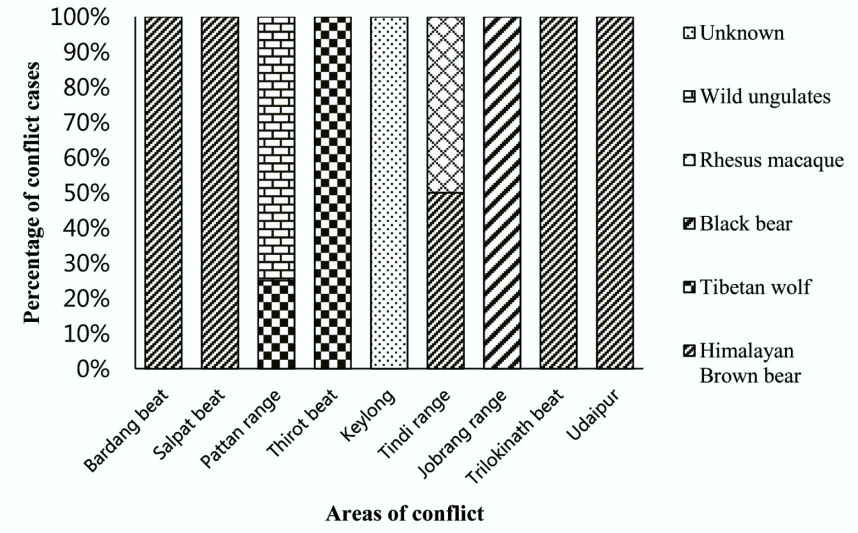

Figure 7: Percentage of species involved in conflict in past 2 years in Lahaul reported by participants who faced conflict in the landscape

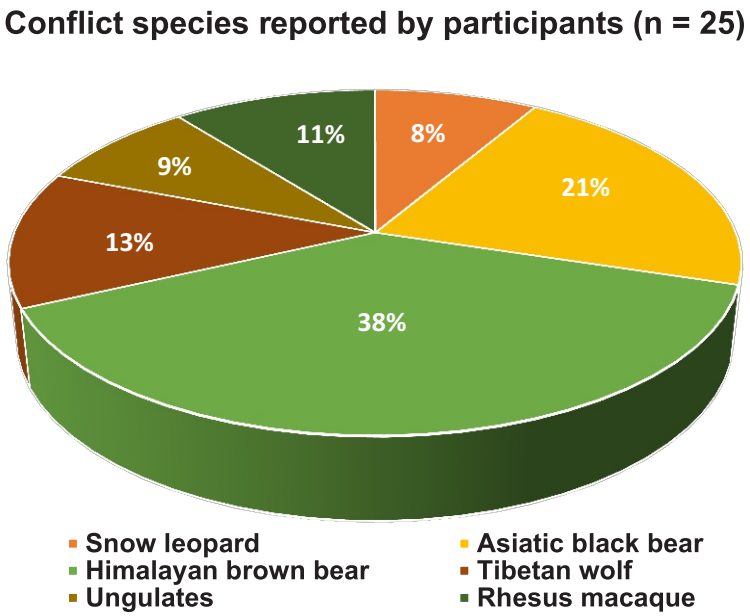

Figure 8: Major conflict species in Lahaul landscape reported by the participants in workshop

The participants were asked to mention the mitigation measures adopted by local villagers to mitigate HWC situation. The most common measures reported by participants were: Increased vigilance/guarding, guard dogs, making constant noise (whistling, shouting, beating drums), lighting fires, enclosed livestock shelters, using torch lights, etc. (Fig. 8). The participants also reported the forest and administrative department's mitigation measures like compensation schemes for livestock loss, subsidies on solar fencing, and livestock insurance.

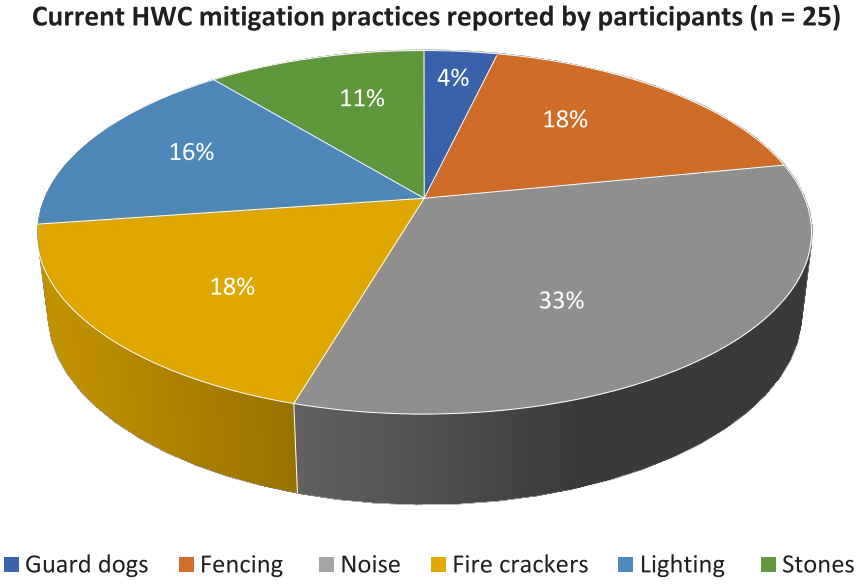

Figure 9: Current HWC mitigation measures adopted by local villagers in Lahaul landscape

Learning from the ToT

Mr. Dinesh Sharma, DFO - Lahaul, praised the idea of the training program after the successful introduction of the training program and said that most human animal conflicts can be prevented if people are aware of the biology and actions of the animals. This aspect is important not only for forest employees who deal with this every day, but also for villagers living on the edges of the forest. With the support of local people who are an integral part of landscape-level management policy, forest department participants considered training workshops helpful in building their capacity to reduce the chances of man-animal conflict incidences and contribute to better monitoring and conservation of forests and wild animals.

The participants were able:

- To understand the importance of wildlife and its conservation
- To assess the nature and extent of Human-Wildlife Conflicts in their landscape
- To learn techniques and tools like camera traps, loop pole, GPS and their importance in wildlife monitoring activities.
- To be well versed with the knowledge of animal ecology and behavior.
- To link ecology and factors related to such conflicts
- To understand the root causes of HWC and existing mechanisms for mitigationin the Lahaul-Pangi landscapes of Himachal Pradesh.

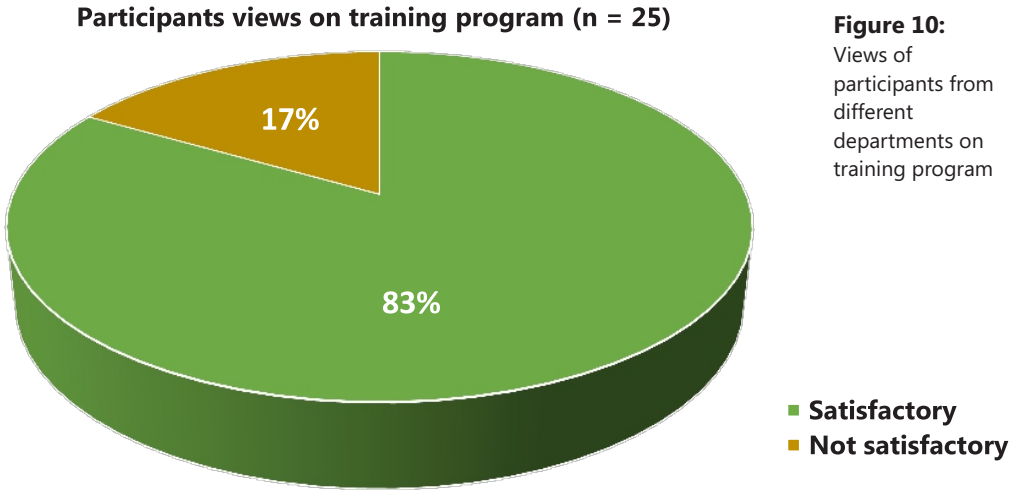

Figure 10: Views of participants from different departments on training program

Suggestions from the participants

The participants were asked to provide their experience on the training program and future suggestions based on their experiences. The participants suggested to:

- conduct such training programs regularly in the landscape
- provide hands-on training on radio-collaring and tranquilization of animals
- share the recent data on surveys conducted in Himachal Pradesh on wildlife monitoring
- conduct training programs on capturing and handling of animals during HWC situation

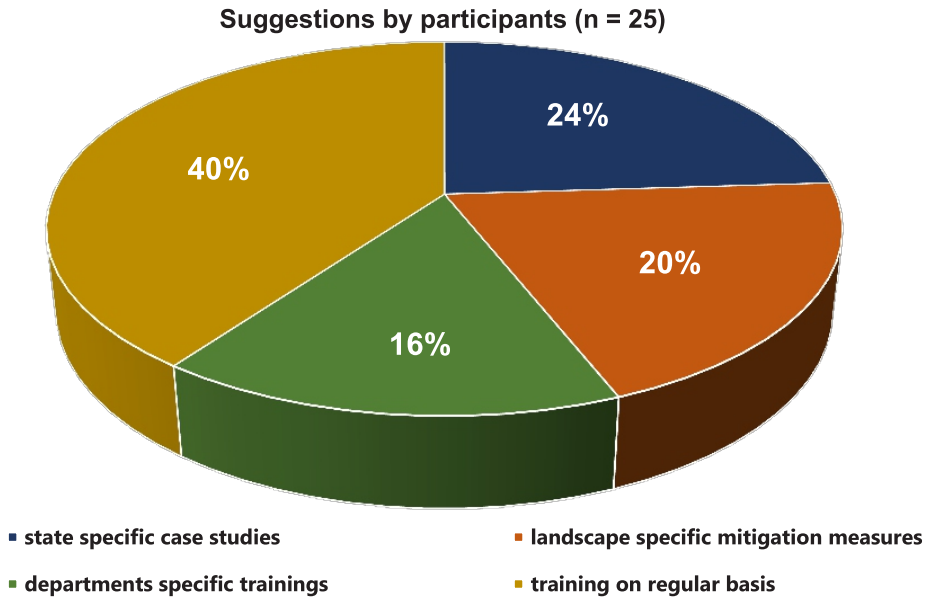

Figure 11: Suggestions by participants for future training programs

Conclusions and Recommendations

Our study illustrates the training needs for capacity development of the relevant stakeholders. This study's principle outcome are the training modules developed by WII as their proper implementation in the landscape is expected to lead to an improved management of high-range Himalayan landscapes for conservation of snow leopard and other endangered species habitats and to sustain ecosystem services. This is directly linked to output 1.6 "Capacity development for key government staff and community members for long-term and effective conservation of biodiversity." The modules and training programs will help build the key stakeholders' capacity, including staff of the respective forest and wildlife departments and other stakeholders, to manage the landscape's respective components for its conservation, including sustainable natural resource management and sustainable livelihood improvement to evolve workable management models. Pieces of training for forest and wildlife staff will also focus on spatial planning methods, mapping, implementation and monitoring landscape-level plans and development coordination.


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LIST OF ANNEXURE

Annexure 1: Outcome of state-level workshop and list of meetings conducted with the experts

State-level SECURE Himalaya Consultative Workshop, HFRI, Shimla	**12th March 2019**	**Outcomes of the workshop:** • Identification of gaps of different stakeholders • Development of strategies like TNA • Increasing awareness of local people about the landscape • Finding out alternative sources of income to alleviate the current resource base. • Finding out capacities of stakeholders and building their capacities.
Meeting with external expert, WII, Dehradun.	**26th March 2019**	**Outcomes of the meeting:** • Assessing capacities of givers (forest staffs) and takers (local communities) • Visiting of different institutes for collection of different training modules • Profiling of identified stakeholders • Consideration of exposure visits as a means of module delivery along with workshops.
Meeting with external expert, WII, Dehradun.	**12th April 2019**	**Outcomes of the meeting:** • Establishing a linkage of the identified stakeholders with the SECURE landscape. • Identification of gaps and capacity needs of profiled stakeholders
Meeting with external expert, WII, Dehradun.	**18th April 2019**	**Outcomes of the meeting:** • Few more important stakeholders were suggested like Praja Mandals who organize community to community training so that they could be used as a resource person.

Annexure 2: Questionnaire prepared for relevant stakeholders for the preliminary survey during the field visit in the landscape.

1) Name of the person answering the question:
2) Aadhar Card No.
3) Mobile Phone No.
4) Social Structure:
5) Demography:

Hamlet/Para	Households	Females	Main Occupation	No. of household members involved	Subsidiary occupation
Land use Pattern					
Land use type	Forest	Degraded	Home garden	Habitation	Any other
Livestock					
Category	No. of livestock	Livestock feed source	Grazing grounds	Trend in the last 10 yrs	Annual income / Animal
Economic Status					
APL	BPL	Antodaya	Ration card holder	No. of Ration Card Holder	

Hamlet/Para	Households	Females	Main Occupation	No. of household members involved	Subsidiary occupation
NTFP Collection and Consumption/MAP					
Bamboo	Medicinal plants	Mushrooms	Berries	Others	Market linkage

If Medicinal Plant Collector

1. Is their family income sufficient to support their family needs?
2. Earnings –
3. What are the medicinal plants that they collect?
4. Where do they collect it from?
5. Market value of these medicinal plants –
6. Do they know anything about use of these medicinal plants?
7. Do they collect it for their own use or for market sale?
8. Do they have any alternative source of income? If yes, what?
9. If they sell it, whom do they sell it to?
10. Is there any direct link with the state medicinal boards/depts of?
11. Are they under any schemes provided by the government?

If Homestay Owners

1. Is their income sufficient to support their family needs?
2. Do they have any other source of income?
3. Earnings from the home stay –
4. Any particular marketing strategy or administrative strategy applied?
5. Rate of tourist visits in the year –
6. Are they under any schemes of the government?

If Weavers

1. Is their income sufficient to support their family needs?
2. Do they have any other source of income?
3. What kind of weaving techniques do they use? Traditional/ Modern/ both?
4. Do they get any kind of help from the handloom and handicraft department?
5. Are they under any schemes of the government?
6. What is the source of the wool they use?
7. Household purpose/ sale purpose?
8. Whom do they sell it to?
9. Any idea about marketing strategy?

Women And Women Groups

1. Are they linked with a any kind of profession?
2. What are the kinds of activities they are engaged with?
3. What are the kinds of difficulties they face while performing those activities?
4. Are they under any schemes of the government?

NGOs

1. Constitution/ composition of NGO –

2. What are the kinds of activities the NGOs target to perform?
3. Do they get any help from the government?
4. Do they face any kind of difficulty to perform their activities?
5. Which are the areas they think that the locals lack awareness about?
6. What kind of help the government agencies do they think could be of help?

Annexure 3: Questionnaire for Line departments

1. Name of the officer being interviewed:
2. Designation:
3. Department:
4. Information of schemes run by the department:
5. Mission programme run by the department:
6. Routine Programme
7. Training given by the Department
8. List of people who underwent training / venue/ trainees:
9. Staff working at ground level (details Contact no.)/ Block level officers:
10. Capacities of staff:
11. Annual report of the department:
12. Human resource development programme if any:
13. Any sustainable technology practiced by the department:
14. List of technology that has been applied in field level:
15. Evident GAP's while dealing with the local people of the landscape:

Annexure 4: Questionnaire for Forest Department

1. Name of the Officer:
2. Age:
3. Contact No.
4. Designation of the officer:
5. Educational qualification:
6. Area under surveillance:
7. Name of the WLS/ NP/Range/ Beat:

Major job/Task	Frequency/Performance	Understanding Status	Proficiency of task completed
Seldom	Marginally Imp.	Easy	Can't Complete
Occasional	Moderately Imp.	Moderate Difficult	Can complete (less than half)
Weekly/Monthly	Extremely Imp.	Difficult	Can complete (more than half)
Daily		Very Difficult	Whole but takes long time or can complete in time

8. Any relevant task performed in the past?
9. What is the general problem you face in task completion?
10. Which job do you find easy to perform and why?
11. Why are other jobs difficult to perform?
12. What are your immediate training needs?

Annexure5: Details of meetings held in different villages during the field visit conducted in Lahaul-Pangi Landscape (June 2019- August 2019)

Pangi: June – July, 2019

1. Killar Panchayat, Pangi

Date of Meeting: 15/June/2019

The one-day workshop that was conducted at Killar village had participation of over 40 members representing different departments viz. forest department (forest guards), Tribal Advisory Committee (TAC) member, mahila mandal, youth club members, line department members, panchayat pradhan and panchayat members. A consultative group discussion was organized involving all the participants. Village panchayat and local people highlighted that the issue of HWC, over-grazing and illegal over-exploitation of medicinal plants is the major problem in the village. The major gaps and training need as expressed by forest department staff were lack of proper training about wildlife monitoring and conflict management techniques. Training on basic equipment such as GPS, binoculars, spotting scopes, camera traps, and use of animal immobilization equipment. TAC members pointed out that people of the village have good knowledge about forests, but lack awareness about management.



Image 1: Discussion on major conservation issues with Villagers and Forest staff of Killar village

2. Hudan Bhatori, Pangi

Date of Meeting: 17/June/2019

Representatives in the meeting were panchayat pradhan, mahila mandal member; youth club, front line staff of forest department and around 25 people attended the workshop. Youth club members raised issue that people of the village are aware of the local use of medicinal plants but lack of knowledge of their commercial value. Panchayat member pointed out the need to enhance the co-ordination between among the government department and local

community. Forest front line staff pointed that illegal and over-exploitation of MAP's is the major concern of the locality and lack of knowledge about plant taxa identification.

3. Karyas Panchayat Pangi

Date of Meeting: 20/June/2019

Around 58 people attended the workshop. Representatives in the meeting were RFO and front line staff, School teachers, Gram panchayat Up-Pradhan, Mahila Mandal member, and Eco club members. The key issue raised was the lack of knowledge of the presence of BMCs in the village and their position and need for training for forest frontline employees in plant identification skills. Mahila Mandal raised the issue of monkey menace and loss to their cultivations as this is major concern for people and directly affects their livelihood.

4. Sural Panchayat Pangi

Date of Meeting: 21/June/2019

A total of 42 participants attended the workshop. Various representatives from forest department, gram pradhan and member secretary, BDC members, agriculture department, mahila mandal, youth and eco club members participated in the workshop. It was highlighted that the praja mandal system wasa unique system. The department of agriculture suggested theneed forinitiating certification for organic farming to promote chemical free cultivation in the landscape. Local community discussed the issue of human-animal conflict, particularly brown bear, which is very common in the area and villagers are facing severe damage caused to agricultural fields and natives. Youth club and eco club suggested to promote SuralBhatori as a tourist hotspot with sustainable ecotourism practices which could generate alternate livelihood opportunities for the local community.



Image 2: Meeting and group discussion in Sural village (Pangi) with various stakeholders

5. Dharwas Panchayat Pangi

Date of Meeting: 28/June/2019

Representatives in the meeting were forest department, gram pradhan and member secretary, BDC members, and mahila mandals. It was pointed out that illegal and premature extraction of medicinal plants, is resulting in decline in the floral wealth of the locality. Human wildlife conflict is a major issue of the area, especially by black bear. Forest department needs to build its capacity in wildlife management techniques.



Image 3: Meeting with various Stakeholder's in Dharwas

6. Saach Panchayat, Pangi

Date of Meeting: 30/June/2019

Vrious representatives from the forest department, local community, BDC Members, Mahila Mandals, agriculture department staff attended the workshop. Panchayat members stated that people are very well aware of their resources and they utilize them sustainably, but exploitation through outsiders is a threat to the MAPs. Forest staff pointed out that a major issue regarding the extraction of flora is the lack of proper training and equipment's with the forest department such as camera traps, guns, and ammunition, etc. Saach Panchayat also practice fertilizer free agriculture hence the locals would benefit from organic certification which could help in improving the commercial value of the crops produced



Image 4: Stakeholder Meeting in Saach village, Pangi

7. Kuthel and Ghisel Panchayat, Pangi

Date of Meeting: 2/July to 3/July/19

In total 86 people from the villages attended the workshop. Representatives included officials from the forest department, local community, BDC members, mahila mandals, agriculture department staff and others. Panchayat members pointed out the cases of brown bear attacks which cause extensive damage by destruction of entire crop fields. Monkey menace is also a major issue and damage caused to their crops by these animals is severely affecting their livelihood. BDC member and forest departments also discussed about illegal MAP extraction and poaching in the areas adjacent to Sechu Tuan wildlife sanctuary.



Image 5: Meeting and focal discussion with different stakeholders in Kuthel village (Pangi)

8. Sechu Tuan Panchayat, Pangi

Date of Meeting: 6/July/2019

More than 50 participants attended the workshop in Sechu Tuan village. Representatives in the meeting were from the forest department, local community, praja mandal member, BDC members, pradhan and up-pradhan of Chasak panchayat. The Range Forest Officer discussed the various issues in Sechu Tuan wildlife sanctuary like lack of forest frontline staff which makes it difficult to monitor huge forest innings for forest guards and an overall lack of coordination with local community. These gaps were considered as big challenges in controlling illegal activities in the forest area of Dhar Sidhani which is very rich in all aspects of biodiversity. Human-Wildlife conflict is also a key issue of the area, which greatly affects the livelihood and agriculture of the local community.

9. Chasak and Chasak Bhatori, Pangi

Date of Meeting: 8 July – 9 July 2019

Chasak Bhatori is one of the main hotspot areas of Snow Leopard sighting situated at the height of around 4200m above sea level. A total of 68 people attended the workshop with substantial attendance from Mahila Mandal. In the workshop, Officiating Resident Commissioner of Pangi Sh. Vishrut Bharti and Tehsildar Sh. Praveen Sharma were also present. Representatives in the workshop were from Forest department both territorial wing and wildlife wing, Agriculture Development Officer, local community. Praja Mandal plays a vital role in the conservation of Betula utilis forest of the Bhatori. Heavy fine and social boycott is the main penalty for anyone who violates the rules of the Praja Mandal and does illegal extraction of timber and poaching in the *Betula utilis* forest.



Image 6: Meeting with villagers in Chasak Bhatori (Pangi)

Important takeaway points from the above workshop:

1. The participants including the forest department and local community, suggested the need for trainings on identification of floral and faunal species in the region and their importance.
2. Lack of awareness among local people regarding the government schemes being run by the forest and other line department was also highlighted by the local villagers.
3. Forest department suggested providing short hands-on trainings and exposure visits on better wildlife management techniques.
4. Need to conduct awareness programs for education department (schools and colleges) and local community regarding existing biodiversity in Pangi valley and importance of its conservation.

Lahaul: June – July, 2019

1. Tindi Panchayat, Lahaul

Date of Meeting: 11/June/2019

A small meeting on consultative focal discussion was conducted in Kuthal village of Tindi Gram Panchayat; around 40 people participated in the workshop. Representatives in the meeting were from Forest Department, TAC (Tribal Advisory Committee) member, Mahila Mandal member, Youth Club member, Line Department members, Panchayat Pradhan and Panchayat members. During the discussion, BDC member Sh. Sanjeev Kumar informed about the FAM diseases in Ibex spreading from the livestock that graze the meadows. He also mentioned about the lack of awareness about BMC and PBR among the local people. Local people added that Human-animal conflict is very high in the region especially that of black bear as it is causing a huge loss to agricultural crops during the cultivation season. Over-utilization and premature harvesting of medicinal plants was stated as the major cause for the decline in floral population in the landscape.

Important takeaway points from the above workshop:

1. Local people suggested that spreading of FAM disease to ibex from livestock that graze the meadows is a major issue that need to be addressed by the forest departments.
2. Local people need to be aware of the existing government schemes of agriculture, horticulture and animal husbandry department.
3. Over-utilization and premature extraction of medicinal aromatic plants by outsiders are major reasons for their decline in the area.

Annexure 6: Key points highlighted from focal group discussions, interviews and questionnaire surveys

Theme	Forest Department	Line Departments	Local Community
Biodiversity monitoring	Need for training on basic equipment such as GPS, binoculars, spotting scopes, camera traps, and use of animal handling equipment Limited physical and technical resources making it difficult to monitor the large forest areas	Key issue raised was the lack of knowledge of the presence of BMCs in the village and their position Mismanagement of Putan and grazing permit leading to over-exploitation of floral diversity	Locals have good knowledge about forests, but lack awareness about management Need for awareness on existing government schemes of agriculture, horticulture and animal husbandry department
Biodiversity conservation	Monitoring of grazing permits for migratory herders Involvement of youths and education department in biodiversity awareness activities	Need for initiating certification for organic farming to promote chemical free cultivation in the landscape Awareness programs for education department (schools and colleges) regarding existing biodiversity in Pangi valley and importance of its conservation	Praja Mandal plays a vital role in the conservation of *Betula utilis* in the Bhatoris and chilgoza (*Pinus gerardiana*) in Luj forests.
Human wildlife conflict	Training need on control and prevention of Human bear conflict Forest department suggested providing short hands-on trainings and exposure visits on better wildlife management techniques	Veterinary department reported the issue of contagious diseases spread in Ibex from livestock that graze in the meadows Regular animal health monitoring should be encouraged among migratory herders	Local community discussed the issue of human-animal conflict, particularly brown bear and monkey Awareness on compensation schemes by forest department and promoting timely imbursement on loss of animal in conflict situations
Medicinal aromatic plants	Front line staff pointed out illegal and over-exploitation of MAP's as the major concern of the locality and lack of knowledge about plant identification.	Need for training on sustainable harvesting and use of medicinal plants Need for training on product extraction from medicinal plants	People of the village are aware of the local use of medicinal plants but lack of knowledge of their commercial value
Tourism	Awareness program on eco-tourism and promotion of wildlife tour guide for youths	Eco-tourism contributes to conservation and local community by providng business opportunities and interaction with wildlife	Promotion of homestay culture in the landscape for livelihood generation Youth club and eco club suggested to promote Sural Bhatori as a tourist hotspot with sustainable ecotourism practices which could generate alternate livelihood opportunities for the local community

The villagers' response based on questionnaires used (annexure 2) is described in following figures.

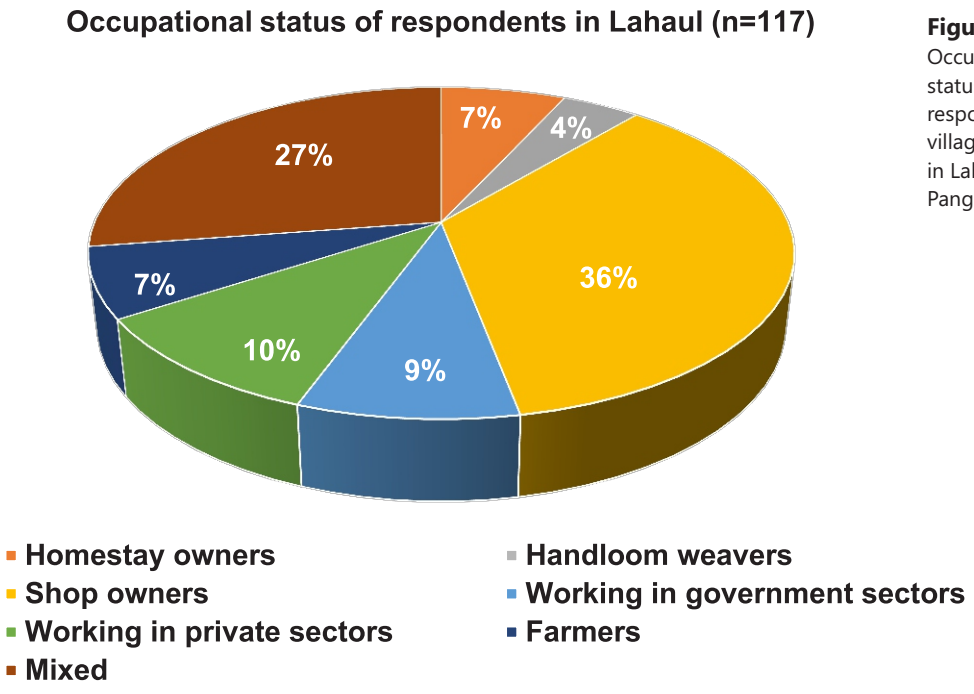
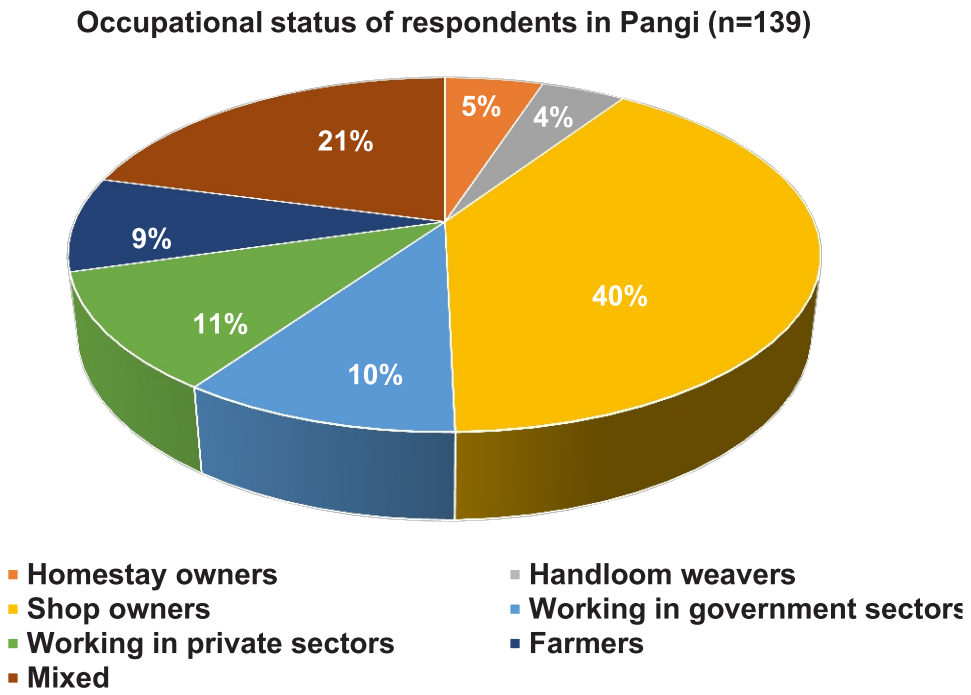


Figure 1: Occupational status of respondents from villages surveyed in Lahaul and Pangi landscape



Pangi landscape

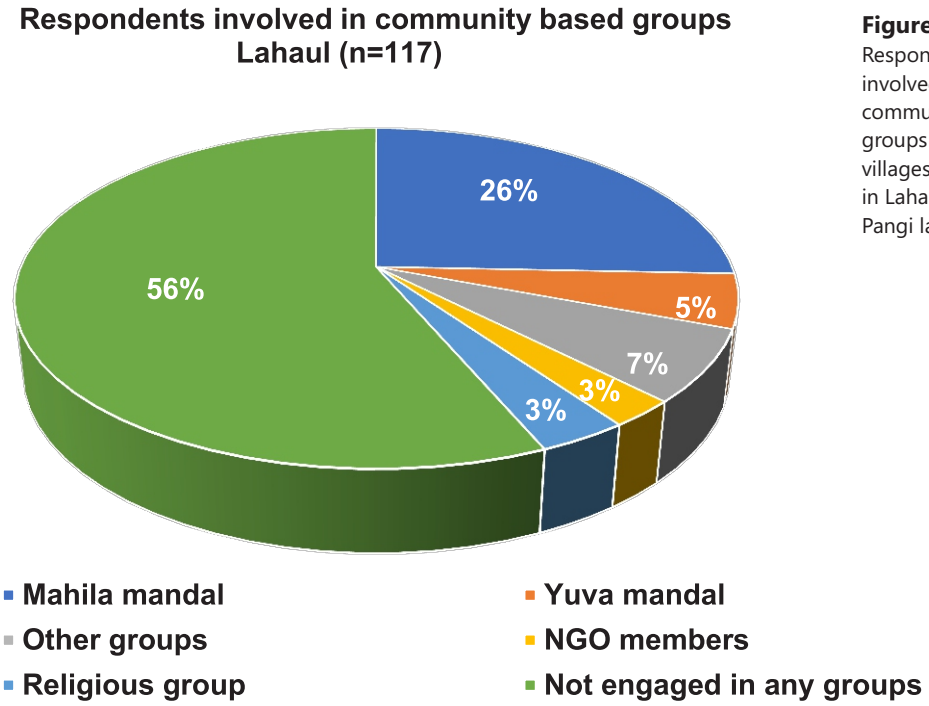
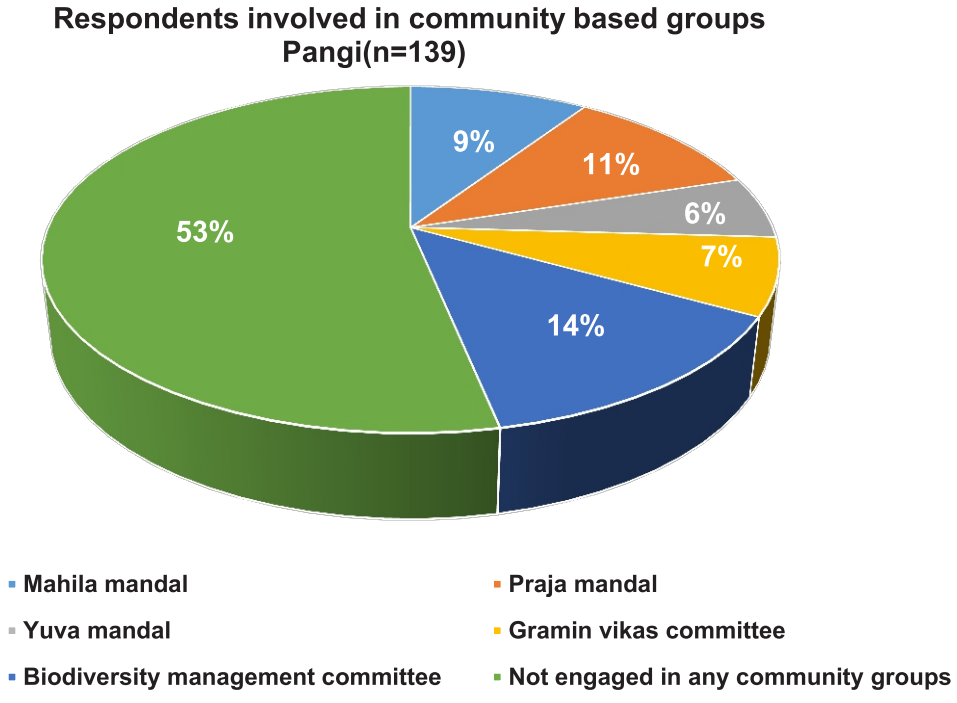
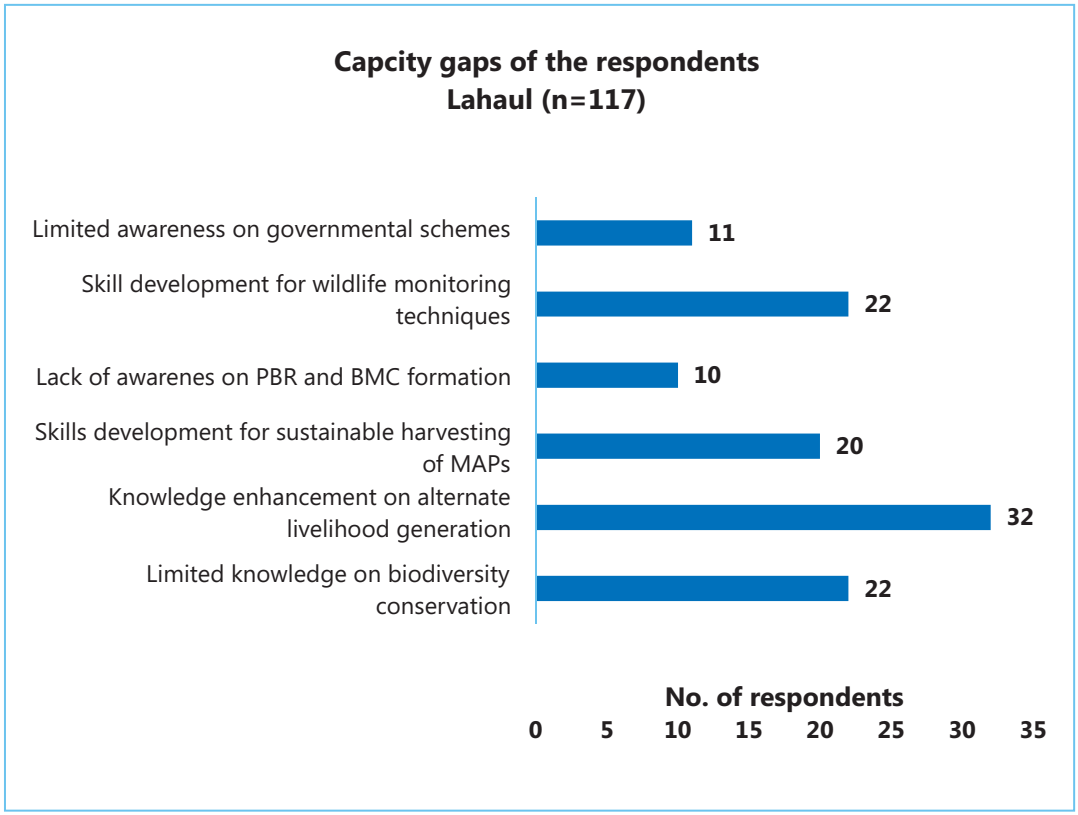


Figure 2: Respondents involved in community based groups from villages surveyed in Lahaul and Pangi landscape





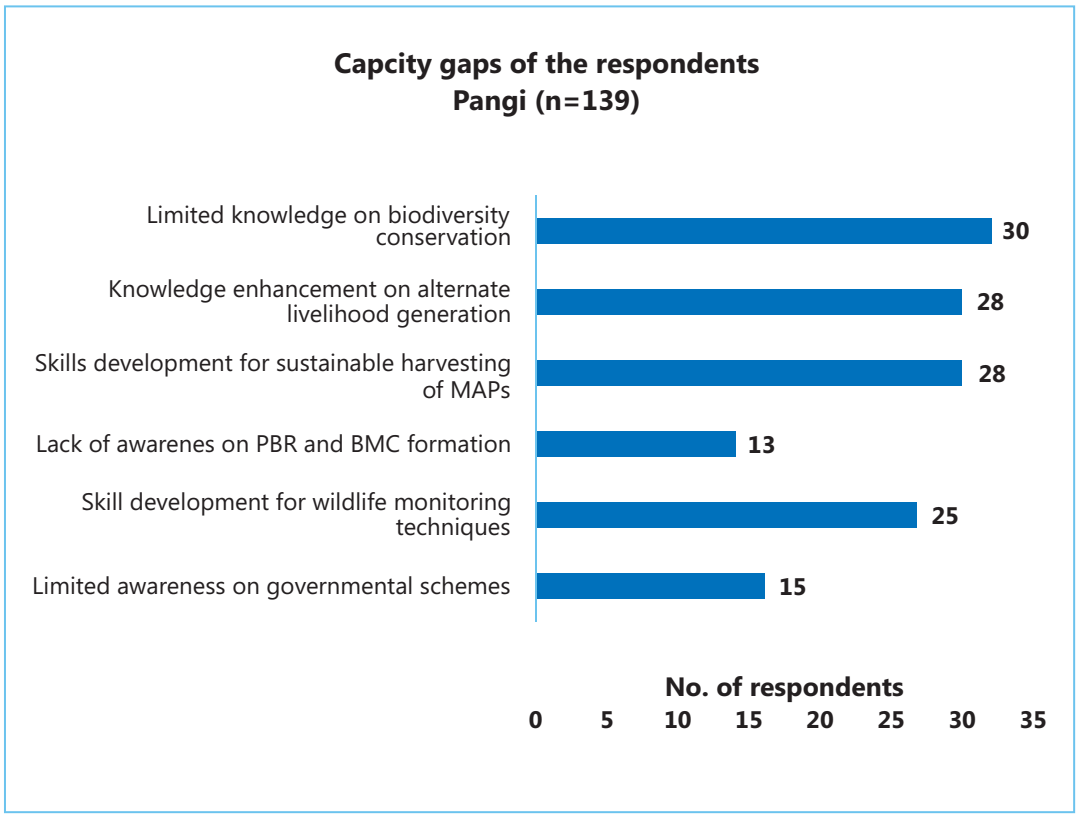


Figure 3: Capacity gaps of the local villagers identified from the villages surveyed in

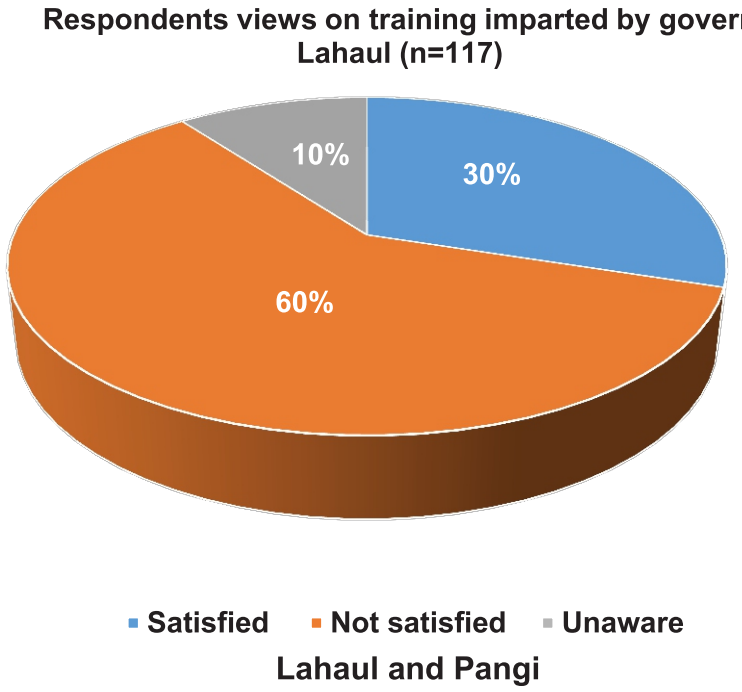
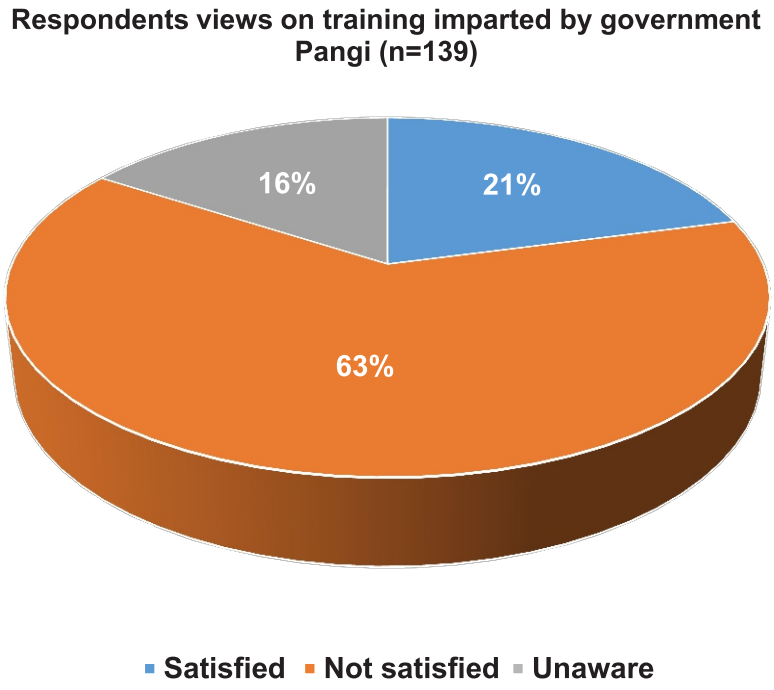


Figure 4: Views of respondents on training programs conducted in the villages surveyed in Lahaul and Pangi



Annexure 7: Indicative threat analysis and their linkages with targeted stakeholders in Lahaul-Pangi region

Conservation Concerns/Threats	Stakeholders		Training needs of stakeholders		Training Institutions Identified
	Primary	Secondary	Major	Partial	
Poaching and illegal trade of wildlife	• Forest department • Border security forces (ITBP) • Police Department • Judicial officers • Customs department	• Praja Mandals • Local community • BMCs • NGOs • Pastoralist groups	• Wildlife census techniques • Monitoring of illegal activities • GPS handling • Knowledge of laws	• Awareness on endangered and threatened species • Training on monitoring of wildlife and illegal activities in respective villages.	Wildlife institute of India, Dehradun FTI, Sundernagar and Chail
Exploitation of Medicinal Aromatic Plants	• Forest department • Agriculture department • State medicinal plant board • BMCs • Ayurveda department	• Praja Mandals • Mahila Mandals • Local community (Local farmers) • Gram panchayats	• Identification of important MAPs • Monitoring the details of putanpermit issue • Documentation of MAPs and harvesting frequency and quantity	• Awareness about BMCs and PBRs • Identification of medicinal plants and uses • Harvesting time andtechniques of MAPs and Marketing linkages	HPAU, Palampur SAMETI, HPSBB, Shimla
Spreading of contagious disease from cattle herds	• Animal Husbandry and Veterinary department	• Forest department (Range officers) • Local community	• Vaccination to cattle and certification	• Awareness of diseases spreading from stray animals	Indian Veterinary Institute
Unsustainable agriculture practices	• Agriculture department (AEOs) • Horticulture department (HEOs)	• Local farmers	• Identification and prevention of crop disease • Introduction of crop barriers to prevent human-animal conflicts	• Modern agriculture techniques • Awareness of various government schemes	HPAU, Palampur SAMETI

Conservation Concerns/Threats	Stakeholders		Training needs of stakeholders		Training Institutions Identified
	Primary	Secondary	Major	Partial	
Man-animal conflicts	• Forest department (Frontline staff, ROs and DFOs)	• Praja Mandals • Local community	• Trainings on SOPs with Do's and Don'ts during wildlife conflict • HWC mitigation strategies	• Awareness on importance of wildlife • Involvement of Youth in emergency rescue teams for HWC management	Wildlife institute of India Forest Training Institute
Awareness on biodiversity conservation	• Local community • Educational departments	• Praja Mandals • Mahila Mandals	• Awareness programs for teachers and students	• Awareness programs for local community members	Wildlife institute of India, Dehradun, Local NGOs

Annexure 8: Report on District Level workshop 1: Pangi: 24th -25th September, 2019

Introductory Session

The workshop was inaugurated by Mr. Shukdev Singh, Resident Commissioner, Killar where he described the "SECURE Himalaya" project and its three components. Mr. Shukdev Singh gave an introductory speech where he raised his concern regarding the increasing human population in Pangi Valley and overexploitation of natural resources that can lead to adverse effects on wildlife and their habitats.



Image 1: Inauguration and introduction of the participants in the workshop

Dr. Amit Kumar, Scientist-C, WII, welcomed the participants and explained the Capacity Building assignment's objectives under the SECURE Himalaya project in Himachal Pradesh entrusted to WII. He spoke about Snow Leopard, the key species and how it aims to ensure its long-term survival. Concerns about major threats to the survival of snow leopard and its prey species (blue sheep, Himalayan ibex etc.) in Pangi valley were raised where illegal poaching of certain animal species and over extraction of MAPs were few of them. The participants were informed that since the commencement of the project, WII has conducted various stakeholder consultation meetings during the field visits in Lahaul and Pangi landscapes with forest department, line departments, NGOs, local community and research and training institutes who have knowledge and experience of working in the SECURE Himalaya landscapes. The meetings resulted in acquiring preliminary knowledge of the overall landscape profile, threats and challenges, relevant stakeholders, and training needs. Based on the focused group discussions and key informant interviews conducted by WII in the project landscape with the departments, research and training institutions, NGOs, community institutions and individuals- main stakeholders were identified for the TNA. Later WII with the support and facilitation from the forest department and UNDP, conducted several meetings and focal discussions for identification of stakeholders in Lahaul and Pangi villages. The meetings focused on assessing capacity gaps and subsequent training needs, training topics and modules. A draft strategy and framework development for capacity building was then developed based on the TNA workshops/meetings' inputs.

Technical session 1

During the first session, Ms. Bhawna Pandey (Project Associate, WII) elaborated Capacity Building Component's objectives. The role of local communities and the Line Departments (Forest Department, Agriculture Department, Horticulture Department, Animal Husbandry etc.) as major stakeholders for long term protection of the landscape biodiversity and survival of snow leopard and its prey species were explained. The assignment's approach after identifying the key threats and challenges in the project landscapes was discussed with the target stakeholders, which were directly linked to mitigation of key challenges and threats to biodiversity in the landscapes.



Image 2: Discussion on concept of capacity building and role of stakeholders

Based on the training needs, training topics with specific content were suggested and the duration of training program for each topic. Thus, the entire framework of aligning stakeholders with SECURE Himalaya project outcomes, existing capacity gaps and training needs, training topics was presented to the participants for their feedback and discussions.

Technical Session 2

In the second session, a group activity was conducted to bring out suggestions from the stakeholders. The participants were divided into three groups: representatives from the Forest Department, Mahila Mandals, Animal Husbandry Department, Agriculture Department and Local Community. This group division was done to ensure all stakeholders' integration and provide a platform for open discussion among them. After an elaborate group discussion, one representative from each group was invited to talk about the discussions among them and suggestions and key points were noted.



Image 3: Group discussion among stakeholders on major threats and issues foe biodiversity in Pangi valley

The forest department's frontline staff put forward specific facts and issues on the status of biodiversity conservation and people's role in Pangi valley. They mentioned the importance of Hudan Bhatori for HCV because of its richness in medicinal plants. They urged for its protection which is possible only by raising awareness among local people and forest department and their active participation. Participants suggested that a village management committee should be formed in each village of the valley to decide time and quantity of medicinal plants permitted to be extracted per year which could help in management over-exploitation and ensure sustainable use of these medicinal plants.



Image 4: Group discussion among stakeholders on major threats and issues foe biodiversity in Pangi valley

The Mahila Mandals raised their grave concern regarding infiltration of outsiders. Nepalis intruding in the valley was discussed, which led to increased pressure on the natural resources of the adjoining areas. This infilteration has adversely affected the locals and was a matter of threat to their future generations because overexploitation of their natural resources leads to its extinction in the valley. Praja Mandal in the valley is in charge of monitoring and taking actions to conduct any illegal activity in the forest areas. But this is only in case of local people of the areas. For outsiders' control, a better and trained system to protect these biodiversity rich areas is required. The members of Praja-mandals suggested a need for co-ordination with the forest department and police department in such cases.



Image 5: Representatives of forest department and Mahila Mandal presenting their views after the discussion

The forest department further discussed the lack of awareness among local people about the sustainable use and commercial value of medicinal aromatic plants and many faunal species in Pangi valley. These plants get exported to different places, mainly China, where they have a fair market value and are used for the preparation of medicines and other products. This further lead to a decrease in the market price of medicinal plants in the region, which is feared to decrease even in the future. The local community of the valley needs awareness on uses and commercialization of medicinal plants and a BMC committee to maintain the same records to avoid this arising crisis.

The forest department stressed the need for training in advanced techniques and equipment to perform their duties and protect the forests and wildlife efficiently. They further stressed the importance of the involvement of local communities for the protection of the forests. Praja mandals and Mahila mandals play a crucial role in protecting the existing biodiversity in coordination with forest department and they are one of the most active groups in the area.



Image 6: BMC chairman and forest guard talking about lack of awareness among people in Pangi valley

The BMC members stated that people generally think of solutions only when they are in trouble. Still, they should act faster than the local communities, and the line departments should be aware of the current situation through awareness programs and frequent meetings with the departments. Members of the BMC further suggested that the forest department be strict about issuing grazing permit because the grazers take more animals than the actual number stated in the permit. This causes overexploitation of the alpine meadowlands and there is also an increased fear of various fatal diseases being spread through the wild animals. Reports of grazers poisoning the dead animals to kill the wild animals feeding on their carcass were also debated.

Mr. Indra Prakash, BMC Chairperson, Killar, suggested linking Putan Permit (permit for extraction of medicinal plants from the forest) with the Aadhar Card of the respective permit holder for collection of medicinal plants with their photos so that no outsider can utilize the permit. This was suggested to prevent the illegal collection and overexploitation of medicinal plants. Forest department and Praja mandals were suggested to be trained in identifying and using the medicinal plants present in the region. It was also suggested that when a local person sells medicinal plants, he should get the details(name of the plant, quantity being sold and area from where it was extracted) of it stamped by the BMC so that BMC would be officially informed regarding the same and a record of all the selling and purchase should be maintained for future reference. Few members of the Forest Dept. suggested that the Pangwals should be made aware regarding the medicinal values of Junglee Lehsoon (*Fritillaria roylei*), their market price and the adverse effects on the overexploitation of it.



Image 7: BMC member and Panchayat samiti member suggesting to follow rules on issue of Putan permit

Mr. Veer Singh Rana who represented the Panchayat Samiti of Killar, raised the issue of monkey menace in village Luj and Dharwas resulting in massive crop loss. The Panchayat Samiti member recommended the involvement of local communities in conservation by training them in identification of the different important floral and faunal species present in the landscape and their uses and commercial values so that these species do not get drained from the valley into the hands of the outsiders but remain within the landscape for the local people to use it in sustainable way. Mrs. Ram Sheela, who represented the Mahila Mandal, Killar, suggested that like the Pangwals every person should be made aware of the forest laws so that the forest resources could be utilized properly and illegal activities could be prevented.

Technical session 3: Validation of Scorecard and Proposed Training Modules

The third session was dedicated to validation of the proposed training modules, which were prepared on the basis of TNA and gap analysis done during the field visits and village level workshops and meetings.

A total of 17 training needs were identified by the capacity building component along with concept notes for each training need. These training areas were targeted for all stakeholders including forest department, agriculture department, horticulture department, animal husbandry department, police department, education department and local communities. The first part of the session was about revalidating the proposed modules on training needs by an open discussion with respective stakeholder groups. This was done to validate the training programs included in the modules and to include a final customization of the training programs based on their specific requirements. Dr. Sanjeev Rana, Senior Veterinary Officer, Pangi suggested that training on animals' first aid should be included within the module "Handling, management and transportation of wild animals". Mr. Indra Prakash, BMC Chairperson, Pangi suggested a training module for linking traditional medicinal plants with scientific names and photo identification. BMC members also requested for training on other aspects of horticulture and off-season mushroom cultivation. Horticulture department, (Killar) requested training on cultivation techniques of other temperate crops like grapes, pear, wild strawberries and blueberries. This could provide a good source of income to the local farmers in future. Mr. Biru, a member of a local NGO, Killar suggested that some other training could also be added like cheese production techniques and hazelnut cookies and chocolate production techniques along with the listed hands-on training in the module.

Important takeaway points from the workshop:

1. Awareness regarding different aspects of MAPs among local people and forest department is very crucial. These

aspects include identification of different high value medicinal plants, their uses and importance of their conservation.

2. Proper monitoring is required while issuing grazing permits to the Gaddis to avoid over-grazing issues and their impacts in the meadows.

3. Trainings required on advanced census and monitoring techniques to control illegal activities in forests like poaching, trade of wildlife, intrusion by outsiders etc.

4. Putan Permit (permit issued for collection of medicinal plants to local natives) could be linked with Aadhar card and photo of the respective person to prevent transfer of permit to others and manage illegal and premature extraction of MAPs.



धर्मशाला, 25 सितंबर 2019 दैनिक जागरण 3

देहरादून की टीम खोज रही पांगी में जड़ी-बूटियां

संवाद सहयोगी, पांगी : पांगी मुख्यालय किलाड़ में सिक्योर हिमालय उच्च संरक्षण मूल्य क्षेत्रों की पहचान के लिए दो दिवसीय कार्यशाला का आयोजन किया गया। इसकी अध्यक्षता आवासीय आयुक्त पांगी सुखदेव सिंह राणा ने की। उन्होंने बताया कि सिक्योर हिमालय उच्च संरक्षण मूल्य क्षेत्रों की पहचान करने के लिए प्रबंधन की योजनाओं को विकसित करने के उद्देश्य से भारतीय वन्य जीव संस्थान देहरादून की टीम पांगी व लाहौल घाटी का दौरा कर रही है। पांगी की 16 पंचायतों में वन्य प्राणी अभयारण्य स्थल टॉवन सैचुनाला का करीब दो माह तक सर्वेक्षण करने के बाद पांगी में पाए जानी वाली जड़ी-बूटियों व वन्य जीवों के बारे में महत्वपूर्ण जानकारियां हासिल की जाएंगी। पांगी घाटी में दस प्रकार की जड़ी-बूटियां लोगों की आर्थिक स्थिति को सुदृढ़ करने में सहायक सिद्ध होंगी।

उन्होंने बताया कि भारतीय वन्यजीव संस्थान के विशेषज्ञों ने दो दिवसीय कार्यशाला किलाड़ में आयोजित की। कार्यशाला का उद्देश्य संस्थान द्वारा तीन महत्वपूर्ण परियोजनाओं के बारे में लोगों को जानकारी उपलब्ध करवाना है, जो जड़ी-बूटियों, क्षमता निर्माण और उच्च संरक्षण के संदर्भ में हैं। संस्थान के परियोजना अधिकारी डॉ. अमित कुमार ने कहा हिमालय में कई प्रकार की जड़ी-बूटियों पाई जाती हैं। इसके साथ जंगली जानवर व जीव पाए जाते हैं। इससे हमारे और प्रकृति के बीच संतुलन बना रहता है। उच्च संरक्षण मूल्य क्षेत्रों की अंतरराष्ट्रीय स्तर पर सहमत छह श्रेणियों इस काम का आधार हैं। डॉ. रुपाली ने कहा पांगी के जंगलों में कालाजीरा, वन ककड़ी, जंगली लहसुन, चुकारी सलाम मिश्री, इंडियन रहुबरब, सिपकेड़ रहबारब, सलाम पंजा, आतिश, कद्दू रेवेंन, चीनी मीठी पतीश, कुठ समेत कई जड़ी-बूटियां पाई जाती हैं। इनका दोहन कैसे किया जाएगा, यह बताना बहुत जरूरी है। ज्यादातर लोग इन्हें कच्ची निकाल देते हैं, जिससे यह चीजें लुप्त होने लगी हैं।

इस मौके पर भारतीय वन्यजीव संस्थान व शोधकर्ता हिमांशु, रुमाली, भावना, निधि, मोनिका, मनीषा, भूपेश, शिव व मेघमा ने पांगी में पाए जाने वाली जड़ी-बूटियों व वन्य जीवों के बारे में जानकारियां दी।

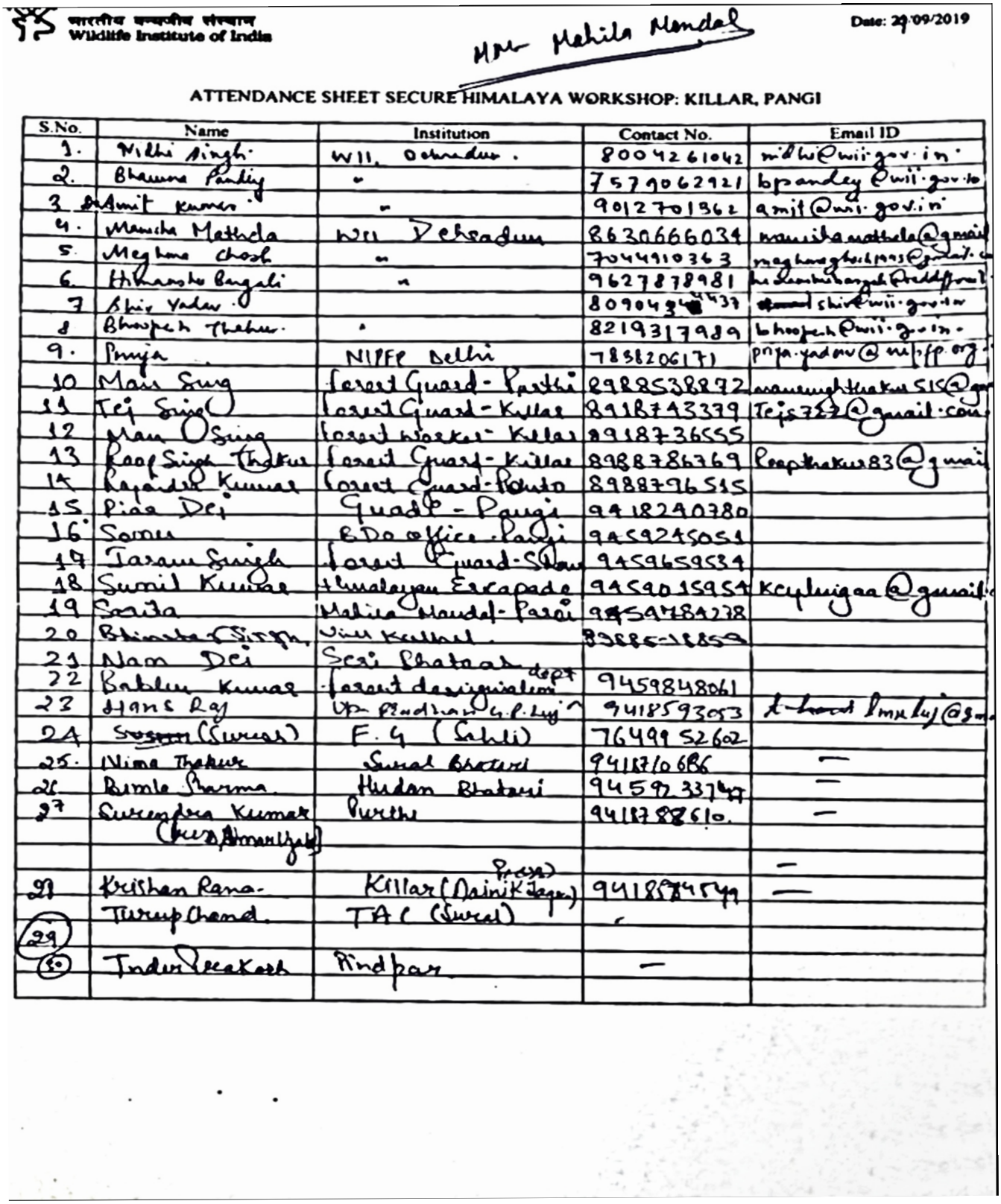
पांगी में सिक्योर हिमालया के संबंध में आयोजित बैठक में मौजूद लोग ● जागरण

मंथन

- **सिक्योर हिमालय उच्च संरक्षण मूल्य क्षेत्रों की पहचान के लिए कार्यशाला आयोजित**
- **घाटी में दस प्रकार की जड़ी एवं बूटियां लोगों की आर्थिकी सुदृढ़ करने में सहायक होंगी**

Image 8: Newspaper article on workshop conducted in Pangi

Annexure 9: List of participants attended the consultative workshop in Killar (Pangi), Day 1 (24/09/2019)



भारतीय वन्यजीव संस्थान
Wildlife Institute of India

Date: 24/09/2019

ATTENDANCE SHEET SECURE HIMALAYA WORKSHOP: KILLAR, PANGI

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15	Pida Devi	Guard - Pangi	9418290780	
16	Somu	BDO office - Pangi	9459245051	
17	Tarun Singh	Forest Guard - Shau	9459659534	
18	Sunil Kumar	Himalayan Escapade	9459015954	Kcsjuniaa@gmail.com
19	Sarita	Mahila Mandal - Parai	9459784238	
20	Bhanu Singh	Vill Kullad	8988[illegible]8859	
21	Nam Dev	Sagi Bhatnar dept		
22	Babloo Kumar	Forest department	9459848061	
23	Hans Raj	Vpo Pandrani G.P. Luj	9418593053	[illegible]
24	Sonam (Surveyor)	F.4 (Sahli)	7649952602	
25.	Nima Thakur	Sunal Bhatori	9418706886	—
26	Rimle Sharma	Hurdan Bhatori	9459233747	—
27	Surendra Kumar (Surveyor)	Purthi	9418788610	—
				—
28	Krishan Rana	Killar (Dainik Jagran Press)	9418884549	—
29	Tirup Chand	TAC (Surveyor)		
30	Indu Prakash	Rindpar	—	

भारतीय वन्यजीव संस्थान
Wildlife Institute of India

Date: 24/09/2019

ATTENDANCE SHEET SECURE HIMALAYA WORKSHOP: KILLAR, PANGI

S.No.	Name	Institution	Contact No.	Email ID
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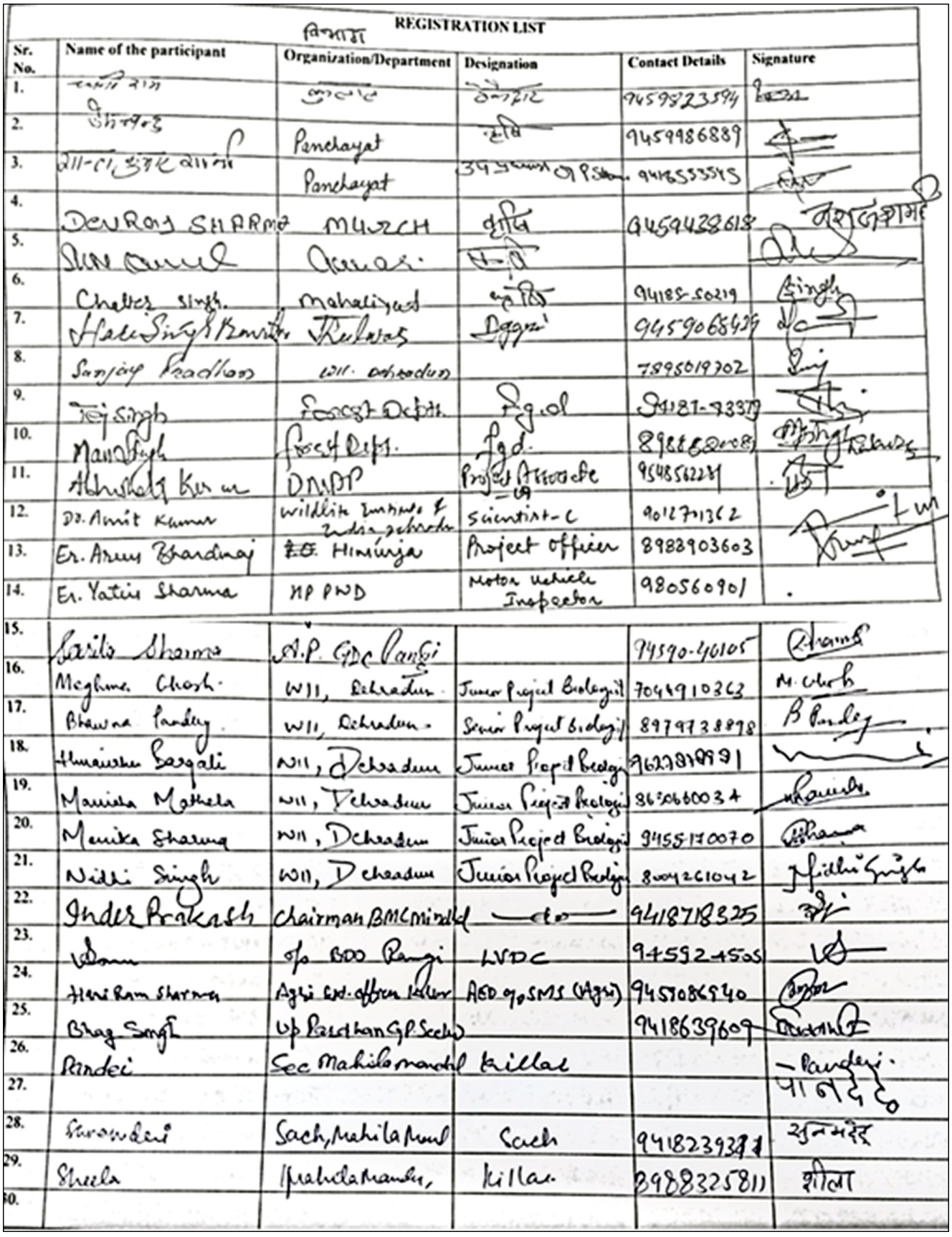
6.	Ravi	Mindhal, Forest Guard.	8988096542	ravishandil116@gmail.com
7.	Dhande.	Paroi, Karyas	8988316990	
8.	Neeraj Kumar	Forest Guard, Killar	9418781088	nittu1996y@gmail.com
9.	Sunetra.	Karuni.	8988024461	
10.	Abhishek Kumar	UNDP	9548562281	abhisekh.kumar@undp.org
11.	Meena Kumar.	Bar Panch Kuthol, Mahila Mandal.	9418756604	
12.	Namberta Devi.	Bhatwas, Mahila Mandal	9418711875.	
13.	Ram Singh.	Forest, Dharwas (BO)	9418719292	
14.	RC.			
15.	Pranam Sharma.			
16.	Honeraj	Jeej (People)	—	—

Annexure 10: List of participants attended the consultative workshop in Killar (Pangi), Day 2 (25/09/2019)

REGISTRATION LIST

Sr. No.	Name of the participant	Organization/Department	Designation	Contact Details	Signature
1.	Suneel kumar	H.P. FOREST DEPTT.	FOREST GUARD	89885-38838	[signature]
2.	Rajinder Kumar	- do -	- do -	8988796515	[signature]
3.	Neeraj Kumar	H.P. Forest Deptt.	Forest Guard	94187-81088	[signature]
4.	Vimla	Pradhan, Mahila Mandal		94595-16742	[signature]
5.	SURESH KUMAR	H.P Forest Deptt	FOREST GUARD	7649952602	[signature]
6.	Bhoopesh Thakur	WII, Dehradun	for JRF	8219317989	[signature]
7.	Himanshu Bargali	WII, Dehradun	JRF	9627878981	[signature]
8.	Shiv Yadav	WII Dehradun	JRF	8090439937	[signature]
9.	AMIT MEHTA	UNDP	UNV - L	9816620513	[signature]
10.	Tej Singh	F.g.d	F.g.d	94187-43879	[signature]
11.	Man Singh	f.g.d (H.P.F.)	fgd	8988520089	[signature]
12.	Diwan Chand	Forest Department	Roen	898841773	[signature]
13.	Bimla Sharma	Pradhan G.P Hadan		9459235747	[signature]
14.	Sunita Sharma	Pradhan G.P Killar		94599-34205	[signature]

विभाग



REGISTRATION LIST

Sr. No.	Name of the participant	Organization/Department	Designation	Contact Details	Signature
1.	[illegible]	[illegible]	[illegible]	9459823594	[illegible]
2.	[illegible]	Panchayat	कृषि	9459986889	[illegible]
3.	[illegible]	Panchayat	उप प्रधान G.P. Sharma	9418553545	[illegible]
4.	DEVRAJ SHARMA	MUNCH	कृषि	9459438618	[illegible]
5.	[illegible]	[illegible]	[illegible]		[illegible]
6.	Chatter Singh	Mahaliyad	कृषि	94185-50219	Singh
7.	Hari Singh Kanwar	Kulwas	Dggri	9459068439	[illegible]
8.	Sanjay Pradhan	W.I. Dehradun		7895019702	[illegible]
9.	Tej Singh	Forest Deptt.	F.g.d	94187-93379	[illegible]
10.	Mani Singh	Forest Dept.	F.g.d.	8988820081	[illegible]
11.	Abhishek Kumar	DMDP	Project Associate	9548562281	[illegible]
12.	Dr. Amit Kumar	Wildlife Institute of India Dehradun	Scientist-C	9012701362	[illegible]
13.	Er. Arun Bhardwaj	~~E.O.~~ Himurja	Project Officer	8988903603	[illegible]
14.	Er. Yatin Sharma	HP PWD	Motor Vehicle Inspector	980560901	
15.	Sarita Sharma	A.P. GDC Pangi		94590-46105	Sharma
16.	Meghna Ghosh	W.I., Dehradun	Junior Project Biologist	7044910363	M. Ghosh
17.	Bhawna Pandey	W.I., Dehradun	Senior Project Biologist	8979738898	B Pandey
18.	Himanshu Bargali	W.I., Dehradun	Junior Project Biologist	9627818991	[illegible]
19.	Manisha Mathela	W.I., Dehradun	Junior Project Biologist	8630660034	[illegible]
20.	Manika Sharma	W.I., Dehradun	Junior Project Biologist	9455170070	[illegible]
21.	Nidhi Singh	W.I., Dehradun	Junior Project Biologist	8004261042	Nidhi Singh
22.	Inder Prakash	Chairman BMC Mindhal	—do—	9418718325	[illegible]
23.	[illegible]	o/o BDO Pangi	LVDC	9459245051	[illegible]
24.	Hari Ram Sharma	Agri Ext. officer Kalur	AED o/o SMS (Agri)	9459086940	[illegible]
25.	Bhag Singh	Up Pradhan G.P. Sechu		9418639609	[illegible]
26.	Pandei	Sec Mahila mandal	Killar		Pandeni
27.					पानदेई
28.	Sunandeni	Sach, Mahila Mandal	Sach	9418239371	सुनमदेई
29.	Sheela	Mahila Mandal	Killar	8988325811	शीला
30.					

Annexure 11: Report on District Level workshop 2: Keylong (Lahaul): 11th October, 2019

Introductory Session

The workshop was inaugurated by Mr. Anil Kumar, Tehsildar, Keylong. Talking about the declining biodiversity of the Himalayan ecosystem due to negligence and over-exploitation of resources, he stressed two major threats that the landscape is currently facing; habitat destruction and infiltration by people from outside the landscape. The objectives of project SECURE Himalaya were also introduced to the participants in the workshop. WII's assignments on Capacity Building of the stakeholders and importance of their role for long-term biodiversity conservation in Himachal Pradesh were explained.



Image 1: Inauguration and introduction of the participants in the workshop

In the subsequent sections, Mr. Salvador Lyngdoh (Scientist D, WII) introduced the project "SECURE Himalaya" to all the participants. The project's objectives in protecting the biodiversity of Lahaul with a major focus on Snow Leopard and its prey species were elucidated as it represents a healthy and balanced ecosystem and the project has a landscape-based approach of conservation. He stressed the importance of a cumulative effort of local communities and line departments towards the long-term protection of the landscape's biodiversity. He further spoke about the relevant stakeholders' capacity building and how they relate directly or indirectly for long-term biodiversity conservation.



Image 2: Introducing the project and concept of capacity building to the participants

Technical Session 1

In the first session, the Capacity Building aims and objectives and the role of important stakeholders of the landscape were elaborated by Mr. Bhoopesh Thakur, WII.

Furthermore, the main aim of the project to assess the capacities and training needs of the key stakeholders, identification of the main areas on which the respective stakeholders require training, to develop an easy to understand modules for the stakeholders which are language friendly and community-friendly, and plans for pilot training programs in the landscape were described. He mentioned that the eight major stakeholders that included the Forest Department, Agriculture Department, Horticulture Department, Animal Husbandry Department, Police Department, Security Forces, Mahila Mandals and Praja Mandals have been identified of the preliminary survey in the landscape.

Technical Session 2

In the second session, suggestions from different departments were invited regarding the landscape's issues related to biodiversity conservation. During this session, the representatives from each department were invited, and their suggestions were noted. This session was conducted to provide an open media of discussion among all stakeholders, which could help develop coordination among stakeholders from different departments to better understand the crucial landscape-related issues. Mr. T.C. Thakur, BMC chairperson, Salgran village, Lahaul-Spiti district stressed upon conservation and long-term protection of the landscape and village level committees were requested to be formed to look into biodiversity conservation. Emphasis on training of BMC members in scientific documentation of the wildlife present in the landscape was raised. Mr. Om Prakash, range officer, Udaipur, Lahaul, referred to "SECURE Himalaya" as a good start and a great initiative for conserving the wildlife of Lahaul. He supported the opinion of creating village level committees and suggested that every person in the landscape, starting from the local communities to the line departments and the forest department, should be aware of the current situation of the depleting biodiversity in the landscape.



Image 3: Discussion on existence and threat on the floral and faunal species of Lahaul

Mr. Sonam Angrup, Deputy Director, horticulture department, Keylong, HP pointed out important schemes and subsidies provided by the department to the local people and how the locals need to be completely aware of the above. He stressed upon the importance of sustainable cultivation as a primary objective of the horticulture department.



Image 4: Agriculture department explaining the status of different schemes provided by government in Lahaul

Issues of Human –Wildlife Conflicts taking place in certain areas of the landscape were also raised and Forest Department were requested to sincerely look into the matter before it causes uncontrollable damage to the crops and the local communities. Dr. Hemraj Verma, agriculture development officer, Keylong elucidated the different schemes provided to the locals from the department to handle human –wildlife conflict like solar fencing, chain link fencing, barbed wire fencing etc.



Image 5: Discussion on use and importance of medicinal plants in Lahaul

Dr. Ashok Singh, Scientist, IHBT, Palampur explicated his study on MAPs that are endemic in Lahaul. Some among them are threatened species and some are critically endangered. Hence, conservation of these species becomes extremely crucial. He further extended his contribution in providing the detailed data regarding the above to WII, Dehradun for smooth progress in the field. WII team shared that there have been reports of over harvesting of certain MAP species in the landscape. Awareness of the adverse effects of premature harvesting is very essential among the local communities otherwise many of the important MAP species could go extinct within 4-5 years. Ms. Rinzin Choddon, resident of Tingret Village, Miar Valley, Lahaul shared her experience using sea buckthorn to prepare products like jam, jelly, juice, tea, etc it emerged as an alternative source of income. She proposed to other women to come up and create their own livelihood options. She revealed several medicinal values of sea buckthorn and its uses in prevention of cancer, heart disease, lungs, gastric issues and diabetic problems.

Mr. Amit Mehta from UNDP pressed upon the role of forest guards in protecting the forests and stressed upon their proper training and improved awareness of different issues pertaining to the forests' protection. Adding to Mr. Mehta's suggestion, Dr. Sanjay Barnela, Shristi Institute, Bangalore suggested that there is a big loop hole in issuing permits to the Gaddis and that the Forest Department should carefully handle the matter. On this, Mr. Om Prakash, Range Officer, Forest Department, Udaipur assured that Forest Department will take care on the permit issue in the near future. Dr. Barnela also recommended that the Forest Department should also take "Rotational Grazing" into consideration to prevent overexploitation of the grasslands.

Technical Session 3: Validation of Proposed Training modules and Scorecard

During the third and last session, Mr. Salvador Lyngdoh talked briefly about the CB component's proposed training modules. He further added that these modules were made on the basis of TNA exercises performed by the CB team during their first field visit. These modules were targeted for all stakeholders including forest department, agriculture department, horticulture department, animal husbandry department, police department, education department and local communities. The first part of the last session was about revalidating the formulated modules by an open discussion with respective stakeholder groups. This was done to cross check whether the training programs included in the modules were appropriate or not and also to include a final customization of the training programs based on their requirements.



Image 6: Validation of training modules drafted for relevant stakeholders

Dr. Nishant, Animal Husbandry Department, Keylong suggested inclusion of a comprehensive training program on anesthetizing animals for the animal husbandry department members because sometimes animals get extremely stressed in the presence of human population and their heart beat rate increases abruptly and cause death. So, anesthesia and dart gun application become extremely necessary. Members of a local NGO suggested that, women of the landscape could be trained to make traditional dresses of Lahaul (like Cholu). This could help keep the traditional culture intact as well as provide a source of income for the local people.

Important takeaway points from the above workshop:

1. Village Level Committees should be formed and trained on identification of different wildlife species awareness on their conservation for their long-term protection.
2. Community based groups like Praja Mandal and Mahila Mandals should coordinate with forest department in monitoring and control of local level illegal activities in the forest.
3. Training required on manging Human-wildlife conflict commonly by brown bear in villages.
4. Local communities especially members of the Mahila Mandals should look forward to an alternative source of income by utilizing the resources which are abundantly present in the landscape like sea-buckthorn.



पंजाब केसरी
ई-पेपर

3/4

अवैज्ञानिक दोहन जैव विविधता के लिए खतरा

केलांग, 11 अक्तूबर (ब्यूरो): सिक्योर हिमालय परियोजना पर भारतीय वन्य जीव संस्थान देहरादून के सौजन्य से शुक्रवार को लाहौल-स्पीति के जिला मुख्यालय केलांग में डी.सी. कार्यालय के सभागार में एक कार्यशाला का आयोजन किया गया। वन्य जीव संस्थान के वैज्ञानिक सल्वाडोर लिंगदोह ने कार्यशाला को संबोधित करते हुए बताया कि सिक्योर हिमालय परियोजना का मुख्य उद्देश्य हिमाचल प्रदेश के परियोजना परिदृष्य पर ध्यान केन्द्रित करते हुए औषधीय और सुगंधित पौधों के संग्रह, उपयोग, मांग, बाजार मूल्य रुझान और जीवन चक्र का आकलन करना है। इसके अतिरिक्त इन क्षेत्रों में वनों और अन्य जड़ी-बूटियों एवं वनस्पतियों की उच्च संरक्षण और उनके सतत उपयोग पर क्षमता निर्माण करना है। वन्य जीव संस्थान के वैज्ञानिकों ने बताया कि हिमालयन क्षेत्र में उच्च तुंगता वाली जड़ी-बूटियों की भरमार है। जिनका अत्यधिक दोहन जैव विविधता के लिए गंभीर संकट पैदा कर सकता है तथा हिमाचल प्रदेश में जैव संरक्षण में प्रमुख हितधारकों में क्षमता निर्माण और प्रशिक्षण की आवश्यकता पर बल दिया। वैज्ञानिकों ने बताया कि हिमालय के विशाल जैविक, सामाजिक, सांस्कृतिक और हाईड्रोलॉजिकल मूल्य विभिन्न मानवजनित दबाव के कारण गंभीर खतरे में हैं। वन्य जीव संस्थान के वैज्ञानिक डा.अमित ने बताया कि सिक्योर हिमालय परियोजना के तहत हिम तेंदुआ, जड़ी-बूटियों व जैव विविधता को कैसे बचाया जा सकता है। कार्यशाला में विभिन्न विभागों के अधिकारियों व पंचायती राज संस्थानों के प्रतिनिधियों ने वन विभाग के सहयोग से जैव विविधता को बचाने व इसके सतत उपयोग पर चर्चा की।

Image 7: Newspaper article on workshop conducted in Lahaul

Annexure 12: List of participants attended the consultative workshop in Keylong (Lahaul)

17th Oct '19

SECURE Himalaya Workshop – WII
Keylong, Lahaul

S. No	Name	Organization	Contact No	Email ID
1	Sanjay Barnela	Sristi Institute, Banglo	9818299212	
2	Dr. Nishant	Animal Husbandry Dept. Keylong	9882363932	nish333ret@gmail.com
3	Raj Kumar	forest Dept. Udaipur	9459560326	
4	Sushil Kumar	forest Dept., Thirot	9805024681	
5	Sameher Singh	forest Dept, Tribkinath	9418660230	
6	Vishal	forest Dept, Salgram	8894453990	
7	Sushma	forest Dept, Karbar	8988630640	
8	Sonam Angrou	Horticulture Dept, Keylong	9418719660	
9	Khubram	forest Dept. Pratapan	7650803122	
10	Om Prakash	RO. Udaipur	9418429824	
11	TC Thakur	NGO, Udaipur	9418318364	
12	Kushal C. Thakur	NGO, Udaipur	9418383183	
13	Sher lal	NGO, Udaipur	898879630	
14	Birchand	NGO, Udaipur		
15	Dr. Ashok Singh			
16	Sabna	forest Dept Karelang	9459303583	
17	Bir Singh	NGO, Udaipur	9418356319	
18	Amit kumar (Tehildar)			
19	Mast Ram	RFO. Pattan	9418429864	
20	Devraj Thakur	forest gaurd Bhujund	9418429864	
21	Shabha Ram	RO. Udaipur	9418205763	
22	Pammi Kumar	forest Gaurd Jobrang	9736195816	
23	Tinkle Bhatt	forest Gaurd	9459017395	
24	Amit Mehta	UNDP	9816620513	amitmehta@undp.org
25	King lal	forest Gaurd Tandi bat	9882666966	
26	Basant lal	forest Gaurd Shaicha	8988232360	basantlal92@gmail.com
27	Khem singh	forest Gaurd Chowkhang	8988020580	
28	Abhishk	UNDP	9548562281	abhishk@undp.org
29	Sat lal	forest Gaurd Sissu	9459786306	
30	Sunil Kumar	forest Gaurd Geerba	9418721018	
31	Anil Kumar	forest Gaurd Kyoring	8988810020	
32	Padam Dev	Technical Assistant (Proofing)	9418318369	
33	Ajay Thakur	DFO Lahaul (Lahaul)	9459015706	
34	Balak Ram	Deputy Ranger (Lahaul)	9418496709	
35	Dr. Hem Raj	DAO. Kelong	9816350423	
36	Rigzin Dolma	local stakeholder	9459923563	
37	Kingan sharma	Doordarshan	9418092553	
38	Shaikah Nagar	NRMC	9953103963	
39	Vivek Sharma	NRMC	9882507170	
40	Shreya	NRMC	9560921561	
41	Nikhil	NRMC	9544-62662	
42	K. Ram Narayan	NRMC		

11th Oct'19

SECURE Himalaya Workshop - WII
Keylong, Lahaul.

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44	Poonam	DDMA, Keylong	"	
45	Rashan lal	DDMA, Keylong	8988863127	
46	Prakash chandra	DDMA, Keylong	9418849994586	
47	Anuradha	DDMA, Keylong	9418754323	
48	Shiv laham	DDMA, Keylong	9418776088	
49	Palma	Keylong, Lahaul	9414828926	
50	Palzum	Lahaul	9414828926	
51	Yangchin	Keylong	9418718702 2	
52	Dechen	Keylong	9418721042	
53	Tenzin	Keylong	"	
54	Arshi Kham	DDMA, Keylong	9418353814	
55	Nitin sharma	DDMA, Keylong	"	
56	Shanti	AP20 office (Keylong)	— —	
57	Khem singh	forest Gaurd Madgram	9459888189	
58	Pyare lal	forest Gaurd	9418608753	
59	Dr. Gautam Tallukdar	Scientist E (WII, Dehradun)		
60	Salvador Lingdah	Scientist D (WII, Dehradun)		
61	Shiv Narayan Yadav	WII, Dehradun		
62	Dr. Amit Kumar	Scientist C, WII, Dehradun		
63	Manika sharma	WII, Dehradun		
64	Meghma Ghosh	"		
65	Manisha Mathela	"		
66	Nidhi Singh	"		
67	Dr Bhawna Pandey	"		
68	Himanshu Bargali	"		
69	Bhoopesh Thakur	"		
70	Pradhan ji	"		

Annexure 13: Training of Trainers (ToT) Workshop on Human Wildlife Conflict Mitigation and Monitoring in Lahaul-Pangi region of Himachal Pradesh (6th – 7th November, 2020)

A REPORT

on

"Training of Trainers" (ToT) Workshop on Human Wildlife Conflict Mitigation and Monitoring in Lahaul-Pangi region of Himachal Pradesh (6th – 7th November, 2020)

UNDER

THE UNDP-SECURE Himalaya Project 'Capacity building of key stakeholders for long-term biodiversity conservation in Lahaul, Pangi and Kinnaur landscape of Himachal Pradesh'



Background

As a part of the SECURE Himalaya project, led by Government of India, in partnership with United Nations Development Programme (UNDP) and support from the Global Environment Facility (GEF), The Wildlife Institute of India (WII) has been assigned a task titled 'Assessment of capacity and training needs of key government staff and community members/institutions for long-term effective biodiversity conservation, and development of a framework for implementation in SECURE Himalaya Project landscapes (Lahaul, Pangi and Kinnaur) of Himachal Pradesh'. The Wildlife Institute of India (WII), Dehradun organized a two days training of trainers (ToT) workshop on 'Human Wildlife Conflict Mitigation and Monitoring in Lahaul-Pangi region of Himachal Pradesh' for identified stakeholders on **6th and 7th November 2020 at the KVK hall, Kukumseri, Lahaul.** The workshop's primary aim was to impart training to the forest and line departments' stakeholders on monitoring and mitigating human-wildlife conflict in the landscape. A total of 25 participants from the forest department, line departments and community members were present in the workshop. Participants in the workshop included divisional forest officer, range officers and forest guards from forest department; HODs/ representatives from animal husbandry, veterinary, agriculture, horticulture, home guard, fire chowki, police department and district administration; village heads, head of mahila mandal, head of vyapar mandal, NGO and community members from the Lahaul-Pangi landscape. The workshop was mainly divided into two technical sessions. Session 1 focused on presentation, case studies and discussion on human-wildlife conflicts in the Himalayan region and their mitigation strategies while session 2 focused on group

discussion and hands-on training on techniques to monitor, handle and mitigate human wildlife conflicts SECURE landscape.

Day 1- Introductory session

Ms. Bhawna Pandey, Project associate, WII welcomed the participants and explained the training workshop's objectives. Sh. Salvador Lyngdoh, Scientist-D, WII welcomed the participants and explained the Capacity Building assignment's objectives under the SECURE Himalaya project in Himachal Pradesh entrusted to WII. He informed that since the commencement of the project, the WII team has conducted a stakeholder consultation meeting in the landscape for officials of line departments, scientists and academicians of research and training institutes who have knowledge and experience working in the SECURE Himalaya landscapes.





The meeting resulted in acquiring preliminary knowledge of the overall landscape profile, threats and challenges, relevant stakeholders, and training needs. Later field visits were carried out to the Lahaul and Pangi landscapes. Based on the focused group discussions and key informant interviews conducted by WII team in the project landscape with the line departments, research and training institutions, NGOs, community institutions and individuals- main stakeholders were identified for the Training Needs assessment (TNA) workshop. A draft strategy and framework development for capacity building was then developed based on the TNA workshop's inputs. After briefly explaining the project's objectives and tasks, he explained the need and purpose of the pilot training workshop to the stakeholders.

The workshop was inaugurated by Mr. Dinesh Sharma, Divisional Forest officer (DFO), Lahaul. In the opening remarks, talking about the declining biodiversity of the Himalayan ecosystem due to negligence and over-exploitation of resources, he stressed one of the major threats that the landscape is currently facing; human wildlife conflicts in the landscape. He spoke about the changing pattern of wildlife in the landscape like migration monkeys in Lahaul; HWC handling measures adopted by the forest department in the landscape, compensation schemes for animal injury and losses, and the role of district administration in managing the crop loss during HWC. He encouraged the participants to be actively involved in the training workshop and focused on the importance of capacity building through such training programs.





Technical session 1

During the first session, Dr. S. Sathyakumar, Scientist-G, WII, introduced the participants with HWC in the Himalayan region with respect to conflict species in the SECURE landscape through a power-point presentation. He explained about the ecology, habitat and behavior of the conflict species like snow leopard, black bear, brown bear, etc. Since human-bear conflict was reported to be the most common in both the landscapes, Dr. Sathyakumar focused on ecology of bear and case studies of human bear conflict in the Himalayan region. He stressed on the drivers of conflicts and the methods to mitigate the conflicts as well as measures adopted to handle bear encounters. He introduced participants with different techniques and measures to monitor the landscape's conflict species and situations.




In the subsequent sections, Mr. Salvador Lyngdoh familiarized participants with the animal capturing techniques used in HWC mitigation. He explained the different tools and techniques used in HWC monitoring and mitigation with the help of Wolf capture case studies in Spiti valley. The participants were made aware about the need and importance of advanced techniques like camera traps, radio collars, loop poles, etc. which could help in systemic conflict monitoring and mitigation in the landscape.




Technical session 2

The second session was of group discussion with the participants regarding human-wildlife conflict scenario in the landscape and mitigation measures adopted by the respective departments to mitigate them. The participants were asked few questions like HWC cases in their areas/beat/range, conflict animals in their areas, losses due to conflicts, mitigation measures adopted by people and different departments, and what can be done to handle the conflict situations. The participants actively participated in the discussion and representatives from each area discussed different local measures adopted by villagers to control HWC and different department schemes. Major conflict species in the landscape reported were brown bear, snow leopard and wolf in the Lahaul landscape and brown bear in the Pangi landscape. Participants informed about the measures adopted by villagers to manage conflicts like use of fire crackers to avoid animals, making noise with bells and drums, use of torch lights, etc. They suggested few measures like keeping regular check on shepherds, awareness programs for teachers and students of school,

encouraging and making locals aware about the compensation schemes to manage the HWC at ground level. The forest guards requested to provide training on different animal capturing techniques on a regular basis so that the staff could be well equipped to handle and monitor the conflict situations in their respective areas.





Day 2 – Technical session 1

The second day of the workshop began with the recapitulation of the first day of learnings in which the participants presented their views on what they learned in training. The session proceeded further with a talk on 'Status and distribution of medicinal aromatic plants (MAPs) in different forest division of Himalayan region' by Dr. B.S. Adhikari, Scientist-G, WII. He talked about the existence, uses, and exploitation of different MAPs in the Himalayan and Trans-Himalayan region with the help of Uttarakhand's case studies. He focused on proper harvesting and sustainable use of medicinal plants to save the landscape's wild biodiversity.

One of the SECURE-Himalaya project's objectives is to engage local communities in participatory management of natural resources, eco-restoration, reducing human-wildlife conflicts and promoting conservation awareness and long-term monitoring. These activities, if successfully implemented will align with the objectives of Project Snow Leopard and also complement the principles of National Snow Leopard and Ecosystem Protection (NSLEP) developed by the Government of India in lines of Global Snow Leopard and Ecosystem Conservation Program



(GSLEP) to which India is a signatory. In this context Dr. S. Sathyakumar, familiarized participants about different snow leopard and prey monitoring techniques and methods based on their ecology, physiology and behavior. This session was a preliminary exercise in which participants were aware of various species (mammals, birds and insects) found in their landscape and their importance in ecosystem and landscape conservation. Apart from these interactive sessions, training and monitoring protocols, and data collection sheets were shared with the participants.

Technical session 2

The last session of the workshop focused on the participants' hands-on training on different tools and equipment used in wildlife monitoring. This session was commenced by Mr. Salvador Lyngdoh, who explained the use and importance of tools like GPS, camera traps, loop pole, range finder, radio collars, animal traps, etc. The participants actively participated in the session and learned to use the equipment on their own.

The session was concluded by taking feedback from the pilot training workshop participants in a feedback form. Forest guard of Udaipur range, Mr. Shiv Kumar was provided with a camera trap to use it further and train the local youths for the same on a regular basis. This would help train the locals and maintain a record of the wildlife activities in the landscape through regular monitoring.

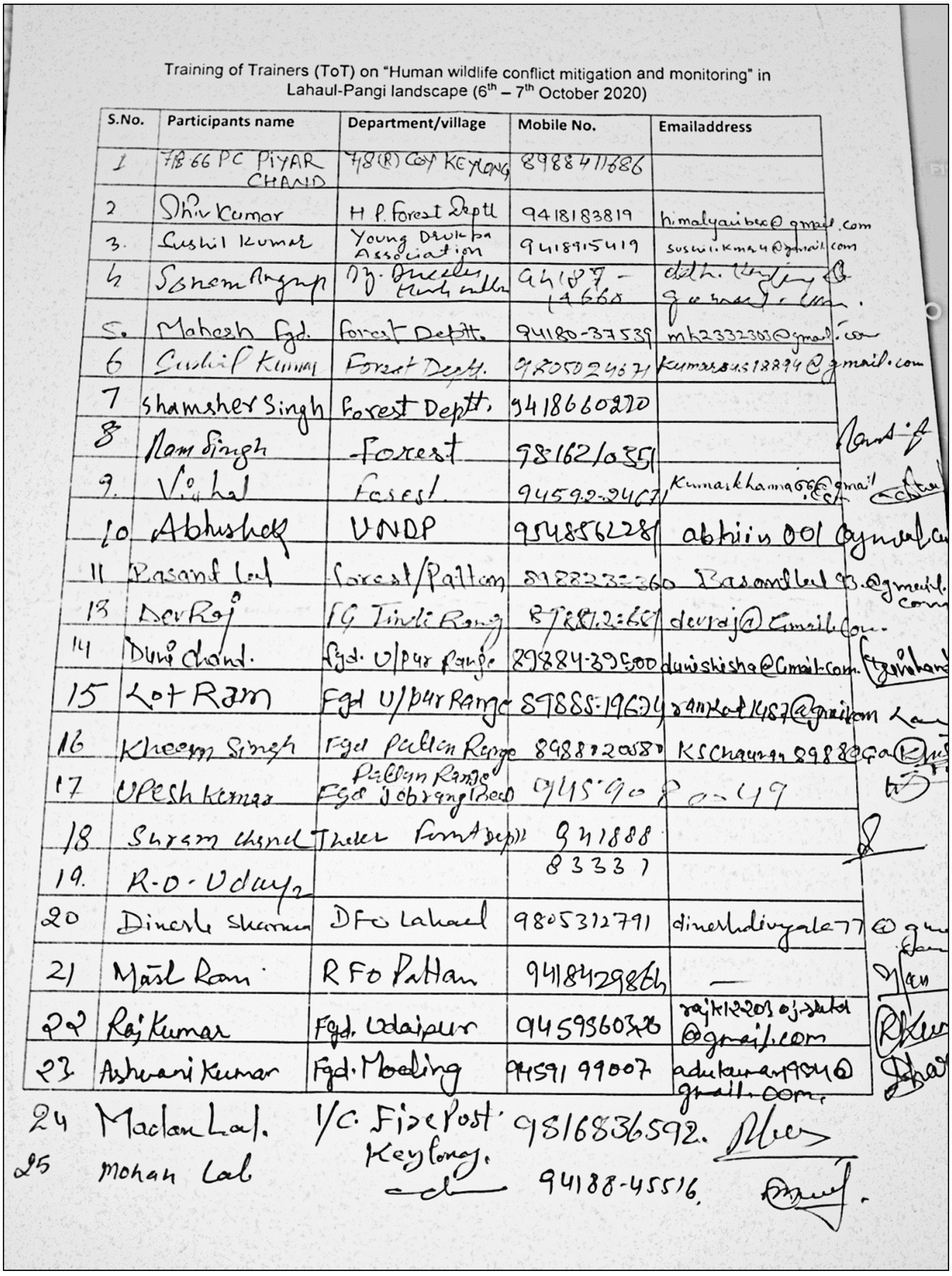


Day	Time	Topic	Resource Person
Day 1	09:30-10:00	Registration of the participants	WII Team
	10:00-10:15	Welcome and Introduction of participants	Bhawna Pandey, WII
	10:15-10:45	Opening Remarks	1. Senior Official of HPFD 2. WII faculty
	10:45-11:30	1. What is Human Wildlife conflict (HWC) (drivers, history and extent) 2. HWC in landscape with reference to selected species.	1. Dr. S. Sathyakumar, Scientist-G, WII 2. Sh. Salvador Lyngdoh, Scientist-D, WII
	11:30-11:50	**Group Photo and Tea**	
	11:50-13:00	Animal behavior and ecology/capture and restraint of High-Altitude Carnivore	Sh. Salvador Lyngdoh, Scientist-D, WII
	13:00-14:00	**Lunch**	
	14:00-15:30	Overview of HWC management policies and existing HWC mitigation strategies in the landscape.	Forest department
	15:30-15:45	**Tea**	
Day 2	10:00-11:15	HWC mitigation measures with reference to selected species in the landscape (before, during and after conflict)	1. Dr. S. Sathyakumar, Scientist-G, WII 2. Sh. Salvador Lyngdoh, Scientist-D, WII 3. Dr. B. S Adhikari, Scientist-G
	13:00-14:00	**Lunch**	
	14:00-15:45	Demo/Group discussion and conclusion	
	15:45-16:00	**Tea**	

Annexure 15: Attendance sheet of participants attended the ToT workshop

Training of Trainers (ToT) on "Human wildlife conflict mitigation and monitoring" in Lahaul-Pangi landscape (6th – 7th November 2020)

S.No.	Participants name	Department/village	Mobile No.	Emailaddress
1	Shiv Kumar	HP Forest Deptt	94181-83819	himalayanibex@gmail.com
1	Madan Lal.	I/C. Fire Post Keylong	9816836582	[illegible]
2	7/8-66 PC Piyar Chand	7/8-COY Keylong	8988411686	[illegible]
3	Mohan Lal.	Fire Post Keylong	94188-45516	[illegible]
4.	Soman Angmo	Dy. Director Fyrtech	94187-19660	[illegible]
5.	Dr. B.S. Adhikari	Wildlife Institute of India, DDun	9412056031	[illegible]
6	Abhishek Kumar	UNDP	9548562281	[illegible]
7.	Shiv Narayan yadav	WII	8090434437	shiv@wii.gov.in
8.	Kalzang Dorje	WII		
9	Dr. Salvador Lynadeh	WII/scientist		
10	Dr. S. Sathyakumar	Scientist/WII		
11	Dr. B.S. Adhikari	Scientist/WII		
12	Dr. Bhawna Pandey	WII	8979738898	bhawnap6@gmail.com
13	Ubosh Kumar	H.P. Forest	9459080049	[illegible]
14	Ashwani Kumar	H.P. Forest Deptt	94591-99007	adukumar1954@gmail.com
15	Ram Singh	BO Miyar		[illegible]
16.	Duni Chand fgd.	HP forest	8988439500	Dunichand
17	Vishal fgd.	HP Forest.	94592-24671	[illegible]
18	Sushil Kumar	Forest Deptt.	9805024671	Sushil Kumar fgd Kumar 1889
19.	Mahesh fgd.	—do—	94180-37539.	mk2352303@gmail.com. [illegible]
20.	Dr. Lalu Bhushan	CSK HPKV, Kullu Seri		



Training of Trainers (ToT) on "Human wildlife conflict mitigation and monitoring" in Lahaul-Pangi landscape (6th – 7th October 2020)

S.No.	Participants name	Department/village	Mobile No.	Emailaddress
1	HB 66 PC PIYAR CHAND	HB(R) Coy KEYLONG	8988411686	
2	Shiv Kumar	H P Forest Deptt	9418183819	himalyanbird@gmail.com
3.	Sushil Kumar	Young Drukpa Association	9418915419	sushil.kumar4@gmail.com
4	Sonam Angmo	Dy. Director Tourism	94187-14660	dirtr.[illegible]@gmail.com.
5.	Mahesh Fgd.	Forest Deptt.	94180-37539	mk233238s@gmail.com
6	Sushil Kumar	Forest Deptt.	9805024671	kumarsus12894@gmail.com
7	Shamsher Singh	Forest Deptt.	9418660270	
8	Ram Singh	Forest	9816210351	
9.	V.[illegible]hal	Forest	9459[illegible]-94671	Kumarkhamaro@gmail.com
10	Abhishek	UNDP	9548562281	abhiin001@gmail.com
11	Basant Lal	Forest/Pattan	8122323360	Basantlal93@gmail.com
13	Dev Raj	FG Tindi Rang	8988120687	devraj@Gmail.com.
14	Dunichand.	Fgd. U/Pur Range	89884-39500	dunishisha@Gmail.com.
15	Lot Ram	Fgd U/Pur Range	8988519634	ramlal1487@gmail.com
16	Khem Singh	Fgd Pattan Range	8988120880	KSchauhan8988@gmail.com
17	Upesh Kumar	Pattan Range Fgd Udaipur Beat	9459[illegible]9[illegible]-[illegible]9	
18	Sharam Chand	Thakur Forest Deptt	941888 83337	
19.	R-O-Udaipur			
20	Dinesh Sharma	DFO Lahaul	9805312791	dineshdivyala77@gmail.com
21	Mast Ram	RFO Pattan	9418429866	—
22	Raj Kumar	Fgd. Udaipur	9459360326	rajk12203@gmail.com
23	Ashwani Kumar	Fgd. Keylong	94591 99007	ashukumar9940@gmail.com.
24	Madan Lal.	I/C. Fire Post Keylong.	9816836592.	
25	Mohan Lal		94188-45516.	

Annexure 16: Example of feedback form filled by participants after the ToT workshop

FEEDBACK FORM

for

Training of Trainers (ToT) workshop on Human wildlife conflict mitigation and monitoring in Lahaul-Pangi landscape (6th – 7th November 2020)

Name: Shiv Kumar Sr. Forest Guard.

Department: Lahaul Forest Division

Area/Range/Beat: Bardang Beat / Udaipur Range

1. **Human Wildlife Conflict cases in your area in last 2 years :** 2 No's
2. **Conflict animals in your area:** i) Himalayan Brown Bear
   ii) Snow Leopard
3. **How locals manage conflict in their villages:** Using Cracker's Khistling, Shouting & Drum Beating
4. **HWC mitigation measures used by department:** Awarness activities carried out with students, Shepherd's & Locals & KLCompo
5. **What did you learn in the ToT:** Learnt about various aspects about Conservation (use of modern equipments)
6. **Suggestions and comments regarding ToT:** I personally wish to learn about Radio collaring, Tranquilizers

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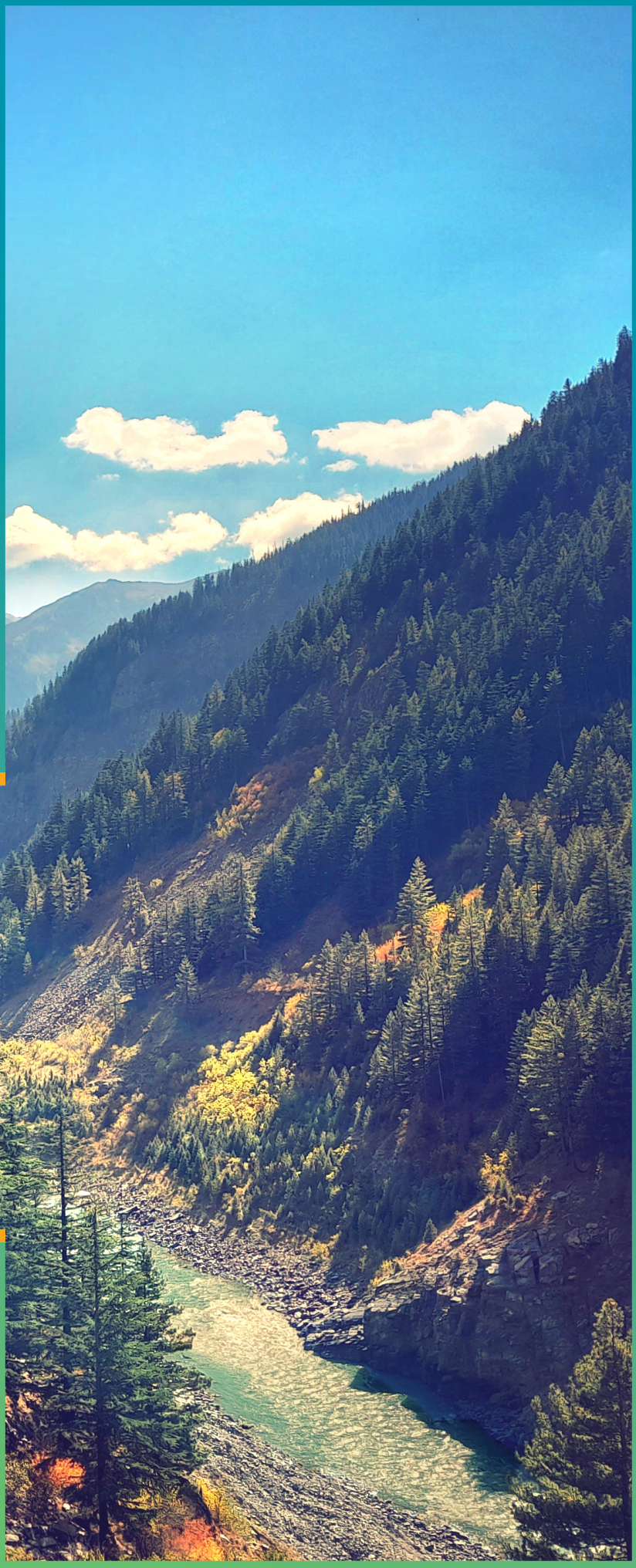
UNDP India, in partnership with the Ministry of Environment, Forest and Climate Change is implementing SECURE Himalaya project, supported by the Global Environment Facility. The project aims to strengthen Government of India's efforts in sustainable management of snow leopard habitats in India and is being implemented in the Union Territory Administration of Ladakh and states of Himachal Pradesh, Uttarakhand and Sikkim.





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