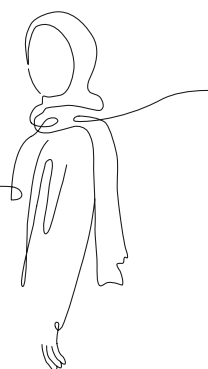
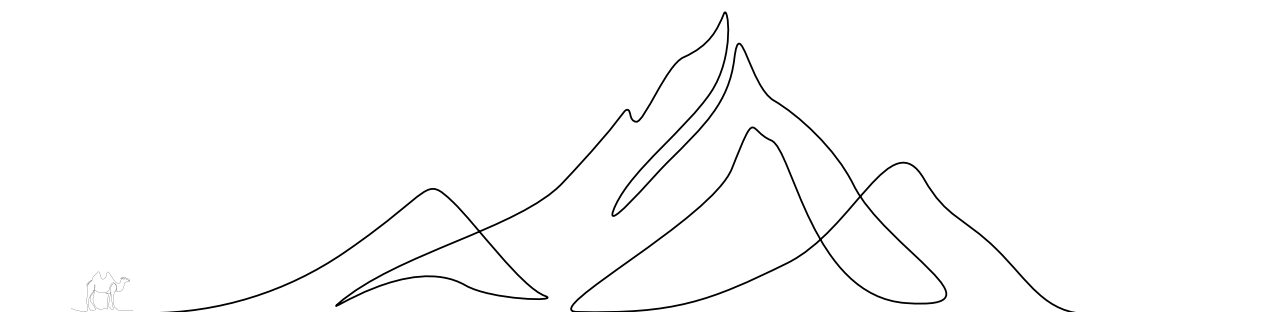


YEARBOOK

2025



GRAZIER (LADAKH)

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Dear reader,

In many ways, 2025 has been an eventful year for us. What began as drawing-board conversations a few years ago steadily gathered momentum, as ideas moved from theory and hypotheses to practice. Some initiatives unfolded through careful planning; others emerged organically, shaped by local realities, iterative dialogues, and the shifting socio-ecological pressures in a rapidly changing landscape.

These processes unfolded alongside broader regional shifts, as Ladakh increasingly asserted itself not as a peripheral landscape but as a dynamic site of negotiation, aspiration, and bold reimagining. Across the region, we witnessed how local knowledge and collective action can respond creatively to contemporary challenges. Our work, therefore, has evolved into an experiment in grounded, adaptive collaboration that prioritises collective becoming rather than purely solution-oriented outcomes.

Given that coalitions are central to our engagement, the work in Ladakh is a joint effort between community members, Ashoka Trust for Research in Ecology and the Environment (ATREE), Achi Association India (AAI), the French National Research Institute of Sustainable Development (IRD), and the University of Massachusetts-Amherst (UMass-Amherst), weaving together grassroots, as well as national and international partnerships. We have named this coalition **GRAZIER (Greater Resilience in Arid Zones through Innovation, Exchange and Research)**.

This yearbook captures fragments of GRAZIER’s journey over the past year. Beyond documenting what was achieved, built or revived, it also sheds light on what we learned about materials, socio-ecologies, and the significance of working alongside communities as equal partners.

The work has only just begun. Looking ahead, we aim to explore new and meaningful areas of engagement, strengthening our commitment to Ladakh’s people, biodiversity, and shared ecosystems.

We invite you to read this yearbook not as a conclusion, but as a beginning to what lies ahead in the years to come.

Warmly,
GRAZIER Team

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PREFACE

This yearbook showcases work supported by the Rural India Supporting Trust under ATREE's **AMP-Himalaya (Action for Mountains and Peoples - Himalaya) initiative**, which houses GRAZIER. The initiative advances three interlinked priorities:

- (a) biodiversity assessment, monitoring, and conservation;
- (b) restoration of multifunctional landscapes; and
- (c) strengthening nature-based rural livelihoods and climate resilience.

To address the afore-mentioned priorities, GRAZIER's work in Ladakh focuses on

co-developing locally grounded biocultural initiatives that bridge research and practice. It centres on knowledge co-production, strengthening livelihoods and local governance, revitalising community networks, and establishing long-term socio-ecological monitoring to support adaptive conservation and community wellbeing.

At its core, the work seeks to nurture collective processes of learning, stewardship, and renewal, reimagining conservation and development from the ground up in one of the world's most ecologically and culturally vibrant landscapes.



ENGAGEMENT STRATEGY

LADAKH

Image:
Matthieu Salpeteur



Image:
Matthieu Salpeteur

Chapter Overview

This engagement strategy emerges from our sustained, long-term partnerships with diverse communities in Ladakh. It seeks to document context-specific yet generalisable learnings—and critical *unlearnings*—that can inform more effective and just conservation and development across the region. It also articulates potential pathways of change grounded in community-identified needs, priorities, aspirations and roadmap. The strategy also serves as a timely contribution to the UN-declared International Year of Rangelands and Pastoralists 2026, to which India is a signatory.

Participating Organisations and Groups



Community
members of
Ladakh





Image: Gulzar Hussain

Rationale

Millions of pastoralists in the Himalayan region are faced with unprecedented livelihood and wellbeing challenges due to the effects of climate change, including the rapid melting of glaciers, extreme weather events and subsequent food and water insecurity. It is predicted that 90 percent of the region will experience a year-long drought with a 3°C rise in global temperatures. Global warming will have significant implications on the resilience of the pastures and rangelands in India, which cover an area of 12.15 million ha with 35 percent located solely in the Himalayan region.

While rangelands have always been dynamic systems and pastoralists have long adapted to variability and change, a convergence of recent pressures has exposed communities to new and compounding vulnerabilities. These include economic marginalisation, restricted access to grazing and resources, wildlife-related losses, erosion of cultural pride due to stigma associated with pastoralism, and formal education

systems that invisibilize local and traditional knowledge. Himalayan youth are now migrating en masse to urban centres in search of low-paid, insecure work, while women and older adults are increasingly left behind in villages, contributing to the emergence of poorly inhabited, so-called “ghost” villages.

Such sociocultural transitions also have repercussions on the future of rangelands—home to many rare and threatened biodiversity—which are often looked upon as ‘wastelands’ and exploited indiscriminately for economic growth. Without their custodians, these habitats will continue to face immense and unrelenting pressure. Although the drivers and ground realities are far more complex and heterogeneous in nature, it is increasingly evident that the absence of a strong local leadership and nature-positive solutions can jeopardise the wellbeing of people and biodiversity alike.

A similar set of challenges plague Ladakh today.

Background

The Union Territory of Ladakh (32°–36° N, 75°–80° E) has an area of 59,146 sq. km. It is a high-altitude desert ecosystem that shares borders with Pakistan on the west and China on the north and east. Across its rugged terrain, Ladakh’s steep elevational gradient—from around 2,500 to over 7,000 metres above sea level—structures climate, vegetation, and livelihood systems, with temperatures ranging from approximately –35°C in winter to +35°C in summer.

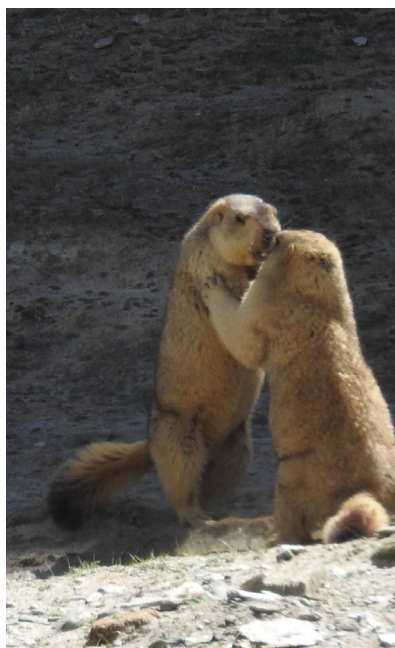
Ladakh comprises two districts – Leh, inhabited predominantly by people following Buddhism and Kargil, inhabited predominantly by people following Islam. The central government has recently announced the creation of five additional districts: Changthang, Zaskar, Nubra, Sham and Drass.

Over 97 percent of the population is categorised as Scheduled Tribes, and the region is home to diverse pastoral and agropastoral communities, including nomadic and semi-nomadic Changpa groups in eastern Ladakh (Rupsho, Kharnak, Korzok, and Kargyam), Tibetan refugee communities, and agropastoral populations in central and western Ladakh such as Brokpa, Dardic (Shina), Bodpa/Boto, Purigpa, Mon, Garra, and Beda groups. The landscape is also seasonally used by transhumant pastoralists, including Bakarwal, who migrate from Jammu & Kashmir to high-altitude pastures during the summer months. Human population density is 4.6 people/sq.km, and the average literacy rates are 89 percent for

males, and 65 percent for females. People mainly herd pashmina goats, sheep, dzo (yak-cow hybrid), and yak in the higher reaches. In some parts, grains like wheat, barley, buckwheat, vegetables and fruits are also grown for subsistence and local trade.

Ladakh’s rangelands are also home to ecologically threatened predators like the snow leopard (*Panthera uncia*) and Himalayan wolf (*Canis lupus chanco*) that are known to prey on livestock, while the grazing areas of ungulates like the blue sheep (*Pseudois nayaur*), Tibetan argali (*Ovis ammon hodgsoni*), Tibetan gazelle (*Procapra picticaudata*), Himalayan ibex (*Capra sibirica*), often overlap with those used by domestic livestock, resulting in grazing competition in high density areas.

The ecosystems are also dotted by wetlands, including Ramsar sites such as Tso Moriri and Tso Kar, which are critical to sustain pastoral lives, regulate water availability, and provide habitat for globally important migratory bird populations, making them central to both biodiversity conservation and climate resilience in the region. Major anthropogenic threats include poor waste management, unregulated infrastructure development (including mass tourism and green grabbing), retaliatory killing and hunting of wildlife, increasing number of free-ranging dogs that chase and prey on wild animals, alongside climate-induced risks such as extreme weather events and untimely/uneven snowfall.



Images: Saloni Bhatia

Why an Engagement Strategy is Needed

In recent decades, dominant models of development have prioritised sedentarisation, framing transhumant and nomadic ways of life as backward or primitive, in the process thwarting the rich social, ecological, and institutional networks that sustain pastoralism. Yet, many continue to pursue these livelihoods against considerable odds, while bearing a disproportionate burden of intersecting socio-economic, political, and environmental crises.

This underscores the need for a contextual

and place-based engagement strategy that centres community knowledge, leadership, and aspirations as core drivers of conservation and development. By working across actors, institutions, and knowledge systems, the strategy seeks to strengthen local capacities while fostering equitable governance and shared stewardship of landscapes. In doing so, it aims to translate research into meaningful action that enhances both ecological integrity and human wellbeing.

Guiding Principles

This intervention adopts an **multidisciplinary, evidence-based, and experimental socio-ecological approach** to address conservation and development using both process- and outcome-oriented philosophies.

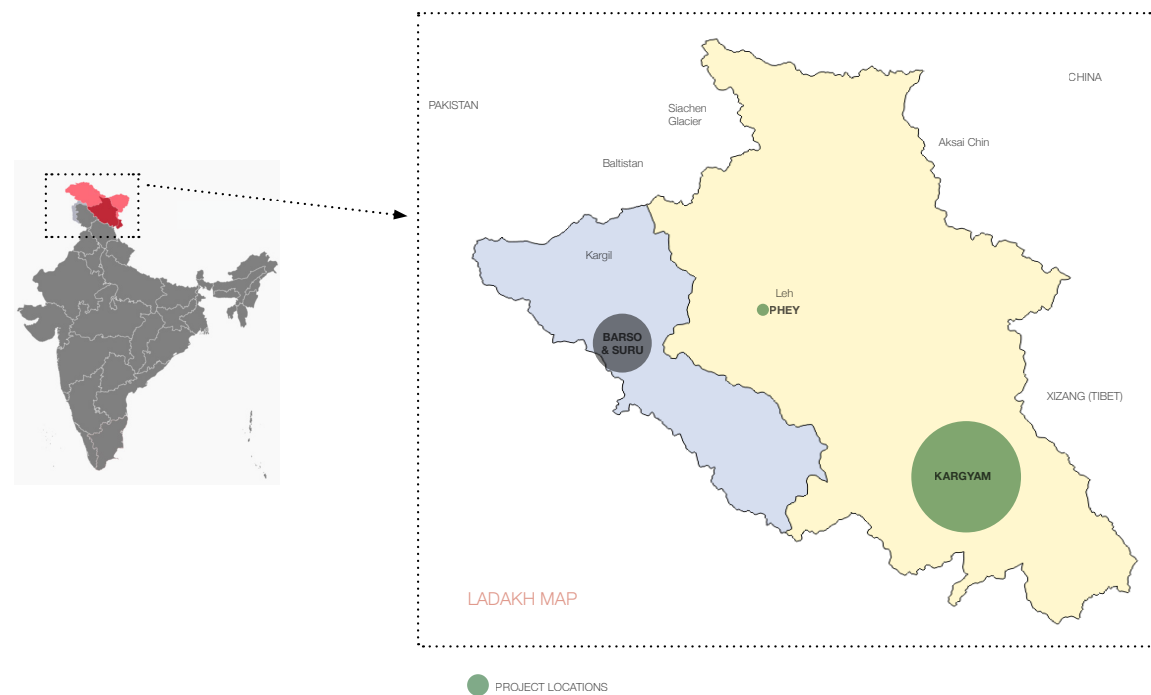
It **centres the voices of historically underrepresented groups**, including women and the youth. The work is grounded in **collective listening**, and subsequent **contextual, collaborative, adaptive, and iterative** agenda-setting and

implementation.

The work is structured around **regular consultations and check-ins** with a wide range of stakeholders to ensure responsiveness, accountability, and trust.

Robust monitoring and evaluation systems enable ongoing learning and timely course correction where required.

We prioritise **systematic documentation** and **sharing of lessons** to inform meaningful scaling and replication.



Geographies of Engagement

Our interventions are focused on Phey, Kargyam region (Changthang) and Kargil, which represent distinct and diverse ecosystems shaped by differing ecological, cultural, and historical trajectories.

Phey (~3,200 m) is a small agropastoral village located along the Indus River in central Ladakh. Here, livelihoods are based on a combination of irrigated agriculture, livestock rearing, and seasonal wage labour. Like many settlements in the region, Phey is experiencing rapid socio-economic change alongside increasing climate and water-related pressures. Its proximity to Leh has increased opportunities for wage labour, education, and engagement with tourism and service sectors, contributing to livelihood diversification but also to labour shortages in agriculture and growing dependence on external income sources.

The riverine zone and surrounding irrigated fields create key habitats for resident and migratory bird species, making the area

locally significant for avifaunal diversity. Additionally, steppe and rocky habitats also support small mammals, reptiles, and invertebrates adapted to arid, high-altitude conditions, contributing to landscape-level biodiversity in an otherwise sparsely vegetated ecosystem.

Kargyam is a cluster of villages (Chibra, Sato, Kherapulu, and Perma) located in the Changthang plateau of eastern Ladakh at elevations above ~4,200 m. It is well known for its high-altitude wetlands, which provide an ideal habitat for the endangered black-necked crane (*Grus nigricollis*), and a range of migratory birds. The area was previously included within the Changthang Wildlife Sanctuary, which led to significant conflicts between local communities and the wildlife department. Livelihoods are primarily based on herding pashmina goats, sheep, yaks, and horses, with pashmina wool forming a critical source of cash income. Increasing market dependence on pashmina has intensified grazing pressure and exposure to price volatility.



(Left to right) View of Indus in Phey; Kargyam region in Changthang; Parkachik glacier in Kargil. Images: Saloni Bhatia

In contrast with Changthang, **Kargil**, where human inhabited zones range from 2,700–4,500 m, is characterised predominantly by agropastoralism. Here, herding is integrated with settled agriculture, more intensively managed land and water systems, and seasonal use of alpine pastures. The region is sustained by heavy winter snowfall and glacier melt from the Nun–Kun massif and surrounding ranges, which provide critical water resources for cropping, livestock, and downstream ecosystems, even as these glaciers have undergone significant depletion in recent decades.

Migration to urban centres for service-sector employment is widespread, with herding increasingly outsourced to select community members—many of whom are women—or to transhumant Bakarwal pastoralists from Jammu & Kashmir. Wildlife-induced damage to livestock and crops is a significant concern, with the Himalayan brown bear

(*Ursus arctos isabellinus*) in particular reported to occasionally damage crops and settlements and, in rare cases, attack people, heightening risks to both livelihoods and human safety.

Kargil, like Changthang, lies in a geopolitically sensitive frontier zone near the Line of Actual Control (LAC), where expanding infrastructure and strategic development are reshaping access, governance, and land-use dynamics, with significant implications for livelihoods and fragile rangeland ecosystems.

Note: The project was originally planned to begin simultaneously in Phey, Kargyam and Kargil. However, following budget revisions, work in the years 2025 and 2026 will focus on Phey and Kargyam, with Kargil planned for a later stage. Nonetheless, this report presents a brief summary of the situation in Kargil.



Consultation meeting in Sato village. June 2024. Image: Matthieu Salpeteur

Conversations and Visioning

The project team conducted a series of formal consultation meetings and visioning exercises between June–July 2024. These were followed by detailed consultations and baseline surveys in April and August 2025, which helped establish clear baselines and priority areas to guide the proposed interventions. The findings of the informal and formal conversations with various stakeholders (community members, researchers, practitioners, politicians) over the last year are summarised here.

KARGYAM, CHANGTHANG

Climate change, livelihood shifts, and emerging opportunities

Communities in Kargyam are experiencing clear climatic shifts that are beginning to reshape livelihood possibilities and aspirations. Warmer conditions are making horticulture (e.g., apple varieties from lower altitudes of Ladakh) increasingly viable in parts of Changthang. While this presents new economic opportunities, institutional barriers—most notably limited access to organic certification—constrain the ability of local producers to formally enter higher-value markets. As a result, emerging livelihood transitions remain tentative and uneven, shaped as much by bureaucratic access as by biophysical change.

At the same time, traditional pastoral-based resources are being re-evaluated in new ways, including interest in local processing, branding, and value addition. These shifts reflect a broader search for livelihood diversification in the context of declining pastoral labour availability and growing youth aspirations for education and off-farm work.

Additionally, communities across Changthang, including in Kargyam, report significant livestock losses due to predation by feral dogs, wolves and snow leopards, with small stock (sheep and goats) being particularly vulnerable. These losses have direct economic impacts on households and indirect social and emotional costs, affecting herd management decisions, labour allocation, and tolerance toward wildlife. Traditionally, wildlife-induced losses are mitigated with the use of lethal wolf traps (*shandong*). Retaliatory killing of wolves thus reflects both the severity of conflict and limited access to effective, non-lethal mitigation measures, underscoring the need for improved coexistence strategies. Predator-proof corral emerged as a strong need. Some corrals constructed by other organisations and government departments were not designed through consultative processes and, as a result, require significant design modifications to be functional and locally usable.



Photo of a wolf trap (shandong). Retaliatory killing of wolves takes place across Ladakh, reflecting how pastoral communities have historically navigated predator pressures and livestock protection. Image: Saloni Bhatia.

Manure as bioresource, fuel, and social currency

Livestock manure (*ludh*) represents a significant but under-utilised bioresource in Kargyam. A herd of approximately 200 sheep/goats produces an estimated 2,000–3,000 kg of manure annually. In the absence of market linkages or formal interventions, much of this is currently used as fuel in bukharis during winter, with internal household use estimated at around 500 kg per year.

Importantly, manure also functions as a form of “social currency”, exchanged or bartered for labour, services, and mutual support within and across villages. This highlights that manure is embedded in reciprocal social relations, not just economic transactions. Team discussions raised an important ethical and political concern: monetising manure through branding and sale could potentially disrupt existing systems of reciprocity and social cohesion. Any future interventions, including support for packaging or branding, would need to proceed cautiously, grounded in sensitivity to community norms and evolving relational dynamics, while accounting for parallel governmental and non-governmental incentives such as the emerging formation of manure supply chains.

Education: Access, but issues with quality or relevance

Kargyam has relatively good basic coverage in schooling, with three primary schools and one nomadic residential school (Sato) (*Table-1*). However, serious challenges persist around quality, relevance, and outcomes. Teacher shortages are acute, with a small number of teachers responsible for multiple subjects and grades (Nursery to Class 5), leading to limited individual attention, low motivation, and persistent learning gaps. Infrastructure—especially for harsh winters—is inadequate; hostels and school buildings are often poorly insulated, undermining student wellbeing and learning continuity.

High dropout rates after Class 10 are a major concern. Students who do not transition into higher education receive little structured support, leaving many disengaged and funnelled into a narrow set of options (e.g., army recruitment for boys; aspirations toward medicine or engineering for girls) without adequate guidance or preparation. Weak foundational learning—evidenced by poor reading abilities despite the presence of libraries—means that schooling often does not translate into confidence, skills, or improved life chances.

Educational Institutes	Total No. of Students	Total No. of Staff
Nomadic Residential School, Sato	50	15
Primary School, Chibra	15	4
Primary School, Kherapulu	13	4
Primary School, Perma	13	4

Table-1: Details of number of students in the four schools in Kargyam

Village Education Committee (VEC) expressed a strong need for scholarships, mentoring, and intellectual support for academically bright students, as well as broader co-curricular engagement. For context, VECs are community-level bodies that support and oversee local government schools, serving as a key interface between households, teachers, and education authorities. They help monitor school functioning, mobilise parents for enrolment and retention, and raise local concerns related to staffing, facilities, and student needs. They often facilitate co-curricular activities, but they remain limited in scale

and resources. Youth Association Kargyam (YAK) – a collective of young Ladakhis from Kargyam, also helps organise some of these activities.

Place-based education

A recurring theme in discussions was the disconnect between formal education and local pastoral livelihoods and ecologies. Formal schooling is often perceived as distancing youth from traditional knowledge and practices without equipping them with market-relevant or locally grounded skills. In response, there is strong interest in place-

based and contextual education, including:

1. Hands-on/experiential learning exercises, e.g., building a *rebo* (traditional herder tent made of yak hair) with children; apprenticeship with local medical practitioners (*amchi*)
2. Intergenerational learning through documentation and sharing of folklore and local histories
3. Field visits to understand corral design and animal care

Such approaches are seen as ways to rebuild cultural pride, strengthen ecological literacy, and make education more relevant to local realities. These activities would need to fit within local time constraints (post-4pm on weekdays, or weekends, or during winter holidays).

Pastoralism, youth aspirations, and rangeland use

Pastoralism in Kargyam is in steady decline, driven by outmigration (especially of men) into tourism, driving, and infrastructure-related labour. Women and girls are less mobile and remain more

dependent on herding and daily wage labour, both of which are increasingly insecure. Youth interest in herding is low, with many expressing little pride in pastoral work. They also aspire to infuse technology into pastoral livelihood in order to revive them, (e.g, drone monitoring of herds).

Community leaders noted a weakening of rotational grazing, likely due to fewer active herders, leading to repeated use of the same areas and localised overgrazing. Overgrazing reduces grassland diversity and is likely to negatively affect livestock health and impact the production of wool and milk.

There is interest in reviving pride and skills through initiatives such as a “shepherd school” and repositioning Kargyam as a “yak valley”, with stronger emphasis on yak-based livelihoods and identity. Herding is increasingly outsourced either to migrant labour from the plains or to households that remain in Changthang, with more affluent Changpa families who have relocated offering to pay others to manage their livestock for a fee.

Photo: Saloni Bhatia



Wool, craft infrastructure, and market asymmetries

Despite higher subsidies for pashmina, wool (sheep and yak) is perceived to have stronger and more consistent potential for revival. However, wool lacks institutional support, subsidies, and robust market linkages. Production costs in Changthang are high, while cheaper wool and synthetic insulation materials from the plains dominate markets. Processing bottlenecks such as unavailability of adequate equipment and tools was noted as a concern.

Handicraft centres are being established across Changthang (10 of 12 villages), and Perma and Sato now have functional centres. Equipment such as carding and shearing machines has been requested or partially provided, but training gaps severely limit effective use. Market literacy is also low, increasing vulnerability to exploitation by external designers and buyers. The army—given its large presence in Ladakh—was identified as a potential market for woollen products (gloves, socks,

caps, sweaters, jackets, shawls), though mechanisms to access this market remain unclear.

Healthcare fragility and erosion of traditional systems

Healthcare access in Kargyam is extremely limited. The nearest functional medical facility is in Tangtse, approximately an hour away under good conditions, while hamlets such as Chibra rely on poorly equipped sub-centres. Regular preventive and emergency care is especially constrained in winter. Women's health and mental health services are largely absent.

Traditional *amchi* (Sowa-Rigpa) medicine—historically central to healthcare in remote Ladakhi areas—is in sharp decline. With only one practising amchi in Kargyam, the system faces challenges of ageing practitioners, weak institutional recognition, reduced access to medicinal plants, and limited youth interest. There is potential for revitalisation through documentation, apprenticeships, provision of equipment and medicines, and formal integration with local health systems.

Technology, infrastructure, and design-implementation gaps

State investments in infrastructure have not always aligned with pastoral mobility and local realities. Fixed-location herder huts and high-cost constructions (₹14 lakh per hut) were widely viewed as impractical and aesthetically inappropriate. Similarly, livestock interventions such as solar-powered newborn lamb warming stations were reported to overheat animals, illustrating a broader gap between design and ground realities.

Electricity is expected to reach Changthang in the next 2–3 years, but the current shortage is a major bottleneck for scaling livelihood and processing interventions. Machines procured by other non-governmental organisations in the landscape remain underutilised due to unreliable power. There is a strong case for low-cost, context-specific, bottom-up innovation and proof-of-concept pilots before scaling.

(Images Below Left & Right): Backstrap loom in Chibra. Photo: Saloni Bhatia; Visioning exercise with Kargyam representatives. June 2024. Photo: Matthieu Salpeteur.



Column on the right (top to bottom): Traditional warming stations for new-born lambs by the community; bottom image shows re-designed solar-powered warming station which was found to be highly impractical. Images by Saloni Bhatia

PHEY

In Phey village, women's collectives are well established and include three Self-Help Groups (SHGs), two National Rural Livelihood Mission (NRLM) groups (with a third in formation), one Self-Employed Women's Association (SEWA) group in neighbouring Phyang village, and a village-level women's committee, *Ama Tsogspa*, which includes all women. Membership in NRLM-linked groups is required to access certain government benefits, shaping participation and access to resources.

In August 2025, a consultation meeting with these groups focused on reviewing ongoing activities, identifying gaps, and exploring opportunities for collaboration, livelihood diversification, and women's leadership. Discussions highlighted the need for stronger market linkages and

capabilities enhancement workshops for local food- and farm-based enterprises, alongside training in financial literacy, savings, and credit management. Planning for a government-supported village library was also discussed as part of broader community development priorities.

Agriculture-related discussions underscored challenges such as declining livestock numbers, reduced availability of herders to manage grazing, and constraints around water access for early cropping. Women identified priority training needs in entrepreneurship, marketing, and processing raw materials into value-added products—such as apple cider vinegar, jam, juice, ketchup, and purée—as well as guidance on costing, pricing, and logistics to improve viability and enhance household and group-level self-sufficiency.

Ama Tsogspa (women's alliance) meeting in Phey. Photo: Ragav Verma



KARGIL

Reconfiguration of pastoralism and the rise of outsourced herding

Across Suru, Drass and Barso, pastoralism is undergoing a major structural shift. Many villages have moved away from family or village-based herding toward outsourcing livestock management to Bakarwal shepherds or certain community members, driven by labour shortages, youth outmigration, health constraints among older residents, and changing livelihood priorities. Households frequently retain only a few cows for household milk, while sheep and goats are increasingly managed under contract.

The Bakarwal, a pastoral nomadic sub-group of the Gujar community, have a long-standing seasonal presence in Ladakh, particularly in Kargil district (Drass, Suru, Batalik, parts of Barso and adjacent valleys), as part of their transhumant migration system. They typically migrate from the Jammu and Pir Panjal foothills in winter to high-altitude summer pastures in Kashmir and Ladakh, returning south in autumn. In Ladakh, the Bakarwal are not permanent residents in most areas but use alpine and sub-alpine pastures for short, intensive summer grazing, especially for sheep and goats.

Typically, more than one male member from a Bakarwal family travels to a village:

one may manage the family's own herd, while another is engaged to manage the village's livestock as paid herding labour. Several villages reported commissioning Bakarwal herders to manage village sheep and goats during summer months, while cattle may still be partly managed by households or separately outsourced depending on distance to pastures. These arrangements are entangled with strong local claims over pasture rights and rising tensions around grazing pressure. It has also produced new political economies of grazing:

1. Villages collectively pool funds (including support from local councillors) to hire Bakarwals for 3–5 month summer contracts, with per-animal or lump-sum payments.
2. A distinction is made between Bakarwals hired as labour for village herds and those moving with their own transhumant herds, with conflicts more often associated with the latter.
3. Many residents expressed concern that rotational grazing has weakened, leading to repeated use of the same pastures and localised overgrazing.

At the same time, the shift is often experienced ambivalently: while outsourcing reduces household labour burdens, it also contributes to the erosion of herding skills, intergenerational knowledge transfer, and pastoral identity, particularly among youth.

Bakarwal coming back with the village herd at the end of the day in Kargil. June 2024. Photo: Saloni Bhatia



Pastures, governance, and contested access

Strong village claims over pastures coexist with increasingly market-mediated access arrangements. In Drass and parts of Suru, informants described Bakarwals paying substantial rents for short, intensive grazing periods, which are perceived to drive overuse of sensitive meadows. There is a widespread absence of systematic data on:

- 1. Numbers of migrating Bakarwals
- 2. Grazing routes and seasonal timing
- 3. Carrying capacity and rangeland condition

This lack of evidence contributes to mistrust, conflict narratives, and ad hoc governance. Several villages highlighted that pasture governance relies heavily on informal mediation by maulvis, *nambardars/goba* (village head), sarpanch, emphasizing the importance of local governance systems.

Human–wildlife interactions and uneven conservation economies

Human–wildlife interactions are a persistent backdrop across the landscape, particularly involving brown bears in Drass and snow leopards and wolves across Suru and Barso. Wildlife presence is widely normalised, and many villages report calling the Wildlife Department rather than retaliating. However, livestock depredation, especially by wolves and feral dogs, is a growing concern, with weak compensation mechanisms.

At the same time, wildlife tourism in Drass (especially bear photography) has expanded rapidly, with high-end tour operators charging premium rates. Local perceptions strongly emphasise uneven benefit-sharing, with communities seeing little economic return despite bearing the costs of coexistence. This has generated discussion around protected areas, conservation zoning, and the need for more equitable tourism models.



Photo: Saloni Bhatia

Consultation meeting with communities in Suru Valley. June 2024. Photo: Saloni Bhatia



Decline of wool, weaving, and craft economies

Across multiple villages, wool-based livelihoods and associated craft traditions (e.g., spinning, weaving) are in sharp decline. Several factors converge:

- 1. Low returns relative to labour intensity
- 2. Gendered devaluation of spinning and weaving as “women’s/children’s work”
- 3. Competition from machine-made and synthetic products
- 4. Youth preference for education and wage labour

The decline of weavers down to a single person, and reports of wool being discarded or used only for household purposes signal a rapid erosion of biocultural knowledge.

Even where handicraft centres exist, training, market access, and design literacy remain weak, increasing vulnerability to exploitation by external buyers and designers.

Education-led aspirations and the hollowing out of village labour

Education is widely prioritised and seen as the primary pathway to mobility and dignity. However, this has produced a paradox:

- 1. While school access has expanded, teacher shortages, multi-grade teaching, and weak foundational learning undermine educational quality.
- 2. High dropout rates after Class 10 leave many youth in limbo, without strong pathways to either higher education or viable local livelihoods.
- 3. Many families relocate women and children to Kargil town for schooling, accelerating partial household outmigration and weakening village labour availability.

As a result, education has simultaneously become a driver of aspiration and a contributor to the decoupling of youth from pastoral, agricultural, and craft practices.

Gendered transitions and women's expanding but burdened roles

Women's roles are shifting in complex ways. Women's Self-Help Groups (SHGs) under National Rural Livelihoods Mission (NRLM) are active in many villages, supporting vegetable cultivation, tailoring, small shops, and knitting. In some contexts, women also manage collective grazing, milking, and butter production systems.

At the same time, women bear disproportionate responsibility for:

- 1. Managing households in the absence of migrant men
- 2. Herding or mediating community conflicts (especially around grazing)
- 3. Balancing SHG work with domestic and livestock labour

These expanded roles are often under-recognised and under-remunerated, even as women become central to sustaining village economies and social cohesion.

Climate change, water, and changing agro-ecologies

Villagers across the belt consistently reported declining snowfall, earlier snowmelt, drying springs, and shrinking glaciers. These changes are reshaping:

- 1. Agricultural calendars (earlier sowing and harvesting)
- 2. Water availability for irrigation and domestic use
- 3. Fodder growth and pasture productivity

While infrastructure such as canals and taps developed under the Centre's Jal Jeevan Mission has improved access in some areas, winter freezing, non-consultative design, and uneven maintenance remain major challenges.

Infrastructure and the limits of top-down development

Improved roads, electricity, and connectivity have reduced physical isolation, but they have also accelerated

Photo: Saloni Bhatia



Photo: Saloni Bhatia

labour outmigration, market dependence, and shifts in consumption patterns.

This reinforces a broader pattern: large investments in physical infrastructure are not matched by equivalent investment in skills, institutional capacity for maintenance and repair, contextual and grounded innovation, and long-term livelihood systems.

Emerging development trajectories and open questions

Across Suru–Drass–Barso, communities expressed strong interest in:

- 1. Income-generating activities linked to agriculture and skills

- 2. Wool processing and value addition
- 3. Homestays, birding, trekking, and low-impact ecocultural tourism
- 4. Youth training and mentoring

At the same time, critical open questions remain around:

- 1. How outsourcing of herding is reshaping pastoral relations and power dynamics
- 2. The long-term sustainability of rangelands under intensified, localised grazing
- 3. The political economy of tourism and conservation benefit-sharing
- 4. The effectiveness of NRLM and other programmes in supporting meaningful, locally rooted women's livelihoods

Strategy for Engagement and Systems Change

The strategy is guided by a phased, place-based approach that recognises heterogeneity across communities, strengthens local institutions, and links short-term tangible outcomes with medium- and long-term systemic change. It is designed to remain flexible and adaptive, enabling learning, iteration, and recalibration in response to evolving socio-ecological conditions. We list below the roadmap based on our findings.

Recognise Heterogeneity of Community Experience

While common regional pressures shape Ladakh’s rangeland systems, livelihood strategies, and youth trajectories, lived realities vary significantly across and within landscapes. Our engagement must avoid one-size-fits-all interventions, grounding actions in village-specific histories, institutions, ecological contexts, and social relations. This includes recognising differences across Changthang, central Ladakh, and Kargil, as well as intra-village variation shaped by gender, age, caste, mobility, and livelihood roles. This can ensure that interventions are locally relevant, socially legitimate, and responsive to uneven vulnerabilities and capacities.

Strengthen Local Institutions

Village Education Committees (VECs) serve as critical institutional entry points for strengthening youth engagement, educational relevance, and the community–state interface. The strategy prioritises working closely with VECs to:

1. Support scholarships, mentoring, and academic guidance for high-performing and at-risk students
2. Facilitate co-curricular and place-based learning activities
3. Strengthen linkages between schools, parents, and education authorities
4. Integrate livelihood, ecological literacy, and cultural knowledge into school-related activities

Building the capacity and role of VECs

can strengthen community ownership over education pathways while improving relevance and retention.

Archiving Biocultural Knowledge and Practices

A core pillar of the strategy would be to document and archive biocultural knowledge related to pastoralism, rangeland management, crafts, traditional medicine, folklore, seasonal calendars, and livelihood practices. Palay House in Phey, run by Achi Association India, serves as the physical and institutional base for the Archive, which can function as:

1. A repository of oral histories and practices
2. A resource for education, research, and community-led learning
3. A platform for legitimising and valuing local expertise and cultural heritage

The Archive is envisioned as a living, community-driven knowledge commons that supports reflection, pride, and intergenerational transmission.

Integrating Knowledge with the Shepherd School

In response to declining youth engagement with pastoralism and strong interest in place-based education, we propose the development of “Shepherd School”. This can function as renewed, hybrid, and modular learning opportunities for:

1. Integrating traditional and formal knowledge systems
2. Combining hands-on field learning with digital and virtual components to reach mobile and urban-connected youth
3. Supporting intergenerational learning between elders, active herders, and students
4. Reframing pastoralism as a skilled, knowledge-intensive, and future-facing livelihood whilst continuing to hold space for conversations around youth aspirations

The Shepherd School aims to rebuild pride, skills, and identity around pastoral livelihoods while creating pathways aligned with contemporary youth aspirations. It is not envisioned as a physical structure, but something that propels the idea of learning in varied contexts.

Bridging the Rural–Urban Divide through Exchanges

To counter the growing rural-urban divide, the strategy includes, the strategy includes curated rural–urban engagement through exhibitions, dialogues, learning exchanges, and cultural events with socio-ecological themes. These can:

1. Showcase pastoral knowledge, crafts, and rangeland realities to urban audiences
2. Create platforms for youth, women, and herders to narrate their own stories
3. Foster broader public understanding of pastoralism, climate change, and conservation
4. Link the Archive and Shepherd School outputs to wider public engagement

These initiatives aim to re-position pastoralism and rangelands within broader societal conversations on climate, culture, and conservation.

Acting as a Bridge between Stakeholders

The team sees itself playing the role of a facilitator that can connect communities and local administration, including line departments, district officials, and wildlife authorities. This includes:

1. Supporting dialogue around pasture access, permits, and sanctuary boundary changes
2. Facilitating participatory mapping of sacred valleys, migratory routes, and grazing areas
3. Supporting communities to articulate livelihood and infrastructure needs in administrative forums
4. Enabling more transparent, inclusive, and context-sensitive governance processes

This bridging role is essential for aligning conservation regulations, development planning, and pastoral needs.

(section continues in the next page....)



ARTICLE

Beleaguered Pastoralists of the Trans-Himalaya: Chronicle of a Travesty Foretold
by Saloni Bhatia

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Phased Interventions: From Early Wins to Systemic Change

In areas with strong existing relationships, there is room to pursue innovative and higher-risk pilots to test new approaches, whereas in emerging contexts, we can prioritise low-threshold, visible interventions to build trust, demonstrate early impact, and establish foundations for longer-term collaboration. Therefore, the strategy explicitly sequences interventions across time horizons to balance immediate outcomes with deeper transformation:

Short-term

There is a clear need to prioritise the co-design and scaling of predator-proof corrals in close partnership with communities as a practical and trust-building entry point for human–wildlife coexistence. When developed collaboratively, corrals can be better adapted to local materials, herd sizes, seasonal use, and mobility patterns, increasing effectiveness and long-term maintenance. Community co-design can also ensure that women—who are often responsible for livestock care in the absence of migrant men—are actively involved in design and decision-making. Beyond reducing livestock losses, co-designed corrals can serve as visible, early-win interventions that demonstrate responsiveness to community priorities, strengthen relationships, and create a foundation for deeper engagement on rangeland governance, coexistence, and livelihood resilience.

Medium-term

The work must integrate biodiversity documentation and further research on the links between rangeland condition and livestock health with wool processing and value addition, alongside investments in craft infrastructure, market literacy, and targeted capacity-building. This combined approach will support communities to

better document and steward local biodiversity while strengthening wool- and craft-based livelihoods through improved quality control, design skills, pricing, and market access. By simultaneously building producer capacity and forging institutional and market linkages—with buyers, cooperatives, government schemes, and ethical value chains—the approach aims to enhance income opportunities, reduce vulnerability to intermediaries, and align conservation outcomes with locally grounded, nature-based livelihood.

Long-term

Place-based education reforms, institutionalisation of the Shepherd School, biocultural archiving, strengthened rangeland governance, and narrative shifts around pastoralism—aimed at durable transformations in how rangelands, livelihoods, and knowledge systems are valued and supported.

Scale must be seen as more than spatial or quantitative growth; meaningful impact can also come from scaling deep through strengthened relationships, quality engagement, and incremental change. It can also be achieved through partnerships and coalition building through which we can share unique skills and networks.

Further, achieving scale and long-term impact requires engaging seriously with changing aspirations among youth, including education, mobility, and outmigration. Rather than framing ongoing shifts as a loss to pastoral systems, our efforts seek to balance aspiration with opportunity by creating livelihood pathways that are innovative, dignified, and economically viable, while remaining compatible with pastoral life. Meaningful innovation—rather than nostalgia or low-return labour—is essential to retain interest and agency among the younger generations.

Risks & Assumptions

The project assumes a general willingness among community members, partners, and other stakeholders to engage with conservation and livelihood initiatives, with consensus expected to emerge through dialogue while preserving diverse perspectives.

Key risks include inter- and intra-community conflicts, elite capture, and challenges in applying newly acquired

skills after capabilities enhancement programs. Political instability, natural disasters, and pandemics could disrupt implementation, while individuals involved in advocacy or lobbying may face safety threats. Addressing these risks will require adaptive planning, continuous stakeholder engagement, and strategies to ensure equitable participation and protection of vulnerable actors.

Photo: Saloni Bhatia



Acknowledgements:

We gratefully acknowledge the local residents, researchers, and practitioners who generously shared their time, knowledge, and insights.



Photo:
Saloni Bhatia



Photo: Akash Basumatari

CO-DEVELOPING PREDATOR-PROOF CORRALS

CHIBRA, KARGYAM VALLEY



Inside an upgraded corral
Photo: Malavika Narayana

Chapter Overview

This intervention focuses on the mitigation of wildlife-induced losses for pastoral communities, identified as a priority area through multiple consultation meetings. This chapter documents the entire process, including insights from the visioning exercises conducted prior to the launch of the AMP-Himalaya project, as well as the co-design and development of a prototype predator-proof corral during the project. It describes how all 17 semi-nomadic households in Chibra (Kargyam valley, Changthang) adapted the prototype to their specific needs, highlighting the successes achieved and the lessons learned.

Participating Organisations and Groups



Community
members of
Changthang



Corrals: Traditional and Evolving Designs

In traditional Ladakhi and Trans-Himalayan pastoral systems, livestock enclosures, or corrals, were typically built as stone structures. They were circular or rectangular in shape, made using loose rocks or boulders, and allowed animals to move freely inside, preventing crowding and stress. These old-style corrals had open tops, weak doors, or gaps in the walls and were primarily designed to contain herds.

However, traditional corrals fail to protect livestock in winters, when predation risk is higher. While many locals report an increase in wild prey such as blue sheep and ibex, changing prey-predator dynamics and rising

livestock numbers have still heightened the risk of livestock attacks, making older designs insufficient for current needs.

Wildlife-induced losses pose a significant threat to the wellbeing of pastoral communities and jeopardise their traditional livelihoods. Predator-proof corrals are an effective non-lethal strategy to reduce livestock losses and promote coexistence with large carnivores. By minimising livestock losses, corrals can indirectly support wool-based livelihoods and strengthen the manure supply chain while also reducing perceived risks from predators and improving attitudes toward them over time.

(Image below) Traditional corral with loose boulders and open top. They are not used in winter months. Photo: Saloni Bhatia

(Image on the next page) Redesigned corral with stone and mud base, and mesh roof. These corrals are used both in summer and winter months. Photo: Rinchen Namgail



Understanding the Seasonality of Corrals

Corrals often differ by season to suit terrain, livestock movement, and predator risk.

Many Changpa pastoralists migrate altitudinally and seasonally with their herds to nutrient rich pastures. Summer structures typically use basic fencing to keep animals together, and visual deterrents such as fox lights are used by a few families to prevent attacks. These corrals tend to be simpler because the threat from predators is lower and the climate is milder. Livestock

are allowed to move more freely, while pastoralists stay in tents or temporary camps.

In winter, livestock movement is generally restricted closer to settlements due to harsh weather, limited grazing, and higher predator risk. Therefore, winter corrals are built more robustly and are often enclosed with sturdy metal frames and mesh. Their walls are made with a combination of stone and mud, or (in many recent cases) cement.

(Below) Winter corrals made with stone and mud, with open tops in Chibra village. The area marked by the red stick is where pastoralists used to sleep to guard their livestock from predators. These corrals are now upgraded under the project, removing the need for night guarding in winter. Image: Saloni Bhatia



Interventions and their Limitations

The predator-proof corrals reduce livestock losses from predators such as snow leopards, wolves, lynx and feral dogs. They also foster coexistence between humans and wildlife by lowering the risk of surplus killing (instances in which a predator enters an enclosure and kills multiple animals in a short period, far more than it can consume) and reducing the likelihood of retaliatory killing (where herders may kill predators in response to such losses).

Several interventions have aimed to design winter corrals suited to the current needs of pastoral communities, with varying degrees of success. Key design changes include reinforced doors, wire-mesh tops to

prevent predators from jumping or climbing in, and strengthened structural frames. In some cases, corrals were entirely rebuilt with cement.

Despite these modifications, many interventions still follow a one-size-fits-all approach. Programmes aiming to scale up often leave little room for small-scale adaptations. Some implementing agencies, constrained by financial resources, regulatory audits, and standard protocols, have limited flexibility to innovate or incorporate local materials. Consequently, interventions designed without community input are turned impractical and ineffective, with poor adoption rate.

Corral with a low ceiling, making it difficult for herders to walk inside. Photo: Saloni Bhatia



Co-designing Corrals in Kargyam

In June 2024, formal consultation meetings were held with members from all four hamlets of Kargyam in Changthang—Chibra, Sato, Parma, and Kherapulu—to understand community needs and priorities more closely. Later that month, representatives from these hamlets travelled to Palay House in Phey to participate in a visioning exercise. These exercises helped identify several key priorities for community well-being, including strengthening culturally relevant education, improving access to healthcare, and reducing stress on livelihood activities, particularly mitigation of wildlife-induced livestock losses.

With the launch of the AMP-Himalaya project in 2025, these priorities began moving towards concrete action. Baseline data on households, livestock numbers and herd composition was gathered through field visits.

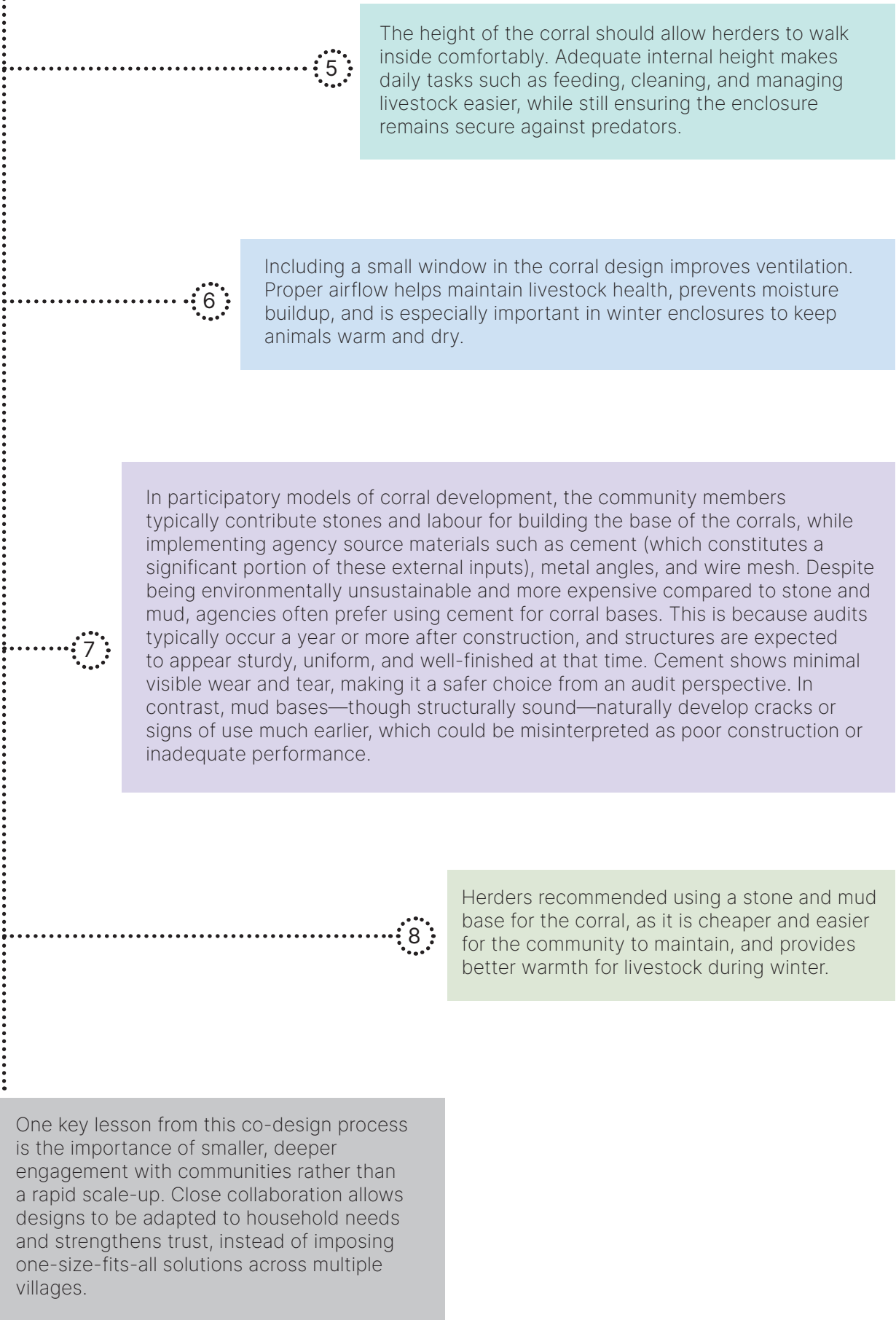
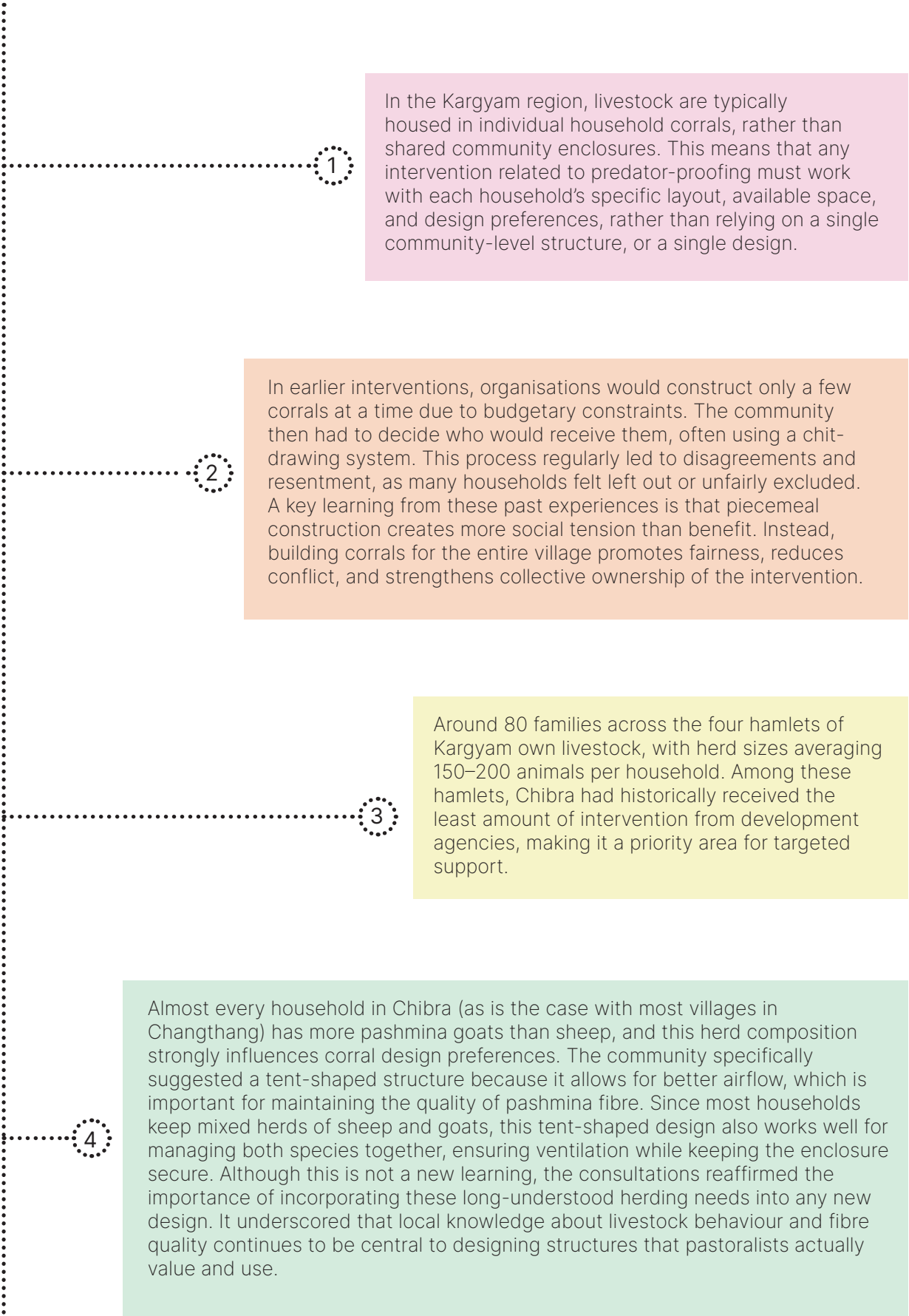
In April 2025, during the project team's visit to Kargyam to initiate the co-design process of corrals, community members revisited these priorities and articulated specific ideas for implementation. The goba (village chief) of Kargyam was involved throughout the process to provide input and support regular visits during the construction of the corrals.

(Top image) Visioning exercise at Palay House, Phey. June 2024. Photo: Matthieu Salpeteur
(Bottom image) Consultation meeting. April 2025. Photo: Aditi Lokhande



Chibra village. April 2025. Photo: Saloni Bhatia

Key considerations
in the corral co-design process
included the following:



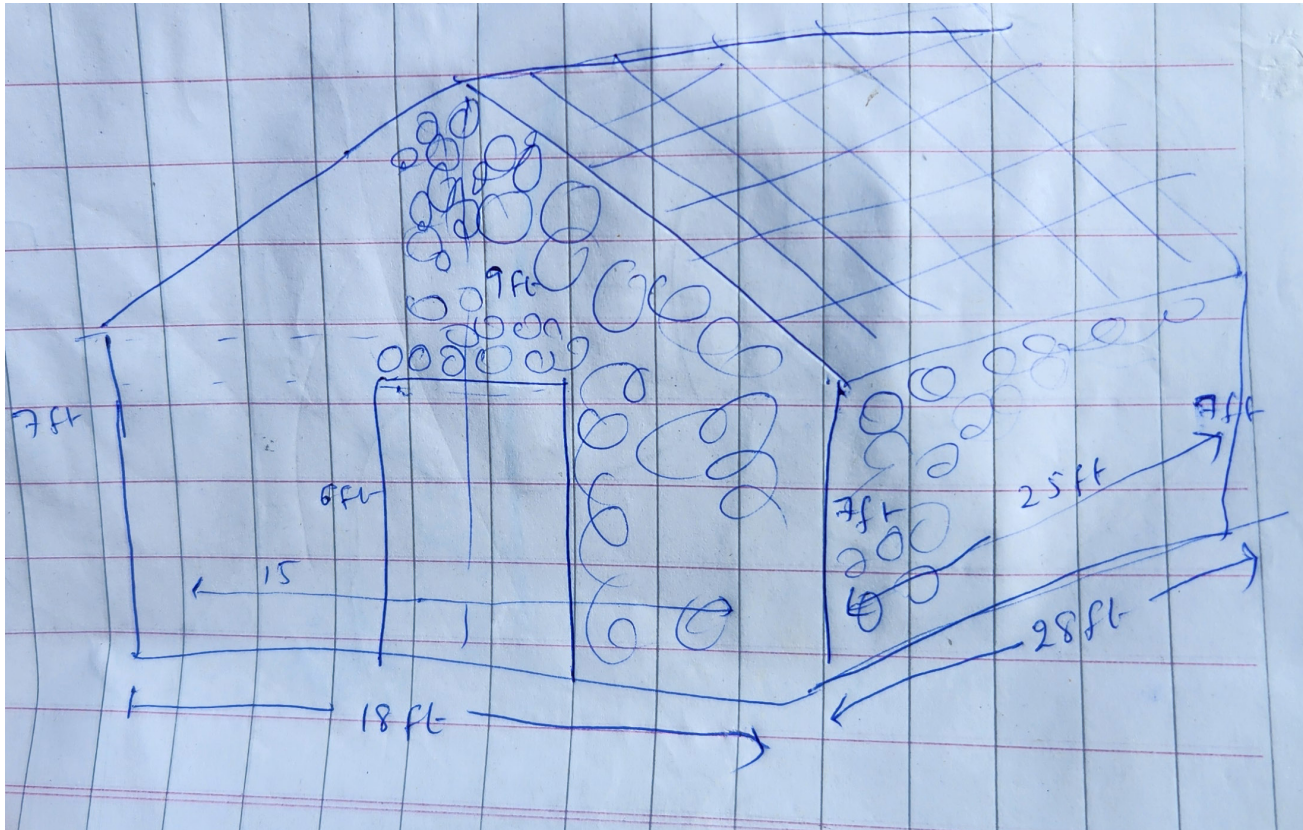
Adaptable Prototype

Based on the key insights gathered from the community, a prototype design for the corral was developed to accommodate up to 250 sheep and goats. This estimation was based on the current herd sizes and the potential increase in the livestock numbers in the upcoming years. The tentative design features outer dimensions of 18 feet in width and 28 feet in length, with a tent-shaped structure. The door, located at the center of the width, is 6 feet high, while the highest point of the corral reaches 9 feet. The walls are constructed using stone and mud to provide warmth in winter, and a window measuring 1.5 feet by 1.5 feet is positioned directly opposite the door to ensure adequate ventilation. This prototype is flexible and can be adapted to suit specific locations and herd sizes. In Chibra, there are 17 households, and each household will have its own corral. The exact dimensions of each corral

were determined through internal village meetings to ensure fairness and avoid any perception of partiality.



Co-creating an adaptable prototype for Chibra based on the needs of the villagers. Photos: Saloni Bhatia



Project team & Chibra villagers finalise the details of the corral prototype

Photos: Saloni Bhatia



The Construction Process



The work started in the last week of May 2025
by contractor Konchok Sangrob and executed by Rinchen Namgail.
Photos: Ragav Verma and Rinchen Namgail



DOCUMENTARY

The Corral: Predator Proofing Pastoral Livelihoods in Chibra
by Jungwa Studios

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The Result

Finished corrals in use
Photos: Saloni Bhatia (image on this page); Stanzin Tundup (images on the next page)



Finished corrals with final dimensions

Name (nominee from each household)	Date of completion of the corral	Final size and modifications Date of inspection: 6 & 7 November 2025	Livestock size (during the time of inspection)
Morup Namgail	7-July-2025	18×28	Yak: 31 Goat: 50 Sheep: 11
Padma Rigzin	7-July-2025	21×21	Yak: 13 Goat: 190 Sheep: 17
Skarma Tundup	7-July-2025	20×31	Yak: 3 Goat: 40 Sheep: 5
Sonam Palmo	7-July-2025	27×31	Yak: 24 Goat: 120 Sheep: 20
Stanzin Norboo	7-July-2025	21×28	Yak: Nil Goat: 150 Sheep: 20
Tsewang Dadul	7-July-2025	18×28	Yak: 11 Goat: 50 Sheep: 30
Tsewang Samtan	7-July-2025	21×28	Yak: 21 Goat: 115 Sheep: 30
Tundup Phunchok	7-July-2025	21×23	Yak: 3 Goat: 120 Sheep: 36
Konchok Tsaphel	3-Sept-2025	19×28	Yak: 5 Goat: 120 Sheep: 22
Thinlay Gyaltsen	3-Sept-2025	19×28	Yak: 19 Goat: 90 Sheep: 7
Sonam Tarchin	3-Sept-2025	13×24	Yak: 15 Goat: 70 Sheep: 5
Mama Namgyal	3-Sept-2025	16×24	Yak: 5 Goat: 150 Sheep: 50
Thinley Dolma	3-Sept-2025	18×23	Yak: Nil Goat: 60 Sheep: 25
Chamba Namdol	16-Sept-2025	23×27	Yak: 25 Goat: 105 Sheep: 78
Rigzin Namgail	16-Sept-2025	16×22	Yak: Nil Goat: 80 Sheep: 30
Sonam Yangzes	15 Oct 2025	17×28	
Konchok Namgail	3 Nov 2025	21×30	Yak: 6 Goat: 40 Sheep: 20



Photo: Stanzin Tundup

Conclusion

This intervention demonstrates that functional infrastructure alone is insufficient for effective predator protection. Success depends on integrating strong design with participatory, context-specific approaches. Engaging the community in co-design ensured that the corrals were practical, well-suited to local needs, and widely accepted, highlighting the value of

collaborative, need-driven solutions.

Corrals help minimise livestock losses, potentially increasing the value of by-products (wool, manure etc). They also reduce perceived predator risks and, through the co-design process, foster a stronger sense of collective ownership within the community.





RE-CENTERING INDIGENOUS SHEEP WOOL FOR A PASTORAL FUTURE

CHIBRA, KARGYAM VALLEY

*Image by
Gulzar Hussain*



Image by Saloni Bhatia

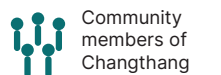
Chapter Overview

During community consultation meetings, pastoral communities identified value addition and the development of market linkages for sheep and yak wool as priority areas. This chapter documents livelihood experimentation related to sheep wool in Chibra, Kargyam, building on interventions undertaken prior to the launch of the AMP-Himalaya project in other parts of Changthang by the partner organisations, Achi Association India and Unnu Textiles.

Interventions under the AMP-Himalaya project include a sheep wool pre-processing workshop held in Chibra, followed by a felting workshop conducted in Phey. These workshops were complemented by laboratory testing of wool samples collected from Chibra, as well as a market research carried out through engagements with weavers in Kutch who work with indigenous wool.

The outcomes of the sheep wool interventions, including felted rugs, were showcased through public exhibitions in Phey, Chibra, and Bengaluru to highlight the central role of wool in pastoral communities.

Participating Organisations and Groups



Wool—the Fibre of Pastoral Life

Wool derived from animals such as sheep, goats, camels, and yak is deeply embedded in pastoral lifeworlds and economies, which are shaped by enduring moral, cultural, and ecological relationships between people and animals. Within these ways of life, wool reflects a distinct pastoral logic — it is a renewable fibre that can be harvested seasonally without depleting herds whilst contributing to their good health and wellbeing. Durable, biodegradable, and locally adaptable, wool sits at the intersection of ecology, livelihood, and culture, forging intimate links between human and more-than-human wellbeing.

Further, wool is uniquely suited to thermal regulation. Its hollow, crimped fibres trap air, enabling bidirectional regulation by retaining warmth in cold conditions while allowing heat to dissipate as temperatures rise. These properties make wool a highly effective local adaptation in climatically

extreme ecosystems. In contexts where farming is limited or uncertain, wool functions not only as a material resource but also as a socio-economic and ecological adaptation. Among the nomadic pastoral communities of Changthang in Ladakh, for instance, the collective annual shearing of sheep and goats is a seasonal livelihood practice and a social event, which reinforces shared labour arrangements, intergenerational knowledge transfer, and cultural continuity.

By contrast, agricultural societies have historically relied on plant-based fibres such as cotton, flax, or hemp, which are cultivated, harvested, and processed within sedentary systems that place significant demands on arable land and irrigation, often competing with food crops and water resources. In dry, cold, or high altitude regions, however, wool production is embedded within existing grazing ecologies.

(Images on this page): Mobile craft practices of the Changpa pastoralists—shearing/combining, spinning, and weaving on backstrap loom—coexist with herding. Photos: Gulzar Hussain

(Images on the next page) Changra goat, yak and Bactrian camel. Photos: Saloni Bhatia



Wool in Ladakh

Ladakh produces several types of wool from locally adapted livestock, which have long been integral to nomadic and agropastoral livelihoods. These fibres are primarily used in the production of textiles such as shawls, blankets, robes, and other everyday and ceremonial items.

Pashmina is the finest grade of wool and is obtained from Changra goats. It comes from the ultra-soft undercoat that is naturally shed in spring in high-altitude pastures and is highly valued for its exceptional fineness and warmth. Pashmina is extensively used in luxury textiles and has become the primary focus of most recent livelihood interventions in the region.

Sheep wool, sourced from Changthangi and Purgi sheep breeds, is comparatively coarser than pashmina but remains a versatile and widely used fibre. It is used in products such as stoles and robes (*gonchas*).

Yak wool is derived from the animal's soft undercoat and is commonly used to produce durable items such as blankets. The yak's coarse outer hair, distinct from the undercoat, is traditionally used for making ropes and tents (*rebo*), reflecting its strength and weather resistance. Tents made of yak hair are considered to be warm enough in the winter and cool enough in the summer to ensure comfort

Camel wool, obtained from Bactrian camels in northern Ladakh, especially in regions such as Nubra, is less commonly used. Its coarse and robust texture makes it suitable for outerwear and protective garments.



Photo: Akash Basumatari

Sheep Wool and Pashmina – A Historical Perspective

Sheep wool, locally known as *bal*, has been central to the Ladakhi way of life since time immemorial. It has sustained nomadic livelihoods by providing fibres for everyday necessities such as *gonchas* (robes) and *challi* (blankets). Traditionally, Changpa herders also bartered wool and salt for apricots and barley from the Sham region of Ladakh, which is known to be agriculturally productive.

Janet Rizvi's book *Trans-Himalayan Caravans: Merchant Princes and Peasant Traders in Ladakh* (1999) explains that the commercial rise of pashmina (*pashm* or *lena*), the fine undercoat of Changra goats, began with the Treaty of Tingmosgang (aka Temisgham) in 1684. The treaty led to a tripartite agreement between Tibet,

Ladakh, and the Mughal Empire. It also granted Kashmir a monopoly over the processing of Tibetan *pashm*, while Ladakhi traders acted as intermediaries, routing and selling the fibre exclusively to Kashmir for weaving. This arrangement catalysed a high-value luxury trade sustained by elite and state patronage. Despite the growing prominence of pashmina in long-distance trade networks, sheep wool remained the primary fibre for everyday nomadic and agro-pastoral life across Ladakh, particularly in domestic and household use, well into the nineteenth and early twentieth centuries.

Around the turn of the twentieth century, however, the sheep wool economy began to shift. Industrially produced textiles,

cheaper imports, and second-hand clothing gradually displaced locally-produced sheep wool from everyday use, leading to a steady erosion of associated skills, practices, and markets that had long underpinned pastoral self-reliance.

A major turning point occurred around 1959, when border closures with Tibet sharply curtailed the inflow of Tibetan *pashm* into Ladakh. This disruption created strong incentives to expand local pashmina production through increased rearing of Changra goats. Until the mid-twentieth century, Changpa pastoralists had been embedded in extensive exchange networks linking Tibet, Ladakh, and Kashmir, within which pashmina circulated primarily as a traded commodity rather than being intensively produced locally.

However, the new political reorientation was subsequently reinforced by state

interventions, including breed improvement programmes, the establishment of pashmina cooperative, veterinary support, and market facilitation, all of which favoured pashmina due to its high commercial value. Global and national demand for pashmina shawls grew steadily in the post-independence period, with Kashmir remaining the primary processing and weaving hub.

Rising prices made pashmina far more lucrative than sheep wool, which was anyway being increasingly displaced by industrial textiles and imports. For pastoralists facing shrinking trade options, pashmina goats offered a reliable cash income. Over time, pashmina came to surpass sheep wool becoming the dominant commercially traded fibre in Changthang, while sheep wool remained largely confined to local and domestic use.



Image on this page by Ragav Verma; image on the next page by Stanzin Tundop

Ecological Impacts of Changing Livestock Patterns

Historically, Ladakhi herders maintained diverse flocks of sheep, goats, yaks, and horses to support a self-reliant subsistence economy. However, the economics of wool production and trade was a significant factor in reshaping livestock composition, among others. It led to an increase in the ratio of pashmina goats to sheep which, in turn, generated significant ecological impacts. For instance, in the Changthang region, pashmina goats presently account for roughly 62.3% of the livestock, while sheep comprise approximately 31.8% of the total herd (Moharana *et al.* 2022).

In Ladakh’s high-altitude pastures, the

physical differences between livestock determine how they impact the land. Sheep are primarily “grazers” that act like lawnmowers, eating grasses close to the ground. In contrast, goats are “browsers” equipped with narrow mouths and highly mobile lips that allow them to act more like precision tweezers. This anatomy enables goats to selectively pick out the most nutritious parts of a plant, such as woody stems and reproductive seeds, which sheep usually ignore (Agrawal *et al.* 2014).

When pastures become overgrazed and the grass is short, goats are more “aggressive” feeders than sheep. While

sheep struggle to get a full meal from short grass, goats can take much deeper bites, often consuming the plant’s growth points (meristems). Because these growth points are removed, the plants cannot easily regrow, leading to a rapid depletion of the vegetation that both domestic and wild animals rely on for survival.

The altered vegetation composition and reduced standing biomass—particularly at lower elevations where trampling and soil erosion are more prevalent—create direct forage competition with wild herbivores, such as the Tibetan Argali (*Ovis ammon*) and Tibetan Gazelle

(*Procapra picticaudata*), jeopardising their long-term survival (Bijoor *et al.* 2024; Namgail *et al.* 2010). The degradation of native pastures can also disturb traditional prey-predator relationships. As wild herbivore populations plummet, carnivores like the snow leopards and wolves increasingly target domestic livestock, leading to intensified conflicts between herders and conservationists over wildlife management.

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PROBLEM SUMMARY

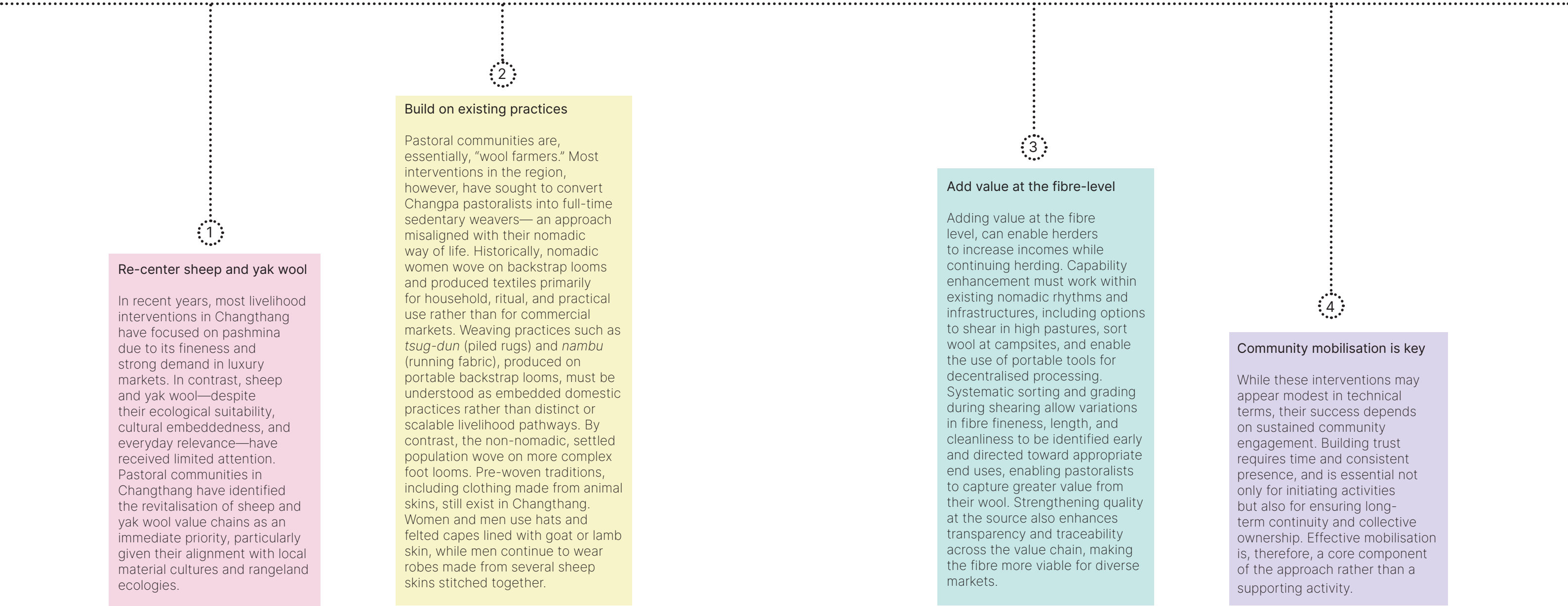
Pastoral livelihoods in Ladakh have shifted toward pashmina-dominated production driven by markets and policy, marginalising sheep wool and reshaping herd composition in ways that undermine ecological balance and long-term pastoral resilience. Revitalising indigenous sheep wool offers a pathway to strengthen incomes while restoring livestock practices that are more aligned with rangeland health and traditional way of life.

Intervention Strategy

The intervention strategy was developed by senior textile designer Jigisha Patel, founder of Unnu Textiles, in collaboration with Achi Association India. It draws on insights from baseline surveys and consultation meetings conducted with nomadic communities across the Rong, Rupshu, and Nyoma blocks of Changthang between 2017 and 2024. These learnings were subsequently tested in Chibra village in the Kargyam Valley, under the AMP-Himalaya project in 2025.

The key pillars of the intervention strategy are as follows:

The intervention strategy was implemented through a range of activities, which are described in subsequent sections.



Pre-processing Workshop

CHIBRA, JUNE–JULY 2025

A baseline survey carried out in Chibra in April 2025 showed that sheep wool is largely retained for household use, with limited commercial sale. Subsidy regimes that privilege pashmina, the lack of accessible markets for sheep wool, and changing aspirations have collectively contributed to a steady decline in its perceived economic and cultural value. When sold, sheep wool typically fetches only INR 200–350 (USD 2–4) per kg.

The survey further found that wool of different qualities is routinely mixed during shearing, obscuring grade distinctions and, in turn, undervaluing finer fibres with higher market potential and depressing overall prices. In addition, the widespread use of commercial detergents for washing damages fibre structure, removes natural lanolin, and reduces the wool's suitability for high-value artisanal and textile applications. These insights pointed to the need for targeted fibre-level interventions to improve quality, differentiation, and value realisation.

The wool pre-processing workshop began with shearing in late spring, during which herders removed raw fleece from live sheep using traditional iron blade shears. Hand-held iron blade shears are the most widely used tool for sheep shearing. They allow close, controlled cutting and minimise injury. Their portability makes them suitable for use in remote pastures and seasonal camps. Sometimes wooden or metal combs are used, or fibres are gently pulled by hand. This technique preserves fibre length and fineness and avoids cutting the coarse outer hair.

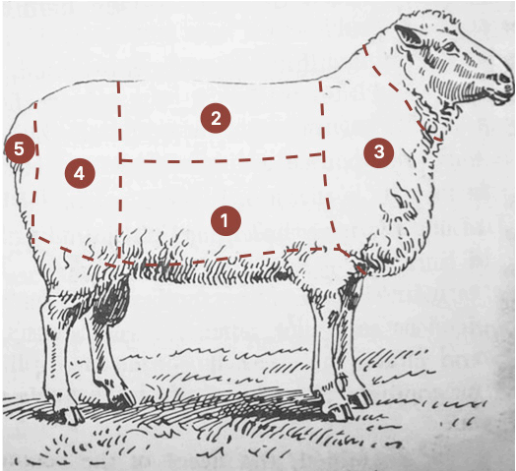
The timing of shearing varies by region. In Chibra, it typically takes place in late June. Sorting and grading of wool was facilitated alongside shearing which helped classify the wool by quality. For example, finer wool around the neck was separated from the coarser wool around the shoulders and the hind legs. The sorting also involved age-wise classification, and samples were collected by the project team for subsequent laboratory testing.

The freshly shorn fleece, containing lanolin (approx 20–30 percent of its weight), along with suint, dirt, and vegetable matter, was then scoured. The scouring process involved washing the wool in hot water (50–60°C) with a mild soap through multiple rinses to remove grease, without causing felting. At this stage, a pH-balanced enzyme was introduced to enhance the softness and sheen. Water's hardness and temperature are important factors as hard

water can reduce scouring efficiency by reacting with soap and leaving mineral residues on fibres. Similarly, water that is too cool fails to remove lanolin effectively, while water that is too hot or agitated increases the risk of fibre damage and accidental felting.

The scoured wool was subsequently sundried and prepared for further stages of processing, that is, carding.

Wool sortings during the shearing stage; scouring and drying process of the sorted wool; colour sortings of the scoured wool.
Photos by Jigisha Patel, Ragav Verma and Rinchen Namgail



(Images from left to right): Different methods of harvesting wool and Pashmina. The first image shows adult sheep's wool being gently pulled by hand, the next two images show sheep being sheared using hand tools, and the final image depicts the combing process used for Pashmina goats to harvest the fleece. Photos by Jigisha Patel





Photo: Malavika Narayana



(Image on the left page): A functioning carding machine in Choglamsar, possibly the only one currently publicly accessible for use. It can card upto 5kg of wool per hour.

(Image on this page): Workshop participants learning to use an Ashford drum carder, borrowed from Angkung Village, where it was acquired through an earlier project under the mentorship of Jigisha Patel. This hand carder can card a maximum of 5kg of wool per day. Photos by Dilip K Mekala

Carding

CHOGLAMSAR, LEH, JULY 2025

Carding, akin to combing, is a crucial step because even after scouring, raw wool remains matted with tangles, short fibres, and residual vegetable matter, forming uneven clumps that are unsuitable for smooth spinning or weaving. Carding can be done by hand or with the help of a machine, and the process separates and aligns the fibres to create a more uniform mass, thereby preventing weak spots and reducing the risk of yarn breakage.

Traditionally in Ladakh, women carded wool entirely by hand using paired wooden carders fitted with wire teeth. They placed cleaned sheep or yak wool onto one carder and repeatedly brushed it with the other. This action untangled and aligned the fibres, removed short fibres and remaining plant matter, and formed soft, airy wool ready for spinning. The work was done over several days for each herd. While this method maintains good fibre quality, it is time-consuming and physically demanding,

which limits the amount of wool that can be processed.

Recent upgrades in hand carders (such as the Ashford carder) have improved efficiency while retaining the simplicity of manual operation. These carders use ergonomically designed handles, high-quality carding cloth with finer and more consistent wire teeth, and larger carding surfaces, allowing better fibre alignment and faster processing as compared with traditional wooden carders. While still hand-powered, such upgraded tools reduce physical strain, improve consistency, and slightly increase output, making them suitable for artisans and small producers who need better quality and productivity without moving to fully mechanised systems.

Carding can also be done using a range of mechanised options that differ greatly in scale, speed, and cost, especially when compared with hand carders. Small electric carders use rotating drums to open, align, and blend fibres more quickly and evenly. They reduce physical effort and time while maintaining fibre quality, making

them suitable for small to medium-scale production, though they require electricity and basic maintenance. Additionally, there are large mechanised carding machines, which are industrial systems with multiple rollers that process large volumes of wool at high speed, producing uniform fibre for commercial spinning. While highly efficient, they are expensive and require great amounts of energy, as well as skilled operation and infrastructure, and are often unsuitable for remote or small-scale settings where access to electricity can be a challenge.

In Ladakh, a few industrial carding machines have been procured by the administration in recent years. However, limited technical expertise and maintenance capacity have rendered the machines ineffective. As a result, only one carding unit is currently available for use, and nearly all commercially processed wool is channelled through this single facility. Carding is, therefore, a critical bottleneck in the wool value chain and underscores the need for further research and low-cost, context-specific innovations that are suited to the realities of pastoral communities,

including ease of use, repairability, and operation in remote settings.

Despite challenges such as machine breakdowns, intermittent electricity supply, and limited manpower, the scoured wool was successfully carded and prepared for the felting workshop.

Per-kilogram rates for wool processing and products vary by animal type, quality, and colour. When producers bring their own raw wool for carding, sheep wool is charged at approximately ₹110–300 per kg, depending on quality, while yak wool is carded at around ₹150 per kg. Carded wool purchased directly commands higher prices: sheep wool ranges from ₹500–800 per kg, with black wool priced at the higher end; yak wool is priced at ₹1,500 per kg for black fibre, ₹2,000–2,500 per kg for white, and ₹3,500–4,500 per kg for brown. Camel wool is the most expensive, ranging from ₹6,000–10,000 per kg. At the carding unit in Choglamsar, yarn prices are significantly higher, reflecting additional processing, with sheep yarn priced at ₹1,500–2,000 per kg and lamb yarn at approximately ₹2,200 per kg.



Glimpses of the felting workshop mentored by Kashmiri master craftsman Farooq Ahmed Khan and textile designer Jigisha Patel. The workshop was attended by six selected participants—four from Chibra, one from Angkung, and one from Gya village. Photos by Dilip K Mekala

Felting Workshop

PHEY, JULY 2025

Felting was achieved by applying moisture, heat, pressure, and friction to coarse sheep wool, causing the fibres to interlock into a dense, durable material. The wool was wetted—often with warm water—and then hand-rolled, foot-rolled, or compressed to interlock the fibres into dense felt. Nomadic communities commonly fashioned this felt into capes, insulating pads, or footwear. These methods relied on no specialised tools, suggesting that felting was a largely functional, household-based skill.

In traditional Ladakhi textile practice, felting (locally known as *phying-pa*) was historically significant in areas like Rupshu (western Ladakh). Woven woollen textiles such as *nambu* were subjected to processes akin to controlled felting — where the woven cloth is wet, agitated and compressed to shrink and matt the fibres together — producing a denser, warmer, and more wind-resistant fabric suited to the harsh high-altitude climate.

Beyond utilitarian uses, there is also material and ethnographic evidence that felted textiles in Ladakh were incorporated into ceremonial and ritual contexts, such as floor and seating coverings in sacred spaces.

In contrast, felting in the neighbouring region of Kashmir has evolved into a more specialised and refined craft tradition. Here, artisans layer carded wool on reed mats, apply a soap solution, and use iron claws to beat the fibres, followed by rolling and compressing with the feet to create dense, durable fabric. These rugs are often decorated with embroidered floral motifs, a tradition maintained for commercial markets since the 14th century.

Given the advanced skills of Kashmiri artisans, Farooq Ahmed Khan, a master felting craftsman from Kashmir, was invited to co-facilitate the workshop along with Jigisha Patel. He is known to combine traditional techniques with modern innovations, and has been working tirelessly to preserve this declining craft by training younger artisans.



The five-day workshop introduced six participants to assessing wool quality, developing designs, and producing felt pieces through hands-on practice. Participants laid out wool in layers, applied soapy water, and used agitation and rolling to bond the fibres, followed by rinsing, neutralising, and drying the felt. In parallel, wool was carded using an Ashford carder to prepare material for subsequent felting.

Over the course of the workshop, participants refined their techniques, learning to produce softer and more

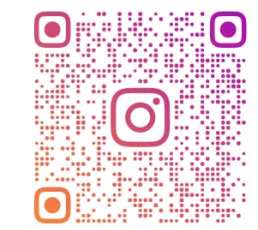
uniform felt and to work intentionally with natural wool shades to achieve desired design outcomes. Working with natural wool shades was emphasised as it avoids the need for chemical dyes, reduces water and energy consumption, preserves fibre integrity, and aligns with pastoral practices that value material authenticity and low-impact processing.

Four experimental felted products were created during the workshop and were subsequently showcased at Palay House and in Chibra village in July 2025, and in Bengaluru in January 2026.

The Showcase

The various showcases highlighted the story of Ladakhi sheep wool by foregrounding its cultural significance, ecological significance, and economic potential. The exhibitions sought to raise awareness of wool as a locally adapted fibre, encourage renewed and innovative uses, and demonstrate its potential to support craft-based livelihoods while contributing to more ecologically attuned pastoral and rangeland futures.

SHOWCASE-1:
15 JULY 2025 | PALAY HOUSE, PHEY



POST SHARED ON JUL 14, 2025

Social media post ^

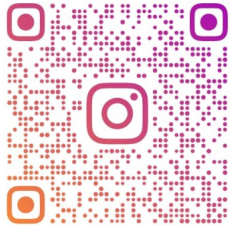
Photos: Dilip K Mekala





Photos by
Akash Basumatary
and Ragav Verma





POST SHARED ON JAN 5, 2026

Social media
post

Photos by
Adira Thekkuveetil



Fibre Testing & Market Research

Testing wool fiber diameter (micron) and staple length is important to understand how well raw wool can be processed, its market value, and what products it is best suited for. Fiber diameter tells us if the wool will feel soft or rough, helps decide how to spin it, and affects its price. For example, finer wool is suitable for clothing, while coarser wool is suitable for making carpets. Staple length and strength show how likely the wool is to break during cleaning and combing, and how even and strong the yarn will be. Longer, stronger fibers reduce waste, make production faster, and help produce higher-value wool products. Shorter fibres on the other hand are ideal for processes such as felting.

A total of 53 wool samples were collected after the pre-processing workshop in Chibra, including both scoured and unscoured (raw) wool, and sent to the Wool Research Association (WRA) laboratory in Mumbai. Key findings from the laboratory tests indicate that wool from carefully sorted sections—particularly the neck region of Changthangi sheep—exhibits fineness comparable to that of Merino wool. In the forthcoming years, the results will be further compared with other types of wool in the global market to assess their

potential value and applications.

A portion of these samples was shown to a select group of weavers in Kutch to gauge their interest in buying. Kutch has a long-established tradition of working with indigenous and coarse-to-medium wool fibres, along with active artisan networks and market linkages that are largely absent in Ladakh.

Engaging Kutchi weavers provided an informed assessment of the fibre's suitability for different products, realistic price points, and processing requirements, helping to gauge external market interest while learning how Ladakhi wool could be positioned within existing craft and commercial value chains without requiring pastoralists themselves to become weavers.

The Kutchi weavers were highly impressed by the quality of the wool and expressed an interest in procuring small-batches in the next rounds of pre-processing. They requested that the project facilitate access to these batches so they could experiment with product development before scaling up. The process of identifying potential buyers is ongoing, and a cost analysis with the communities is planned for the upcoming season.

Wool samples sent to the lab for fibre testing. Image by Adira Thekkuveetil;
Kutch weaver Shyamji Bhai Vankar examining Ladakhi wool samples. Image by Saloni Bhatia

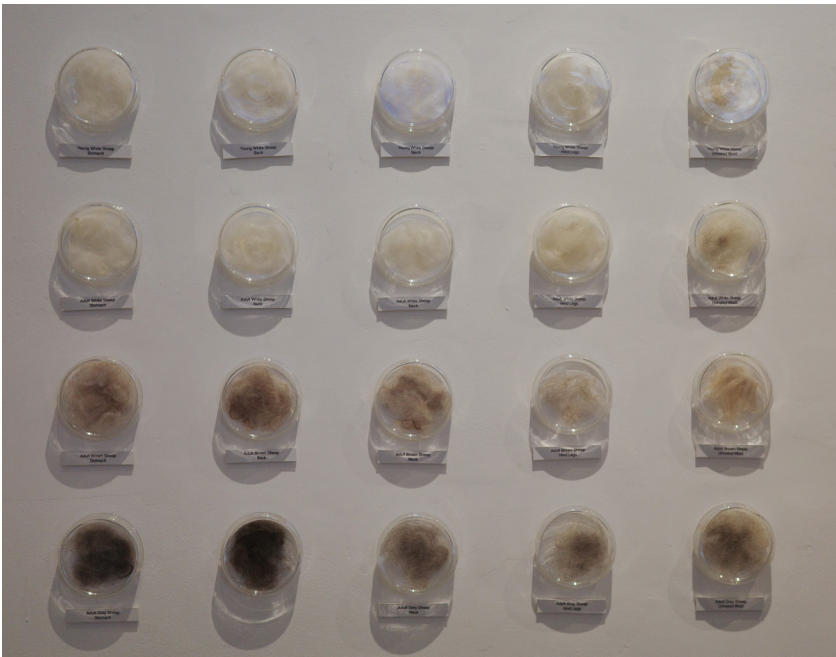


Photo: Malavika Narayana

Strategic Priorities and the Way Forward

- **Strengthening processing inputs and by-product value**

Enhanced wool processing, alongside recognition of economic opportunities in by-products such as lanolin, which is a natural wax widely used as a moisturizer in skincare, medical ointments, cosmetics, and industrial lubricants, offers significant potential to improve value realisation. Ensuring reliable, affordable access to key inputs (e.g., scouring agents) will be critical to sustaining fibre-quality improvements at scale. Addressing sourcing and affordability constraints early on will help prevent processing bottlenecks and reduce dependence on external intermediaries.

- **Addressing value-chain bottlenecks**

Carding has emerged as a critical bottleneck in the sheep wool value chain. Addressing this will require targeted investment in low-cost, context-appropriate innovations that are easy to operate, locally repairable, and suitable for remote pastoral settings with limited and unreliable electricity. Supporting applied research and pilot testing of such technologies is essential for improving processing efficiency and value retention at the community level.

- **Evidence-based quality enhancement**

Existing wool-testing results, including assessments of fineness, will be translated into actionable strategies for sorting, grading, and end-use allocation. In the coming years, Ladakhi sheep wool will be benchmarked against other wool types in the global market to assess comparative value, performance characteristics, and application potential. This evidence base will inform both market positioning and policy support for indigenous wool.

- **Market access and enterprise development**

Textile and design expertise is scarce locally, and there is a need to either bring in or develop such skills within the community. Lack of strong market linkages and design industry partners can also undermine long-term sustainability. Efforts to identify potential buyers and establish direct market linkages are ongoing. A participatory cost analysis—accounting for wool availability, labour inputs, time, and processing

requirements—will be undertaken with communities in the upcoming season. However, volume assessments will need further research. Recommendations from development experts have suggested that a yarn bank mechanism at the cluster level could help stabilise production and supply. Storytelling and developing a clear unique selling proposition (USP) for Ladakhi wool products could strengthen their market appeal.

These steps aim to move pastoralists beyond wage-based engagement toward greater participation as producers, traders, and entrepreneurs, while improving awareness of wool value and market dynamics at the community level.

- **Linking fibre livelihoods with rangeland sustainability**

Further assessment of breeding and grazing practices, the socio-political drivers shaping change, and long-term ecological monitoring of rangelands and pastures in the context of climate change is a priority. In project sites such as Kargyam, the decline of seasonal nomadic migration has concentrated grazing near settlements, affecting livestock health, nutrition and perhaps consequently, the wool quality. Strategies integrating wool-based livelihood interventions with rangeland monitoring, and animal health management will be critical for long-term sustainability.

- **Livelihood security and social outcomes**

Wool interventions are being complemented by predator-proof corrals to reduce livestock losses and stabilise household incomes. Additionally, our mobile shepherd school and digital commons initiatives supports youth engagement through creating a knowledge archive, facilitating intergenerational knowledge transfer, contributing to social inclusion, skills retention, and continuity of pastoral knowledge systems.

- **Scaling participation and geographic expansion**

Expanding participation across all four hamlets of Kargyam and more broadly across Changthang will strengthen skills exchange and collective ownership. The programme also aims to extend to the valleys of Kargil,



where pastoral systems, rangelands, and livestock dynamics differ significantly, including the presence of the Purigi sheep breed. Focused research will be required to understand the wool characteristics and livelihood potential in this landscape.

- **Innovation grounded in local systems**

Recognising the diversity and varying effectiveness of existing shearing practices, the need for upgradation of shearing tools will be also discussed with the community. Documenting this diversity is an important step toward ensuring that innovation complements, rather than displaces, established pastoral practices.

- **Multiple pathways for scale and impact**

Two complementary livelihood pathways have emerged:

1. Fibre-to-yarn pathways, enabling quality-processed wool to enter local, national, and international markets (subject to aggregation and volume assessments); and
2. Felting-based micro-enterprise, a lower-entry pathway well suited for the youth, with minimal infrastructure requirements.

Evidence from the pilots suggests that incremental improvements to existing practices can generate substantial livelihood gains.

- **Institutional engagement and policy support**

Engagements with local leadership indicate strong political alignment. During a meeting with the local councillor, Mr. Konchok Stanzin, he observed that while pashmina

travels outward, wool remains with the people of Ladakh. He has expressed support for scaling sheep wool initiatives and plans to facilitate craft centres in each hamlet across Kargyam and Changthang. He has also requested technical support for surveys, documentation, and concept development. Parallel efforts will explore relevant institutional, policy, and funding mechanisms to support sheep wool beyond existing pashmina-focused schemes.

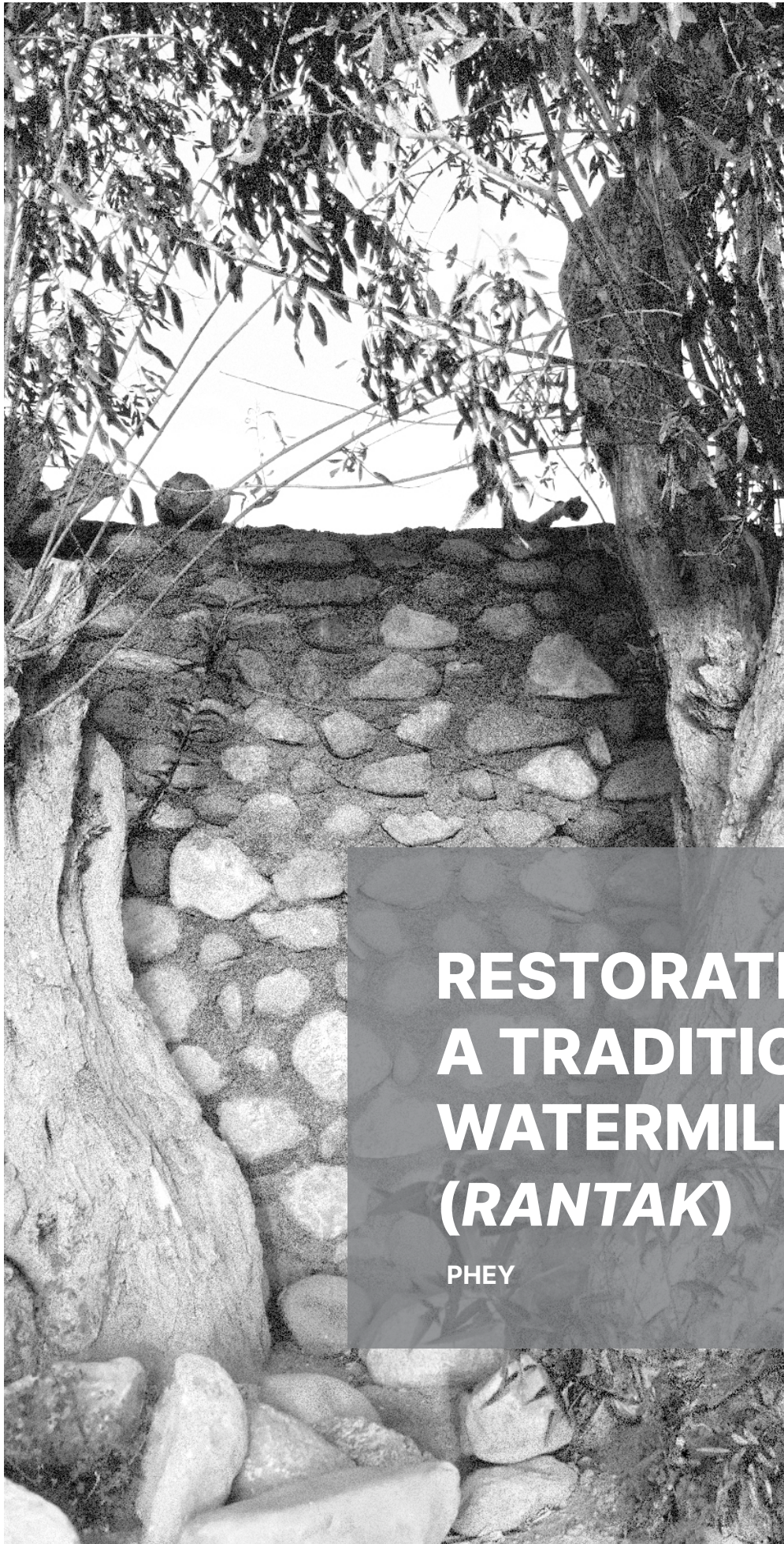
- **Expanding the fibre focus to yak wool in the long-run**

Building on lessons from sheep wool interventions, the programme hopes to undertake a focused exploration of yak wool, which remains under-researched and under-valued despite its ecological suitability and cultural importance in Ladakh. A deeper assessment of yak fibre characteristics, processing challenges, and potential applications will help identify complementary livelihood opportunities and diversify fibre-based strategies across pastoral systems.

- **Clarity on the rationale and approach is important**

Wool-based interventions are timely and strategically relevant for advancing pastoral livelihoods, climate-resilient rural economies, and sustainable rangeland management in Ladakh. Rather than short-term technical fixes, ensuring continuity, patient investment, and systems thinking will be essential to rebuild confidence in wool, strengthen its value chain, and deliver durable socio-ecological outcomes.





**RESTORATION OF
A TRADITIONAL
WATERMILL
(*RANTAK*)**

PHEY

Image: Field Studios

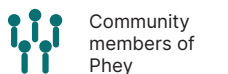


View of Indus in Phey village
Photo: Saloni Bhatia

Chapter Overview

A crucial aspect of the project involves the revival of Local Ecological Knowledge (LEK) systems. LEK encompasses generations of observations, practices, and cultural values that have guided the sustainable use of natural resources. By mapping, documenting, validating, and integrating these traditional practices into contemporary conservation and livelihood strategies, the project seeks to strengthen community stewardship, enhance adaptive capacities, and ensure the continuity of local wisdom for future generations. The restoration of *rantak* (traditional water mill) in Phey village, Ladakh, represents an important part of the LEK revival under AMP-Himalaya project and was undertaken in collaboration with Field Studios.

Participating Organisations and Groups





Images of functional rantaks in Ladakh.



Credits: (left & middle) Screenshots from "Rantak, Ladakhi indigenous watermill," uploaded by Stanzin Phuntsog, YouTube, 2020



Credit: (right) Screenshot from "Spending a night at rantak (local water mill)" uploaded by This MINIMALLIFE, YouTube, 2022

Ecological and Cultural Significance

The Union Territory (UT) of Ladakh is a high-altitude cold desert, with elevations exceeding 3,500 metres and temperatures ranging from -35°C to $+35^{\circ}\text{C}$. The region experiences a short agricultural season of about six to seven months, during which productivity is usually high.

However, traditional agricultural practices in Ladakh are increasingly under threat due to rapid, unregulated urbanisation and a fast-growing tourism-driven economy and its associated effects of modernisation. These changes have led to declining interest in farming among the youth. At the same time, climate change, manifested in receding glaciers, irregular rainfall, flash floods, and shifting weather patterns, has

made agriculture more uncertain and risky. As a result, intergenerational knowledge transfer that once sustained Ladakh's fragile agro-ecological balance is gradually disappearing.

One tangible effect of this loss is the deterioration of *rantaks* (traditional watermill) that historically played a central role in food processing, water distribution, and community life. By harnessing the kinetic force of snow-fed streams, a *rantak* converts flowing water into mechanical energy to grind grains and pulses.

Built from readily available local materials like stone, wood, willow, and grass, *rantaks* are a feature of almost every Ladakhi

village. These mills have served the people of Ladakh by grinding cereals such as barley, wheat, and buckwheat, along with peas and beans. Households prepared and stored flour during the summer to last through the long winters. Although rare, some *rantaks* used to operate in freezing conditions, with fires placed around the turbines to keep them running.

The operation is typically family-run, passed down through generations of *rantak-pa* (millers), whose expertise in stone alignment, water flow, and grain texture would earn them respect within the community. Beyond their practical purpose, the mills also serve as social spaces where villagers gather, share stories and knowledge, help with repairs, thus strengthening communal ties. In recent times, mechanised milling and the loss of traditional knowledge has led to the

decline of *rantaks* and their importance in communal life.

Although *rantaks* are family-owned, their operation has been intertwined with village-level customary governance systems. The nature of these arrangements differs from village to village and depends on the location of the *rantaks*. While not directly linked, they sometimes intersect with the *chhurez* system — a customary institution responsible for the equitable distribution and management of water resources— and the *churpon*, a designated individual entrusted with water management duties. One of the key motivations of this revival project is to explore and better understand the complexity of these changing customary governance systems, which are themselves gradually declining, alongside traditional milling practices.



Aerial view of Old Phey. Image by Neel Bothara



Agricultural fields of Old Phey.
Image by Saloni Bhatia

Mapping the *Rantaks* of Old Phey

The serene village of Phey is located about 15 km from Leh, along the banks of the Indus River, known for its fertile farmlands and tranquil rural life.

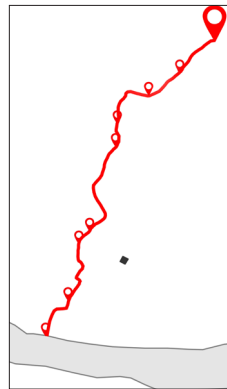
Farming in the village depends on glacial melt and spring-fed *dzings* (ponds) for irrigation. In recent years, however, villagers have increasingly turned to pumping water from the Indus to meet agricultural needs, due to the steady decline of glacier-fed water sources. However, pumping water from the Indus is difficult because its heavy silt load can

clogs pumps and damage machinery, making extraction costly and hard to maintain.

The glacial water stream traverses north-to-south through Old Phey, connecting water channels from *dzings*, eventually joining the mighty Indus. Nine *rantaks* dotted this stream, marked by names of the families that owned it. Today, all of them lie abandoned—some reduced to ruins, others standing merely as skeletal remnants with their internal mechanisms lost or deteriorated.



Stream map showing nine rantaks distributed along its course through Old Phey to the Indus river



DRUK Rantak

Druk family *rantak* was believed to be blessed by the stream's water spirit, and locals tied prayer flags and wished for good harvests. It was a deep- channel mill, which allowed it to grind consistently even when water flow was low.

Internal parts of the rantak are scattered inside. The roof above the doorway shows dislocation, accompanied by a vertical crack along the wall. Images: Field Studios

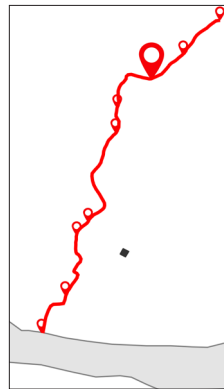


TSAGAR Rantak

Tsagar family *rantak* was known for its sturdy build and long lifespan, and it was said to have operated for decades with minimal repairs. It sat near a bend in the stream, where water flow stayed steady throughout the year. Many village elders recalled that this watermill had served them reliably for generations.

Roof has completely collapsed, with only two wall sections remaining. Dried hay is stacked and stored within the dilapidated rantak. Images: Field Studios

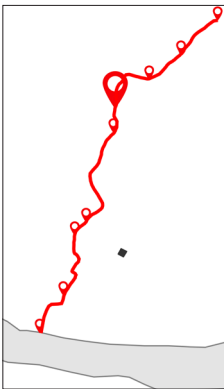




TSING TSING Rantak

Tsing Tsing family *rantak* was small but highly efficient. It was used for grinding pulses and smaller grain loads, and village children accompanied their parents here.

This rantak is relatively in good condition, with walls and roof intact on all sides.
Images: Field Studios

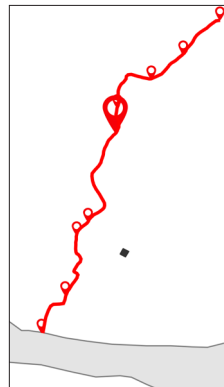


ZHAGO Rantak

Zhago family *rantak* was located beside a rocky ledge, and the mill uses the drop of water from the rock to generate power. Its quiet, secluded setting is filled with the sound of rushing water and the flutter of nearby prayer flags.

Entrance wall has fully collapsed and disintegrated. However, internal parts remain intact.
Images: Field Studios

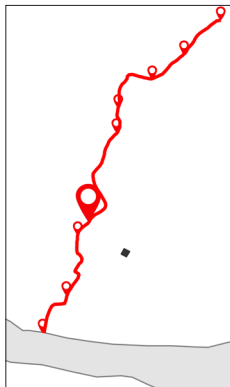




KHANGCHEN RANTAK

Khangchen family *rantak* was located near the oldest settlement cluster of Phey. It was managed by the senior-most household and often used to grind barley for monastic offerings and rituals.

The rantak concealed in dense vegetation, and its roof loaded with dry leaves and twigs. Images: Field Studios

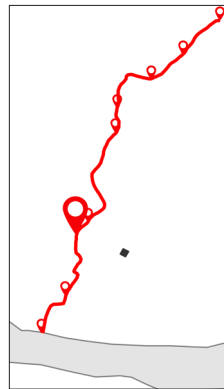


LARJEI RANTAK

Larjei family *rantak* was the largest mill in Phey and it was able to handle bigger quantities of grain during the harvest. Families from nearby hamlets had brought their produce here, taking turns late into the night during peak season. Unlike other *rantaks* in the village, this watermill had a slightly elevated roof providing greater headroom and allowing more people to gather inside during milling.

The rantak's corner collapsed, exhibiting pronounced diagonal cracking on both sides. Images: Field Studios





DONAKCHEN RANTAK

Donakchen family *rantak* was strategically located in the village, and had the advantage of the strong flow of glacier melt water from the upper slopes. This strong flow of water made it highly efficient in the summer months. It was maintained by a single extended family but served several nearby households.

Only partial corner walls remain, indicating the former presence of a rantak at the site. Images: Field Studios

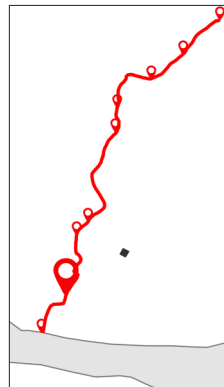


TUNGSTOT RANTAK

Tungstot family *rantak* sat on the bank of the Indus river in old Phey, in a picturesque spot where villagers came to relax and spend time by the river and the mill.

The rantak positioned on the Indus riverbank, marking the final mill along the stream. The structure is mostly deteriorated. Images: Field Studios





SINTIK RANTAK (taken up for restoration)

Sintik family *rantak* was known for its beautifully carved wooden turbine and precise grain grinding. A narrow channel guided water to turn the wheel. Villagers recalled maintaining the mill together after the snowmelt, at the start of the agricultural season.

*Entrance corner collapsed; lintel fallen and door absent.
Internal parts missing. Images: Field Studios*





From Idea to Action: Engagement Process

The idea to revive the rantak first came up during our regular community meetings in Phey, where village elders spoke about the gradual loss of this traditional knowledge. What began as a nostalgic conversation quickly became a recurring topic of interest. Elders recalled how the flour from rantaks had a superior quality compared to mechanised mills, and they felt it contributed to better health. They shared stories of long summer nights

spent at the mill, grinding barley and other grains with their families. Some even stayed overnight in the rantak to keep up with the season's work. Through these conversations, it became clear that rantaks have significance beyond their function, they are deeply connected to the nature-based livelihoods the community had inherited.

Each mill may be privately owned, but it



Community members of Phey participating in the restoration process. Image on the previous page: Sintik family matron Tsering Dolker. Photo by Field Studios. Images above: (left) Sintik family member Rigzin Namgial. Photo by Dilip Kumar Mekala & (right) Phey village elder Lobzang Phunchok. Photo by Ragav Verma

represents a form of social capital. This provided a starting point for discussions on the governance of water resources, equitable sharing, and reviving traditional ecological knowledge. In many villages, rantak structures are situated close to streams and are located away from agricultural fields, meaning they do not share the same water channel used for farming. As a result, churpon (individual responsible for water management) generally has little involvement with rantak systems. However, this arrangement can differ from village to village.

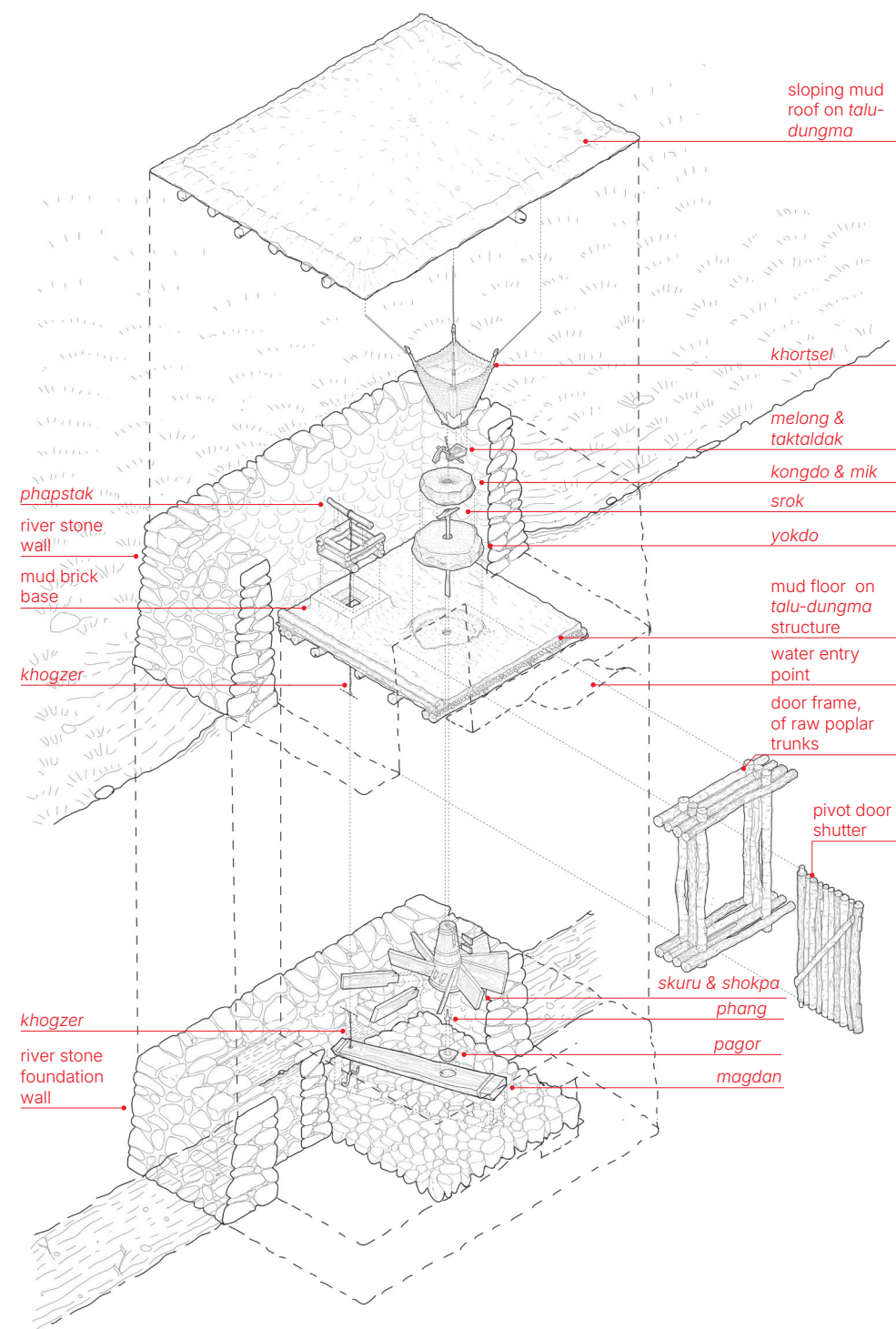
Phey presents a notable exception to this typical pattern. In Phey, rantaks are strategically located within or adjacent to farmland itself. This spatial positioning creates a potential overlap between rantak water management and the traditional chhurez (a customary body responsible for fair water and land management) system. Because of this geographical arrangement, the churpon may have an active role in coordinating water distribution between agricultural irrigation needs and rantak operations, as both systems share proximity and potentially compete for water resources from the same channels or tributaries.

Additionally, Phey is known for its active agriculture and has gained recognition for growing organic watermelons and high quality kidney beans along with staple produce like wheat and peas. Although barley or buckwheat had never been grown in Phey, they traded wheat for barley with villagers higher up in the mountains. This strong agricultural base provided a perfect canvas to begin our socio-ecological intervention. Furthermore, the intervention was strongly motivated by the community's own expressed need for revival.

While theoretically we saw the importance of such intervention, we needed a proof-of-concept to turn these ideas into action. The plan was to select a rantak that was relatively simple to restore and powered by water sources that were not heavily contested. Sintik rantak fit these criteria rather well. It is primarily fed by two village springs, while additional water comes from glacier melt, the source that can sometimes lead to disputes with the village at the higher elevation.

So, we carefully began the process of the restoration, with strong support from the village.

Understanding the Mechanics



Since the *rantak* harnesses the energy of flowing water for grinding grain, its construction is carefully adapted to the local landscape, taking into account the strength and direction of the flow. The mill is positioned beside a stream or river, at a natural drop or bend, with channels or flumes guiding the water onto a turbine. The turbine rotates the upper stone against a stationary lower stone, efficiently grinding cereals and pulses.

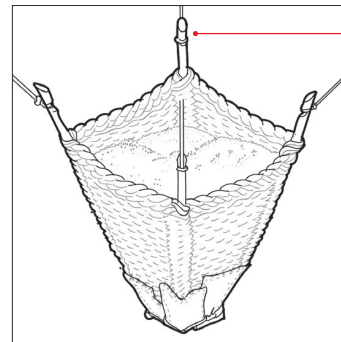
The rantak has two levels. The upper chamber houses the grinding stones, while the lower pit contains the vertical wooden turbine (*skuru*), fitted with angled blades (*shokpa*) that turn on a polished stone bowl (*pagor*) below a spindle (*phang*). An iron shaft (*srok*) transfers motion to the rotating upper stone (*kongdo*), which grinds grain fed from a woven grass hopper (*khortsel*).

Water flow is controlled using a vibrating rod (*taktaldak*) and a wooden meter (*melong*). Flour is collected, cleaned, and sieved with traditional tools. The materials used in constructing a *rantak*, including granite, willow, juniper, animal hide, straw, and mud, are carefully selected for durability, strength, and insulation, making it a lasting, handcrafted landmark.



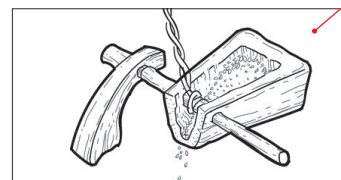
Image courtesy of LIFE on the PLANET LADAKH. "Ladakhi Cuisine: A Captivating Journey Into Authentic Flavors and Culinary Heritage." lifeontheplanetladakh.com, 2024.

- 1. WATER IS DIVERTED FROM THE STREAM**
Water from a nearby stream is guided toward the mill through small canals or wooden channels called *wa* or *wato*. Its flow is regulated by a simple gate (*wago*) and directed down a narrow chute, ensuring sufficient pressure for the turbine's operation.
- 2. WATER STRIKES THE TURBINE**
The *skuru*, a vertical wooden turbine with 8–10 carved blades (*shokpa*), sits beneath the millhouse. Falling water strikes these blades, causing continuous rotation powered entirely by gravity and water pressure, converting kinetic energy into mechanical motion.
- 3. THE SKURU DRIVES THE SHAFT**
The turbine turns a vertical iron shaft (*srok*), which passes through the fixed lower stone (*yokdo*) and connects to the rotating upper stone (*kongdo*) via a crossbar (*tia*). This transmission ensures steady, controlled rotation of the grinding stone.
- 4. GRAIN ENTERS THROUGH THE MIK**
Grain is held in a basket (*khortsel*) atop the *kongdo* and descends through a central hole (*mik*). Flow is regulated by a vibrating rod (*taktaldak*) and a wooden meter (*melong*), ensuring a continuous and uniform feed for grinding.
- 5. GRINDING BETWEEN STONES**
The upper stone (*kongdo*) rotates against the stationary lower stone (*yokdo*), crushing grain into coarse, nutritious flour. Slow grinding preserves flavor, oils, and nutrients while preventing overheating.
- 6. COLLECTING THE FLOUR**
Flour spirals outward into a wooden ring (*tsekyi*) and is gathered using a sheepskin sweeper (*phebyak*) and wooden tool (*pankha*). Finer flour can be sieved with a traditional animal skin sieve (*phetsaks*).
- 7. THE WATER EXITS**
After powering the turbine, the water exits the system through a channel (*wamjuk*), and returns to the stream — used, but never wasted.



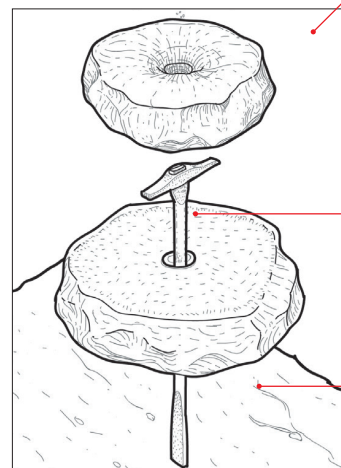
khortsel (grain hopper / basket)

Holds threshed, dried grains before grinding. Gravity feeds them into the upper stone via the central hole (*mik*). Woven from a tough native grass (*tsipkyang*) and willow sticks, sometimes covered with animal skin.



melong (nozzle) & taktaldak (vibrating rod)

Controls how much grain flows from the grain basket (*khortsel*) into the central hole (*mik*). Wooden nozzle like form. Vibrating rod (*taktaldak*) shakes the grain basket (*khortsel*) by frictional contact with the rotating upper stone, encouraging grain flow. Typically carved from local wood or horn.



kongdo (upper stone) & mik (central hole)

Upper stone (*kongdo*) is the stone that rotates against the lower stone (*yokdo*) to grind grains. Locally sourced granite, shaped and balanced by hand. Central hole (*mik*) is the entry point for grain into the mechanism carved into the upper stone (*kongdo*).

srok (iron shaft)

Transmits turbine rotation to the grinding stone. The head (also called *latache* or *tia*) fits tightly into the upper stone's (*kongdo*) center.

yokdo (lower stone)

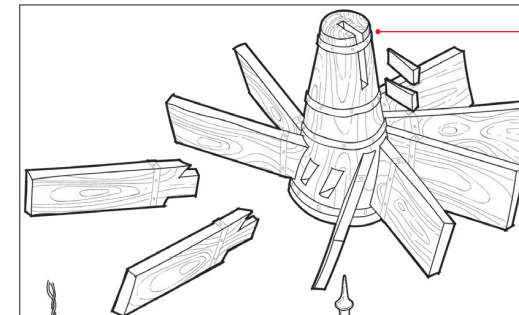
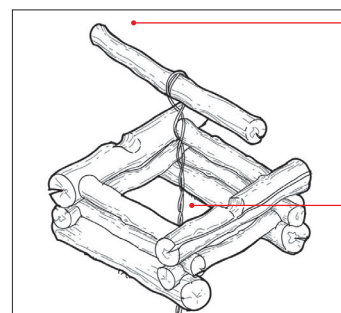
Stationary base for grinding. Granite or marble; heavily chiseled for a rough grinding surface.

phapstak (grind adjuster)

Adjusts the pressure and fineness of grinding. Wooden member connected to twisted wire (*khogzer*) that is embedded into the shafting system which adjusts the grinding stone.

khogzer (twisted wire)

Connects grind adjuster (*phapstak*) to connecting plank (*magdan*) and helps fine-tune alignment.

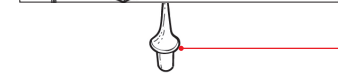


skuru (wooden turbine)

Heart of the system — converts water's kinetic energy into rotational energy. Cylindrical wood (willow or juniper), with iron fittings.

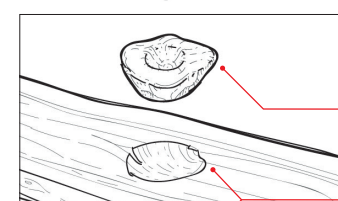
shokpa (turbine blades)

Capture the force of falling water and rotate the turbine (*skuru*). Carved wooden paddles (8–10 in number).



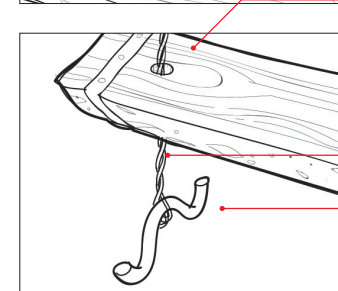
phang (spindle)

Base bearing for the turbine (*skuru*), allowing it to rotate. White marble or a polished hard stone (*chagar*).



pagor (stone base bowl)

Seat for the rotating spindle (*phang*).



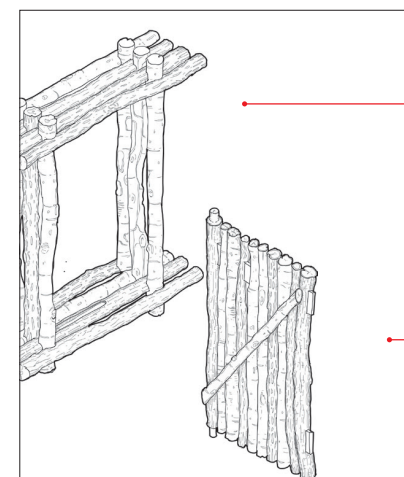
magdan (connecting plank)

Mechanical link between turbine (*skuru*) and grind adjuster (*phapstak*).

khogzer (twisted wire)

s- metal rod

Connected to the twisted wire's (*khogzer*) lower end, and is fixed from the lower side of the connecting plank (*magdan*).



door frame

Raw poplar trunks (*dungma*) were used to create a simple yet sturdy door frame, which had in its lower trunk a tapering notch to slide in the pivot door.

door shutter

Poplar trunks (*dungma*) were tied together with wooden planks and carved pivots on top and bottom, that can slide in place into the door frame.

Process of Restoration

Restoring a *rantak* is a meticulous, site specific process. The work began with mapping the site and assessing the existing structure, both above and below ground. Most of the wooden components, including the turbine, connecting planks, and framework, had decayed beyond use. As per the request of the community members of Phey, the height of the ceiling was increased to better suit current needs, showing how the structure was adapted for contemporary use.

Knowledge of how the rantak worked was held only by the village elders, and the younger generation was largely unfamiliar with its operating mechanism. With little documentation available on Ladakhi watermills, the *rantak* system had to be reverse- engineered using research and a scaled prototype. River stones, sourced from the nearby Indus, were placed intuitively without reshaping, respecting their natural form. Materials such as poplar (*dungma*) and willow (*tal*) were used for the roof and flooring, layered with mud, while subtle design adjustments ensured the structure could function safely and durably in the present context.

It consisted of six phases, namely:

1. **Site Mapping:** The location and layout of the existing *rantak* was surveyed to understand water flow, terrain, and structural remains.
2. **Dismantling:** Damaged and worn-out components of the watermill were taken apart to preserve reusable parts.
3. **Prototyping:** A model was developed to test improvements and ensure efficient functioning of the mechanism.
4. **Constructing the Mechanism:** The core mechanical parts, such as the turbine and grinding system, were rebuilt or newly fabricated.
5. **Reconstruction:** The overall structure of the rantak was reassembled, integrating repaired and newly constructed components.
6. **Completion:** Final adjustments and testing were carried out to ensure the watermill operated smoothly and effectively.



SITE MAPPING



First row: Elevated water channel (*wato*) originally designed to divert flow from the nearby stream to the rantak. Entrance of the old rantak, with the door missing and lintel fractured.

Second row: Exposed and deteriorating corner wall. Low interior space with a crumbling corner wall; parts of rantak missing.

Third row: Deteriorated understructure showing collapsed poplar trunks (*dungma*) and a turbine (*skuru*) devoid of blades (*shokpa*). Tin channel remaining at the inlet; the wooden lintel has fully decayed.

Images by Field Studios

DISMANTLING



First row: The walls and foundation dismantled; retrieved stones neatly stacked for reuse. Upper stone (kongdo) removed and set aside.
Pictures in the second and third row show the process of dismantling the lower stone (yokdo) from the site.
Images: Field Studios



First row (left and right): Decayed turbine (skuru) removed for study and replication; spindle (phang) cleaned for reuse.
Second row: Poplar trunks (dungma) extracted, most of them reused within the new structure
Third row: Foundation base excavated deeper for improved stability as well as soling. All wooden members extracted.
Images: Field Studios

PROTOTYPING



First row: Recreating the turbine (skuru) replicating the salvaged turbine from the site.

Second row: Iron shaft (srok) replicating the salvaged turbine from the site and spindle (phang) is fixed to the turbine (skuru).

Third row: Completed turbine (skuru) with ten blades (shokpa) fitted in place.

Images: Field Studios



Fully assembled prototype. Ready to be scaled up for production
Image: Field Studios

CONSTRUCTING THE MECHANISM



Production of the turbine based on the prototype. Images: Field Studios



Turbine and door frame ready to be assembled at the site. Images: Field Studios

RECONSTRUCTION



Internal parts of rantak being re-installed at site along with the finalisation of structural work.
Images: Field Studios



Images: Iker Zuniga



Image: Iker Zuniga



Image: Iker Zuniga



Image: Ragav Verma

Future Plans

With the successful restoration of one of the *rantaks* in Phey, the project has provided a tangible proof-of-concept for the community to demonstrate how traditional watermills can be revived, adapted for contemporary use, and serve as a catalyst for preserving local knowledge and cultural heritage. While one *rantak* may not be sufficient to meet the milling needs of the entire village, it has certainly sparked interest and pride, showing how centuries-old practices can be adapted to contemporary needs.

The work, however, is far from over. While many agreements around timesharing and resource use have so far been informal, the next step is to formalise them through village meetings, particularly regarding the use of the *rantak*.

Following this, our efforts will focus on gradually reviving the remaining eight *rantaks*, while keeping conversations around equitable resource sharing and protection of water resources alive. This process will require patience, careful planning, and continued collaboration with the community. Exploring government grants or heritage restoration programmes could provide additional support, helping to expand the initiative while maintaining the enthusiasm and engagement that this first restoration has inspired.

Over time, the *rantaks* could be developed as community-run enterprises, where incentivisation helps maintain the mills, generate local livelihoods, and ensure the continuity of traditional knowledge.



Image: Iker Zuniga



Image: Iker Zuniga



The completely restored Sintik rantak, with its organic river-stone masonry, sits discreetly within the village landscape. Photo: Field Studios



DOCUMENTARIES 1 & 2

The Rantak- Where People, the Commons and their Practices Meet

*by Tsewang Paldan,
Apt Film Production House*

Scan QR Code to watch



DIGITAL KNOWLEDGE COMMONS: THE TRANS- HIMALAYA ARCHIVE

PALAY HOUSE, PHEY



Image: Gulzar Hussain

Chapter Overview

This chapter outlines the effort to co-design and operationalise knowledge commons in the form of an Archive, intended to foster shared learning and strengthen local stewardship. The Archive is designed to work in tandem with the objectives of the mobile Shepherd School, with each reinforcing and enriching the other. The chapter summarises the progress made in 2025 toward advancing the Archive.

Participating Organisations and Groups



Background & Rationale

Ladakh, a bioculturally rich region of the Trans-Himalaya, is at a critical juncture. Rapid infrastructural expansion, the decline of nature-based ways of life, and youth outmigration have weakened long-standing environment–society relations, even as they create new possibilities and aspirations. Decades of community engagement have revealed a growing disconnect between Ladakh's tech-savvy youth and the older custodians of its ecological and cultural heritage. Additionally, there is no dedicated space to facilitate intergenerational exchange, especially at a time when traditional, oral knowledge-sharing pathways are eroding rapidly.

Despite extensive research, documentation, and exploration in the region, there has been limited effort to compile, consolidate, and make this knowledge meaningfully accessible to local communities. As a result, they have largely remained subjects of research rather than active agents in shaping, co-creating, or transforming the narratives that affect their futures.

As the first initiative of its kind in the Trans-Himalayan region, the Archive seeks to redress epistemic injustice by honouring and documenting local knowledge, co-creating new understandings, nurturing community support networks, and enabling equitable access to curated evidence for critically informed decision-making. The work employs participatory and co-creation approaches to ensure that local

and Indigenous scholars, practitioners, and community members engage directly in data identification, mapping, and archiving—broadening participation beyond conventional archivists and social scientists. Ultimately, the Archive envisions becoming a living, evolving knowledge commons that strengthens local stewardship, supports community resilience, and informs more just and context-appropriate pathways for Ladakh's future.

The Archive is housed at Palay House, a 300-year-old peasant home that has been conserved and restored as a makerspace and research centre in Phey village by our partner, Achi Association India. Through community engagement and chain referrals, we are in the process of identifying and curating diverse materials, particularly those related to the region's biological and cultural heritage. Many of these have been lost to the public, but some can potentially be recovered. In addition to archiving, the space hosts a range of events, including talks, seminars, workshops, storytelling, film screenings, and community dialogues, fostering a dynamic environment for learning and exchange.

The subsequent sections present the emerging vision and progress made toward this objective, starting with the draft structure of the Archive, details of infrastructure procured, and the planned next steps.



Image: Neel Bothara



Image: Saloni Bhatia

Draft Structure

COLLECTIONS TO BE CURATED

- » Unique collections that can be accessed upon request
- » Mirrored and cross-referenced open-access Archive
- » Materials already in the public domain
- » Born digital records related to the Trans-Himalaya
- » Objects and ephemera

THEMES

‘Ecology and Environment’ with the following sub-categories

- » Biodiversity: species, ecosystems, habitats, conflicts over wildlife
- » Climate and environment: water, air, soil, weather, energy, disaster
- » Livestock: census, breed, type, etc.
- » Agriculture: surveys, patterns etc.
- » Land use and land cover: maps, imagery, etc.
- » Waste and its management
- » Restoration and mitigation interventions

‘Society and Culture’ with the following sub-categories

- » Local/traditional/Indigenous knowledge systems and practices
- » Innovation
- » Demographics and census (people)
- » Food and language
- » Gender
- » Architecture
- » Art history
- » Medicine
- » Economy and Health

‘Law and Policy’ with the following sub-categories

- » Nodal government agencies and institutions (starting with environment, livelihood/rights, heritage conservation)
- » Relevant policies split by sector and scale (starting with environment, livelihood/rights, heritage conservation)
- » Relevant legal interventions split by sector and scale (starting with environment, livelihood/rights, heritage conservation)
- » Relevant case studies/rulings split by sector and scale (starting with environment, livelihood/rights, heritage conservation)
- » Impact assessment reports or public consultation-related information
- » Conflict watch (potentially partner with Land Conflict Watch, Factor Daily, PARI)

We will need to tag multiple categories if information overlaps, and have location tags. The focus can be on Ladakh, but we could also include material from Indian Himalaya/ Trans-Himalaya.

TYPES OF DATA

- » Peer-reviewed publications
- » Reports, case studies, conference/ seminar/workshop proceedings
- » White, green and position papers, policy briefs
- » Books: including children’s books, travelogues, semi-academic/non-fiction, relevant fiction
- » Open-access datasets: including GIS/ satellite imagery, biodiversity lists, socio-economic data, citizen science, longitudinal data, etc
- » Audio-visual and physical artifacts: images, maps, diagrams, audio recordings, films, podcasts, objects and prototypes (need to take a call on

what to do if someone wants to Archive physical objects/copies with us)

- » Government records and data (open-access)
- » Unpublished: diaries, field notes, letters, presentations, internal reports
- » Websites, news articles, blogs, social media
- » Education and awareness: campaigns, posters, events
- » Community records: personal or collective histories, rights or governance-related, land-related, declarations, etc.

LANGUAGES

English, Bhoti, Purgi, Urdu, Hindi

INFRASTRUCTURE

It is worth noting that Palay House also serves as a residential space for the team. The goal for this year included the set up of the physical infrastructure and the completion of relevant procurement.

Digital Technology and Storage

- » Desktop computer and accessories
- » Audio recorder and accessories
- » DSLR camera and accessories
- » LED light source
- » Scanner-printer
- » Hard drive
- » Projector
- » Tripod
- » UPS

Archival and Stationery Supplies

- » Key reference books
- » Stationery

Utility, Health and Safety Equipment

- » Storage boxes and trunks
- » Oxygen concentrator
- » Pulse oxymeter
- » Weighing scale
- » Electric kettle

Memberships and Subscriptions

- » Membership to The International Association for the Ladakh Studies (IALS)
- » Paid membership to Society for Socio-Ecological Systems (SocSES)
- » Paid subscription to OpenAI



Images on this and previous page: Saloni Bhatia

Next Steps

The forthcoming phases will focus on expanding and strengthening the Archive's core infrastructure while building the team's capacity through comprehensive training in archival methods and preservation techniques, potentially in collaboration with NCBS Archives. Ongoing work includes the cataloguing and integration of existing materials, alongside the systematic mapping of local scholarship (individuals, institutions, and knowledge networks) that will guide future curation and collaboration. A parallel priority is the digitisation of archival content to ensure long-term preservation and reach.

Looking ahead, we aim to experiment with a suite of technological integrations such as AI-enabled multilingual translation (English, Hindi, Urdu, and potentially Bhoti), voice- and image-based search, automated data retrieval, and advanced tagging and classification systems. These can significantly enhance accessibility, discoverability, scalability, and user experience. All technological innovations will be grounded in ethical, culturally informed protocols to ensure that AI tools respect local knowledge systems,

uphold data sovereignty, and adhere to community-defined norms of access and representation.

In addition, we plan to develop intuitive digital interfaces that enable community members—including elders, youth, practitioners, and local scholars—to contribute, annotate, and meaningfully engage with archival materials. Recognising the high mobile-phone usage among Ladakhi youth, we aim to prioritise mobile-friendly platforms, and explore offline access options for regions with limited connectivity.

The Archive and the mobile/digital Shepherd School will function as mutually reinforcing spaces, where materials, insights, and learning resources developed in one can directly shape and support initiatives in the other. For example, transcripts of more than 100 hours of folklore recordings (currently being transcribed) will be integrated into both the Archive's collections and the Shepherd School's content. Likewise, all project outputs will be curated and housed within the Archive.





CAPABILITIES ENHANCEMENT WORKSHOPS

LADAKH

Image by Akash Basumatari



Image by Rigzin Wangtak

Chapter Overview

This chapter outlines the design and delivery of three capabilities enhancement workshops conducted in 2025. These included:

- » *Improving Pre-processing Techniques for Sheep Wool*, which aimed at enhancing its value through fibre-level interventions such as sorting, cleaning, and grading.
- » *Audio-visual Workshop for the Youth*, which focused on strengthening digital and creative competencies for documenting local knowledge and engaging with emerging forms of expression.
- » *Governance of Commons*, which focused on understanding community decision-making and the collective management of common-pool resources.



WORKSHOP-1

Improving Pre-processing Techniques for Sheep Wool

Location: Chibra, Changthang

30 June, 2025 to 04 July, 2025

Workshop led by senior textile designer Jigisha Patel

Mentor bio: Jigisha Patel is a senior textile designer and wool expert trained at the National Institute of Design (NID) in Ahmedabad. She has dedicated much of her design practice to exploring the structural and aesthetic versatility of wool fibre, as well as its untapped livelihood potential in arid regions such as Ladakh and Kutch.

Jigisha has been engaging with communities in Changthang since 2017. Her journey has taken her across regions and through hands-on experimentation, even leading her to design her own carding machines, adapted for different climates and wool types.

Her work on wool has been featured in prominent publications such as 'Crafting a Future' by Archana Shah and 'Handmade in India' by Aditi Ranjan and M.P. Ranjan, both of which highlight significant contributions to India's craft and textile traditions.

Participating Organisations and Groups:



Image above shows wool workshop participants with facilitator Jigisha Patel. Image by Ragav Verma
Image on the left page by Saloni Bhatia

Rationale & Objective

Historically, wool-related interventions in Ladakh have centred largely on pashmina, while sheep and yak wool have received limited attention. As a result, herders have had little incentive to maintain sheep despite their low-maintenance and resilient nature. Ecologically, maintaining sheep alongside goats and yak strengthens traditional mixed-herding systems that distribute grazing pressure more evenly, reducing stress on pastures and enhancing rangeland resilience in the face of climatic uncertainty.

This concern was highlighted by community members during our consultation meetings and visioning exercises in June 2024. Beyond its material utility, sheep wool carries deep biocultural significance, rooted in practices such as the making of traditional rugs, woolens for personal use and for animals. In the winter, weaving gatherings led by women reinforce kinship, intergenerational learning. The tactile and durable nature of sheep, valued for warmth and longevity, symbolically mirrors the resilience of pastoral life in Ladakh, where adaptation, endurance, and communal support remain central to surviving the high-altitude ecosystem.

A baseline survey conducted in April

2025 revealed that most sheep wool is currently retained for household use rather than commercial sale. Driven by subsidy structures favouring pashmina, the absence of viable external markets for sheep wool coupled with aspirational shifts, its perceived economic value has steadily declined. Those who sell their wool typically receive INR 200–350 (USD 2–4) per kg.

Further, herders often mixed all grades of wool during shearing, resulting in uniform and lower pricing that obscures quality differences and significantly undervalues finer fibres that could otherwise command premium rates. Additionally, wool is commonly washed using commercial detergents, which can damage fibre integrity, strip natural lanolin, and lower its suitability for high-value artisanal or textile production.. These findings underscored the need for targeted interventions to improve wool value right at the fibre level.

The workshop aimed to address this by introducing specific pre-processing techniques for sheep wool, including grade-wise sorting during the shearing stage and improvements at the scouring stage (the washing and cleaning of wool to improve fibre quality). These interventions contribute substantially towards improving the market value of the fibre.



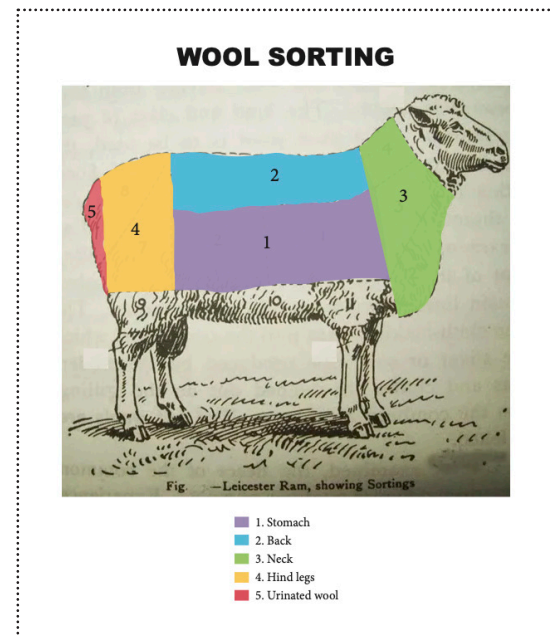
Community Participation

Our existing engagement in Chibra village (Changthang) around corrals helped strengthen community interest, willingness and participation. Chibra has 17 households, and community members collectively agreed that each household would nominate at least one participant for the workshop, with several sending more based on interest and availability.

The community also took responsibility for assembling the materials needed for the workshop including vessels, drums, tubs, buckets, and jugs, reflecting the intention to rely on easily available resources and simple, locally adaptable processes. Villagers hosted the project team throughout the workshop, reinforcing a strong sense of collaboration and shared ownership. Each household agreed to set aside wool from two to three differently-coloured sheep (brown, black, white, grey), along with a small quantity of lamb wool, to support hands-on learning in new sorting and scouring techniques. They were financially compensated for the wool provided, ensuring that participation did not place any additional burden on households.

Image below shows the poster of wool sortings.

Image on top shows workshop team explaining wool sortings using the poster.
Picture by Dilip Kumar Mekala



Wool sorting during the shearing process.
Picture by Jigisha Patel

Day-wise Activities

The wool workshop in Chibra was conducted over five days, from 30 June to 4 July 2025, engaging the local community in practical training on wool sorting and pre-processing techniques.

Day 1 – 30 June:

The project team arrived in Chibra and, later that evening, organised a community meeting. During the session, the team introduced the participants to wool sorting techniques using a visual poster to explain different grades and qualities of wool.

Day 2 – 01 July:

The day was dedicated to acclimatisation and interactions with the community members.

Day 3 – 02 July:

Hands-on training began with shearing and sorting of wool. Participants learned to categorise sheep wool based on colour, body part, and age. Lamb's wool was kept separately as it is much finer than that of the older sheep.

Day 4 – 03 July:

The sorted wool was then scoured using a neutral-pH cleaning agent sourced from a vendor based outside of Ladakh. Moving forward, we aim to strengthen this supply chain and/or explore locally accessible alternatives to ensure consistency and affordability. Each category of wool was kept to air-dry separately. The day also included discussions on the concepts of pH, acids, and bases, and their impact on wool quality. Participants learned how to extract lanolin—an expensive natural grease in wool that is unknowingly discarded.

Lanolin has significant commercial and therapeutic value, widely used in skincare and medicinal products for its moisturising, healing, and protective properties. Learning to recover lanolin not only reduces waste but also opens up potential value-addition opportunities within the community.

Day 5 – 04 July:

The final day focused on the practical extraction of lanolin from wool followed by debriefing.



(Left) Scouring process; (Right) Wool being dried after the scouring process.
Images by Jigisha Patel/ Rinchen Namgail

Community Response

The workshop underscored the importance of sorting wool by fineness, colour, and age of the animal—such as separating lamb wool from adult wool—to maximise its market potential. Participants also learned about the benefits of using neutral-pH soap during scouring, which helps preserve fibre softness, unlike the previously common use of harsh alkaline soaps that often make the wool coarse. While the communities will require handholding over the next few years to fully adopt these interventions, the workshop has already generated considerable interest.

The community's response to the workshop was overwhelmingly positive. Participants expressed excitement at the noticeable improvement in wool quality, with many noting that they had never realised that Changthangi could be this soft. They

showed strong enthusiasm for applying the refined sorting and scouring methods, and found value in the practical, hands-on approach of the workshop.

After the sorting and scouring activities, the project team sent the pre-processed wool to selected vendors and to the Wool Research Association (WRA) laboratory for evaluation. Preliminary results suggest that, with proper sorting and processing, Changthangi wool demonstrates fibre characteristics comparable to merino, challenging long-held assumptions about its limitations and opening possibilities for higher-value applications. The results will be made available to the community in the forthcoming visits, with the expectation that demonstrated improvements in wool quality—and the prospect of better prices—will encourage wider adoption of these techniques during the next shearing season.



Community members inspecting the results after the workshop.
Images by Jigisha Patel/ Rinchen Namgail

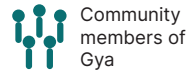
Key Takeaway and Next Steps

The enhanced processing of wool and the recognition of economic opportunities in by-products such as lanolin—combined with reduced sheep losses through predator-proof corrals—offer a promising pathway to easing livelihood constraints and strengthening the economic resilience of herding families. The workshop's co-learning processes also helped reinforce intergenerational knowledge exchange,

bringing together elders, women, and youth in shared experimentation and reflection. Next steps include strengthening the sourcing and affordability of the scouring agent, establishing direct community linkages with markets and buyers so that herders can move beyond providing labour for external designers to becoming traders and entrepreneurs in their own right. Efforts to document and archive local knowledge and wool-working practices are also underway.



Participating Organisations and Groups:



WORKSHOP-2

Frame by Frame: Audio-visual Workshop for the Youth

Location: Eliezer Joldan Memorial College, Leh

21 July, 2025 - 02 August, 2025

Workshop led by Akash Basumatari, filmmaker

Mentor bio: Akash Basumatari is a documentary filmmaker from Assam, Northeastern India, whose work brings overlooked and silenced narratives into dialogue with the wider world. Grounded in observational cinema, his films explore the deep entanglements between lived reality and the subconscious—where memory, myth, and historical undercurrents quietly shape the present.

With a background in Visual Communication and Media and Cultural Studies from TISS, Mumbai, Akash began his journey at SPS Community Media, training grassroots indigenous filmmakers in the drought-prone regions of central India. Working closely with local communities, he developed a strong commitment to storytelling as a way to witness and engage with the truths often left at the margins.

A 2022 Sundance Documentary Film Program Fellow, Akash's films have screened at leading international festivals including IDFA (Amsterdam), Sheffield DocFest (UK), Doc NYC, DMZ (South Korea), Hot Docs (Canada), and Sydney Film Festival. His feature documentary 'Farming the Revolution' received the Best International Documentary Award at Hot Docs in Toronto.

His work spans short and feature-length documentaries, focusing on themes such as indigenous knowledge systems, traditional music, environmental transitions, and rights-based struggles. At its core, his cinema seeks to uncover what lies beneath the visible: to map the psychological landscapes of people and places shaped by both resistance and remembrance.

Rationale & Objective

Community-driven media is a powerful approach that places the tools and authority of storytelling directly in the hands of communities. Rather than being passive subjects interpreted through an external lens, people become active authors of their own narratives. This approach is particularly significant in culturally rich societies like Ladakh, where knowledge is transmitted orally through storytelling and lived experience.

Historically, many Himalayan and tribal regions have been represented through the gaze of outsiders including researchers, filmmakers, travelers, or development practitioners. It has often resulted in simplified or romanticised portrayals that overlook local complexity. By creating their own media, communities reclaim the power to define the complexities around identity, articulate priorities, and influence public discourse.

The audio-visual workshop held at EJM College brought together enthusiastic youth from across Ladakh, including its most remote and isolated areas. By training youth in media production, storytelling, and digital skills, the workshop provided a platform to document local knowledge.

Image on the left: A still from AV workshop in Gya village. Picture by Akash Basumatari



Image above: AV workshop classroom session by Akash Basumatari. Picture by Stanzin Namgail.

Images on the right page: Guest talk by eminent filmmaker Stanzin Dorjai Gya. Picture by Stanzin Namgail.
Images of outdoor shoots in Chibra and Gya villages. Pictures by Ragav Verma



CURRICULUM

Date	Morning session (11am-1pm)	Afternoon session (3pm-5pm)
21 July	Understanding stories	Screening followed by discussions
22 July	Basics of video recording and visual storytelling	Practical- Visual storytelling (within the campus)
23 July	Outdoor assignment: understanding stories, subjects and perspective	Discussions on storytelling mechanics including perspective, gaze, and point of view, followed by a field trip to Phey village, where participants practice these techniques in context
24 July	Power play of the camera: Dynamics of representation, consent, ethics; interview techniques	Guest speaker: Stanzin Gya. Screening of one of his films, followed by discussions on representation, ethics and consent. This sets the students up for the field trip
25 July	Field trip to Chibra, Changthang. Brief introduction to sound, light, and frames.	Students explore video storytelling, interview community members with free, prior, informed consent
26 July	Outputs + discussion	Return to Leh
27 July	Sunday - day off	
28 July	Review footage from Chibra and basics of editing	Structuring a cohesive narrative from raw footage
29 July	Advance session: creation of content in a dynamic setting/ advanced interview techniques. Field trip to Gya village	Exploration of Gya village and interactions with community members
30 July	Analysis of the footage	Film screening of 2 films produced by SPS Community Media
31 July	Editing, subtitling, and preparations for final presentations	
01 Aug	Editing	
02 Aug	Screening of student films at EJM college and distribution of participation certificates	



POST SHARED ON JUL 7, 2025

Social media ^
post

Event poster >>

Frame by Frame

An Interactive Audio-Visual Workshop at
EJM College, Leh
With Filmmaker
Akash Basumatari

open to all students of Eliezer Joldan
Memorial College, Leh, Ladakh.

21 July to 1 August 2025

DEADLINE 10 JULY 2025
For queries, contact Dr. Stanzin Namgail
at stanzinstakpa@gmail.com; 9419264714

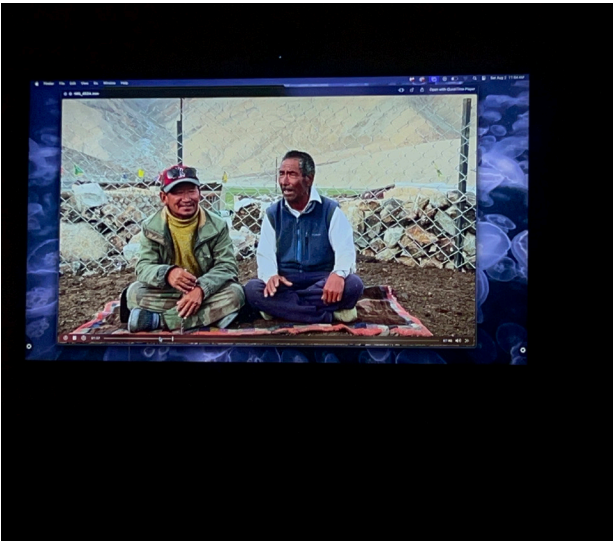
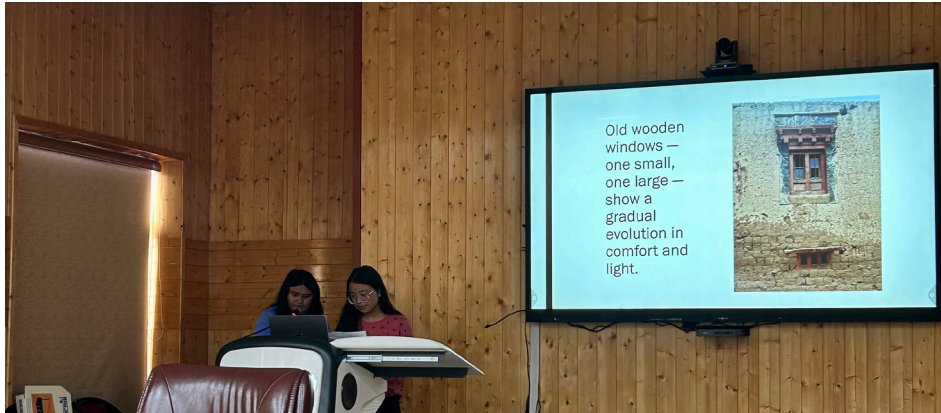

APPLY HERE





Images above: Poster and images for student film screening at EJM college. Images by Malavika Narayana.

Image on the right: AV workshop participants presenting their work



Images above: Snapshots of the film screening. Images by Malavika Narayana. Also pictured is the certificate for AV workshop participants.

Excerpts from a few student presentations and testimonials:

"During this workshop, we were taught the basics of photography - such as how to frame a picture, how to use light, how to conduct interviews, and from which angles to take photographs. We also learned how to tell a story through photographs" [While presenting their picture story on 'Evolution of Windows']. "Every window tells the story of its time. The journey that started from mud has now reached glass. Designs have become modern, comfort has increased, but with every change, we have left behind something that was once essential and is now perhaps only decoration. This evolution is not just of houses, but also of

thinking — and of lifestyle". ~ Idzes Angmo and Rabzes Dolma.

"Even a small story can become powerful with the right combination of camera work, sound, and editing. The field trips helped me connect with the real world and strengthened my ability to work as part of a team". ~ Saraswati Roka.

"Learning that every story has its own structure and flow, and that visuals can bring those stories to life in a powerful way. We were trained in important aspects of videography, such as framing, angle composition, and movement. We even got hands-on practice." ~ Jigmet Deachen Angmo.



SHORT FILM

(Untitled) Stories from the Mountains
Directed by Akash Basumatari

Output from the AV workshop

Scan QR Code to watch



Image: Gulzar Hussain

WORKSHOP-3

Governance of Commons

Location: Bengaluru, Karnataka

11 Oct, 2025 to 12 Oct, 2025

Rationale & Objective

The workshop served as a platform for sharing experiences and reflecting on the governance of commons and local natural resources, and their implications for environmental stewardship. It examined how customary practices, local institutions, and formal legal frameworks intersect to shape the management of land, water, and pastoral resources. Special attention was given to how traditional systems such

as the *goba* (a community-appointed leader, traditionally plays a key role in conflict resolution, resource allocation, and maintaining social cohesion in the village) and *chhurez* (a customary institution responsible for the equitable distribution and management of water resources) coexist with contemporary governance mechanisms, including the Panchayati Raj institutions and Autonomous Hill Development Councils, as well as state-led governance structures—and how these overlapping authorities influence decision-making and accountability at the community level.

Through discussions, case studies, and collective reflections, participants explored what local autonomy means in practice, how it is negotiated between communities

and state institutions, and what challenges arise in the governance of commons such as rangelands. The workshop considered how historical and contemporary pressures—such as administrative changes, development projects, tourism, and changing water resources—affect community management of commons.

A key goal was to bridge the gap between theoretical understandings of governance and the lived realities of communities managing land and water resources. By examining examples of customary and statutory arrangements, participants reflected on how rules are interpreted, adapted, or contested locally, and what lessons could inform more effective and equitable commons governance in Ladakh. Ultimately, the workshop sought to

build a shared understanding of the opportunities and limitations of different governance frameworks, fostering dialogue around community authority, resource management, and the sustainability of socio-ecological systems. The focus was not on prescribing policy, but on generating grounded insights into how commons can be managed collectively and sustainably, respecting both tradition and contemporary legal frameworks.

Participating Organisations





Image:
Saloni Bhatia

AGENDA

Sessions were designed to be conversational and open-ended, with room for new ideas and imaginations. Primary intention was for the project team to deeply understand the customary governance systems around common pool resources. This knowledge will be useful in our interventions in the years to come.

11 October 2025
Setting the Context

- 10:00 – 10:30: Opening Session
- Introductions and overview of the workshop
- 10:30 – 13:30: Commons Governance in Ladakh
- Historical perspectives on decentralised governance
 - Existing formal and customary governance frameworks
 - Layered governance in Ladakh: Identity politics, local and customary governance,. Role of the Hill Council
- [Tea break from 11:00-11:15]
- 13:30 – 14:30: Lunch
- 14:30 – 17:00: Critical Reflections on Autonomy in Practice
- Forest Rights Act’s scope and limitations
 - Additional frameworks through which land and environment can be protected e.g., rights of nature

- Examples of local self-governance in rural and tribal areas
- [Tea break from 15:30 to 15:45]
- 17:00 – 17:30: Wrap up and Next Steps
- Formation of groups and identification of tasks for the following day based on the emergent questions
- 19:00: Dinner
- 12 October 2025
Deep Dive
- 09:00 – 13:00: Breakout Groups
- The session can focus on documentation of learnings, mapping of key concerns, risks, and opportunities, and knowledge gaps. However, there is room to include additional ideas.
- [Break from 10:30 – 10:45]
- 13:00 – 14:00: Lunch
- 14:00 – 16:30: Open Discussion
- Discussion and synthesis of insights from the previous session
 - Potential safeguards and alternatives for greater equity, autonomy, and accountability around the use of natural resources
- [Break from 15:30 – 15:45]
- 16:30 – 17:00: Closing
- Next steps or roadmap for collaborative work, needs assessment and timelines



Image: Saloni Bhatia

KEY TAKEAWAYS

Cultural and institutional diversity across Ladakh

Ladakh is home to multiple tribal and cultural communities including Balti, Beda, Bodh, Dard, Shina, Changpa, Garra, Mon, and Purigpa—each with distinct histories, practices, and identities. While topography has historically prevented tribe–territory overlap, customary norms have remained diverse, evolving with time.

Role of customary leadership and local stewardship

The *goba* system traditionally plays a key role in governing village-level resources and community pastures, as well as socio-cultural affairs. The *goba*, as a community leader, often works in consultation with the *chhurpon* (water steward) to manage irrigation and water allocation.

Polycentric governance and evolving institutional dynamics

In addition to district-level Hill Development Councils, diverse bodies play roles in managing socio-cultural affairs, agriculture,

water, and pasture, such as the *goba*, *sarpanch*, Women’s Alliance (*Ama Tsogspa*), Self-Help Groups, resource-management systems such as the *chhurez*, as well as kinship networks like *phaspun*. Their overlapping mandates across household, clan, village, and inter-village, block and district scales can sometimes create overlaps regarding decision-making.

Further, the introduction of the Panchayati Raj system in the late 1990s–2000s has sometimes created tensions between the *sarpanch* and the *goba*, particularly because panchayat territorial boundaries were not defined through a consultative process. These dynamics have implications for the management of common-pool resources such as water and pastures.

Shifts in water availability and customary sharing systems

Water-sharing mechanisms have changed considerably. Reliance on glacier melt and springs has become unreliable as these sources shrink, placing pressure on customary water-sharing practices and heightening concerns about current and future water access.



Image: Saloni Bhatia

Increasing pressure on rangelands and natural resources

Rangelands are under growing strain due to evolving livelihood aspirations, changing land-use practices, and increasingly unpredictable weather patterns. These pressures are amplified by expansion of military infrastructure and the rapid push for solar power projects on pastoral lands, which may also affect already threatened biodiversity.

Tourism and infrastructure expansion as emerging stressors

A surge in tourism following Covid-19, accompanied by unregulated infrastructural growth, has contributed to ecological stress and pollution. In high-altitude regions like Ladakh, thinner air and lower atmospheric pressure reduce pollutant dispersion, making air quality more vulnerable to emissions from vehicles and construction. Increased tourism

demand also places substantial strain on limited water resources and waste-management systems.

Value of continued dialogue and shared learning

The workshop emphasised the importance of ongoing conversation—within and across institutions and communities—to explore contextually grounded, and collaborative pathways for wellbeing and stewardship.

Intergenerational exchange and balancing continuity with change

Acknowledging internal diversity and fostering dialogue between generations can support Ladakh in navigating the balance between heritage and changing aspirations, encouraging solutions that are responsive, thoughtful, and rooted in shared understanding, and suitable for the region's unique socio-cultural and ecological histories.



Image: Saloni Bhatia



Suru valley, Kargil.
Image by Saloni Bhatia



EVENTS AT THE ARCHIVE

PALAY HOUSE, PHEY

*Image by Faiza Khan
from the exhibition titled
'What is Felt, What is Seen'*



Enroute Palay House
Image by Saloni Bhatia

Chapter Overview

As part of the open-access archive at Palay House, we curated a series of **ten events** that encouraged dialogue, reflection, and collective learning. These engagements took multiple forms such as talks, exhibitions, film screenings, open discussions, and community gatherings. These events were designed to foster encounters between diverse groups of people engaging with the landscape. The events brought scientific, artistic, and local experiential perspectives into conversation, creating a space where knowledge could be shared, questioned, and reimaged in a participatory manner.

The range of speakers and contributors reflected this commitment to inclusivity and

plurality. Young Ladakhi scholars shared emerging research and lived insights, while international researchers working in the region offered broader contextual understandings of the landscape. Filmmakers and artists from across the Himalayan states contributed creative and critical interpretations of place, memory, and change.

Equally central were the community members of Phey and Changthang, especially women and youth, whose voices anchored the conversations in local realities and aspirations. Together, these events cultivated a vibrant, cross-scalar dialogue that lies at the heart of the archive’s mission.

Participating Organisations and Groups

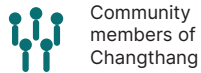
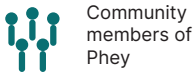




Image by
Saloni Bhatia



View of Indus in Phey
Image by Saloni Bhatia

EVENT-1

Understanding Ecology and Sustainability in Artistic Practice

The discussions explored the profound connections between nature, human-made materials, and storytelling, weaving together themes of ecology, emotion, and feminism. Participants shared how working together and telling stories through art helped them connect with both the environment and deeper personal experiences. Using natural materials, the artists highlighted environmental concerns while also exploring emotional and gendered perspectives.

The artists approached ecology not as a scientific subject, but as a living, emotional, and ancestral practice. Their work focused on identity, memory, and community, often using materials like upcycled fabrics or foraged natural items. These materials, having ‘lived once,’ were given new life through the art, reflecting the idea of transformation and reuse.

Simple, grounding activities such as screaming by the river, walking barefoot



Images by Aakriti Chandervanshi



on grass, or drinking spring water became part of the creative process. These gestures showed how healing, release, and creation are deeply connected. The natural surroundings, from mountains to rivers, provided a safe and reflective space for the artists.

wisdom are deeply connected and lived values. The artists’ work demonstrates that caring for the environment, honoring memory, and creating art are not separate acts, but part of a meaningful, grounded way of life.

The discussion also highlighted sustainability as an intuitive, inherited practice. Stories about preserving and reusing family objects revealed a cultural tradition of care and conservation that predates modern environmental terms.

Overall, the conversation showed how ecology, sustainability, and ancestral



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Event poster

DISUCSSION

ECOLOGY AND ART



ROUND TABLE WITH ARTISTS

AAKRITI CHANDERVANSHI
ADIBA JAHAN
ALYEN FONING
PURNIMA
SHAH IFRA
SYEDA KHATEEBA

Women artists from across the Himalayas weave memory and ancestral wisdom into their creative practice, transforming upcycled and foraged materials into powerful artistic expressions.

6PM | PALAY HOUSE, PHEY



Supported by the Rural India Supporting Trust (RIST) under the AMP-Himalaya (Action for Mountains and Peoples-Himalaya) Project

EVENT-2

Examining Climate-linked Mobility in Ladakh’s Pastoralist Landscapes

Samira Patel’s talk focused on climate change and migration in Changthang, drawing deeply from her personal experiences working with communities whose realities are often overlooked in policy discussions.

She has witnessed firsthand how formal systems frequently exclude the most vulnerable people. While earth observation satellites and large climate data infrastructures offer important global insights, they often fail to capture the lived, everyday knowledge held by those on the ground.

Through her work, which is rooted in ethnography, environmental anthropology, STS (science technology studies), and geographies of knowledge, she aims to bring these culturally grounded understandings of climate into the policymaking process. Samira emphasised that climate change and migration are frequently treated as national security concerns, which can overshadow the subtler, place-based realities of how these processes actually unfold. She argued

for a more nuanced policy approach that recognises small-scale, gradual movements of people, animals, and ecosystems. She stressed the importance of integrating climate considerations into migration

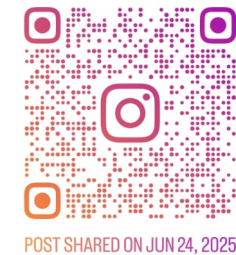


Images by Ragav Verma

policy and vice versa, noting that people on the ground hold valuable insights into shifting glaciers, grazing patterns, and the sustainability of their environments. Strengthening local representation, she said, is essential for creating responsive policies and for supporting migratory, multispecies pastoral communities through improved infrastructure, drought response, and economic models that honour traditional livelihoods.

She concluded by noting that Ladakh offers an important lesson: climate-related migration is not always about large-scale displacement caused by dramatic disasters.

It can also be a slow, continuous process of adjustment where movement becomes an ordinary and necessary form of adaptation, rather than an impending crisis.



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Event poster

POST SHARED ON JUN 24, 2025

TALK

“Goats, Grasses, and Glaciers” – Reconceptualizing Climate Migration in Ladakh

with Samira Patel

Samira Patel is a PhD Student in Geography at the University of Cambridge, where she is a Gates Cambridge Scholar. Her doctoral research examines the impact of climate on multi-species mobilities/migration amongst Changpa pastoralist communities in Ladakh.

This stems out of a broader interest in climate knowledge production at the world’s ‘third pole’ in the Himalayas and Tibetan Plateau. Her research is informed by a background in social justice, particularly working on immigrant rights in the United States, and many years of working at the environmental science-policy interface.



27 June 2025 | 6PM
Venue: Palay House, Phey



Supported by Rural India Supporting Trust (RIST) under the AMP-Himalaya (Action for Mountains and Peoples - Himalaya) project

EVENT-3

Showcasing Felted Products
Made from Changthang's Sheep Wool



Exhibition credit
panel & felted sheep
wool products on
display during the
open studio day.
Images by
Jigisha Patel



What Is Felt, What Is Seen

Presented by Ashoka Trust for Research in Ecology and the Environment (ATREE), Achi Association India, and Unnu Textiles

This exhibition is a labour of love, brought to life by the youth and women of Changthang who actively participated in a sheep wool felting workshop held at Palay House, Phey. Special thanks to the pastoralists of Chibra, whose trust and support were instrumental in making this collaboration both successful and inspiring.

Curator: Jigisha Patel
Master Craftsman: Farooq Ahmed Khan
Artists: Rinchen Dolkar, Stanzin Jamphal, Stanzin Namgail, Sonam Yangzes, Tsering Khando, Ragav Verma, and Jigmet Yangdol
Special Thanks: Ajay Sharma
Exhibition Production: Action for Mountains and Peoples – Himalaya (AMP-Himalaya) Project Team



Supported by Rural India Supporting Trust (RIST)

This exhibition is the result of a indigenous sheep wool pre-processing workshop held in Chibra, Changthang, followed by a felting workshop at Palay House, Phey. All items on display were made within just five days with the wool sourced in Chibra. The products used wool in its natural, undyed shades, reflecting their authentic character.

The workshops brought together youth and women from the Kargyam and Puga regions of Changthang, whose enthusiastic participation led to the creation of these products. While most livelihood initiatives in Ladakh focus on weaving, felting remains an important yet underutilised skill with significant potential to benefit pastoral

communities. The main goal of this exhibition is to demonstrate the potential of felting as a livelihood opportunity in Ladakh. More details about the workshops and related wool-based innovations, including their intent, interventions, and outcomes, are available for reference (in detailed wool workshop report and market analysis).



<< Social media post
Event poster

OPEN STUDIO INVITATION

WHAT IS FELT,
WHAT IS SEEN

Join us for an immersive experience exploring sheep wool felting from Changthang. Discover how the youth and women of Changthang transformed raw wool into beautiful felted products during a workshop held at Palay House, Phey.

DATE: 15 JULY, 2025
TIME: 2PM TO 5PM
VENUE: PALAY HOUSE, PHEY



Supported by Rural India Supporting Trust (RIST) under the AMP-Himalaya (Action for Mountains and Peoples - Himalaya) project

EVENT-4

Exploring Sheep-Wool-Based Livelihood Interventions

In her talk on wool interventions in Ladakh, senior textile designer and wool expert Jigisha Patel shared insights from her long engagement with pastoral communities in the Changthang region. She also spoke about the recent wool workshop held in Chibra, which helped deepen the understanding of local practices.

She explained how seasonal patterns guide the entire sheep-wool cycle. Shearing and sorting depend strongly on the weather, and nomadic families use their own tacit knowledge to decide the right time. By observing the growth of wool and hair on sheep and goats, they intuitively choose when shearing should begin. It usually

starts at the end of June, but if the weather stays cool, it may shift to the first week of July or even later.

Jigisha's intervention has been to introduce additional sorting activities during shearing. Sorting happens immediately after shearing, and the wool is separated into different bags based on the quality found in various parts of the sheep's body. For example, the wool from the neck area is much finer than the wool from the back. The sorting also includes colour sorting and age-wise sorting of sheep. The sorted wool is later sent by the project team for technical tests such as micron testing and fibre length analysis. This data will help in



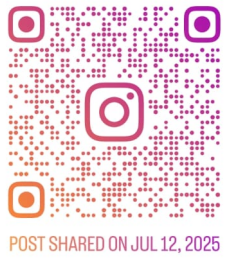
Image by Ragav Verma

understanding the quality and value of their wool.

She described the scouring process, which takes three to four days and requires a sheltered area. Later steps include carding, spinning, and felting – all these processes are crucial in the interventions around livelihood innovation.

Jigisha acknowledged the practical challenges in the region, including the movement of pastoral households, limited facilities, and the need for steady coordination. At the same time, she pointed to the strong potential for community-

led wool development in Changthang. By aligning improved techniques with the natural rhythms of nomadic life, she hopes to help create new possibilities for sheep wool.



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Event poster

TALK & EXHIBITION

Beyond Pashmina:
Exploring the Potential
of Sheep and Yak Wool
in Changthang

with Jigisha Patel

Jigisha Patel is a senior textile designer and wool expert trained at the National Institute of Design (NID) in Ahmedabad. She has dedicated much of her design practice to exploring the structural and aesthetic versatility of wool fibre, as well as its untapped livelihood potential in arid regions such as Ladakh and Kutch.

She has been engaging with communities in Changthang since 2017 and recently conducted a sheep-wool workshop in the Kargyam region. She will present her findings through this public interaction.

The talk will be followed by an exhibition showcasing the outputs of a separate felting workshop conducted with community members from Chibra village.

16 July 2025 | 6PM
Venue: Palay House, Phey



Supported by Rural India Supporting Trust (RIST) under the AMP-Himalaya (Action for Mountains and Peoples - Himalaya) project

EVENT-5

Developing Community Media from the Ground Up

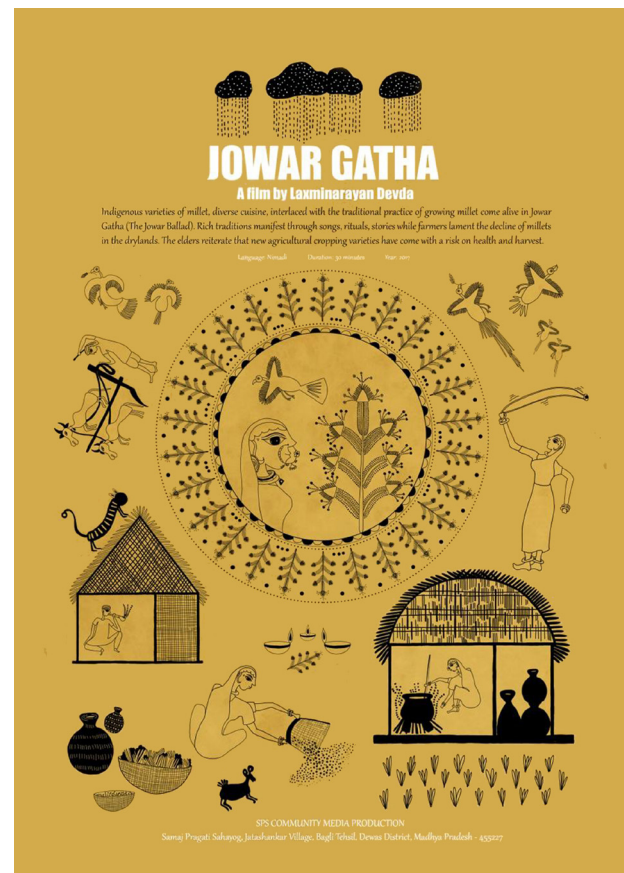
Community media, shaped through collective participation, transfers narrative power from elite institutions to the communities long excluded from mainstream storytelling. It ensures that marginalised communities are not merely subjects of outside reporting but the primary authors of their own stories. When media is owned and controlled by the community it serves, it becomes a platform for local issues, grounded perspectives, and lived realities.

SPS Community Media, a part of Samaj Pragati Sahayog (SPS)—a grassroots initiative for water and livelihood security based in a remote tribal village in Madhya Pradesh—embodies this ethos. Its core team consists of local residents who have been trained to make films and document their own contexts. SPS focuses on intensive training and hands-on production, turning community members into both producers and consumers of media. The process of filmmaking itself becomes a

collective learning space, strengthening local information ecosystems. Through this approach, SPS documents resilience, struggles, and cultural practices that often go unseen.

Filmmaker Akash Basumatari curated two powerful films (produced by SPS Community Media) for this screening at Palay House in Phey, illustrating the depth of grassroots storytelling:

- **Jowar Gatha (The Story of Jowar/ Sorghum):** A film that explores the revival of Jowar, foregrounding issues of food sovereignty, traditional farming knowledge, and the preservation of indigenous crops.
- **Gaar (Hailstorm):** A stark and intimate account of climate vulnerability, documenting the impact of erratic hailstorms on farming livelihoods and the community's strategies of resilience.



These works capture authentic, micro-level socio-economic realities with nuance and clarity.

Akash Basumatari's broader community media practice, including his years with SPS, has involved training local residents in narrative and technical skills so they can document their own lives. Rooted in participatory communication, his work amplifies voices often left at the margins. His feature-length documentary 'Farming the Revolution' extends this commitment. Chronicling the massive Indian farmers' protests, the film prioritises the farmers'

own voices and collective action, offering a ground-up account of the politics of agriculture and the resilience of democratic protest.



<< Social media post

Event poster ▾

FILM SHOWCASE 30 July 2025

Jowar Gatha
Laxminarayan Devda
30 minutes

Gaar - Hailstorm
Shobhit Jain
61 minutes

Time: 3PM - 4.30PM
Venue: Palay House, Phey

Films Produced by
SPS Community Media
Curated by
Akash Basumatari

Supported by Rural India Supporting Trust (RIST) under the AMP-Himalaya (Action for Mountains and Peoples - Himalaya) project

EVENT-6

Analysing How Climate Change is Reshaping the Himalayan Region

Climate scientist Dr. Chirag Dhara delivered a talk on updated climate-impact assessment for India with a special focus on the Himalayan region. He explained that although not uniform, the Himalayas are now warming faster than global average, and this rapid temperature rise is reshaping both landscapes and livelihoods. Glaciers are losing mass, snowlines are shifting upward, and many glacial lakes are becoming increasingly unstable. These changes raise long-term concerns about water security while simultaneously increasing the risk of sudden, high-impact events such as glacial lake outburst floods.

He explained that the Indian monsoon, already complex, is becoming more erratic under current climate trends. Even years with normal or above-normal total rainfall now show far more extreme, short-duration downpours interspersed with long dry spells. In the Himalayan region, this shift has sharply increased incidents of

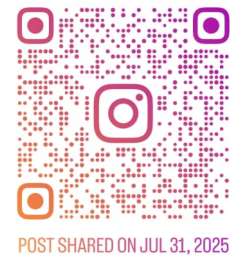
cloudbursts, landslides, and flash floods. He discussed in particular the patterns that lead up to these extreme weather events, showing how a combination of warming, moisture surges, and local topography can trigger devastating flash floods.

These changes in temperature and rainfall are also reshaping hydrological systems. While increased meltwater may temporarily boost river flows in the short term, the long-term trajectory points toward reduced dry-season water availability as glaciers continue to shrink. This has implications for irrigation, hydropower, and drinking water, especially in remote mountain settlements. He highlighted the need to rethink long-held assumptions about perennial flows and to prepare for altered seasonal water patterns.

The human impact of these environmental changes is already visible. Mountain agriculture and pastoral systems are

struggling with unpredictable rains, sudden hailstorms, and soil loss after extreme events. Landslides and road disruptions affect access to markets, healthcare, and education, while frontline communities face growing risks to health and safety. He underscored that these stresses fall most heavily on households with limited resources and fragile livelihoods. In response, he called for a shift toward anticipatory, community-centred adaptation. This includes strengthening early-warning systems for flash floods, improving slope and watershed management, and integrating scientific monitoring with local knowledge. He

emphasised that resilience in the Himalayan region will depend on solutions that are grounded in the lived realities of mountain communities.



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Event poster



Image by Ragav Verma

TALK



An Updated Climate Assessment for India: National Overview and Implications for the Himalayan Region

with Dr. Chirag Dhara

Chirag is a quantum physicist turned sustainability scientist. He holds a PhD in Earth Science (2017) from the Max Planck Institute for Biogeochemistry in Germany, and a second PhD in Photonics (2013) from the Institute of Photonic Sciences in Barcelona, Spain.

Chirag’s research interests span climate and sustainability science, and their implications for human development. He was a co-author of India’s regional climate change assessment report released by the Indian Institute of Tropical Meteorology, Pune in 2020. He was a contributing author to the IPCC AR6’s Atlas (2021).

*Sixth Assessment Report (AR6) of the United Nations (UN) Intergovernmental Panel on Climate Change (IPCC)

3 August 2025 | 5PM
Venue: Palay House, Phey



Supported by Rural India Supporting Trust (RIST) under the AMP-Himalaya (Action for Mountains and Peoples - Himalaya) project

EVENT-7

Imagining Community-Centred Technology for Ladakh

The discussion moderated by Subir Bhaduri centred on two fundamental questions: the unmet technological needs in Ladakh, and the kind of technology that could genuinely strengthen ecological balance, equity, and community wellbeing. Participants reflected on lived experiences from across the region, grounding the conversation in the realities of climate, geography, and everyday life in Ladakhi settlements.

On the first question, ‘What technologies does Ladakh most urgently need?’. The group highlighted both improvements to existing systems and the need and potential for context-appropriate innovation. The traditional Bukhari heating system, still essential for winter survival, was discussed as a priority for improvement. While modern alternatives like the Himalayan rocket stove exist (<https://himalayanrocketstove.com/>), their high cost and inefficient heat retention make them inaccessible or suboptimal for many households. Participants also pointed to the possibilities of water-flow-powered

electricity, which could harness the region’s natural gradients; solar ovens capable of baking biscuits or cakes; and solar heating solutions compatible with traditional mud homes as well as newer cement constructions. Additionally, the need for an easy-to-use water-testing kit was emphasised, given the growing concerns about water quality across villages.

The second question explored the deeper issue of what technology should look like if it is to promote equity, ecological responsibility, and both physical and mental health. Subir noted that rural technology is often created or imposed devoid of context, with little local capacity to repair. As a result people are separated from the technologies they use which leads to disempowerment and greater dependency on external ‘experts’. Participants agreed that any solution must begin with an ethnographic understanding of the community’s culture, needs, constraints, and rhythms of life. This includes recognising that, in some cases, the most

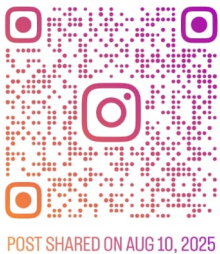


Image by Ragav Verma

appropriate choice may be not to intervene technologically at all. Technology, they argued, should support existing strengths rather than impose external models of efficiency or modernity that do not fit the local ecology.

One notable reflection was a critique of how ‘innovation’ is often taught in schools, sometimes leading to wasteful experimentation with little meaningful outcome. While the point underscored the risk of promoting a superficial culture of invention, others noted that technical literacy remains important for empowering communities to shape and maintain

technologies that serve them. The challenge, therefore, is not to eliminate creativity or innovation from education but to root it in local realities, resource awareness, and community needs.



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Event poster

OPEN DISCUSSION

Ruminations on Technology, Environment and Equity

A discussion to explore how technology interacts with environment, cultures, and power, and to imagine ways to design for equity, resilience, and ecological care.

Moderated by Subir Bhaduri

Subir is a prototype maker and innovator from Pune. He provides custom engineering solutions at his design workshop (smalldesign.in). His work is focussed on rural technology that is low-cost and relevant.

11 August 2025 | 5PM
Venue: Palay House, Phey



Supported by Rural India Supporting Trust (RIST) under the AMP-Himalaya (Action for Mountains and Peoples - Himalaya) project



EVENT-8

Interpreting the Representation of Women in Ladakhi Folklore

Farana Salam located her work in the deep oral traditions of Ladakh, describing how folktales are not merely entertainment but a living architecture through which communities construct social norms and identities. She framed her talk around the central question of how gender is produced and reproduced in Ladakhi folktales, arguing that stories told across seasons and hearths encode expectations about

women’s roles, virtues, and boundaries.

Farana described conducting primary field surveys in Changthang and Khar-nakling, where she collected variants of local tales and oral histories directly from elders, women storytellers, and youth. She emphasised an ethnographic approach: listening long-term, recording multiple versions of the same story, and situating

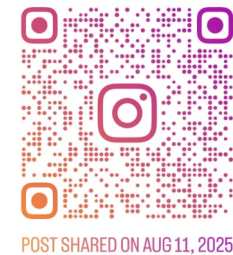


Images by Ragav Verma

each narrative within household histories and livelihood changes. This makes visible how folktales shift as material conditions and gendered expectations evolve.

resistance. She used specific story types to demonstrate how moral lessons, gendered labor divisions, and kinship obligations are taught and negotiated across generations.

Her analysis traced recurring archetypes in the folktales such as the dutiful daughter, the resourceful mother, or the transgressive woman; and how each figure functions to legitimate certain social arrangements. Farana noted moments in tales where women’s agency is celebrated, as well as moments where it is circumscribed; together these made a complex picture in which folktales both reproduce patriarchal norms and contain imaginative spaces for



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Event poster

TALK

Whispers of the Mountain: Folklore and memory in Ladakh

with Farana Salam

Farana is a researcher and educator from Leh, Ladakh, currently pursuing a PhD in Folklore and Gender at Jamia Millia Islamia. Her research focuses on the portrayal of women in Ladakhi folktales, exploring how these narratives reflect and shape cultural and gender dynamics in the region. She is also developing a digital archive of Ladakhi folktales to preserve this rich oral tradition and amplify women's voices within it.

In this talk, Farana will explore the folktales of Ladakh through the lens of culture and gender, revealing the quiet strength, memory, and imagination carried through generations of storytelling.

13 August 2025 | 5PM
Venue: Palay House, Phey



Supported by Rural India Supporting Trust (RIST) under the AMP-Himalaya (Action for Mountains and Peoples - Himalaya) project



EVENT-9

Reframing Food as Memory: TechArt Journeys Through Taste and Identity

BeFantastic Fellowships supports interdisciplinary projects around tech-art interface by bringing together artists, designers, and other creative professionals to merge advanced technologies with meaningful artistic practice. The programme fosters collaboration between emerging and established practitioners who recognise the transformative potential of art in the digital age.

For the 2025 Fellowship, part of which took place at Palay House, the theme focused on the intersection of food and climate. Mentorship for the programme was provided by Dr. Saloni Bhatia from ATREE and Abeer Gupta from Achi Association India. Under this theme, two projects were developed: *Pola* and *A Jar of Fermented Memory*.

Project *Pola* examined food as a medium for storytelling, capable of tracing patterns of trade, migration, cultural exchange,

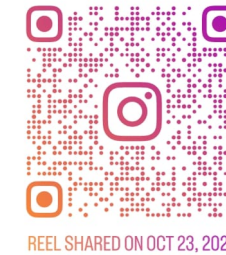
memory, and belonging. The project explored the idea that a dish such as pulao (or pola) can reflect centuries of movement and assimilation. By focusing on food practices, the project shifted attention away from conventional visual representations of the region such as mountains and monasteries, and toward the kitchens, routes, and everyday labour that have shaped local histories. Through this approach, *Pola* highlighted the role of food in expressing identity and coexistence.

A Jar of Fermented Memory emerged as an exploration of sensory and cultural experience, a conceptual vessel for culinary knowledge, cross-cultural interactions, and the subtle transformations that occur over time and through environmental conditions. The project was shaped by online discussions in which participants recalled the hospitality of the people of Ladakh, who shared their homes, lives,

Images by
Rajbir Kaur
(left); Adiba
Jahan & Nikita
Sarkar (right)



and foods that embody generations of resilience. Driven by curiosity and a desire to understand the region through careful observation rather than an outsider's gaze, the project examined how food evolves into memory, and how memory, in turn, becomes a component of identity. Its conceptual development unfolded gradually, mirroring the slow, transformative process of fermentation itself.



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BE FANTASTIC

KALEIDOSCOPIC FIELDS Fellowship 2025

Join us for the...

Kaleidoscopic Fields

Open House

Engage with 2 immersive Tech-Art project prototypes as they come to life during Immerse: our fellowship residency!

A JAR OF FERMENTED MEMORY

PROJECT POLA

Meet, play, and uncover stories that, archive old memories and create new ones, across the food rituals of Ladakh's past, present, and future...

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in the village. Participants reflected on the progress made through SHGs, NRLM groups, and the *Ama Tsogspa*, while also identifying gaps that limit their full impact. Livelihoods formed a major part of the conversation, with the women highlighting their ongoing work related to local foods and farming. While several initiatives are already underway, the groups expressed a pressing need for market linkages, packaging support, and capacity-building workshops that could help diversify incomes. They also discussed challenges in savings and credit management, noting the importance of financial literacy, transparent pricing practices, and guidance on setting product rates for local markets.

Women spoke about the declining number of livestock, which has created a shortage of manure and increased dependence on purchased inputs. They expressed interest in finding a herder to help manage livestock, and revive manure availability.

The consultation concluded with a discussion on training needs, particularly in entrepreneurship, marketing, and value addition. Participants showed strong interest in learning how to convert raw produce into market-ready products such as apple cider vinegar, jams, juices, ketchup, and purées. They stressed that understanding logistics, costing, and pricing would help strengthen women's self-sufficiency and enhance income-generation efforts.

Images: (left) Women's alliance meeting. Picture by Ragav Verma; (below) Agricultural fields in Phey. Picture by Saloni Bhatia

EVENT-10

Documenting Outcomes from Phey Women's Group Consultations

On 4th October 2025, the AMP Himalaya team met with members of the Phey Women's Alliance (*Ama Tsogspa*) to understand ongoing activities, and potential areas for collaboration. The meeting was led by former *Ama Tsogspa* president Dr. Dolma Tsering and brought together 13 participants, including the current *Ama Tsogspa* president, Eshay Dolma, representatives of active Self-Help Groups (SHGs), members of National Rural

Livelihood Mission (NRLM) groups, as well as members of the customary women's collectives present in every Ladakhi village. The consultation aimed to build a shared understanding of challenges and opportunities in Phey, especially in the areas of agricultural livelihoods, and community wellbeing.

The discussion began with an assessment of existing women's collective activities





THE TEAM

At the heart of GRAZIER are the pastoralist and agro-pastoralist communities of Phey and Chibra, who are not ‘beneficiaries’ but equal knowledge partners and co-creators of this work. In Phey, long-standing agropastoral households bring deep expertise in water governance, land stewardship, and adaptive livelihoods in a rapidly changing socio-ecological landscape. In Chibra, members of the nomadic Changpa community contribute generations of knowledge on rangeland management, livestock care, mobility, and climate adaptation in high-altitude ecosystems. Their lived experience, cultural practices, and evolving aspirations anchor the project’s direction, ensuring that all interventions are locally grounded, ethically engaged, and responsive to real-world complexities. The GRAZIER team also brings together a dynamic, cross-institutional and multidisciplinary team of researchers and practitioners working across the Himalaya, India, and globally.

Dr. Saloni Bhatia is an inter- and transdisciplinary researcher-practitioner at ATREE with over fifteen years of experience at the intersection of conservation, culture, and ethics. Her work integrates systems thinking, participatory approaches, and rights-based frameworks to understand how human and more-than-human communities navigate ecological change, geopolitical pressures, and contested land governance. An alumna of the University of Oxford and IIT Bombay, she brings expertise in strategic programme design, participatory socio-ecological research, and Monitoring, Evaluation, and Learning, with a strong emphasis on inclusive and context-responsive conservation.



Abeer Gupta is a filmmaker and visual anthropologist, and Director of Achi Association India. His work in Ladakh explores oral histories, material culture, and visual archives, engaging with questions of cultural hybridity and change. An alumnus of Goldsmiths College, University of London, he has led the restoration of Palay House in Phey, which serves as a transdisciplinary hub for art, design, architecture, and conservation, creating critical infrastructure for cultural and ecological knowledge preservation.



Dr. Stanzin Namgail is a sociologist and Assistant Professor at the University of Ladakh, whose work bridges academic research and lived community knowledge. His research focuses on tribal ecology, modernisation, and cultural resilience, with doctoral work centred on socio-ecological change among the Changpa. As both a scholar and member of the nomadic Changpa community, he plays a pivotal role in anchoring community-engaged research and local knowledge systems.



Dilip Kumar Mekala is a development practitioner whose work focuses on climate adaptation, agroecology, and pastoral systems. He currently serves as the Project Manager for the Ladakh component of ATREE’s AMP-Himalaya project. In previous roles, he worked as a consultant supporting landscape-based natural farming transitions across multiple states. His practice bridges grassroots realities and global thinking, including a permaculture-based livelihoods initiative that engages questions of ableism, queerness, and climate justice. Additionally, he brings a unique background in strategic affairs and large-scale science communication and design.



Ragav Verma is an educator from Leh, with experience in Social, Ethical, and Emotional (SEE) learning approaches, including motor development for early learners. He currently serves as Project Assistant for the Ladakh component of ATREE’s AMP-Himalaya project. He has previously coordinated operations at multiple site-based heritage conservation projects across Ladakh, overseeing logistics, procurement, and coordination for restoration efforts in locations such as Photoksar, Mulbek, Changthang, and Nubra. He has also worked as a trainer with WWF India, delivering programmes on hospitality, financial literacy, and livelihood skills.



Dr. Matthieu Salpeteur is an environmental anthropologist with the French National Research for Sustainable Development (IRD), specialising in pastoral systems and socio-ecological transformations. His work spans India and beyond, examining land-use change, mobility, and the transmission of pastoral knowledge. He leads an international research project on livestock diversity and coordinates the Indian Pastoral Network, strengthening collaborative research on pastoralism and capacity development of young scholars.



Dr. Kiran Asher is a leading scholar of feminist political ecology and Professor at the University of Massachusetts Amherst. With over three decades of research across Latin America and South Asia, her work interrogates the gendered and racialised dimensions of environmental governance and development. Her influential book Black and Green (Duke University Press) reflects her long-standing engagement with questions of justice, identity, and power in environmental movements.



