



# THE ETHOS OF TRADITIONAL CRAFTSMANSHIP AS CULTURAL HERITAGE OF LEPCHA TRIBE OF DARJEELING HIMALAYA IN MAINTAINING ENVIRONMENTAL SUSTAINABILITY

Alolika Mangal<sup>1</sup> and Vishwambhar Prasad Sati<sup>2</sup>

<sup>1</sup>Research Scholar, <sup>2</sup>Senior Professor, Department of Geography and Resource Management,  
Mizoram University(Central), Aizawl, India

Email id: [alolika.pinki@gmail.com](mailto:alolika.pinki@gmail.com), [sati.vp@gmail.com](mailto:sati.vp@gmail.com)



 **EGU** General  
Assembly 2026

This presentation participates in OSPP

 **EGU**

Outstanding Student & PhD  
candidate Presentation contest

This presentation participates in OSPP

 **EGU**

Outstanding Student & PhD  
candidate Presentation contest



#839080

# Introduction

- Lepchas are the indigenous people of the Eastern Himalaya concentrated in the areas of Sikkim, West Bengal, Nepal and Bhutan.
- The Lepcha tribe of Darjeeling Himalaya coexists with other indigenous people but among them Lepchas boast unique cultural practices.
- These practices encompass environment friendly handlooms and crafts made with bamboo, cane, fibres of different textures which are produced from various nettle species, and are also biodegradable in nature.
- In recent times the traditional usage of handlooms and crafts are declining due to threats of survival of such nature based cultural practices.
- Lack of documentation of Lepcha practices in Lepcha language and migration of other communities to this land leading to shifting to different alternative livelihoods.

## Lepcha Traditional Craftsmanship Bamboo Basketry and Handloom

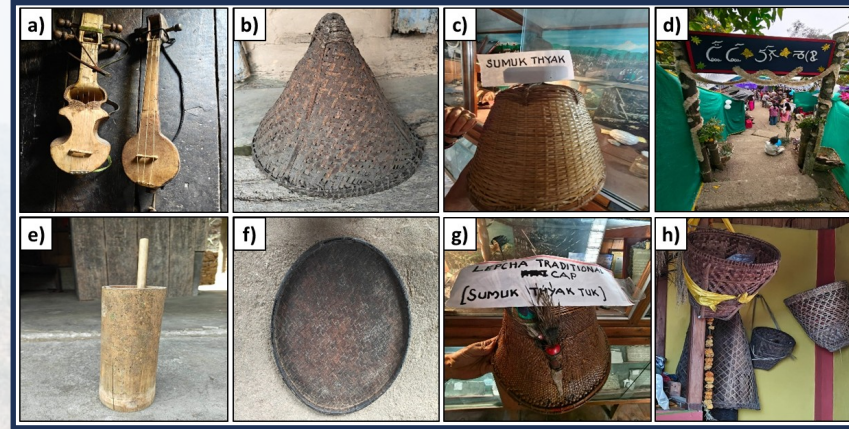


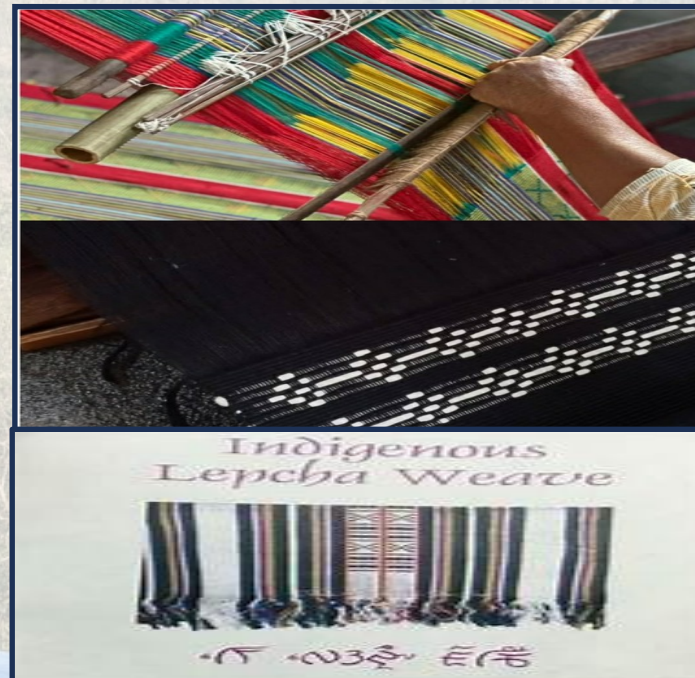
Fig1. Various types of items made with bamboo, a)musical instruments, b)carrying products, c) traditional hat 'Sumok Thyak', d)entrance gate during a wedding, e)for serving 'Chi' ,f) for drying grains, g) Hat for ceremonies, h) for multiple usages with different weaving pattern



With Chi serving bamboo tumbler

## Objectives

- To understand the importance of traditional craft and handloom of Lepchas as cultural heritage for a sustainable Himalayan Mountain environment.
- To analyse shifting of livelihoods from traditional craftsmanship and the government's role in safeguarding Lepcha craftsmanship.
- To suggest how these cultural practices and environmental sustainability can both be revived and protected by implementing collaborative approaches with the community.



Lepcha handloom weaving

## Data Base

The data, information have been collected during field visits to these remote areas through semi structured questionnaires from households for general perception and observation, interviewing Lepcha artisans, weavers, craftsmen, master trainers and visiting training centres, attending fairs, collecting information from Mayel Lyang Lepcha Development Board and NGO.

## Methodology

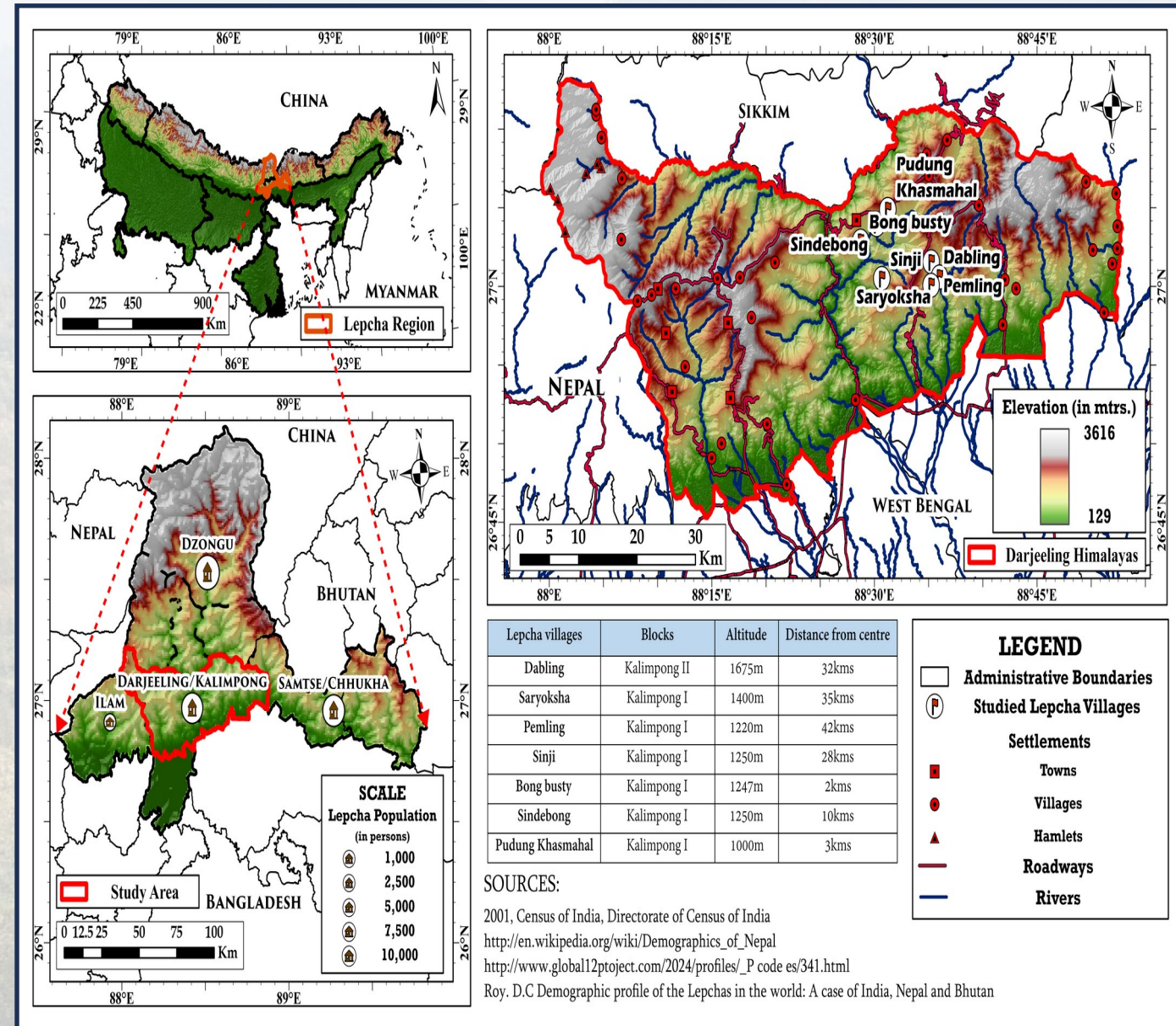
1. To understand the importance of traditional bamboo crafts and handlooms, their labour-intensive intricate processes have shown through diagrams.

2. Diagrams and data tables are shown to understand Lepcha tribal people's shifting to different livelihoods and lower rate of participation in traditional craftsmanship.

3. Perception matrix tables are shown to understand the challenges of survival as well as the revival measures that need to be taken and implemented.

4. A case study is shown to represent the younger generation's role in safeguarding the cultural heritage and alongside the role of government is described for the revival of craftsmanship in maintaining sustainability of Himalayan environment.

## Study Area



## Findings and Discussion

- The Lepcha Peoples' bamboo craft and handloom are labour intensive processes yet bearing ancient traditional environmental knowledge of sustainability and representing Lepcha cultural identity.
- Present day Lepcha people have shifted to different other livelihoods due to economic nonviability, lesser knowledge of traditional craftsmanship, lack of technical knowledge to preserve the culture, lesser accessibility to markets leading towards cultural erosion of this cultural heritage.
- Community led initiative along with governments' and NGOs' technological, training, financial support, marketing of products, restoring traditional ecological knowledge are helping in reviving the Lepcha craftsmanship in Darjeeling Himalayan region.

### Bamboo basketry making process

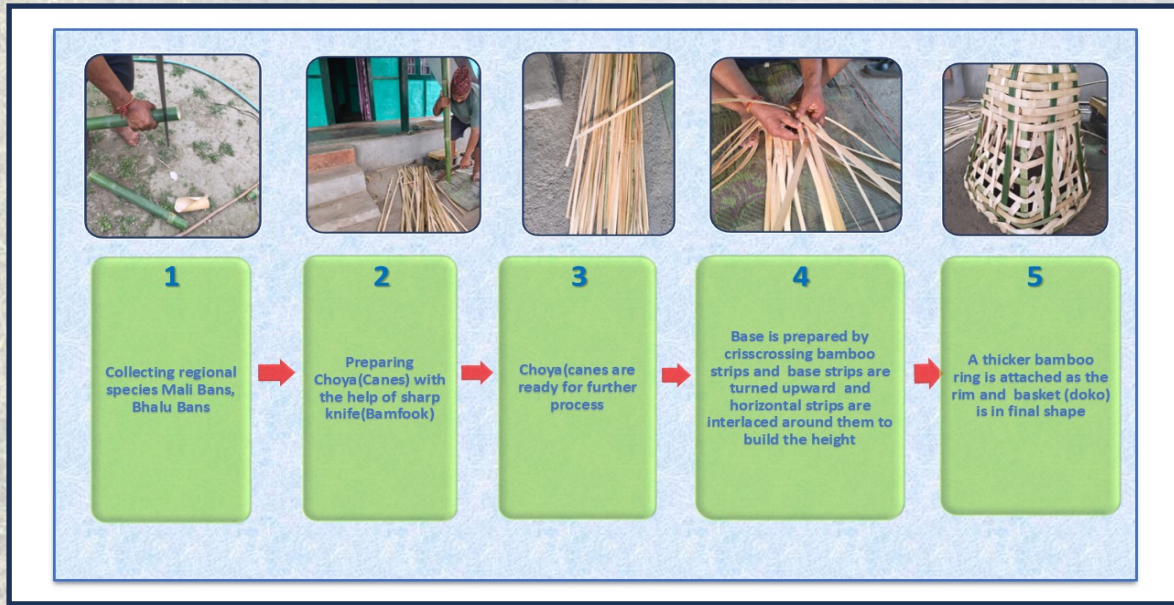


Fig.2. Process of bamboo basketry making, 1) Collecting regional variety, 2) Preparing choya (canes), 3) Stripes for making item, 4) Crisscrossing strips to give a shape, 5) Basket 'Doko' with thicker base

### Ancient craftsmanship (UNESCO recognized as dying handloom)

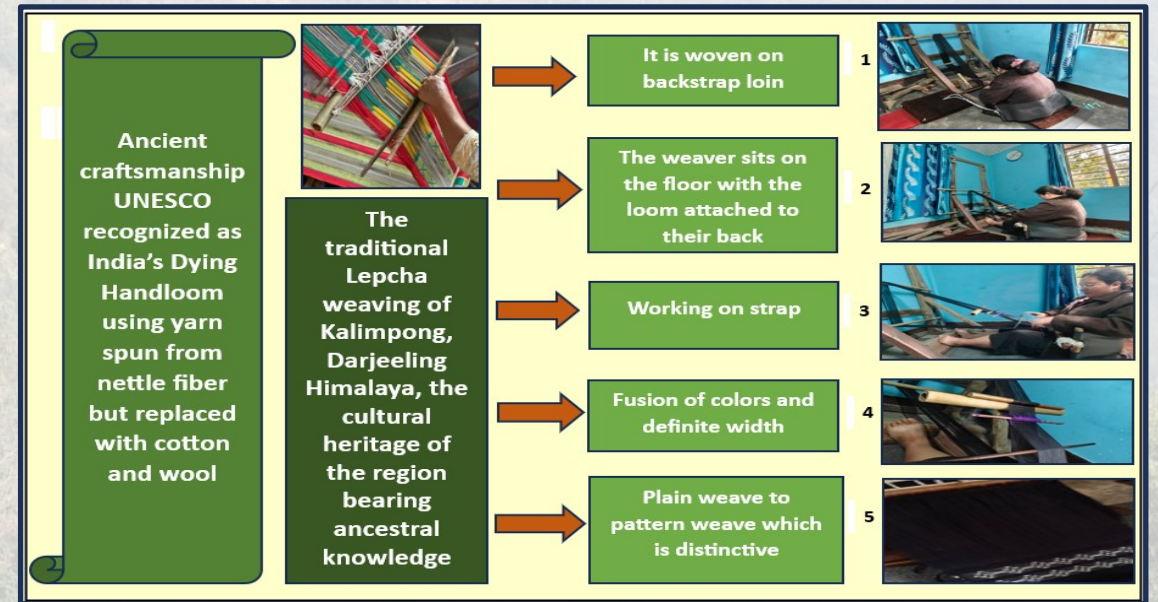
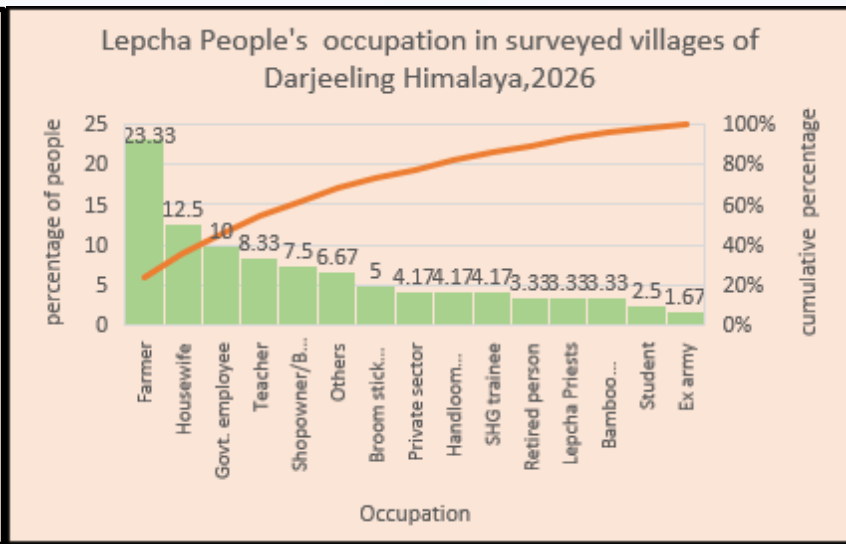
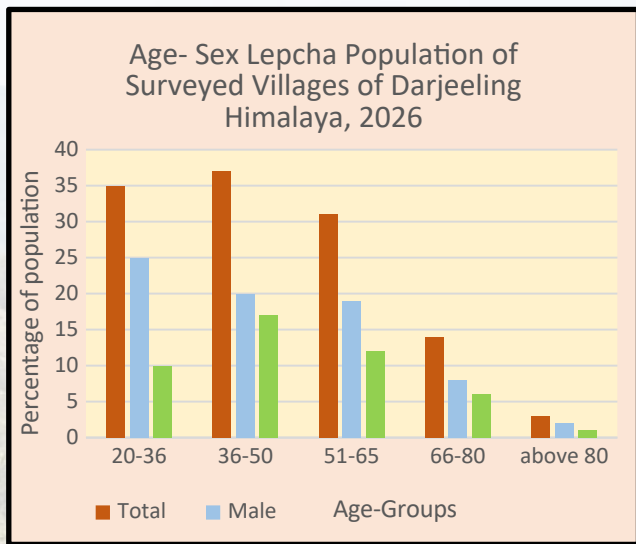


Fig.3. Lepcha traditional handloom process of Darjeeling Himalaya showing intricate pattern weaving on backstrap loom mostly done by Lepcha women folk. All traditional garments are made in this manner using nature-based fibers made from nettle which is declining now adays



- ✓ Demographic background of Lepcha population of Kalimpong Villages, Darjeeling Himalaya shows that male population is higher compared to female population though average life expectancy is higher for both the genders.
- ✓ The working age groups are involved in different types of occupation for their livelihoods and lower percentage of people are engaged in traditional craftsmanship like bamboo craft and handloom.
- ✓ The Pareto chart also depicts majority of the population are farmers owning their lands near about 23 percent where as handloom workers are low i.e. 4.17 percentage and people engaged in bamboo basketry is also low, 3.33 percentage.

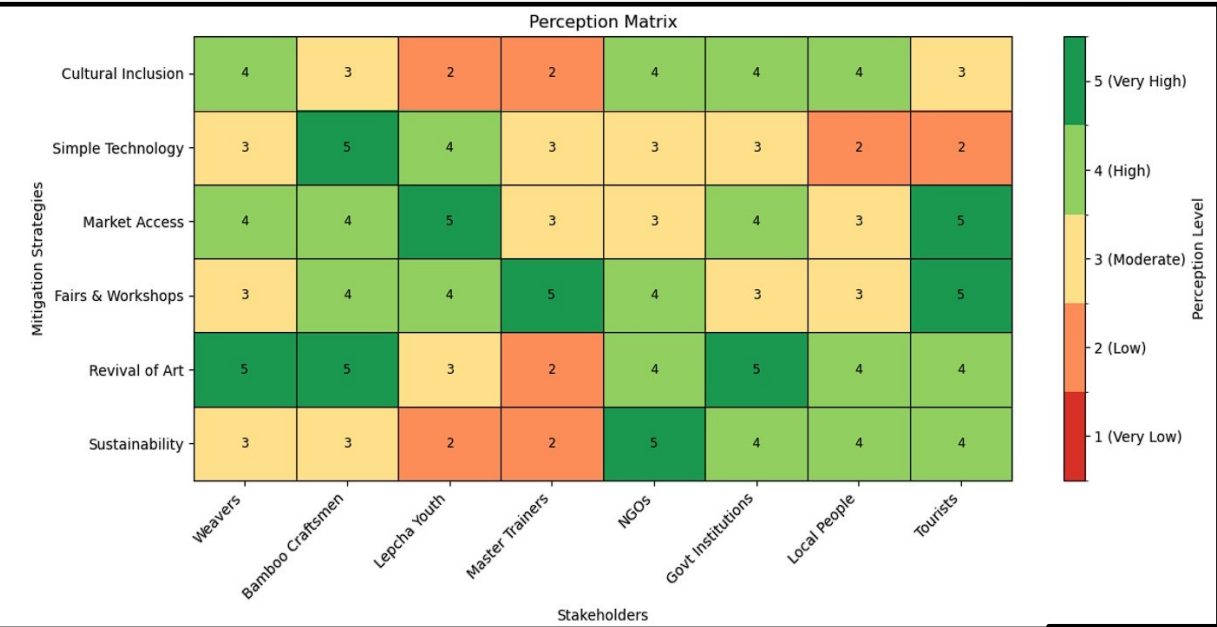
Fig.4. Surveyed Lepcha population and their present occupational status in Darjeeling Himalaya

\*The results are based on surveyed population of households of Lepcha villages of Kalimpong, Darjeeling Himalaya.

Challenges identified on the basis of interviewing Lepcha Craftsmen	Decreasing number of craftsmen (a)	Cultural erosion is threatening its survival(b)	Less willingness to take training and choosing as livelihood(c)	Distance of training centers from far way villages(d)	Lesser access to market for finished products (e)
Economic viability of the craftsmanship	X	X	X	X	X
Difficulties in adapting technical skill-based learning	X	X	X	X	
Remote geographical areas to access digital tools, connectivity		X	X		
Ecological limitations for forest-based resources	X			X	
Lack of implementation of policies and fundings for revival of art and crafts		X	X		X
Lesser number of master trainers		X	X	X	
Difficulties in transformation of traditional knowledge	X	X	X	X	

Fig.5. Identified reasons of cultural erosion of Lepcha Craftsmanship in Darjeeling Himalaya. Orange shaded area is to show the reasons which are significantly influenced by sky blue colour area(reasons) listed in the left column. An example: decreasing number of craftsmen(a), cultural erosion is threatening its survival(b), less willingness to take training and choosing as livelihood(c) all are related to economic viability of the craftsmanship.

- The orange shaded areas are identified as major reasons for cultural erosion of Lepcha Craftsmanship which are significantly influenced by other reasons denoted in sky-blue colour listed in the left column.
- All the major reasons like a, b, c, d, e are due to economic viability of the craftsmanship and this also leads to shifting of occupation and choosing other economic activities for livelihoods.
- However other two reasons are strongly affecting craftsmanship are difficulties in adapting technical skill-based learning and transformation of traditional knowledge from older to younger generations.
- There are lesser number of master trainers from Lepcha community as masters' trainers are from Sherpa(handloom), Tamang, Chetri (Bamboo Basketry) communities migrated to the Lepcha Mayel Land.
- Though government has taken initiatives joining hands with NGO and Lepcha community still absence of policy implementation and fund allocation are major constraints at present.



- ✓ Various stakeholders' perception in mitigating the challenges for survival of Lepcha craftsmanship has been rated through the diagram.
- ✓ X axis denotes Stakeholders while Y axis denotes Mitigation strategies based on surveyed people of the study area.
- ✓ Types have been demarcated on the 5-point Likert Scale basis and also 5 Unit classification is done ranging from 0 to 5 where 0-1 denotes very low subsequently 4-5 very high.
- ✓ It shows Weavers Bamboo craftsmen have strongly posited use of technology, market access, fairs and workshops , revival of cultural heritage along with cultural inclusions are the main ways to safeguard Lepcha Craftsmanship.
- ✓ Concurrently Government, Lepcha people, Tourists, NGOs are focusing on environmental sustainability to revive and save the Lepcha cultural heritage.
- ✓ Simple technological uses, market access, fairs & workshops stated as moderate importance to revive Lepcha Craftsmanship as cultural heritage in Darjeeling Himalayan region.

Fig.6. Perception Matrix of stakeholders regarding mitigation strategies in surveyed areas of Darjeeling Himalaya

### A Case Study



Fig.7. Younger generation's efforts to save dying Lepcha handloom as cultural heritage  
Support ancient craftsmanship

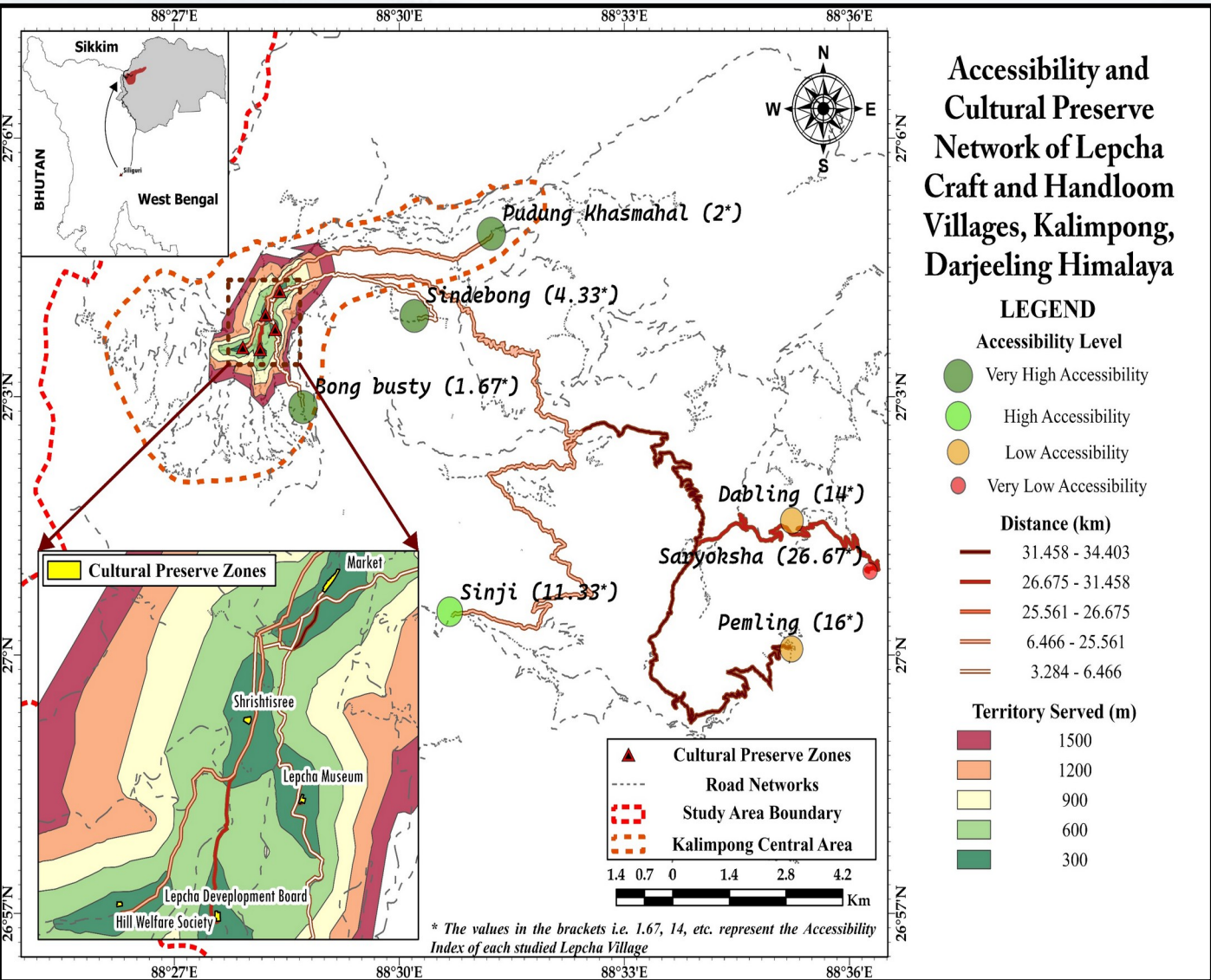
IG Handle  
←

QR Code  
@DUMTHOK LEE

**Nangme Lepcha, a 24-year-old young artisan weaver**, Master's degree holder from Bong Busty, Kalimpong, Darjeeling Himalayan Region has started her own initiative 'Dumthok Lee' to revive the age-old Lepcha handloom tradition which is been passed over her from her grand aunt through oral traditions.

In her words, *“Though earlier nettle fiber is used for handloom due to its abundance in this Himalayan reign, Lepcha people have the knowledge of extraction and making fibers from nettle. However, in this part, the use of nettle fiber is replaced by cotton and wool. The reasons are specific as to extract fibers from nettle is labour intensive and it increases the price of finished products which don't find a proper platform for marketing and sell.”* The second reason she said, *“ due to the change of climate and easy access to cotton material the preference of cotton and wool have increased which is not the case in other Lepcha dominant places like Dzongu in Sikkim.”*

While stating the cultural significance of usage of nettle fiber she explained several reasons. *Firstly, Lepchas are traditional hunter gatherers so it is easier to allocate. Secondly, when they pass through rivers the fibers get washed away and become much stronger. Washing nettle fibers in rivers make fibers stronger.* Nowadays, she uses cotton and wool, sometimes nettle only on demand to prepare clothes and sell her product through exhibitions, fairs and online. Her learning and interest grew through passing of oral traditional knowledge from father, aunt. Her quest for revival of this traditional knowledge led her to learn weaving which is sustainable for the environment and holds meaning for the community.



**Fig.8. Accesibility and Cultural Preserve Network to show present day conditions of Lepcha Craftsmen in Darjeeling Himalaya**

- Accessibility index values are divided into four zones depending on the distances of Training Centers, Local Markets, City Centre from the studied villages.
- Bong busty(1.67) being located near to Kalimpong main area has higher accessibility to training centers for craft training and markets for selling the finished products. Whereas Saryoksha(26.67) has very low accessibility to the facilities to choose Lepcha craftsmanship as livelihood hence they are shifting to locally available broom stick collection for livelihood.
- Connectivity to Cultural Preserve Zones are shown through shortest distance routes to understand the villagers reach to cultural preserve zones.
- Service zones of ‘Cultural Preserve Zones’ are shown through isochrone map to analyse the territory they serve. Combing 5 cultural preserve zones service which is high within 300m(dark green) and lowest within 1500m(red).
- The location of main city, Siliguri, functional area is shown to understand the reach of Craftsmen for their sustainable economic boost which is based on age old artistry and nature based raw materials which is essential for environmentally fragile Himalayan region.

# Role of Government in cultural preservation and introducing Lepcha craftsmanship to global audience

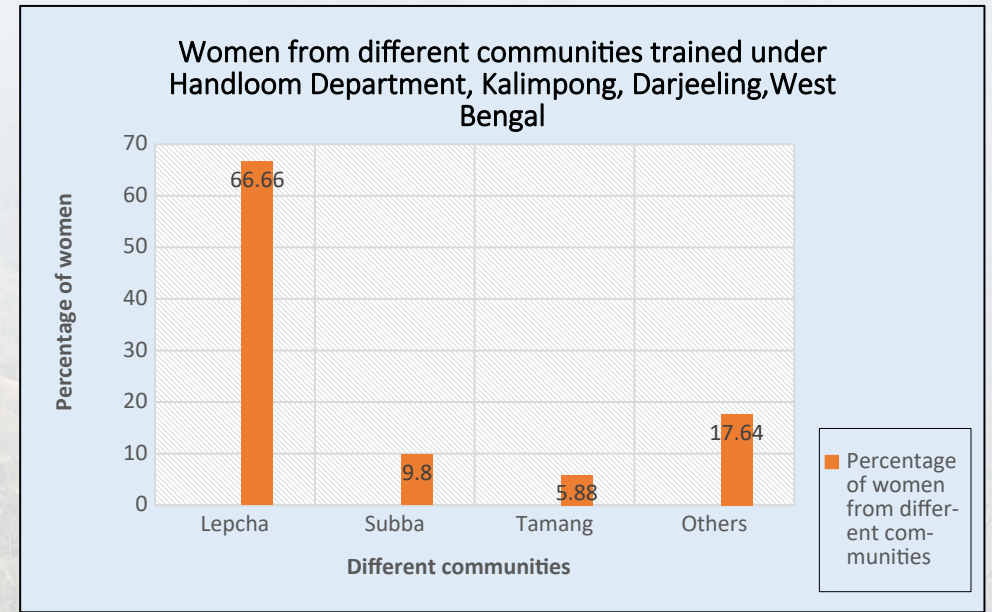
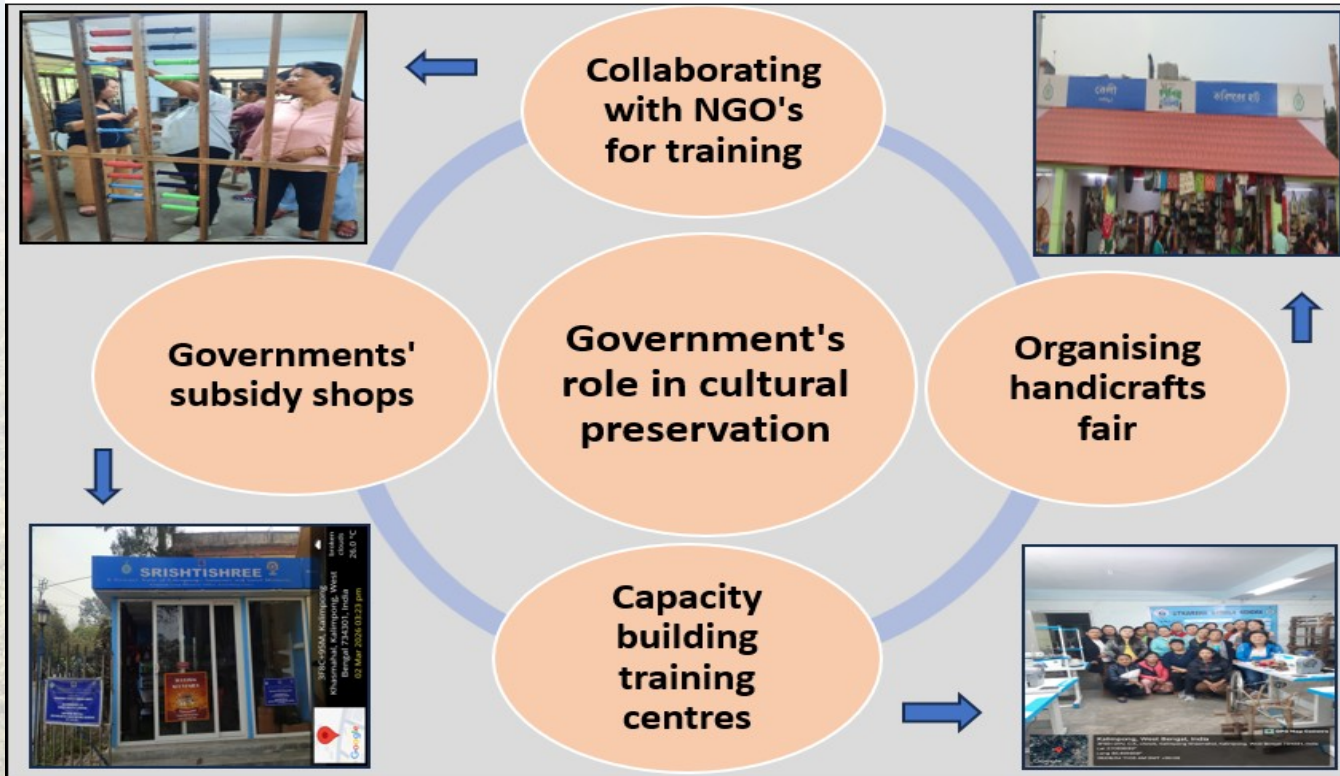


Fig.9. Collaborative measures for safeguarding Lepcha craftsmanship and capacity building among Lepchas in Darjeeling Himalaya



West Bengal Government's Training and Skill Development Dept. for Craft and Handloom training



NGO training center for Lepcha Handloom under Government's Scheme



Lepcha Handloom work using wool replacing nettle fiber



Handicraft fair organized by West Bengal Government to safeguard and promote traditional craftsmanship

## Conclusions & Outlook

- The indigenous knowledge of Lepcha community encompasses environment friendly craftsmanship through handloom and bamboo basketry using different forms of weaving technology which is sustainable for Darjeeling Himalaya.
- **Shifting of livelihoods, inaccessible resources have impacted the Lepcha craftsmanship leading to cultural erosion which is threatening to the Himalayan environment.**
- The collaborative approach between the Government, NGOs and the Lepchas by integrating cultural preservation methods will be able to safe guard Lepcha craftsmanship as cultural heritage to protect the environmentally fragile this Himalayan region in a sustainable manner.

## References

- Bain, K.W. (2021) 'Traditional Wisdom and Practices Involved in Bamboo Based Crafts of the Lepcha Community of North Sikkim - A Case Study from Dzongu Reserve Area Heritage', *Journal of Multidisciplinary Studies in Archaeology*, 9, 608-630.
- Bentley, J. (2008) 'Vanishing Lepcha: Change and cultural revival in a mountain community of Sikkim', *Bulletin of Tibetology*, 43 (1-2), 59-79.
- Das, A.K., Banerjee, S, K. (1962) 'The Lepchas of Darjeeling district: Special series', *Cultural Research Institute*, 2, 43-55, Calcutta.
- Faulkner, S.& Rama Mohan, K. R. (2021) Mayel lyang embodied: Traditional and contemporary Lepcha textiles. *Himalaya* ,40(2),97-107.
- Sharma, G. & Karolia, A. (2024) Lepchas and their Languishing craft-design culture. *Journal of Visual and Performing Arts*, 5(1), 97–108. DOI 10.29121/shodhkosh.v5.i1.2024.112 2
- Government of India (2025) Ministry of Tribal Affairs. 'Preserving Bamboo and Cane Crafts, Indigenous Traditional Knowledge Custodian, Lepcha Bongthing', Gangtok.
- Hooker, J. D. (1855) *Himalayan Journals*, London: Ward, Lock & Co.
- Sandgruber,R., Bichler-Ripfel,H.,Walcher,M. (2019) Traditional Craftsmanship as Intangible Cultural Heritage and an Economic Factor in Austria, *The Austrian Federal Chancellery & the Federal Ministry of Science, Research, and Economy, Republic of Austria*, 125-143, Vienna.

# Acknowledgement

This work has been possible to execute with the cooperation of Lepcha people, weavers, artisans, master trainers.

The institutions helped to carry forward the work are the Mayel Lyang Lepcha Development Board, Kalimpong and Kolkata, West Bengal, Hill Welfare Society & the Handloom Department of Kalimpong region of Darjeeling Himalaya.

AM & VP both are thankful to Mr. S. B. Gurung of Kalimpong, Darjeeling Himalaya for his immense help and Soham Das of Symbiosis International(Deemed University) for his support.

We are also grateful to Nangmee Lepcha for inviting us to witness her home based handloom work and permitted us to access her Instagram handle to gather information of Lepcha cultural heritage like handloom weaving.

## Contact Details

**Alolika Mangal**

**ICSSR Doctoral Fellow, (PhD 2<sup>nd</sup> Year)**  
***DEPARTMENT OF GEOGRAPHY & RM***  
***MIZORAM UNIVERSITY, AIZAWL, INDIA***

Email: [alolika.pinki@gmail.com](mailto:alolika.pinki@gmail.com)

Phone no: +91- 6291799509



2HCJ+WQ, Peming Khasmahal, West Bengal 734314, India scattered clouds 01 Mar 2026 01:07 pm 22.0 °C



Thank You!

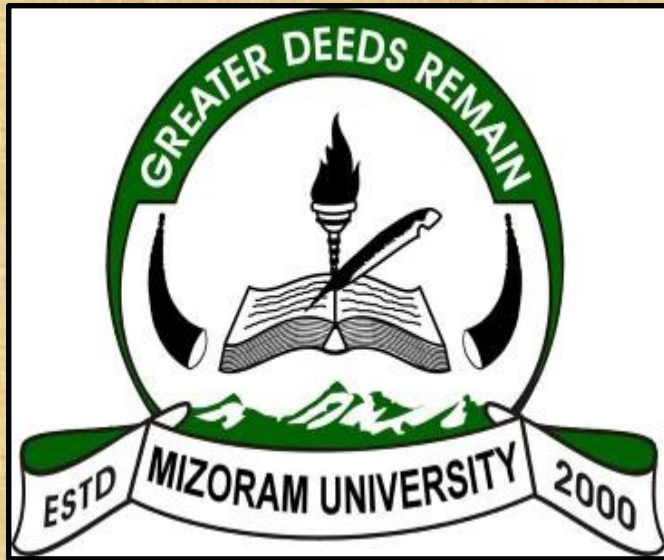
# Supplementary Materials

## THE ETHOS OF TRADITIONAL CRAFTSMANSHIP AS CULTURAL HERITAGE OF LEPCHA TRIBE OF DARJEELING HIMALAYA IN MAINTAINING ENVIRONMENTAL SUSTAINABILITY

Alolika Mangal<sup>1</sup> and Vishwambhar Prasad Sati<sup>2</sup>

<sup>1</sup>Research Scholar, <sup>2</sup>Senior Professor, Department of Geography and Resource Management,  
Mizoram University(Central), Aizawl, India

Email id: [alolika.pinki@gmail.com](mailto:alolika.pinki@gmail.com), [sati.vp@gmail.com](mailto:sati.vp@gmail.com)



**EGU** General Assembly 2026

This presentation participates in OSPP

**EGU**

Outstanding Student & PhD  
candidate Presentation contest

This presentation participates in OSPP

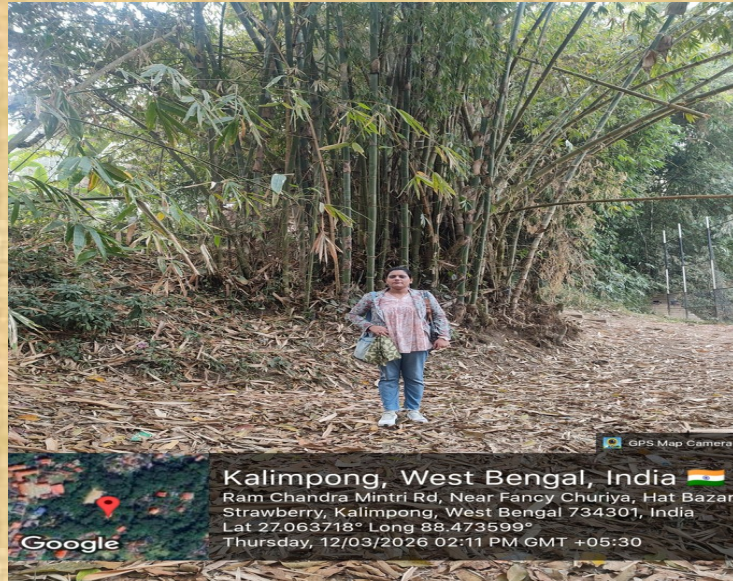
**EGU**

Outstanding Student & PhD  
candidate Presentation contest



#839080

# Availability of Bamboo and its manifold usages in the Darjeeling Himalayan Region



During field visit



Canes(choya strips) are prepared from bamboo for basketry



Lepcha households use bamboo made utensils



Bamboo basket for carrying products



Bamboo made musical instrument *flute* of the Lepchas has GI tagged

# Lepcha Handloom as Cultural Heritage



Lepcha Handloom Types	Description
Vertical Strip Pattern	Stripes of different colours
Geometric Focus	Patterns mostly
Symbolic Themes	Used less reflect nature
Motif Integration	Traditional motifs for dum-praa(men's garment)
Others	Arrow, insects

Availability of nettle(*sisnu*) for fiber



Colour dyeing for fibers



Fibers of different colors



Weaving on loom called '*thara*'

The integration of cultural preservation methods, environment conscious marketing of products, creating artisans' support mechanism, restoring traditional ecological knowledge



NGO is training Lepcha Women for handloom revival



Government's initiative to promote Lepcha handloom to save Lepcha Cultural Heritage

**Other Migrating Communities are using Lepcha Traditional Knowledge for livelihoods in this region**



*Rai- a migrating community is using Lepcha bamboo craft for selling food*



*Tamang-a migrating community is selling environment friendly Lepcha Bamboo Craft(cultural heritage)*

## Lepcha People's preference of economic engagement in recent times in surveyed villages of Darjeeling Himalaya

Sectors	Rank	Sectors	Rank
Service	2	Tourism	3
Educational	2	Marketing agricultural products	3
Administrative	3	Engaged in crafts and handlooms	5
Health	4	Engaged in construction work	4
Research	3	Homestay tourism	2
Business	4	Farming	1

\*highest rank is given as 1 and lowest rank is given as 5 on a 5-point scale



Shifting of economic activity of the Lepchas of remote villages to Broomstick Collection

## Lepcha Bamboo Basketry is used for Eco Villages & Homestay Tourism for Sustainable Livelihood by Different Communities of the Darjeeling Himalaya

