

EASTERN HIMALAYA

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Family farming in the Darjeeling Himalayas: Practice in transition



Transplanting finger millet

Family farm is an agricultural land owned and operated by a family, usually a plot of land passed down by inheritance. This may not be the same across all cultures, due to differences in the agricultural traditions and histories. The contribution of small and marginal farmers to total farm output in India is more than 50%, while they cultivate around 40% of land. Family farming usually includes such farmers who spend less financial resources, but intensive labour and cropping patterns with high crop diversity primarily of food crops. Livestock an integral part of family farming, especially in difficult agro-climatic regions like the mountains. Family farms also have the potential to shape mountain landscapes, and form important biodiversity rich areas that provide ecosystem services to communities beyond the farmlands.

For my PhD research I studied family farming of 2 communities from Darjeeling and Kalimpong districts of West Bengal i.e. Nepali and Lepcha. In the Darjeeling Himalaya production systems are predominantly land based with allied activities,

mainly managed by the family where > 50% of labour contribution is made by the family members. Thus in this system the family has control over resources and contributes to the required labour inputs. A close link between the farm and family is maintained as the farm is a place for both household income and food. Farming for these communities is also tradition where knowledge and practice is passed down through generations thus preserving culture and age old traditions. Since this system is not primarily dependent on external inputs it is closely linked with biodiversity and ecosystems and the services derived from them thus forming an integral part of the natural landscape. However, with technological innovations in farming practices (seeds, mechanisation, irrigation), commercialisation of agriculture from food to monoculture of cash crops, development of infrastructure, government policies (production focused), dearth of human resources, family farming is transitioning into more external input based market oriented occupation/models.

The study concludes that the majority of practitioners of family farming were marginal land holders. Their sources of income were diverse but primarily related to agriculture-farming, livestock management, poultry, piggery, agribusiness and in rare cases government and the private sector employment. Family farms from lower elevations were found to have more crop diversity and the majority of farmers preferred local varieties over government provided high yielding varieties. Food crops were mainly used for family consumption while for commercial purposes horticulture crops, spices and exotic vegetables were becoming more common. Livestock rearing unlike in the past was done more for dairy to augment the household income although livestock still remains key to farming practices. The middlemen ridden supply chain was the key barrier experienced by these family based farms as optimum price for the products was never achieved. Changing sectoral

¹ Baliwada H.,2018. Family Farming: Status and Strategies, New Age International Journal of Agricultural Research and Development,2(1) 21-32.

policies, farming practices, market linkages, improved infrastructure, dearth of human resources, crop depredation by wildlife, aspiration of the communities and climate change impacts seem to be some of the drivers that are changing the characteristics of family farming in the Darjeeling Himalaya.

(This article represents a brief outline of the dissertation that submitted to the Uttar Banga Krishi Viswavidyalaya for PhD in Agricultural Extension)

Norden Lepcha
(norden.lepcha@atree.org)

Two Days Training on making Biomass briquettes



A rocket stove and a few of the biomass briquettes

Under the project *"Transforming lives through Efficient Energy Technologies and restoration of degraded lands in the Tea landscape of Rangbang valley Darjeeling"*, funded by Norton LifeLock, we conducted 3 training events on making biomass briquettes for 107 women from 23 SHGs of Dhajea, Gopaldhara and Magarjung Tea Estates. We provided 12 sets of biomass-based briquettes moulding machines to the women's cooperative societies during the training. Post training the SHGs have made 300 briquettes and started marketing by demonstration and setting up stalls during local festivals, Government events like *Dware Sarkar*, agriculture fairs etc. Further, the participants were also trained on making Rocket stoves to use the briquettes. A total of 75 rocket stoves were made by the participants of Dhajea, Gopaldhara and Magarjung Tea Estates.

Sanjeeb Pradhan & Tenzing Sherpa
(sanjeeb.pradhan@atree.org & tenzing.sherpa@atree.org)

Training on Improved Cook Stoves (ICS) Construction & Installation in Tea Estates of Rangbang valley, Darjeeling



Building an Improved Cook Stove

We conducted 7 days ICS construction and installation training on 7th-13th Nov 2022 under the project *"Transforming lives through Efficient Energy Technologies and restoration of degraded lands in the Tea landscape of Rangbang valley Darjeeling"*, funded by Norton LifeLock. 14 participants (6 women, 8 men) were trained in ICS brick making and installation.

The training was organised to promote energy efficient technologies to reduce the use of firewood for cooking and to develop the capacity of local women and youth as ICS promoters and technicians within the project sites and beyond. The training included an introduction about ICS and its importance on reducing the effects of smoke specially for women and children; environmental and health benefits in comparison to traditional cookstoves. During the training event, participants were able to construct and install 5 units of Non-commercial and 2 pothole ICS models.

Sanjeeb Pradhan & Tenzing Sherpa
(sanjeeb.pradhan@atree.org & tenzing.sherpa@atree.org)

International Symposium on Nature Culture Linkages and Eco-Disaster Risk Reduction: Strengthening Bonds, Building Resilience



Participants at the Symposium in Dehradun

This international symposium was organised by the Wildlife Institute of India - Category 2 Centre (WII-C2C) for World Natural Heritage Management and Training for the Asia-Pacific Region, under the auspices of UNESCO, at Dehradun, India. I represented ATREE Eastern Himalaya and delivered a talk on “Devithans as biocultural sites for assessing effective management planning in the socio-ecological landscapes around Khangchendzonga National Park, World Heritage Site, West Sikkim India”. The talk revolved around Devithans as privately owned commons and their importance in the management planning of the socio-ecological landscapes around Khangchendzonga National Park, World Heritage Site. Devithans as sacred natural sites was introduced to the audience, and the field work around it was presented to showcase its intrinsic nature-culture linkages. Thereafter its potential contribution to biocultural conservation was emphasised. The talk concluded with the threats associated with these sacred spaces and its linkage to the concept of resilience.

Abriti Moktan
(abriti.moktan@atree.org)

Regional Consultation on Scoping studies for Reversing Environmental Degradation in Africa and Asia



Participants at the regional consultation in Guwahati

Reversing Environmental Degradation in Africa and Asia (REDAA) initiative comes at a critical and opportune moment when the United Nations declared this as a decade for restoration. The regional consultation on Scoping studies for REDAA was organised by ATREE in Guwahati on 18th November 2022 to identify the key landscapes in the Eastern Himalaya. 27 participants attended the meeting in person and 10 were virtual participants. The participants represented 7 North Eastern states in India and hill districts of North Bengal.

A list of sites, landscapes, criteria for the selection of those sites, and tools, enablers, and

barriers for landscape restoration from those sites were identified by the stakeholders. 22 sites were identified from Northeast India. Nature based solutions, reconciling traditional practices, inclusion of indigenous local knowledge, modernity of traditional practices, policies to support various institutions for better governance, threats of environmental degradation, and restoration activities were identified by all the participants.

This regional consultation supported by ICIMOD is a preliminary discussion consolidating the requirements for achieving the objectives of the consultation process for REDAA.

Abriti Moktan
(abriti.moktan@atree.org)

Climate Smart Agriculture practices promoted



Participants at the Climate Smart Agriculture Training

ATREE Darjeeling under the project “Strengthening resilience and reducing vulnerabilities of rural communities of Africa and Asia” supported by Norwegian Cooperation Exchange Program (NOREC) organised 4 days training on Climate Smart Agriculture. 30 farmers from 4 villages of Kurseong Sub-Division participated in the event.

The training included techniques of zero tillage farming, vermicomposting, practices of farm yard manure, livestock management, bio-pesticides, liquid manures, soil management and crop diversification focusing on integrated farming practice towards the production and supply of organic and healthy local produce. Four learning platforms like, farmers' classroom, practical

demonstration, hands-on practice & field observations were used during the training sessions to engage the participants & ensure active participation.

Tshering Bhutia
(tshering.bhutia@atree.org)

Biomass Briquette

ATREE Darjeeling under the project "Strengthening resilience and reducing vulnerabilities of rural communities of Africa and Asia" supported by Norwegian Cooperation Exchange Program (NOREC) - organised two days training of biomass briquettes for 16 women of 3 SHGs. The training focused mainly on practical demonstration and hands-on practices which ensured each individual trainees being able to learn to make briquettes independently. ATREE also provided 3 sets of biomass-based briquette making moulding machines to participating SHGs. Post the training events, trainees have made 450 pieces of briquettes collectively and sold 182 pieces of briquettes at the rate of Rs. 30 per briquette.



Community member spreading out the Biomass Briquettes for drying

As a part of the project ATREE also organised a one-day event to link them to the market through Rimbik Fresh an entrepreneurship started by Mr. Mingma Girmi Sherpa

Tshering Bhutia
(tshering.bhutia@atree.org)

Namprikdang Namsoong Festival

Namprikdang Namsoong festival is celebrated every year in Namprikdang Dzongu North Sikkim with an aim to preserve & promote Lepcha culture & traditions. Organised by the local communities of Dzongu valley, the main highlights

of the festival are showcasing Lepcha culture (song and dance), traditional sports, local cuisine, local products, traditional attire etc. This is one of the oldest community festivals in the state which started in 1976. This is now a State Level event known as the Namprikdang Namsoong Festival. In this festival (29th-31st December 2022), the Minister of Rural Development Department, Government of Sikkim released a film we made on the Sustainable and Healthy Food System (SHEFS) project which highlighted the key insights from the research work "Impact of changing agricultural practices on food systems in Dzongu, Sikkim, India".



Pema Yangden
(pema.yangden@atree.org)

Mapping Alien Invasive Plant (MIAP) species in Darjeeling & Kalimpong



(Left to right))ATREE Researcher documenting invasives; Lantana camera; Eupatorium adenophorum

As part of the project "Value-Added Products from Invasive Plant Species for Improving Livelihoods of Marginalised Communities in Indian Himalaya" supported by Department of Biotechnology, under Himalayan Bioresource Mission we have started mapping alien invasive plant species. This is done through Google's application Open Data Kit (ODK collect) to upload information on invasive plant species. A successful trial on using MIAP was conducted by the project team. We hope to use this as a tool to train students and other stakeholders to document alien invasive species in the region.

Yougesh Tamang
(yougesh.tamang@atree.org)

New Publications:

1. "Shifting to settled agriculture: Experiences from Dzongu valley, North Sikkim, India" by Sarala Khaling and Pema Yangden Iepcha.
https://www.researchgate.net/publication/367023644_shifting_to_settled_agriculture_experiences_from_dzongu_valley_north_sikkim_india
2. "Shared Springs: How People in Rural Sikkim Source Water" by Abriti Moktan and Sarala Khaling.
<https://medium.com/centre-for-social-and-environmental-innovation/shared-springs-how-people-in-rural-sikkim-source-water-134d3e9f720>
3. Pradhan, A. (2022) "Yellow-bellied Weasel *Mustela kathia* preying on a rat *Niviventer* in Darjeeling, India", *Small Carnivore Conservation*, 60.
<https://smallcarnivoreconservation.com/index.php/scc/article/view/4700>
4. "Monitoring the Critically Endangered White-bellied Heron, *Ardea insignis*, in Namdapha Tiger Reserve, Arunachal Pradesh, India" by Yumlam Benjamin Bida, Rohit George, Tajum Yomcha and Sarala Khaling
<https://www.heronconservation.org/JHBC/vol07/art06>

New Staff:



Ms. Susadhana Gurung (MSc. Zoology) has joined the Pangolin Conservation Project as a Research Associate.



Mr. Dupjang Lepcha (MSc. Botany) has joined as Research Associate for an assignment to assess the key issues in the socio - ecological landscapes between Singalila National Park & Sanchel Wildlife Sanctuary, Darjeeling



Mr. Passang Nima Sherpa from Dilpa village of Darjeeling district joined the Norton supported project

New Grants:

1. Rufford Small Grants to Aditya Pradhan: "Conserving and monitoring woodpeckers and other birds in the differently-managed forests of Darjeeling, Eastern Himalaya, India"
2. The Habitats Trust Grant: Saving the White-bellied Heron in Arunachal Pradesh, India

ATREE's mission is to promote socially just environmental conservation and sustainable development by generating rigorous interdisciplinary knowledge that engages actively with academia, policy makers, practitioners, activists, students and wider public audiences. ATREE's Northeast / Eastern Himalayas Programme has a direct presence in the Darjeeling and Sikkim Himalaya with a range of local partners in the other states of North East India.

For more information contact:

Dr. Sarala Khaling
(sarala.khaling@atree.org)

Rohit George
(rohit.george@atree.org)