



Drying kokum fruits in the sun before they are made into other products. The rinds are used to make beverages.

Gender responsive value chain development and the conservation of native fruit trees through an inclusive learning process: a case study in Western Ghats, India

Hugo Lamers¹, Narasimha Hegde², Ewa Hermanowicz³ and Marlène Elias⁴

¹LIFE Trust, India
^{1,3,4}Bioversity International, Italy



Background and context

Kalagadde-Kanchigadde village is located in the remote and biodiversity-rich forest of the central Western Ghats of India, where more than 75% of the land is under forest cover. Farming, agricultural wage labor and gathering of forest resources are the primary livelihood activities of the villagers in this area. Pressure on forests has increased in the last two decades due to increasing commercial interest and thus prices and interest for non-timber forest products (NTFPs) has increased. Tribal and lower-caste groups like the Siddis and Khare Vokkaligs depend heavily on diverse forest resources for food, medication and income purposes. They have rich knowledge about forest resources but are often least benefitting from emerging

NTFP based markets due to limited knowledge, skills and involvement in value chains. These impoverished households with limited or encroached landholdings, who depend most on native fruit tree product collection, are often least involved in forest management institutions and related programmes, resulting in unsustainable harvesting practices and degraded forests.

Women are often overlooked in forest management although they are important collectors, managers and users of forest resources. For instance Yenki, an elderly Siddi woman from the Kalagadde village, has very rich knowledge about NTFPs. She learned how to climb trees to collect fruit as men within her family refused to do it.



Yenki Siddhi collecting kokum fruits (Garcinia indica) from the forest near her village

Although collection from large trees is traditionally a task for men, women of these lower-caste groups often climb trees as men are fully occupied as wage labourers on farms. Yenki explained that she was forced to collect and sell NTFPs besides taking care of household chores, as the daily wages earned often did not provide sufficient income for their livelihoods.

Biodiversity International and LIFE Trust (a local NGO) conducted a sequence of participatory research activities in Kalagadde-Kanchigadde to improve incomes earned from forest resources and make *insitu* conservation activities more gender and socially inclusive. The hypothesis was that inclusive learning about the differentiated knowledge and skills related to the conservation and sales of forest resources helped create a win-win situation with improved livelihoods and increased sustainable management of the forest.

Strategies employed and key activities

The villagers selected three native fruit trees of interest which were the focus of all activities: *Mangifera indica*, *Garcinia indica* and *Garcinia gummigatta*. The research process started with two meetings in the village with participatory exercises to understand, share and learn from the men and women of mixed ethnic background about their knowledge and skills related to these three species. These exercises were followed by a sequence of four value chain development activities targeting especially women to engage in the



Processing kokum fruits (*Garcinia indica*) for a juice. The fruits are cut in half, the flesh scooped out, sugar added and a syrup collected

sales of processed and higher value NTFPs to increase their income from forest resources. In total the exercises took ten full days over a period of twelve months.

Knowledge mapping activities

The first activities focused on identifying differences in knowledge and skills related to selected native fruit trees between women and men from different socio-religious and cultural groups. Methods used included resource mapping, biodiversity assessment (Four cell analysis) and creating a fruit and activity calendar. Participants conducted activities simultaneously in age and gender differentiated groups (i.e. young men, young women, older men, older women) then shared knowledge and results in plenary discussion. They drew maps of their landscape to identify availability and distinct source locations. They used

Four cell analysis to identify native fruit tree richness including those in abundance and under threat, and used fruit and activity calendars to display knowledge related to tree biology and propagation, collection, processing and sales practices.

Value chain development activities

A street theatre play was performed to the wider community telling the story of the 'square mango' to explain and discuss the functions and concept of a value chain, the importance of listening to consumer demand and the importance of collaboration among farmers and with traders to be able to make improvements in the value chain. A discussion was held afterwards to evaluate similarities or differences with daily life and to discuss the major lessons they learned from the play. Subsequently, participatory value chain mapping (PCVM), participatory rapid market appraisal (PRMA) and exposure visits were used to encourage and involve local women in the processing of various native fruit trees. Eight to fifteen women were identified by the community to participate in these value chain development activities, sometimes including a few men to accompany them. These activities gave them an opportunity to draw value chain maps of target NTFPs, interview traders and retailers and visit successful entrepreneurs and processing groups.



Drying kokum fruits in the sun before they are made into other products. The white kokum fruits are used for medicinal purposes

Results

Socio-economic impacts

Participation in the activities led to important socio-economic impacts and empowerment opportunities for

many women in the community. The LIFE Trust team observed that discussions were lively in Kalagadde-Kanchigadde; participants were very active and enjoyed the exercises. The subgroups made the exercise into a kind of game to present the most detailed knowledge in their field of expertise and felt pride in presenting it to the other groups.

The social learning process helped women and men realize the importance of sharing local knowledge. For instance, elder women of the Siddhi such as Yenki knew more about the richness of native fruit trees and their multiple uses, while men in general knew more about source locations and markets. Women from higher caste groups and affluent households knew most about particular processing activities and recipes connected to native fruit trees. Many of the female participants had the opportunity to share their knowledge and opinions for the first time in front of a mixed gender group, boosting their confidence.

Relationships were created between people from different groups, who previously were not collaborating due to certain norms between members of different castes. This led, for the first time in the community, women of different ethnic backgrounds to form a self-help group called Matrabhoomi (Mothers' Land). The group currently consists ten members including Yenki. Through the various participatory activities, the members of the Matrabhoomi group learned how to sell their products directly to local retailers and farmer cooperative shops without the assistance of LIFE Trust to generate sales. The activities helped women understand the marketing process around native fruit trees and learn how to better sell their products at the market. This gave

them the opportunity to improve their marketing skills and earn more money.

One of the most prominent native fruit resources in Kalagadde-Kanchigadde village is *Garcinia indica*, which is used to produce kokum¹. There is high demand for the kokum product from hotels, juice centres, local stores and local villagers (see Table 1). They produce and sell kokum juice in Goa, Darwad/Hubli Bangalore and Sirsi. The group started to produce other products as well, such as jackfruit papads², dried banana chips, jackfruit chips and sambar powder. Kokum juice and banana chips are the most popular products.

"In our village, people from different age, gender, caste, rich and poor have gathered to discuss issues related to native fruit trees; we will supply the raw fruits to the new women's group as we know how to climb the tree and harvest its fruit, and other members will do the processing, packaging and marketing," Mrs Yenki (older Siddi group member)

"For the first time in our village, women of different ethnic and caste groups decided to form a women's group called Matrabhoomi (Mothers' land) and started producing kokum juice concentrate. We managed with great success, as the first batch of 350 litres was well received by shopkeepers as a natural product of high quality," Mrs Nagaveni (women's group leader of Matraboomi)

Biodiversity impacts

The Four cell analysis activity was a great tool for locals to have a better understanding of which native fruit trees were abundant and which were under threat. This helped to gain local interest and support for future conservation activities for specific native fruit trees, such as planting



Mother of the leader of the Matrabhoomi women's self help group, sits in her kitchen with jackfruit from the forest near Sirsi, India.

schemes which are implemented by Village Forest Committees and the Forest Department. Several male and female participants noted that sharing their knowledge about the status of various forest species with other groups has developed a communal incline to adopt sustainable harvesting practices.

"Now that we have learned about all the species that are under threat, it is our responsibility to conserve them by adopting sustainable harvest and usage practices and by cultivating them," Mrs Parvati (older women of Siddi community)

"Throughout the process we learnt a lot about various native fruit trees available in our village and surrounding forests, their abundance, threat status and to some extent how to manage them sustainably," Mrs Nagaveni

Sustainability and replication

The research process has allowed men and women to increase their skills in producing and marketing NTFPs, but also share ideas around implementing more sustainable harvesting measures to conserve threatened species. These activities have now been replicated in two other villages where people have formed farmer producer companies to promote sustainable production methods and collaborative governance of natural resources.

Table 1. The table below portrays the amount of kokum juice produced by the Mathabhoomi group from 2012 to 2016.

	2012	2013	2014	2015	2016
Volume (kg)	20	150	350	500	600
Revenue (US \$)	47.7	358.08	835.51	1193.58	1417.38
Active members	12	12	12	11	11



Yenki Siddhi, has been collecting kokum fruits (*Garcinia indica*) from the forest near her village since a child

Notes

¹A fruit bearing tree from the mangosteen family used for culinary, medicinal and industrial purposes

²Made from raw jackfruit, it is a special product that is fried and used as chips



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Contacts:

Bioversity International

Via dei Tre Denari, 472/a
00054 Maccarese (Fiumicino), Italy
Tel. (+39) 06 61181
Fax. (+39) 06 6118402
bioversity@cgiar.org

www.bioversityinternational.org

Key Partners

Bioversity International, Italy
LIFE Trust, India

Suggested readings

Hegde, N., M. Elias, H. A. H. Lamers, and M. Hegde. "Engaging Local Communities in Social Learning for Inclusive Management of Native Fruit Trees in the Central Western Ghats, India." *Forests, Trees and Livelihoods* 26.1 (2016): 65-83.

<http://www.bioversityinternational.org/news/detail/through-the-lens-women-from-the-western-ghats-forest/>

<http://www.bioversityinternational.org/news/detail/native-fruit-trees-of-life/>

http://www.bioversityinternational.org/fileadmin/user_upload/online_library/publications/pdfs/Making_Research_Gender-responsive_in_Kyrgyzstan_Native_Fruit_Trees_of_Life_1718.pdf

<http://peoplefoodandnature.org/blog/bearing-the-fruit-of-action-gender-responsive-participatory-research-and-collective-management-of-native-fruit-trees/>

<http://peoplefoodandnature.org/blog/bearing-the-fruit-of-action-gender-responsive-participatory-research-and-collective-management-of-native-fruit-trees/>

Suggested videos

<https://www.youtube.com/watch?v=Zl8tqITjWdM>

All pictures: Bioversity International/E. Hermanowicz