

Strengthening local food systems through kitchen gardening in Bhimashankar Wildlife Sanctuary

An exploratory study on women's knowledge and knowledge sharing practices

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KG → Kitchen Garden

BWS → Bhimashankar Wildlife Sanctuary

WSH → Women Self-Help Groups

INTRODUCTION

Agrobiodiversity is a main driver for sustainable agricultural livelihoods and the construction of food sovereignty. Local self-reliance of healthy, locally available, culturally sound and nutritious food is crucial to ensure ecological, livelihood and cultural security of those most critically dependent on agrobiodiversity. In the villages nested in or in the surrounding areas of the Bhimashankar Wildlife Sanctuary (BWS), Adivasi¹ women play a vital role in subsistence farming and forest food gathering practices, and are crucial both in seed conservation and the consumption of forest products. Locally led gatherings such as wild vegetable festivals and the informal dissemination of information about the nutritional and medicinal benefits of wild vegetables and local agriculture seed varieties in the past few years have set the ground for the appreciation of wild vegetables and seed saving practices. Moreover, instances such as the Women Self-Help Groups (WSG) have proved successful in ensuring women have a safe space within their communities to gather, share and mobilize on different issues. Yet, local food varieties use and consumption remains a challenge, along with household food self-sufficiency.

In this context, gender has been widely used to understand the differences in agricultural households, from male and female unequal access to rural livelihoods to disparities over the management, allocation, and ownership of forest resources. Nevertheless, little attention has been put to gendered knowledge, that is, to the specific experience and practice Adivasi women hold to ensure household production of culturally and environmentally appropriate food. Kitchen gardening remains as a fundamentally female led activity, and although women's level of engagement with kitchen gardening in different villages across BWS varies widely, there is widespread awareness of the benefits of this practice.

However, little debate and attention has been paid to the ways in which women perceive and value their own knowledge on kitchen gardening, nor to if and how such knowledge is transmitted across generations. Thus, the understanding and articulation of these practices as women perceive and locally transfer them is crucial for the promotion of any women-led activities related to household farming and food.

PURPOSE OF STUDY AND APPROACH

¹ Adivasi means first settlers, and is the term used to describe India's indigenous groups. They are classified as Scheduled Tribes in the Constitution of India. The Government of India does not consider any specific groups as 'indigenous' since it claims all citizens to be indigenous.

The boundary between the so-called productive and subsistence tasks are permeable for smallholder farming communities. The introduction of cash crops and monoculture has led to a reductionist view of agricultural knowledge, where higher yields and centralization are often prioritized while other knowledge systems focused on kitchen gardening and subsistence farming are rendered backward. In BWS, kitchen gardening knowledge is female and passed down from generation to generation of women. Ranging from sowing wild vegetables and seed saving, to composting and pest control, women are the main sources of knowledge for kitchen gardening. Such practices illustrate the need to recognize knowledge as gendered, as well as the practice of generating and sharing it. In an effort to contrast theory and practice, and provide an analytical foundation to this knowledge mapping exercise, the following approaches were taken to develop and put into action this exploratory study.

On gendered knowledge

Dominant notions of smallholder farming as a predominantly male-based activity (Deere, 1995) contribute to women being displaced from controlling and having access to natural resources and agricultural opportunities. Resources in smallholder farming systems are typically allocated based on power and status within the household, which is commonly male (Beuchelt, 2016), and power imbalances within households shape the way a farmer is defined, as well as how women's contributions to agricultural production schemes are regarded.

Access to knowledge creation and sharing opportunities is inextricably linked to status and power within smallholder farmer communities and little attention has gone to women's uneven ability to access the same agricultural resources and opportunities as men or for agriculture education strategies to cater to women's distinct needs. A production-oriented definition of a farmer excludes subsistence agriculture or production intended for household consumption—here referred to as kitchen gardening—, which women are commonly responsible for (Barbercheck, 2020). Therefore, a gendered understanding of knowledge, and a careful analysis of women's ability to access, create and disseminate their own agricultural values and expertise is needed for equitable farming practices.

The gendered division of knowledge must be considered to be able to go beyond incorporating women but actually placing them at the forefront of farming practices and opportunities. The overarching objective of this approach is to understand and analyze the role of women as holders of kitchen gardening knowledge and practice, and therefore as crucial for the social and physical reproduction of Adivasi communities.

On knowledge and sharing as catalyzers for food sovereignty

Knowledge is a key signifier of power, and it shapes women's agricultural experience and practice. However, can we think of knowledge as a necessary means for the construction of food sovereignty? While the 'knowledge is power' analogy offers inspiration, it does not reflect Adivasi women's efforts to have access to knowledge, or their ability to absorb and retain it without it being replaced or co-opted by other knowledge systems.

The possibility of egalitarian farming systems is directly related to women's access to knowledge creation and sharing opportunities. Therefore, understanding the relationship between local agricultural knowledge, sharing practices and knowledge generation is necessary for community engagement in the use and participation of locally and environmentally relevant subsistence farming practices.

Horizontal knowledge sharing methods provide an opportunity to leverage women's agricultural experience, best practice, and values. Drawing from cultural frameworks that are shared among women within the same community, this strategy is founded on a praxis-based model. Based on the notion that most household food related issues have common and local solutions, this approach is inherently linked to the creation of sustainable food systems, where knowledge is generated, shared and transferred simultaneously. In other words, women use their own empirical experience and combine it with sharing practices. The transformative potential of this approach lies in its ability to meet the needs of specific contexts, farming systems, and farming conditions (Holt-Gimenez, 2006). Leveraging women's knowledge and expertise in agriculture is necessary to provide women and men with equally accessible and safe environments to learn and share.

METHODOLOGY

Women's narratives are oftentimes not recorded nor accounted for and traditional survey based research methods and structured interviews are not able to capture gender-based differences nor involve women in the co-creation of qualitative data. The methodology used for this knowledge mapping exercise seeks to ensure that while women are collectively sharing their current knowledge and knowledge sharing practices, they are simultaneously able to reevaluate it. This knowledge mapping exercise aims to bridge the gap between women's subsistence farming knowledge and potential avenues for knowledge sharing practices amongst the WSHG and across villages in BWS. This study remains a work in progress and in the long term, it seeks to leverage women's organizing capacity and to cater to gender-specific ways of disseminating local knowledge and experience.

This knowledge mapping exercise is part of a collective envisioning of food alternatives that seriously recognize women specific knowledge of subsistence farming and food production activities. Women's knowledge reivindication and revaluation –on natural farming techniques, on kitchen gardening, and on the value of forest/native fruits and vegetables– is key for maintaining culturally and environmentally sound local food systems. The intersectional approach to knowledge –practical, experiential, cultural and gendered– aims to ensure a comprehensive understanding of women's knowledge and skills as it relates to subsistence farming, and leverage its revaluation for the creation of independent knowledge sharing networks.

Data collection consisted of 2 focus groups, 8 semi structured interviews and field observations conducted in Bhorgiri, Bhivegav and Yelavali villages. Semi structured interviews lasted approximately 1 hour each, they were conducted in women's households and later transcribed. Focus groups lasted approximately one and a half hours each and relied on visual and hands-on methods such as drawing, picture interpretation, and discussion among participants to promote reflection. Visual and creative mediums allow collaborative knowledge sharing and generation, and the aim of using such methods was to promote meaningful participation and understand the nuances of the ways in which women traditionally share experiences and expertise on kitchen gardening. A detailed breakdown of the methodology used can be found in **Annex 1**.

WHAT DOES KNOWLEDGE MAPPING CONSIST OF?

- Identify 'knowledge holders'
- Identification of current knowledge on kitchen gardening, natural farming practices, seed conservation, pest control, and forest product knowledge.
- Identify ways in which these women have previously shared, transferred or inspired other women

- Identify current collaboration schemes related to subsistence farming and the food system.
- Identify women leader skills (who is good at public speaking, mobilizing, showing her practical experience)
- Identify what strategies or skills do women value in their own leaders.

KNOWLEDGE MAPPING MAIN OBJECTIVES

- Document women's subsistence farming related knowledge.
- Map women farmers knowledge holders and understand the specific skills and expertise they hold.
- Map women skills related to kitchen gardening , leadership and communication.
- Map and document if and how subsistence farming knowledge is transferred among women
- Map and analyze women's notion of food insecurity and food sovereignty

BASIC PREMISES FOR THIS METHODOLOGY

- Women act as active participants to document and map their own knowledge.
- Facilitators create a safe space and relaxed atmosphere, with mutual levels of trust between facilitators and participants.
- Discussion and reflection among women is promoted for the co-creation of qualitative data.
- Focus groups and semi structured interviews provide a focal point for future processes, and data corroboration is performed collaboratively with women.

LIMITATIONS

The nuances and different insights that this type of participatory research method has already been discussed as worth highlighting. Yet, creative and visual focus groups have their own limitations. For example, interest and enthusiasm for drawing and using markets was combined with hesitation and unfamiliarity on how to use the material provided and what exactly to draw and discuss. To this point, the local team's guidance and explanations was crucial for encouraging women to participate.

Moreover, the time when this research was conducted coincided with the rice transplanting season in BWS, which meant that women were overburdened with agricultural work. This translated into less time to gather in focus groups in a relaxed manner. Additionally, due to time limitations to conduct this research and to perform participatory data-corroboration, results and insights from this study remain exploratory. It is worth noting that language barriers and translation and triangulation of information from Hindi, Marathi and English might have an effect on the interpretation of words and language nuances. Lately, cultural inhibition from women due to participation in a completely new activity –which included an outside researcher– must also be taken into account.

MAIN TAKEAWAYS/DISCUSSION

On women's kitchen gardening lived experience

Kitchen gardening in Bhorgiri, Bhivegav and Yelavali villages is predominantly a seasonal activity, with monsoon season being the most productive. Most mentioned vegetable varieties sown during monsoon month include beans, chili, eggplant, cucumber, ridge gourd, bitter gourd, turmeric, ginger, drumstick, pumpkin. Most common fruits include papaya, jamun, guava, jackfruit, and mango. During summer less

than half of the women that participated in this study mentioned continuing their kitchen gardening practices. Those who did, mentioned being able to grow only varieties such as fenugreek, amaranth, chili and eggplant. Water scarcity came up as the biggest challenge for women to be able to maintain their KG, alongside land and space availability. To these challenges, several women mentioned finding resourceful solutions, such as

Water scarcity and lack of land availability are constantly mentioned as the main challenges for maintaining a KG. Women find resourceful ways to counter these challenges, such as using waste water to tend to their KG, and growing climber vegetables -such as bean and-, as well as more resilient varieties on slopes and on the fringes of their household when limited by space. Following these challenges, pest attack wild and domestic animal crop raids appear to be the third and fourth most mentioned challenges, respectively. Wild boars, rats and goats are prone to eat and destroy KGs if left ungrounded or without a fence. Most women are knowledgeable on natural pest control methods, mainly using ashes, cow urine, and holy basil . Only a couple of women mentioned using chemical pesticides to control pests.

On autonomy and availability

The KG appears as the main go-to-place for women to have readily available fruits and vegetables, and appears more in conversations than forest gathering. Yet, when discussing forest gathering practices and relationships, women emphasized the fact that wild vegetable season coincides with the best season for KG, which is during the rainy months. The majority of women mention gathering kurdu, chaya, bharangi, and celosia leaves, crabs and fish from the forest, and appear to be aware and knowledgeable about the nutritional and health benefits of these products. For instance, kurdu is mentioned as good for anemia and kidney stones, tondya for indigestion, and katemath is used for high blood pressure. Some women mention going into the forest to bring specific saplings of VW to be grown in their KG. However, older women interviewed mentioned not having the stamina to go food gathering in the forest anymore, and therefore having to rely more on the products grown in their KG as they grow older.

Easily available and healthy food comes up as the main reason why women feel proud and happy about being able to grow and eat their own food. When yield is good from KG, women mention feeling content about not having to travel long distances to the local market and spending on produce.

Anything that is not in their KG women mention having to buy from the market, specially ladies finger, spinach, potato, onions and flower and cabbage. There is uniform awareness about the advantages of naturally grown produce, and on the harms caused by pesticides or 'chemicals' -as women describe them- on vegetables and fruits bought in the market. Quality and taste from KG products is perceived as superior, and feelings of autonomy because of KG are shared among all the women interviewed. "Whenever I need anything, I can just pluck it from the garden". Moreover, preference for KG is also related to household's lack of available storage -given most households do not own a refrigerator, fresh products are only available through the KG.

On seeds and food preferences

Seed availability determines what is grown in the KG and the large majority of women mention knowing and practicing seed saving. Most women keep their seeds in a plastic bag or plastic container, while only a couple use gourds and gourds with ashes as containers. Certain seeds are preserved from vegetables previously bought from the market, such as chillies and eggplant, while the majority appear to be locally exchanged. Informal seed exchanges are practices between women, relatives and neighbors. Women mention knowing how to preserve seeds from vegetables previously bought from the market -such as

chillies and eggplant— and only a couple talk about buying seeds or saplings for their KG. During the focus groups, several women mention remembering seeds their mothers and grandmothers use to sow that are not available or commonly used anymore. For instance, certain types of beans were mentioned as varieties that used to be grown by older women and which seeds are no longer in use.

Women discussed the varieties grown in their KG are based on what is most consumed in their homes and based on what they like. Alternatively, when asked what they would like to grow, seed availability is mentioned as the main problem. Celosia appears as the dearest and favorite variety for women to grow in their KG. This wild vegetable is present in all the KG we visited, and was mentioned and discussed several times amongst women. Reasons for liking this variety go from taste and nutrition, to tradition and having had it in the household since childhood.

On women's knowledge and space for decision making

While decisions on what is grown in the agricultural field are most commonly taken by men, decisions on what is grown in the KG are taken solely by women. In BWS, the KG appears as a space for women to make their own decisions and put into practice their knowledge on vegetables and fruits for household consumption. However, and although men are rarely involved in any KG activities, women heavily support agricultural field work. This is particularly important to emphasize given kitchen gardening and rice transplanting activities overlap during monsoon season. Additionally, and worth highlighting, is that women are responsible for activities such as fetching water, cooking, cleaning and other household labor that often goes unacknowledged.

Additionally, sharing produce from their KG among neighbors and relatives is a common practice. Most women mention having been exposed to KG since their childhood, and later sowing seeds on their own when marrying and/or moving villages. In regards to wild vegetable knowledge, women mention remembering accompanying their parents to the forest and learning from such treks. Knowledge and best kitchen gardening practices appear to be commonly exchanged through informal ways, either by visits or by word of mouth. It is worth highlighting the fact that women appear to highly value seeing and experimenting with their own hands as a method for learning. For instance, the chula —traditional wood fire stove— and bhanus —traditional kitchen spaces where spices and salt are kept— came up as areas where knowledge is transferred, alongside mentions of cooking and recipes as ways of learning about wild vegetables. When asked whether there was interest in sharing their knowledge and visiting other women's KG with the intention of exchanging best practices, all women agreed this would be useful and expressed interest in doing it. Yet, when inquiring about how they envisioned this happening no clear preference nor idea was mentioned. Interestingly, women hesitated a lot when thinking about what they wanted to learn or know more about, and the last activity of the focus groups -when asked what it was that they wanted to learn more about— was the hardest for them to answer.

Potential Opportunities and Recommendations

As mentioned before, the KG is a women led space, that is, a safe place for women to make decisions based on their preferences and local knowledge. Therefore, enterprises that stem from this space can perhaps be more easily accepted by men, especially those that could potentially provide an additional income to the households. This exploratory research hopes to become the foundation of participatory knowledge sharing practices and activities that put special attention on women's kitchen gardening and food related knowledge as a crucial component for the construction of food sovereignty. The following opportunities listed below are based on the idea that localized knowledge sharing practice can be the

driver for stronger food systems, with the caveat that these would require further inquiry to be put into practice, as well as consultation with the community.

- Turmeric and ginger appear to be grown in all the KG visited and a couple of women mentioned knowing how to dry, grind and transform these tubers into powder for cooking. These varieties' availability and use throughout the year could provide an opportunity for women to packet and sell these condiments.
- Given potatoes, onions and spinach are mentioned as crops mostly bought from the market, there is an opportunity for adding these varieties to women's KG provided there is enough space and water availability.
- Seed availability determines what is grown in the KG. Therefore, creating opportunities for more formalized exchange opportunities, and eventually having dedicated spaces for seed storage and exchange, can help expand the varieties currently sown in KG.
- Encouraging women to talk and share what their KG best practices through in different mediums –such as in WSG, women Gram Panchayat meetings or in more structured visits to KG among different villages– will prove crucial to ensure women are able to exchange information and promote awareness about the importance of the work they are already doing.

CONCLUSIONS

In BWS, the kitchen garden is fundamentally a women-led space. Without romanticizing women's socio-ecological practices, it is important to recognize that nutritional, culinary and food related knowledge is articulated through gender. In small plots of land within families' household boundaries, on slopes, and even on the fringes of their terrain, the Adivasi women of BWS that participated in this study have found resilient ways to grow their own food. Their knowledge on kitchen gardening has clearly been transferred from generation to generation of women, and the parallels of what and how they grew in their childhood and what they grow in their adulthood lead to think of their kitchen gardening practices as an intrinsically female tradition. This 'tradition' is also the pillar for household's food self-sufficiency, –even if to varying degrees– and the reason why Adivasi communities in BWS are able to grow and consume the local fruit and vegetables varieties they know and like the most . As they said: "Amhala pahije tenva amhi parasbaget jato ani laget te gheun yeto.", which in Marathi translates to "We go in the KG to collect whatever and whenever we want".

However, the tension between what is seen as productive agricultural practices and knowledge and 'old' or local knowledge primarily affects women. When women's kitchen gardening experience and know-how is seen as merely an extension of their domestic chores, their agricultural practices are downgraded, which simultaneously leads to them lacking access to the resources and possibilities for sharing them. This exploratory study worked under the assumption that participatory and visual research methods can be used as tools for local knowledge revaluation. The methodology rejects the distinction between formal and informal knowledge and emphasizes the value of observation, flexibility, and adaptability in knowledge sharing and revaluation, and seeks to allow women to gain confidence and recognition of their own expertise. Focus groups, beyond disclosing any particular information about kitchen gardening practices, were used as a tool for women to be aware of the value of food security and food sovereignty.

Women's social position influences the way knowledge is developed and determines whether their experiences can be readily transmitted and adapted by others Hassanein (1997). This exploratory study pointed to the preliminary idea that Adivasi women's knowledge sharing practices related to KG are

fundamentally non-hierarchical and therefore provide agency opportunities. This preliminary finding coincides with prior research: Mehta's (1996) research in the Indian Himalayas disclosed that farmer women's experience is oftentimes more trusted by other women than the experience of male farmers, and over the experience of experts and agricultural extensionists. In the face of climate uncertainty and food availability, horizontal and locally-led exchange methods are necessary to enhance trust and build social networks. Moreover, practical and participatory knowledge sharing practices are necessary to strengthen women led spaces, and for communities to revalue and recognize the work women are already doing in the construction of food sovereignty.

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