Empowering women to own agroforestry: Myth breaking experiences from Bundelkhand region of Central India

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ABSTRACT : The goals of agricultural sustainability and disseminating agroforestry to smallholders cannot be achieved without taking women's vital roles into consideration and empowering them to play crucial role in the developmental processes. Complex array of socioeconomic-cultural factors and myths determine gender inequalities in projects relating to natural resource management including agroforestry. Empowering women to manage trees on farm, choose preferred species, have right to harvesting and processing of produce by breaking existing social barriers and myths, may generate self-esteem and enable them to own agroforestry on their farms. Hence, this article is aimed to understand the reasons and myths of gender inequality in agroforestry, the needs to empower women for scaling up agrofroestry, and also share some experiences on gendered management of agroforestry plantations in Bundelkhand region of central India. The experiences of working with farm families in selected villages of Bundelkhand region revealed that the social myths are far from the realities and women are playing key role in fostering concepts of "*ladko ko khet, ladkiyon ko med aur har med par 100 saagon ke ped*", homeyard gardens for nutritional security of children and family members, and silvi-pasture (perennial grasses on farm-bunds) for regular supply of fodder for farm-cattle. These concepts also spelled out how gender specific management can be crucial for empowering farm women. The sense of owing materials and assets build self confidence in women which further enthuses them to enrich their knowledge and skills. It also enables women to generate their creativity, strengthen capacity to think, be decisive, and act in right perspective.

Key words: Gender equity, homeyard gardens, nutritional security and women empowerment.

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1. INTRODUCTION

The concept of integrating trees into agricultural landscape is as old as the practice of cultivating land. The beneficial outcomes of agroforestry include supply of fuel, wood, fodder and food; carbon sequestration, increased soil quality, erosion control, reduced fossil fuel use, and increasing resilience in the face of an uncertain agricultural future (Davis *et al*., 2012). Today, the strategy of agroforestry land-use holds great potential to provide economic, ecological and cultural benefits to the society. Despite huge potential and benefits from agroforestry, level of diffusion of agroforestry technologies among various stakeholders has lagged behind in the whole world (Mercer, 2004). In India too, adoption of agroforestry technologies by smallholders has remained similar to global trend (Prasad *et al*., 2018). For scaling up agroforestry adoption in India, Tewari *et al.* (2013) opined that the best option is to utilize provisions of watershed development projects under Integrated Watershed Management Programme (IWMP) operational in whole country that offers a good launching pad for promotion of agroforestry among smallholders and marginal farmers. As men and women both are involved in management of trees planted on farms, addressing gender inequalities, probably holds the key of scaling up agroforestry on smallholder farms. It has been realized that we cannot achieve sustainable development without taking women's vital roles into considerations and empowering them to play crucial role in the developmental processes. Complex arrays of socioeconomic-cultural factor determine gender inequalities in projects relating to natural resource management including agroforestry. There is a consensus that women are disadvantaged in society compared to men; however, in order to address imbalances, it is important for development professionals to understand social relations between men and women (Kiptot, 2015). In Bundelkhand region, firewood collection on daily basis for household consumption is done by women folk while men folk are always on toes for marketing of firewood. The women visit forest with small axes or sickle and collect only dead or dried wood or thin branches; however, men move with big axes and cut thick branches, make its pieces and proceed directly to market. Thus, the women in the service of forest primarily do tending work while men folk destroy or exploit the forest. The complex system of gender based services to the forests and their utilization needs to be understood from gender perspective. Thus, this compilation is aimed to understand the reasons and myths of gender inequality in

agroforestry, need to empower women to own agrofroestry, and also share experiences on gendered management of agroforestry plantations in Bundelkhand region of central India.

2. WOMEN EMPOWERMENT : A CONCEPT

Empowerment as a concept was introduced at the international women's conference in 1985 at Nairobi. The word “Power” is the key word of the term “Empowerment” which means control over material assets, intellectual resources and ideology. The material assets over which control can be established may be of any type- physical, human, financial; such as land, water, forests, people's bodies and agencies, labor, money and access to money. Knowledge, information and ideas are examples which can be included in intellectual resources. Ideology signifies the ability to generate, capacity to propagate, capacity to sustain and institutionalize specific sets of beliefs, principles, values, attitudes, actions and behavior. Virtually, it determines how people perceive, think and function in a given socio-economic and political environment. World Population Report (1994) stated very clearly that “Empowering women means extending choices, choice about if and when to get married, choice about education, employment opportunities controlling the social and physical environment, choice about if and when to get pregnant, and ultimately about family size, violence or abuse, in which women are free to use community services on the basis of equality.” United Nations Development Fund for Women, commonly known as “*Fonds de développement des Nations unies pour la femme* (UNIFEM)” in French is a specialized agency of the United Nations to promote participation of women in economic and political life of developing countries and improve the status of women worldwide. UNIFEM in its guidelines on Women's Empowerment (1997) interpreted empowerment “as a process where women individually and collectively become aware of how power relations operate in their lives and gain the self confidence and strength to challenge gender inequalities at the household, community, national, regional and international levels”. Gurumurity in a paper on “Women's Rights and Status” published by UNDP (1998) makes a useful distinction between empowerment and self-empowerment. As per Gurumurity's diction, empowerment is an externally induced process involving creation of condition that enables women to exercise their autonomy; and self empowerment is a process where women find time and space of their own to begin to re-examine their lives critically and collectively. The parameters identified for the empowerment of women are: i). enhance self-esteem and self-confidence in women; ii.) build a positive image of women by recognizing their contribution to the society, polity and economy; iii) develop in them an ability to think critically; iv) foster decision-making and action through collective process; v) enable women to make informal choices in areas like education, employment and health especially reproductive health; vi) ensure equal participation in the developmental process; vii) provide information, knowledge and skill for economic independence; and viii) enhance access to legal literacy and information related to their all kinds of rights.

Semi-arid tropics are invariably hot spots of poverty due to water scarcity. Agriculture is largely *rainfed* due to which sizeable areas remain underutilized. Fetching drinking water and fuel wood collections are considered primarily women's routine work. Animal's care is also done mainly by the women whereas milking of cattle and marketing of milk are done by male members of the family. In such societal arrangements, women have hardly any say in the matter of family finances and hence, this makes enviable to strike a gender balance in routine family works thus warranting analysis of gendered management of agroforestry and its ownership.

3. INVOLVEMENT OF WOMEN IN AGROFORESTRY : MYTHS AND REALITIES

In most civil societies, the responsibilities and roles are gendered. Gender roles refer to the socially defined tasks and responsibilities that are considered appropriate for men and women (Manfre and Rubin, 2012). They are context specific and can change over time, within households and even communities (Doss, 2001). The forestry or agroforestry is attached with a masculine tag that often overshadows the contributions and roles of women in nurturing trees. Traditionally, women have been playing important roles in agricultural production and in the use and management of trees. However, certain general perception and prevailing myths override their contribution and put their status down. Out of certain prevailing *myths*, the one is that the women are just housewives, which is not true in reality. In most rural societies, women bear the major and sole responsibilities for food production. Research studies have pointed out that women's labor and women's decision making are all absolutely crucial to agricultural production and development (FAO, 2011). Women are responsible for small stock husbandry

and the feeding of large livestock. The *second prevailing myth* is that every woman is a member of a male-headed household, but in reality now-a-days, the women headed households are increasing in society. Sometimes this is by choice whereas sometime it is the result of personal events (i.e. death of a spouse, divorce, migration etc.). Whatever the causes may be, women headed households are found in substantial numbers in every region of the world. It is estimated that between 25 and 33% of all households in the world are defector headed by women (Buvinic *et al*., 1978). As a result of heading their own households, women have assumed new roles and take decisions. The *third myth* is that the only men are users and thus responsible for trees. In reality, the women are primary user of forestry products such as fuel wood, fodder and food. Women are primarily responsible for wood collection and utilization, and often initiate establishment of the wood stock around the village. In contrast, men are more interested in forest products of commercial value. Women also use forest products for medicinal and other household small enterprises. In fact women are responsible for primary processing of minor forest produce (gum, medicinal herbs, tendu leaves, mahua etc.) collected from forest or privately owned land. Women are more knowledgeable about the characteristics and quality of the products obtained from the trees. It is the woman who knows what is needed and which trees are suitable for their family? Thus, the presumption that only men are involved in forestry or agroforestry, is totally wrong. The *fourth myth* is that the women are passive members of the communities in which public influence and public action are spheres restricted to men. This is not always true and most often women have important influence on women's informal association in both private and public spheres. The Chipko Movement is a classical example of message of forest conservation and discussion among the women in hilly districts of Himalayas. In domestic sphere, women exercise influence through their information link and their ability to withhold goods necessary for men.

4. EMPOWERMENT OF WOMEN TO OWN AGROFORESTRY

Empowerment of women toward management of trees on farm, species preference, right to harvesting and processing of produce, and ownership of trees may enable them to own agroforestry existing on their farm. On gendered management of trees, many studies have revealed that although men and women both involved in trees planted on-farm, the women do most works, especially at the initial stage of tree establishment including care of saplings. In choosing planting of preferred tree species, the men and women have different objectives. The men are typically interested in trees for commercial purpose while women are more inclined to plant trees for subsistence uses such as fire wood, fodder, food etc. Further, gender based preferences may vary for fruit plants and other trees as well. Women's rights to tree based products are usually limited. The ownership and user rights of trees are often differentiated along gender lines and men usually have overall authority over high-value tree products. However, the gendered nature of access to and control of trees, tree products and related resources is often highly complex, depending on social and ecological conditions and factors such as space, time, specific species, products and uses (Rocheleau and Edmunds, 1997).

Agroforestry has great potential for all round empanelment of women and there are many ways through which they can be empowered with attached feeling of ownership (Ahlawat and Hasumati, 2009). Easy accessibility and availability of food products at cheaper rates may empower women physically. The social empowerment can be brought by organizing women in self help groups (SHGs) and co-operatives for agroforestry-based activities. Technical knowledge regarding agroforestry systems may help them in their technological empowerment and can increase their mental horizon. Establishment of self-employment ventures and enterprises in agroforestry project areas may empower them economically (Chaturvedi and Tewari, 2004). Easy and nearby accessibility for fuel wood, fodder and food products may help in reducing women's drudgery. Participation in agroforestry projects helps women in building their capacity, which develop positive attitude among them, stimulate self-confidence, make them self-reliant and expand horizon of their aspirations. Exploitation of women by moneylenders can be prevented if they earn money from agroforestry project. Leadership qualities can be developed among women through their participation at each level of agroforestry project planning and management. Organization of rural women in SHGs and co-operatives for running agro-based enterprises may help them in establishing suitable linkages with credit and financial institutions. It will increase their access to the benefits of Government schemes. Networking of their SHGs will symbolize high standard, which may increase their

confidence, expectations and may also improve their self image along with empowering them morally.

5. WOMEN'S EMPOWERMENT : LESSONS FROM BUNDELKHAND

Bundelkhand is no exception to established customs and social myths prevailing in Indian society. In large part of the country, women force is mainly responsible for feeding animals, cleaning of cattle-shed, making of cow dung cakes and ensuring drinking water and fuel wood. Experiences gained in ICAR-Central Agroforestry Research Institute (CAFRI), Jhansi have revealed that careful management of tree-crop-environment interface in participatory mode is crucial for scaling up agroforestry on smallholders' farms. Agroforestry interventions through watershed development approach has been found to be the most successful model in motivating farmers for adopting tree-based farming system (Prasad *et al*., 2018). Customarily, women in Bundelkhand look after domestic animals (cow, buffalo, sheep and goat) and do fruit processing work particularly making of pickles/chutney. The cow dung cake and fire wood are major sources of fuel. Collection of fuel wood is major concern of households. Majority of women collect fuel wood from their croplands or surrounding forest area, which is risky for life and dignity and entails lot of drudgery. If women are empowered, they will not only plant trees in homeyard, backyard and on field bunds, but also tend them to ease their life and reduce drudgery.

The first sign that indicated improvement in case of women's life was increased availability of water in watershed area. It was observed in Parasai-Sindh watershed that farm women used to take their buffaloes at the checkdam sites for drinking water and bathing purposes. During the time buffaloes remained inside ponded water at checkdam, the women washed their clothes. This reduced women's drudgery otherwise, they had to fetch drinking water from far distant sources for animal's drinking and cleaning purposes. Besides, availability of water in plenty within their hand reach at checkdam and its plane cemented floor enabled women to wash their clothes easily, thus helping them to save time and energy.

In a bid to promote agroforestry in Parasai-Sindh watershed with emphasis on ensuring women's participation, the team of scientists from ICAR-CAFRI, Jhansi interacted with them to assess their constraints and preferences. The major constraints explained by women included lack of knowledge, skill and financial resources to take up tree planting activities. They also showed concerns for availability of quality planting material, and lack of experience and time required for management of planted saplings of trees or fruit plants. At this juncture, the team from ICAR-CAFRI including experts of various disciplines broke the ice and motivated household women folk by transferring technical know-how of planting and maintaining trees, grasses, fruit plants, vegetables etc. They were assured for supply of seedlings free of cost. They were also assisted in digging of pits at proper spacing and planting trees. Beside women, school going teenagers were also motivated to help their family elders in adopting agroforestry on their farm, homeyard, backyards and field bunds. This approach worked well and following examples highlight active involvement of women and their empowerment through agroforestry in Bundelkhand region of central India.

As a new concept, a slogan was coined that "*ladko ko khet, ladkiyon ko med aur har med par 100 saagon ke ped*" meaning thereby that "the fields (land) are meant for boys (to be inherited) and field bunds having 100 trees of teak for girls (revenue from teak timber to be used for girl's education or marriage)". This slogan worked fantastically and attracted many women farmers. In the region, dowry is a big social menace that forces farmers to fall in the trap of moneylenders. The farmers, particularly farm women were educated that if they plant and care teak trees on field's bund, it will pay them enough when their daughter reaches to marriageable age i.e. after 20 years. This appeal worked well and farm women particularly those who were mother of a girl child came forward in large numbers to adopt teak-based agroforestry on their field bunds. Such teak-based agroforestry plantations established by women folk involved a strong social bonding as the produce was to be used for better future of their dear daughters. They own these plantations and morally obliged to tend the sapling by doing all the field operations such as watering, soil-working in tree basin and protecting plants with brush wood-fence. The decision to harvest these trees and spend sale proceeds absolutely rest with the women. Such classical experience of gendered management of agroforestry plantations may help in motivating women in other areas for adopting agroforestry, and hence, need to be upscaled for further expansion of agroforestry in India.

Homeyard/backyard planting of fruit trees by women folk in selected villages of Parasai-Sindh watershed is another shining example of women empowerment

and gender equity through agroforestry. This concept of homeyard planting (hereafter referred as homeyard gardens) of fruits trees parallels home-gardens of Kerala wherein farmers harvest number of produce including fruits, vegetables, nuts, pepper, coffee etc. The women folk of Bundelkhand integrate various fruits: citrus (*Citrus limon*), guava (*Psidium guajava*), papaya (*Carica papaya*), karonda (*Carissa carandas*), and vegetables: bottle gourd (*Lagenaria siceraria*), pumpkin (*Cucurbita pepo*), beans (*Dolichos lablab*), chilly (*Capsicum annuum*), tomato (*Lycopersicon esculentum*), brinjal (*Solanum melongena*), etc. in their homeyard gardens aiming mainly to address nutritional security of their family members, especially the children as they are financially constrained to buy fruits and vegetables from the market. The produce from homeyard gardens is at the sole discretion of farm women and exclusively meant for family consumption. The economic gain from the sale of surplus produce is another motivating factor for women to adopt homeyard gardens. The choice of fruits and vegetables to be planted in homeyard gardens varied from family to family and women are taking independent decisions giving due considerations to the taste and likings of their wards. For example, the species composition of one homegarden in village Chhatpur in Parasai watershed area comprised of eleven fruits, three timber, five vegetables and one flowering plant (Table 1). This women farmer who passed away in 2019 had earned Rs. 22,000/- from sale proceeds of tomato and marigold flowers during the year 2018. The exemplary success of this homeyard garden has motivated many other women to adopt and nurture homeyard gardens in this village to meet their domestic requirement of fruits and vegetables, and also earn some extra income.

The main driving force for household women to venture into homeyard gardens or backyard plantations has been to ensure nutritional security for their children and other family members through regular supply of table fruits and vegies for which they had no money to spent (Prasad *et al*., 2018). However, the opportunities offered by these homeyard gardens were not without challenges. The major constraints included the initial expenses of establishment, lack of experience with fruit trees and the time and knowledge required for management and readily availability of quality planting material or seed at their doorstep. These constraints were addressed by the expert team of ICAR-CAFRI, Jhansi. The enthused teenagers made the task easy and many school going children volunteered to nurture homeyard gardens. Some early women adopters played model role for others to follow.

Another example of gendered management of farm-agroforestry is the planting of perennial grasses on field bunds. Field bunding is an essential and integral part of watershed management for *in-situ* harvesting of rain-water and conserving moisture in the crop-field. The drivers for planting perennial grasses on field bunds include ensuring fodder availability

Table 1. Species composition of a homeyard garden and gender specific roles in village Chhatpur, Jhansi district of Bundelkhand.

Type of plants	Name of species	Works attended by		Remarks
		Women	Men	
Fruits	*Carissa carandas, Punica granatum, Psidium guajava, Aegle marmelos, Carica papaya, Citrus limon, Ziziphus mauritiana, Syzygium cumini, Mangifera indica, Moringa oleifera* and *Emblica officinalis*	Planting, Post planting care	--	Self consumption and sharing with relatives and friends
Vegetables	*Capsicum annuum, Brassica oleracea, Lycopersicon esculentum* and *Solanum melongena*	Planting post planting care and picking	Post planting care and marketing	Surplus tomato sold in local market for Rs. 17,000/-
Flower	*Tagetes* species	Planting, care and harvesting	Marketing	Flower sold for Rs. 5,000/-
Timber	*Dalbergia sissoo, Azadirachta indica* and *Tectona grandis*	Planting and after care	Inter-culture operations and protection	--

throughout the year for farm animals and also utilizing area lost in field-bunding efficiently (Prasad *et al*., 2018). Regular supply of fodder from perennial grasses has helped in minimizing drudgery of farm-women as they own sole responsibility of feeding the cattle. In Bundelkhand, as a traditional practice, women have to spend most of their time in arranging fodder for their cattle especially during dry seasons and drought years. Reduction in drudgery of farm-women in the form of saving quality time, which otherwise they had to spend in arranging fodder, has many social implications. The mothers spend this saved quality time with their children particularly, in getting them ready for school, preparing tiffins and attending other household works. There is no segregated data to support social impact of reduced farm-women drudgery on education of children; however, general perception reflects increased numbers of school-going children in the villages of watershed area.

The experiences relating to fostering concepts of "*ladko ko khet, ladkiyon ko med aur har med par 100 saagon ke ped*", homeyard gardens and silvi-pasture (perennial grasses on farm-bunds) spelled out how gender specific management and gains thereof can be crucial for empowering farm-women in rural areas. The sense of ownership of materials and assets builds self confidence in women which further enthuses them to enrich their knowledge and skills. Ideologically, it enabled women to generate their creativity and strengthen capacity to think, be decisive and act in right perspective. The pride of owning 100 or more teak tree rejuvenates young girls in terms of belief, attitude and behavior. It also strengthens social bonding of mother-child relationship that goes a long way in building a better society based on values and trust. The produce from homeyard gardens (fruits and vegetable) helped the farm women in nourishing their children well without the fear of malnutrition and ill health. Nutritional security of children ensures better health, education and future career. Exposure of farm-women to women students and scientists from within the country and abroad, and interaction with them have motivated and helped them to overcome their hesitation and learn more about outer world and strengthen themselves.

In nut shell, empowerment of women is incontrovertible for scaling up agroforestry adoption among smallholders. Effort through campaigns for "*ladko ko khet, ladkiyon ko med aur har med par 100 saagon ke ped*", homeyard gardens and silvi-pasture have overridden all the social myths and barriers, and ensured women's involvement in agroforestry in Bundelkhand region of Central India. These live examples of gendered management of agroforestry would go a long way in addressing gender inequality in agroforestry and help disseminating agroforestry technologies on farmers' fields.

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