

Role of Women in Sustainable Agriculture and Biodiversity Conservation

SHOBHA RANI K, Assistant Professor of Botany, GFGC Chickballapur.

Abstract

Women, who constitute the largest group of farmers and who have conserved and improved agrobiodiversity, often have no property rights to land. They also tend to be bypassed by development schemes related to biodiversity. Women's universities, home science colleges and other educational institutions catering to women's needs rarely include biodiversity as a field of study.

Women can ensure sustainable development and biodiversity conservation/enhancement. Structural obstacles to the advancement of indigenous women need to be addressed, by facilitating and redefining of gender roles and relations in the family and society. Increased involvement of women in decision making structures can contribute to biodiversity: If women are left out of the planning and implementation of local initiatives, valuable input is lost. As well, there tends to be very unequal participation among women and men in official biodiversity initiatives. Given educational biases, cultural obstacles and gender stereotypes, women often find it difficult to enter into relevant professional fields and gain specific expertise. The challenge sustainable agriculture is the safeguarding of agro-biodiversity by paying greater attention to diverse and integrated agricultural systems, especially those managed by women that provide food and livelihood security

Introduction: Women form the major agricultural labour force on their family farms as well as on others' farms and agricultural enterprise. Though agriculture is the main employment for women this has not resulted in economic empowerment. More than 80 percent of the women in rural India engage in agriculture for their survival. However, in spite of women forming the backbone of the agricultural rural economy, they remain one of the vulnerable groups of society. Some factors such as lack of access to education and technology and other socio-economic issues have had an adverse impact on the lives of women farmers.

Biodiversity directly supports major economic activity and jobs in such diverse sectors as agriculture, fisheries, forestry, pharmaceuticals, pulp and paper, cosmetics, horticulture, construction and biotechnology. Food production depends on biodiversity and the services provided by ecosystems. There are thousands of different crop varieties and animal breeds that form the rich genetic pool of species. Biodiversity is also the basis for soil fertility, pollination, pest control and all aspects important for producing the food.

Biodiversity is the foundation for sustainable development availability for crops and help reduce off-farm impacts. Biodiversity and ecosystem functioning provide goods and services essential for human health – including nutrients, clean air and water and regulation of pests and vector-based

diseases. Biodiversity is the basis of traditional medicine, and a large number of drugs contain components derived from plant extracts. It is the basis for sustainable livelihoods.

The green revolution apart from introducing the high yielding varieties, mechanization of farming practice and irrigation also responsible for the indiscriminate use of inorganic fertilizers and pesticides that has not only rendered the soil dead and but also contaminated the water bodies and leached into to the ground water. Various organizations are working towards creating awareness and motivating the farmers to take up organic farming. Though there is some awareness among the farmers regarding organic farming the availability of organic matter that suffices the extent of cultivable land is an issue of concern. The rapid composting method that intends to convert the degradable waste perhaps may be helpful to a certain extent.

There is a need, to help promote adoption of strategies that enhance the important roles and functions of soil biodiversity for sustainable and productive agriculture and to encourage integrated soil management approaches building on available information and knowledge, expertise, technologies, progress and opportunities. There is a need to adapt and use integrated ecosystem management approaches in order to harness the economic, environmental and food security benefits from better management of soil life.

As farmers, rural women are responsible for growing and collecting food and for the integrated management and use of diverse natural resources to fulfill daily household needs (crops and wild plants, tree products, wild and domesticated animals) An understanding of gender issues in plant and animal bio-diversity requires a look at men and women's different roles and relations as part of their overall livelihood systems that comprise farms and gardens, common property resources. such as pastures and forested lands, as well as protected areas. In addition to staple food production in the fields, home gardens often provide a wide variety of vegetables.

Agricultural biodiversity includes all components of biological biodiversity of relevance to food and agriculture. It also includes all components of biological diversity that support the ecosystems of which agriculture is a part. The variety and variability of, plants, microorganisms and animals at genetic, species and ecosystem levels are necessary to sustain functions of agro ecosystem.

Women are the part of the solution in developing sustainable farming systems, promoting food security, natural resource management and environmental conservation. Sustainable agricultural development, as defined by Food and Agriculture Organization of the United Nations (FAO), is "the management and conservation of the natural resource base, and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations. Such development --- conserves land, water, plant and animal genetic resources, is environmentally non-degrading, technically appropriate, economically viable and socially acceptable."

Most of the farming operations like cleaning the seeds for sowing, transplanting, weeding, harvesting, threshing, winnowing and seed preservation are done by women. Women are the major stakeholders in organic culture. The adoption of organic farming significantly increases labour requirements compared to conventional farming. Women often shoulder the increased labour. The women's contribution is greater in the household know better what is needed to provide a balanced diet for the family. Therefore, they try to include plants rich in nutrition along with the regular crops. Besides food security, women are also concerned about the cash needs of the family. This makes them more responsible towards activities like backyard poultry, dairy, bee keeping, horticulture etc. which serves as cash income as well as a source of nutritious food.

Studies have revealed that in areas of traditional agriculture, among communities and classes that did not practise gender disparity, women's participation in biomass-related activities was high and their knowledge and interest in conservation was apparent. Women's involvement with conservation practices such as preservation of high-quality seed was high in communities where they were the main food producers.

In smallholder agriculture, women farmers have been largely responsible for the selection, improvement and adaptation of plant varieties. The selection of certain varieties is a complex, multivariate process that depends on choosing certain desirable characteristics (for instance resistance to pests and diseases; soil and agro-climatic adaptability; nutritional, taste and cooking qualities; food processing and storage properties).

In many regions, women are also responsible for the management, including reproduction, of small livestock. As for plants, the choice of preferred traits in the breeding of animals includes adaptations to the local conditions such as available feeds, resistance to disease.

The fact that plants and animals are often produced for a number of purposes adds further complexity to the selection process as multiple traits are sought. For example, sorghum may be grown for the grain and the stalk, sweet potatoes for the leaves as well as the root, and sheep may provide milk, wool and meat. Moreover, to create a favorable microenvironment and better manage space and time, several plant species that complement each other are frequently intercropped and mixed farming is often practiced (crop, livestock and agro-forestry).

In the rainfed farming regions of Chikkaballapur and Kolar districts where ragi is the major dryland crop, women ensure that the pulses required for the household is included in the cropping system by either adopting it as an intercrop or mixed crop. The crops grown as intercrops and mixed crops usually include Dolichos lablab, Redgram, Cowpea etc which not only meets the nutritional needs of the family member but also helps in the nutrient management as the leguminous plants enriches the soil with nitrogen. Intercropping and mixed cropping

methods that are adopted also contributes for the pest management to a certain extent. The horsegram is grown for the purpose of green manuring after the harvesting on the main crop in the rainfed area. The monocultures could not only affect family food security but also their environment because diverse agro-ecological schemes reduce the risk of disease, plagues, desiccation or erosion; improve the nitrification of the soil; and spread the risk of crop failure.

Women play an important role in the livestock sector. They feed and milk larger animals, and raise poultry and small animals such as sheep, goats etc . Women are involved in the activities of integrated organic management system like crop rotation, use of bio-inputs, water harvesting, animal husbandry, development and maintenance of pastures and wild life preserves. They play a crucial role in selection and preservation of seeds. Women's understanding of local biodiversity tends to be broad, containing many unique insights into local species and ecosystems.

Conclusion:

The food security of different communities is based on biodiversity in field and forests. Women play a significant role in managing the diversity of eco system since they are responsible for sustaining the livelihood of the family. They used to develop multiple strategies for their farming system. Rural women, as the main producers of food and crops, have traditional knowledge and skills, and possess great potential to contribute fully and substantively to sustainable agriculture, natural resource management and environmental protection if provided an enabling environment of improved access to productive resources. When provided with opportunities, rural women engage actively in the promotion of sustainable agriculture. Women use traditional wisdom and knowledge acquired to preserve part of the harvested grains as seed material for future use, thus contributing to conservation and maintenance of crop genetic diversity

Women farmers adopt the technologies best suited to them and are sustainable in nature. They give importance to such technologies which are beneficial to them in the long run there is a need to create still more awareness among women farmers on the adoption of sustainable agricultural practices to improve production and productivity through suitable training programmes and demonstrations.

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