

Engendering agricultural research: needs and challenges

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High and sustainable agricultural growth is essential for eradication of poverty, hunger and undernourishment. But agriculture is underperforming in many developing countries for a number of reasons. Among these is the fact that women lack the resources and opportunities they need to make the most productive use of their time¹. Although women have entered the labour force in large numbers across much of the developing world in the past quarter century, this increased participation has not translated into equal employment opportunities or equal earnings of men and women. Women and men tend to work in very different parts of the economic space, with little change over time². This is also much pronounced in agriculture. Women are mostly involved in transplanting, intercultural operations, harvesting and post-harvest activities of major crops, including cereals and horticulture, whereas men are involved in activities like land preparation, plant protection and irrigation management. In livestock sector, women play a significant role in management of small ruminants, poultry and dairy animals, while men have a major responsibility for other animals. In marine and brackish water fisheries, women have exclusive presence in post-harvest operations like grading, sorting, drying, value-addition and small-scale marketing, while men are involved in fishing. Women, particularly tribal women, play a significant role in agroforestry, watershed management, forest protection and management.

Globally, about 42% of economically active women are engaged in agriculture and they comprise about 43% of total work force in agriculture. In developing countries, 52.7% of women workers are in agriculture¹. An estimated two-thirds of poor livestock keepers, totalling approximately 400 million people, are women³. Women make up at least 50% of the workforce in inland fisheries and market as much as 60% of seafood in Asia and West Africa⁴.

In India, a high proportion of economically active women are engaged in agriculture. In 2001, about 72% of women workers were engaged in agricul-

ture as cultivators and agricultural labourers, and just under 5% of women workers were involved in livestock, fisheries and forestry-related activities⁵. But after a decade in 2011, about 65% of such women workers and about half of total men workers are engaged in agriculture as cultivators and agricultural labourers⁶. The share of women workers in total agricultural work force has continuously increased from about 20% in 1971 to about 39% in 2001, though it marginally declined to about 37% in 2011. Thus, women's involvement in agriculture and allied sector is quite substantial, and with more men migrating to non-farm sector, the share of women in total agricultural work force may increase in the coming days.

But what is paradoxical is that women's contribution has not been properly recognized due to prevailing gender biases in our society. This, coupled with the conceptual and methodological obstacles in netting women's work, has led to undervaluation of their work. At the same time, persisting gender gap in access to productive resources, markets and services; and many other gender-specific constraints, such as drudgery in the workplace, lack of women-friendly technologies and difficulty in balancing their reproductive and productive roles, undermine women's potential to contribute to higher and sustainable agricultural growth, and perpetuate disparity in productivity and earnings of men and women. This is evidenced by the fact¹ that had they enjoyed the same access to productive resources as men, women could boost yield by 20–30%; raising the overall agricultural output in developing countries by 2.5–4%.

The world population is projected to cross 9 billion by 2050, and this would require raising the overall food production by 70% between 2005–07 and 2050. Production in developing countries would need to almost double⁷. On the other hand, there are a number of challenges – a deteriorating natural environment, inertia in technology adoption, climate-related changes, globalization and declining interest of youth in farming, that are likely to affect the prospect

of agriculture. Significantly, many of these have differential impact on women and men. Climate change is deepening the food crisis for women and their families. Women being the majority of the world's small-scale farmers, more frequent crop failures mean women work harder and families eat less⁸. Further, women have far fewer resources than men to cope with crop failures or pursue methods of farming more adapted to climate shifts. Globalization is expected to trigger structural and technological changes in agriculture adversely affecting production and income level of women producers; it may also affect labour mobility, pattern of work and employment of women agricultural workers⁹. Can we then attain the goal of producing adequate, nutritious and safe food without closing the gender gap and addressing gender issues in agriculture?

During the past years, many studies from different parts of the world have provided credible evidences on the role, contribution and constraints of women in agriculture. As a result, a great awakening has taken place at the global level on gender issues, their implications for agriculture and the need for urgent action. The intricate relationship between women and agriculture is also well established. While agricultural growth contributes to income and human development of those involved in agriculture (women and men), human development of women (and men) in agriculture influences agricultural growth. Therefore, gender issues are receiving increasing attention, and empowerment of women in agriculture is seen as an important strategy to achieve higher and inclusive growth of agriculture. However, understanding of many gender issues in agriculture, including crop, livestock, fisheries and forestry sector is hindered by lack of gender disaggregated data and inadequate analysis of data that exist¹. Therefore, the challenge that we are facing is twofold; identifying context-specific gender issues in agriculture and addressing them on priority through appropriate socio-economic, technological, knowledge and policy interventions¹⁰. This calls for systematic incorporation of gender perspective in

agricultural research and progressive institutionalization of gender research in agriculture.

The National Agricultural Research System of India (NARS), comprising 99 ICAR research institutions, 56 Agricultural Universities and their Regional Research Stations, and more than 630 Krishi Vigyan Kendras (KVKs), is one of the largest research systems in the world engaged in agricultural research and education. Till date, research and extension interventions in NARS have largely focused on augmentation of agricultural production through new knowledge and technologies. Agricultural technology development process has focused largely on the sector and the men as targets groups. In the process, the system overlooked the real contribution and needs of women who are an important clientele group and end-users of research outputs. Further, it is often assumed that interventions in areas of technology, infrastructure, policy, and market access have the same impact on men and women, which is not always true. Thus, agricultural research in India lacked gender perspective. As a result, many of the technologies developed so far do not stand the test of gender friendliness as evidenced by very low level of adoption by women and gender inequity in sharing of benefits of such technologies. All these have led to gradual marginalization of farm women.

There are many other reasons also why engendering agricultural research has become a great necessity. First, as the agricultural research system has to improve the development effectiveness of its research output, the agricultural research strategy must be dovetailed keeping in view the emerging challenges in agricul-

ture that may throw up new kinds of gender issues. Secondly, there is a need to systematically study and understand the dynamics of agriculture together with the dynamics of gender participation to better inform not only the technology and policy development process, but also their targeting among a wider spectrum of clientele, including women, in different agroecological settings. Thirdly, with more and more men opting out of agriculture, development of the sector would largely depend on the attitude, interest and capacity of women to manage the changes in agriculture, which suggests that knowledge and technologies from our research system should be acceptable to and suitable for women. Fourthly, farm and household are intricately linked, which means the household dynamics may affect the farm dynamics. It is therefore imperative that R&D interventions planned for agriculture should also be assessed in terms of their implications for both men and women in different categories of households.

Institutionalization of gender research in agriculture is a great challenge in itself. It necessitates reorientation of agricultural research to make it gender-sensitive and inclusive. As agricultural researchers are generally reluctant to accept the concept of gender and include the gender perspective in their research programmes, making the agricultural R&D institutions gender-responsive and the agricultural research and extension professional gender-sensitive would be a challenging task. It is also important to create an enabling environment for better understanding and appreciation of the gender issues, and developing gender-encompassing R&D strategies. A robust gender-inclusive agricultural science

policy and inter-institutional collaboration are required to build gender component into agricultural activities, and demonstrate the utilities of gender research in agriculture. Ultimately, what is required is to add value to the agricultural research outputs and make research output contextually more relevant and appropriate for both women and men.

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