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Editorial: Innovations in gender research for sustainable food systems

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Editorial on the Research Topic
Innovations in gender research for sustainable food systems

Considerable progress has been made in the field of agricultural research for development (AR4D) toward recognizing gender inequalities in food systems and the implications for agricultural stagnation, food insecurity, poor nutrition, and poverty (FAO, 2023). In highlighting the patterns and consequences of persistent gender gaps and inequalities across agricultural, natural resource, and other related sectors in food systems, many initiatives have been directed toward increasing women's participation to close gender gaps related to yields, resource management, and nutritional outcomes. However, research aimed at eradicating gender inequalities by addressing their root causes has received comparatively less attention. This is unacceptable considering that the identification and transformation of harmful gender norms and practices is critical for building and maintaining sustainable food systems that support women, men, and gender diverse people to become equal partners in agriculture and related sectors (Njuki et al., 2022). Thus, research that examines processes of marginalization, identifies the root causes of gender injustices - power relations - and generates innovative approaches, tools, and methodologies for gender research are needed to achieve sustainable food systems. As such, this Research Topic focuses on cutting-edge gender research that demonstrates theoretical grounding and empirical applicability toward this end.

This Research Topic features thirteen articles that highlight current gender research innovations for sustainable food systems. These innovations include critical feminist theories, methodologies and methods, and development practices that grapple with, and seek to eradicate the root causes of gender and social inequalities in food systems. Collectively, the articles provide deep insights and understandings of gender power dynamics and social injustices in food systems that go beyond narrow and simplistic narratives on women's participation. Relatedly, gender and AR4D concepts such as women's empowerment and gender transformative change are viewed critically as dynamic, contextual, and political by nature with a diversity of meanings (Buisson et al., 2022). Overall, this Research Topic canvasses robust gender research across a variety of sectors within sustainable food systems, including livestock, crops, water, and energy. Geographical coverage is predominantly from studies and interventions in Africa, South Asia, and South East Asia. This Editorial presents the key findings and synthesis of the innovations identified, and directions for future research.

First, several articles in this Research Topic meaningfully applied an intersectional lens to their gender research conceptual frameworks, methodologies, and analyses. These articles demonstrated innovation in operationalizing the concept of intersectionality in applied fieldwork and quantitative analyses—a notoriously challenging task in AR4D (Leder and Sachs, 2019; Tavenner et al., 2022). The result was a deep exploration of how gender power dynamics in food systems are mediated by intersecting axes of social differentiation such as age, ethnicity, race, class, caste, disability, and socio-economic status, in varied and often unexpected ways. For example, Farnworth, Bharati, et al. highlighted that while both caste and gender norms influence women's participation and empowerment within an Indian dairy cooperative, caste norms were significantly more rigid than gender norms—thus, women from lower castes had lesser engagement and opportunities within the cooperative. In the cassava seed system in Tanzania, Liani et al. found that marital status, age, and positional hierarchy within the family shaped women's challenges and opportunities—and that considering these intersectional differences are crucial for a socially inclusive transition to commercialization.

Second, some articles highlighted how gender norms in food systems are culturally and locally (re)constructed, and as such AR4D technologies and interventions must engage with food system actors at the micro- and meso-levels. For example, Shrestha et al. argue that unequal intra-household and communal gender relations skew the integration and benefits of solar irrigation pump technologies in Nepal. They conclude that without engaging with these local norms and engaging women in strategic decisions on access, installation, and usage, AR4D technologies and interventions are doomed to fail. In exploring the potential of gender research methodologies to address local-level power dynamics, Kinati et al. synthesized evidence from Ethiopia on how community conversations (CCs) within small-ruminant livestock interventions can be gender transformative tools that have spill-over effects beyond the household to positively affect community-level institutions. At the same time, Achandi et al. reveal how gender and development concepts such as 'empowerment' and 'gender equality' in food systems are interpreted at the local level, therefore: "*people neither assimilate nor reject concepts of gender equality put forward by development brokers. Rather, they translate and recreate gender equality concepts in terms of their local values, needs and priorities.*" Relatedly, Farnworth, Gartaula, et al. urge food systems researchers and policymakers to develop effective strategies to address women's values and aspirations for empowerment in ways that they themselves value.

Third, several articles illustrate how multi-dimensional processes of hidden and invisible gender power dynamics sustain gender and social inequalities in food systems. Drawing on the example of Nepal's water, energy, food, and environment sectors (WEFE), Buchy et al. demonstrate that women professionals, despite being recruited, have limited participation, influence and decision-making opportunities. The authors argue that understanding gender in WEFE sector workplaces calls for an analysis of the interactions among the multiple spaces, forms and levels of power identified in Gaventa's power cube, and that these structural power inequalities must be exposed and challenged to catalyze change. Marter-Kenyon et al. similarly highlight the need to investigate the influence of cultural norms, social relationships, and intrahousehold power dynamics along the individual and family life course to better understand the entanglements between gendered intrahousehold labor allocation, time use, and time poverty. In this vein, Kawarazuka et al. advocate for gender research that highlights social reproduction in food systems, including women's hidden labor and time in the household that enable men to dominate agribusiness. Research that exposes the realities of women's hidden contributions to food systems is the first step toward disrupting existing inequalities in food systems. For example, Smith et al. developed a research tool that accounts for women's contributions to a sustainable first-food system (i.e., through breastfeeding) and how investing in breastfeeding as a carbon offset can help mitigate greenhouse gas impacts of commercial milk formula.

Fourth, methodological innovations were evident in several contributions. The climate-agriculture-gender inequality hotspot maps developed by Lecoutere et al. show where women involved in agri-food systems are at high climate risk because of the convergence of climate hazards, a heavy involvement of women in agrifood systems, and structural gender equalities at the disadvantage of women. In their assessment of four gender responsive livestock vaccine projects, McKune et al. provide a template for retrospective analysis of data collection methods to inform best methods practices. Lastly, Lopez et al. explore the potential for a AR4D Community of Practice to generate gender transformative research and spaces to design for change through a "reflecting and doing" methodology.

Building on the success of this Research Topic, we encourage researchers to critically explore AR4D to further develop theories, methodologies and tools that address the intersectional, localized, and hidden dimensions of gender dynamics in food systems to ensure the root causes of gender and social inequalities are addressed. Moreover, we hope researchers will continue to push the boundaries of gender research by re-imaging its purpose, questioning current methodologies, and ensuring that gender concepts are not co-opted by technocrats into empty buzzwords and simplified narratives. If not, gender research in AR4D risks losing its meaning and potential to drive systemic change (Hillenbrand et al., 2022).

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