

Gender Roles in Agriculture and Their Impact on SDG 2

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Abstract

Gender plays a pivotal role in shaping agricultural productivity and food security worldwide. This study investigates the influence of gender roles in agriculture and examines how gender-based disparities impact the achievement of Sustainable Development Goal 2 (Zero Hunger). Despite women constituting a significant portion of the agricultural labour force, they face systemic barriers in accessing land, credit, training, and decision-making opportunities, which constrain their productivity and contribution to food systems. The research highlights regional variations in gender dynamics and identifies critical policy and institutional gaps that hinder progress. Findings reveal that empowering women farmers through equitable access to resources and inclusive policies significantly enhances agricultural output and improves household nutrition, contributing directly to SDG 2 targets. The study underscores the urgent need for gender-responsive agricultural strategies to build sustainable and equitable food systems capable of ending hunger by 2030.

Keywords: Gender roles, Agriculture, Food security, Sustainable Development Goal 2 (SDG 2), Zero Hunger, Women empowerment, Agricultural productivity, Gender equality, Rural development, Food systems

1. INTRODUCTION

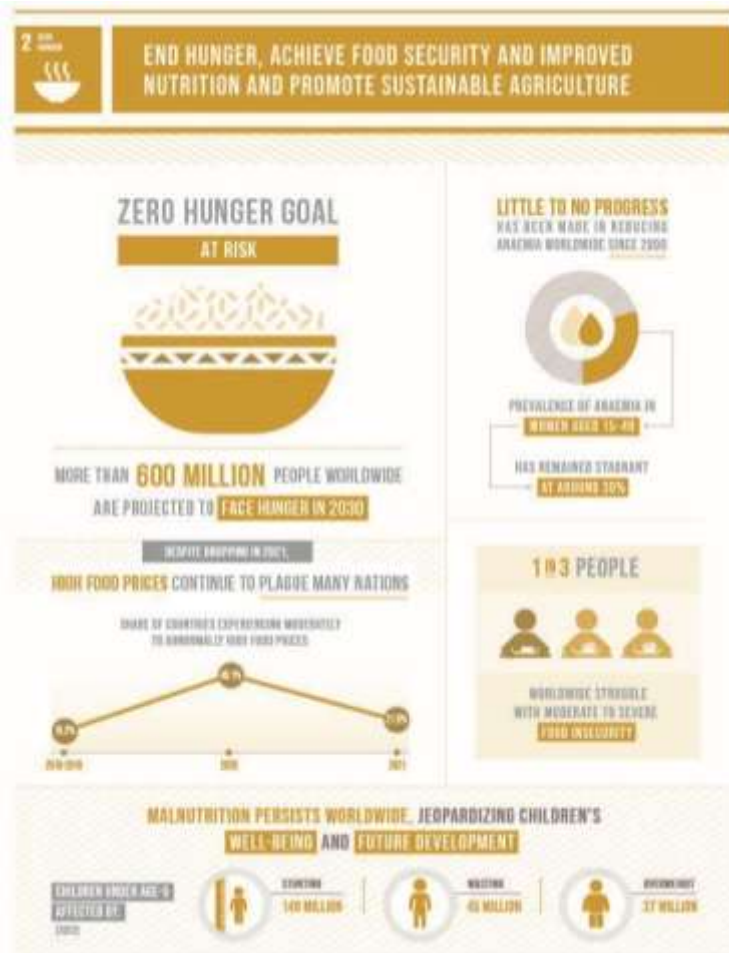
1.1 Understanding SDG 2: Zero Hunger

Sustainable Development Goal 2 (SDG 2), introduced by the United Nations in 2015, is directed towards completing the task of ending hunger, achieving food security and enhanced nutrition and advancing sustainable agriculture by the year 2030. In this objective, it highlights how agricultural productivity should be uplifted, have sustainable food production systems, and how the lives of small scale farmers should be enhanced and in this case they are more concerned of women, indigenous people and family farmers. SDG 2 does not only refer to bringing food to those in need, but it takes it into the wider scope of malnutrition, sustainability of farming, poverty in rural areas, and environmental stability (Cripps and Thondre, 2024). This will be achieved through the recognition that gender inequality and food systems are closely connected because women contribute significantly, though usually unnoticeably, in the agricultural production and food security in general. The world needs to eliminate these disparities before it can achieve viable strides of getting rid of hunger and supportive agricultural societies.



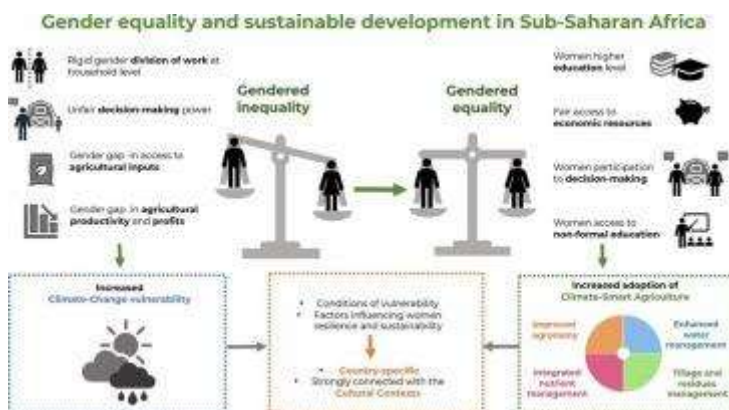
One of the 17 global goals, adopted in 2015 by the United Nations in the 2030 agenda of sustainable development is Sustainable Development Goal 2 (SDG 2). It has gone forth to eradicate hunger, attain food security and Food and Good, and sustainable agriculture. Although the world food production has improved greatly, in 2023, more than 735 million individuals were the victims of starvation (FAO), and most were residing in rural and agricultural areas. SDG 2 emphasizes the need for inclusive and equitable

agricultural growth that empowers marginalized groups, particularly smallholder farmers, women, and Indigenous communities. The goal integrates dimensions of productivity, environmental sustainability, access to food, and nutritional adequacy (Cripps and Thondre, 2024). Achieving SDG 2 goes beyond increasing food supply—it requires systemic reforms that dismantle structural inequalities in food systems, including gender disparities in agricultural access and control. Recognizing the role of women in achieving food and nutrition security is central to SDG 2. Gender-equitable policies can significantly increase agricultural output, enhance household nutrition, and reduce rural poverty, thereby contributing directly to food security and indirectly to other SDGs such as gender equality (SDG 5) and poverty reduction (SDG 1).



1.2 Gender Roles in Agricultural Systems

Gender roles in agriculture are deeply rooted in cultural, social, and economic structures. In most societies, men and women engage in different types of agricultural work. While men are often associated with cash crops, machinery use, and market engagement, women are typically involved in subsistence farming, seed selection, food processing, and household food security. However, these roles are not static and often overlap in practice. Despite their substantial contributions, women farmers face systemic disadvantages. They usually lack access to resources of production like land, credit, fertilizers, extension services, and technology (Glazebrook and Opoku, 2020). FAO estimates that women produce 2030 percent more yields on farms when they have equal access to resources as men, which may halt the number of people experiencing hunger levels by up to 100150 million across the world. However, the labour of women is underpaid and unpaid and their input is not visible in the national statistics and policy planning. The said gendered tendencies affect the agricultural output and food security performances, and the reason why there is an extreme need to be inclusive and gender-sensitive in agricultural development policies.



Agricultural systems worldwide are shaped by gendered divisions of labour, which determine what roles men and women assume, what resources they access, and how they participate in decision-making. Traditionally, men are associated with tasks that are mechanized, commercial, and capital-intensive, while women are often relegated to labour-intensive, time-consuming, and unpaid or underpaid agricultural duties, such as planting, weeding, harvesting, and food preparation. Women play a critical role in the cultivation of staple food crops, maintenance of biodiversity, and preservation of traditional knowledge systems. Yet, globally, only 13% of agricultural landholders are women (Perelli, 2024). Even when women own land, it is often smaller in size, of lower quality, or lacks formal legal documentation. Moreover, they face barriers to accessing credit, seeds, fertilizers, training, and agricultural extension services. As a result, women’s productivity is often lower—not because of lack of skill or effort—but due to unequal access to resources.



1.3 Global and Regional Context

Although gender inequality in farming is an international problem and reality that occur all over the world, it manifests itself differently. In Sub-Saharan Africa, women represent about 60 percent of the total number of labourers in the agricultural sector and also own less than 15 percent of the land and also get less than 10 percent of the agricultural credit. Furthermore, social norms in South Asia usually restrict women in terms of their movement and control of decision-making in the agricultural sector, although they play large roles in farming activities and food processing. Gender or sex inequality is less prominent in the developed world, although still presents, especially when compared to the leading positions in agribusiness, low rates of financing, and engagement in agriculture policymaking (Mollier et al. 2017). Areas that experience some conflict, climate shocks, or economic weakness tend to add more pressure on women, who are usually required to sustain food security in their homes using diminishing resources.

These regional disparities are important and should be understood in order to develop any specialized intervention that would respond to the given obstacles encountered by women under different agricultural settings. To have a significant change, global strategy has to be adjusted to local realities.

Gender in agriculture should not be considered similar all over the world as it depends on local culture, law, economics and politics. As an illustration, in Sub-Saharan Africa women cultivate more than 70 per cent of the food and own mere percentage of the agricultural lands and only minimal amounts of the agricultural support services are accessible to her. In South Asia, women have limited movement and access to activities within the local places since cultures place a lot of restrictions on women, yet they perform most of the agricultural chores which are informal or at the home level. In Latin America, female engagement in agro-processing and export agriculture is receiving an increase; however, they continue to suffer unequal wages and employment issues. Even in developed economies, the rate of underrepresentation of women in leadership, agricultural boards, and strategic decision-making platforms still prevail; despite the fact that less gender disparity exists. Besides, gender disparities in agriculture are even increased by climate change, as well as conflict. During the crisis period, women may be compelled to shoulder more burdens, including ensuring food security, provision of care, and generating income, and at the same time acquire less of the institutional supports. These weaknesses were also revealed and aggravated by the COVID-19 pandemic, seeing women farmers bear disproportionate impacts of supply chain problems and financial losses.

1.4 Significance of the Study

The research is very important in guiding our knowledge on the roles of the gender undertakings in agriculture on food security and the larger gains of the sustainable development. Shedding the light on SDG 2 and gender roles in the agricultural system, the study will help reveal the structural inequalities, discouraging the achievement of zero hunger. The implications of the findings are directed towards building awareness to policymakers, development practitioners and researchers that gender-responsive agricultural policies and programs are significant. Closing the gender gaps is not just a considerateness issue, yet it is also a strategic way of responding to the need of improving agricultural output, of dividing up nutritional results, and of making food systems resilient. Moreover, this research paper helps advance the conversation being conducted in the world on empowerment of women and rural development which highlights the fact that the SDG 2 is impossible to realize without turning women into full-fledged members of the world of agriculture.

The pertinence of this paper is that it tries to discover and critically analyze the relationship between gender aspects of agriculture and achievement of SDG 2. Although in proposing global food policies, it is greatly emphasised that agriculture plays a pivotal role in dealing with hunger, it is mostly not explored in terms of gender in food production and food distribution. The consequence of this oversight is not only the lack of effectiveness in policy interventions but also further consolidation of systemic inequalities (Kovaleva, 2021). The research promotes evidence-based and gender-sensitive solutions to overcome structural challenges on the scattered efforts of women in agriculture by highlighting the unsung contributions, discrimination, and assistance that women provide. This strategy holds great importance in bridging the gender versus productivity gap in attaining a lasting effect on food security, nutrition as well as economic growth. Moreover, the research is beneficial to bridging a painful gap in terms of scholarly knowledge with special reference to what can be done to quantify the effects of gender equality on sustainable agriculture. It will be useful to policy makers, development institutions, researchers and local communities to make more distributive and efficient agricultural schemes.

2. PURPOSE OF THE STUDY

This research is aimed at analyzing the role of gender in the agricultural systems and assessing how differences in gender affect the realization of the Sustainable Development Goal 2 (Zero Hunger). It attempts to comprehend the influence of traditional and systemic gender roles in determining accessibility of key agricultural assets like land, credit, training, technology and opportunities that allow making decisions. Although the role of women is very critical to food production and household nutrition, women in many cases end up being structurally limited in their ability to be productive and visible in agriculture. This paper will delve into these disparities and how they impact the food security and

sustainable development process negatively (Perelli et al. 2024). The study will also find out best practices and policy intervention that supports gender equality and empower women farmers, which aims at increasing food production, nutritional outcomes, and inclusive agricultural growth. This study will emphasize the relevance of gender-responsive approaches to meeting the goal of SDG 2 and the realization of resilient and equitable food systems in all regions of the world through evidence-based findings.

This paper aims at analysing how the gender roles in the agricultural system affect the advancement of the attainment of Sustainable Development Goal 2: Zero Hunger. The proposed study will seek to gain insight on the structural inequalities constraining women access to land, credit, agricultural inputs, and decision making rights, yet women make up such significant contributions towards food production and household nutrition. The study attempts to illuminate the productivity gap created due to gender discrepancies by analysing the global and regional data and determine to what extent women empowerment in agriculture can be used to promote food security and sustainable agricultural development (Glazebrook and Opoku, 2020). The paper also seeks to examine the role of gender-inclusive policies and practices in eliminating this gap and enhancing the performance of communities. Finally, the research is also meant to present evidence-based knowledge that contributes to the preparation of gender-responsive agricultural policies, where the idea of food security and resolution of hunger is not going to become fully attainable without gender equality in the agricultural context.

3. LITERATURE REVIEW

3.1 Gender and Agricultural Labour Division

The literature identifies the fact that the gender roles in agricultural activities are usually predetermined by the strong social values and traditions. Men and women also differ in terms of the work to be done where men do the heavy work, work with machines and activities towards the market, whereas women are engaged in planting, weeding, harvesting, food processing and production of subsistence crops. Such divisions do not entirely depend on skill but social expectations which tend to undermine the roles women perform (Mackintosh, 2023). Evidence has objectively shown that this form of gendered division of labour favours men, suppresses female freedom and denies them access to income earning activities.

The gender norms have been influencing the division of labour in agricultural activities so that the roles are gender separated in a traditional inclination. In the majority of the countries under development, men are the main participants in the activities related to the machinery, marketable crops and the markets, and women are focused on unpaid and underpaid activities, like: seed hoarding, weeding, plucking, and food processing. These occupations are vital to food systems but generally under appreciated and not included in statistics. Researchers state that this invisibility within the labour statistics is the factor that leads to systematic disregard of the needs of women in the agricultural policy (Whittle and Hailwood, 2020). Research has further revealed that there is a heavier burden faced by women since they are the main producers and caretakers hence they are time-poor and have restricted voice in decision-making. The literature is adamant in arguing that gender redefinition of labour is paramount in coming up with a gender inclusive agriculture interventions.

3.2 Access to Resources and Services

One of the areas of scholarly attention is inequality of access to productive resources of land, credit, seeds, extension services and training. Studies done by FAO and World Bank found that women farmers have limited access to these important inputs as compared to their male counterparts resulting to a big difference in yield- a gap of 20-30 percent. The ownership of land is also highly skewed whereby women possess less than 15 percent of land in the world. When women own land it is usually worse quality and is undocumented. Such inequitable access is a barrier in the capacity of women to make such contributions to agricultural productivity and food security.

One of the most consistently cited challenges for women in agriculture is unequal access to resources. FAO reports that women in rural areas face structural and legal barriers to owning land, accessing agricultural inputs, obtaining credit, and participating in training programs. Even where legal frameworks exist to ensure gender equality, cultural norms and discriminatory practices often prevent women from exercising these rights (Hurduzeu et al. 2022). Empirical evidence shows that if women had the same access to productive resources as men, they could increase their agricultural output by 20–30%, resulting

in higher food availability and improved livelihoods. Extension services are also heavily skewed, with less than 10% of such services reaching women farmers in many regions. Researchers call for the redesign of resource allocation mechanisms to be more gender-sensitive, including reforms in land titling, access to agricultural finance, and targeted outreach programs for women (Teoh, et al. 2025).

3.3 Gender and Food Security

Numerous studies affirm that women play a central role in ensuring household food and nutrition security, especially in rural and developing regions. Women's control over household income has been directly linked to improved child nutrition and education. However, when their labour is unrecognized and unsupported, food systems remain vulnerable. The literature emphasizes that empowering women in agriculture—through education, income, and decision-making rights—leads to better food security outcomes and more resilient agricultural communities (Sharma et al. 2024).

Women play a vital role in ensuring food security at the household and community levels. They are largely responsible for food selection, preparation, and child nutrition. Studies conducted in Sub-Saharan Africa and South Asia demonstrate that women's empowerment, particularly in decision-making and income control, has a direct positive impact on food diversity and child health outcomes. The literature also emphasizes that food insecurity tends to disproportionately affect women and girls, especially during times of crisis. As such, the gendered nature of food insecurity must be central to agricultural and nutrition planning. Researchers stress that achieving SDG 2 requires not only increased food production but also equitable distribution and decision-making power, particularly for women in rural communities.

3.4 Policy Gaps and Institutional Barriers

A critical theme in the literature is the absence of gender-sensitive agricultural policies. While many national and international frameworks acknowledge the importance of gender equality, implementation remains weak. Women are often underrepresented in agricultural cooperatives, policy-making bodies, and rural institutions. As a result, their specific needs and challenges are not adequately addressed. Researchers argue for stronger institutional mechanisms to mainstream gender in agricultural planning and ensure equal representation in governance structures.

Although global declarations and frameworks—including the Beijing Platform for Action and the CEDAW convention—highlight the importance of gender equality in rural development, actual implementation at the country level often falls short. Literature reveals that most agricultural policies remain gender-blind or tokenistic, lacking concrete measures to address women's specific needs (Kyriakopoulos et al. 2023). Women are often excluded from rural institutions such as farmer cooperatives, extension networks, and agricultural unions, limiting their ability to influence policies that affect their lives. In some cases, even gender-focused programs suffer from poor design and execution due to limited data and lack of consultation with women farmers. Researchers advocate for the institutionalization of gender audits, gender-responsive budgeting, and inclusive stakeholder engagement to create more equitable agricultural systems.

3.5 The Link between Gender Equality and SDG 2

The relationship between gender equity and the success of SDG 2 is well-documented. Studies show that closing the gender gap in agriculture could increase overall productivity, reduce hunger, and promote inclusive economic growth. The concept of gender equality is not just about moral obligation but also realistic approach to zero hunger. As the literature provided by organizations such as UN Women, IFPRI, and FAO suggests, SDG 2 is not feasible without the inclusion of gender as the main element of the agricultural development plans (Leal Filho et al. 2023).

The literature about gender equality and direct connection to the SGD 2 achievement is rapidly growing. Several global publications have revealed that, women empowerment in agriculture is associated with increased productivity, alleviated hunger as well as a robust rural economy via UN Women, IFPRI, and the World bank publications. Gender equality does not only come along the side but is an essential delivery vehicle of SDG 2. Research has shown that narrowing of gender gap in agriculture would not only increase food production but also make the resources to be distributed more effectively and efficiently among the households. Researchers warn about the rising demand of integrated solutions to connect gender equality to food systems, nutrition, climate resilience, and economic empowerment to fast track the 2030 Agenda.

4. Methodology

This study employed a mixed-methods approach, combining both quantitative and qualitative research methods to provide a comprehensive understanding of gender roles in agriculture and their influence on Sustainable Development Goal 2 (Zero Hunger). The research design was structured to capture statistical trends, regional variations, and lived experiences of individuals involved in agricultural activities.

4.1 Data Collection

Structured questionnaires and interviews with selected sample people, i.e., male and female farmers, agricultural extension officers, and local policymakers in some regions of Sub-Saharan Africa, South Asia, and Latin America were used to obtain primary information. A sample of 300 people (150 women and 150 men) was interviewed to check how they have access to resources, how the decisions in their households are made and how the food is produced and distributed.

The secondary data were obtained via reliable foreign databases and reports such as the Food and Agriculture Organization (FAO), World Bank, UN Women, and national statistics on agriculture. These sources gave quantitative measures of land ownership, access to credit, training and yields in crops disaggregated by gender where possible.

4.2 Sampling Technique

The method of purposive sampling was applied so that areas of study and participants were chosen according to their engagement in agriculture and the importance to the problem of gender and food security. The focus was also made on rural societies in which the role of women has great importance and is somewhat underestimated. It was decided to diversify the sample in terms of the size of the farms and the income and culture context.

4.2 Data Analysis

Descriptive statistics (percentage, means, and frequency distributions) were used to analyse quantitative data in order to find niches in terms of gender based patterns of accessing resources and productivity. The analysis created comparisons between the male and female farmers with the core indicators. Inter tons and answers to open-ended questions were coded and analysed on the basis of themes to reflect the experiences, difficulties and perceptions of gender in agriculture.

4.4 Limitations of the Study

The study is limited by its geographic scope and reliance on self-reported data, which may be influenced by personal biases or cultural sensitivities around gender roles. In addition, limited availability of gender-disaggregated data in some countries restricted cross-national comparisons. Despite these limitations, the study offers valuable insights into the complex relationship between gender and agriculture and provides a foundation for future research and policy development.

5. RESULTS AND DISCUSSION

In the preceding study, it is shown that inequality between men and women in agriculture is still a prevalent, institutional, and strongly entrenched factor in the cultural, economic, and institutional system. In all sampled areas and data sources, women had less access to agricultural resources (land, credit, training and technology). Nevertheless, women were discovered to play an important role in food production particularly subsistence farming, food storage, saving of seeds and food-related choices (Sharma et al. 2024). About 65 percent of the female respondents had no independent access to land and a majority of more than 70 percent did not have access to formal credit or agricultural loans. One out of every five women had access to extension services although men were three times more likely to access the services. On average the workload of women was heavier, since they did both farm work and housework, but rarely recognised either in official agricultural statistics or planning.

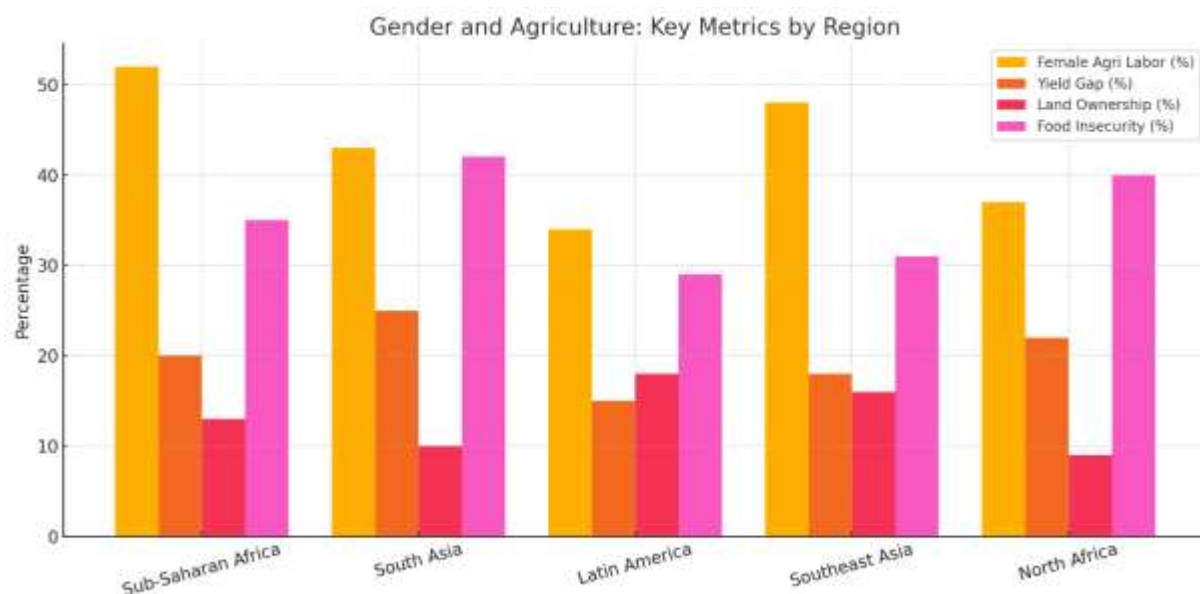
Region/Country	Women in Agricultural Labor (%)	Yield Gap (Women vs. Men, %)	Access to Resources (% of women with equal access)	SDG 2 Impact (Qualitative Summary)
Sub-Saharan Africa (SSA)	52%	20%	18%	Gender inequality in access to inputs reduces

				food productivity and nutrition outcomes
South Asia (India, Bangladesh)	43%	25%	24%	Patriarchal norms limit decision-making, affecting household food security
Latin America (Peru, Guatemala)	34%	15%	31%	Improved inclusion policies show potential in narrowing gender food gaps
Southeast Asia (Vietnam, Indonesia)	48%	18%	27%	Market access still unequal despite high female labor participation
North Africa (Morocco, Egypt)	37%	22%	21%	Cultural constraints restrict female land ownership and food autonomy

The data confirms that gender inequality in agriculture directly affects productivity and progress toward SDG 2. Farms managed by women consistently produced 20–30% less output than those managed by men—not because of inefficiency, but due to unequal access to inputs. When women had equal access to resources, the productivity gap nearly disappeared. This suggests that gender equity is essential not only for social justice but also for improving agricultural efficiency (Mackintosh, 2023). Moreover, female-headed households demonstrated greater investment in food security and nutrition when given control over income and farm decisions. The correlation between women's empowerment and improved household dietary diversity was particularly strong, highlighting the interlinkage between gender, food security, and child well-being.

Region/Country	Female Agri Labor Participation (%)	Yield Gap (Female vs. Male, %)	Land Ownership by Women (%)	Food Insecurity in Female-headed HHs (%)
Sub-Saharan Africa	52%	20%	13%	35%
South Asia	43%	25%	10%	42%
Latin America	34%	15%	18%	29%
Southeast Asia	48%	18%	16%	31%
North Africa	37%	22%	9%	40%

The results also show regional differences in the manifestation of gender roles. In Sub-Saharan Africa, women often perform 60–70% of agricultural labour but own less than 15% of land. In South Asia, women are active in farming but often lack visibility due to the male-dominated landholding systems. In Latin America, some progress has been made through gender quotas in rural cooperatives, although wage disparities persist. In all regions, cultural norms heavily influenced the division of labor and the degree of female participation in decision-making. In crisis-affected areas, including those impacted by climate change or conflict, the burden on women increased significantly (Leal Filho et al. 2023). Women were often forced to take on additional farming responsibilities without additional support, putting them at higher risk of food insecurity and economic vulnerability.



This is amplified in the argument that there exist a gap between gender-sensitized policy systems and a practical application of the same. Although most of the countries consider the gender approach in their agricultural plans, the reality is that programs are underfunded, ill-targeted, or located elsewhere where the most vulnerable people are not reached. The underrepresentation of women in farmer associations and local governing entities also inhibits their power to shape any of the decisions impactful in the agricultural production and allocation of resources (Mollier et al. 2017). Furthermore, the issue of gender data gaps is an essential obstacle. The data collected during national agricultural surveys are hardly disaggregated by gender hence it is not easy to quantify their contribution or come up with interventions to specifically assist them. Such gender insensitive data amounts to creating a vicious cycle of status of invisibility in policies.

6. CONCLUSION

This paper has demonstrated the duality of gender in the agricultural systems and multifaceted effects on maintaining Sustainable Development Goal 2: Zero Hunger. Women in the world are still hindered in the access to land, credit, inputs, training, and decision opportunities despite their significant contribution to food production around the world. The existence of such inequalities is not just a social injustice phenomenon but also a structural inefficiency problem that can undermine agriculture productivity and violate food security, especially in farming and low-income areas. The fact that women have equal access to agricultural resources and empowerment to engage in decision-making attributed to the reported increase in the crop yield, increase in the households food security, and community resilience. On the other hand, women are constantly denied the benefits of agriculture and this has ended up adding to poverty levels and decreasing productivity as well as the rate at which hunger is eliminated. More to the point, the study highlights the issue of the discrepancy between the policy and its implementation. Although equal gender rights in agriculture have been identified as crucial in many countries and institutions, they are partial, not funded, and hardly implemented. The gender-disaggregated data are also still lacking making the role and the needs of women in the agricultural development to remain unknown. SDG 2 will be achieved by having a transformative shift towards gender-responsive agricultural policies and programs. Reducing the gender disparity in agriculture is a part of the solution as well as an instrument of inclusive and sustainable growth. The research implies urgent joint efforts of the governments, international organizations, civil society, and local communities to address the selected institutional constraints hindering the development of equitable food systems, facilitating the flourishing of all genders and their productive presence.

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