Internship Report - 2022-23

Evidence based Gender Inequality in Agriculture and Food Systems in India

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ABBREVIATIONS

ADB	Asian Development Bank
AGRIS	International System for Agricultural Science and Technology
ASHA	Accredited Social Health Activist
BMI	Body Mass Index
CAB/CABI	Centre for Agriculture and Biosciences International
CED	Chronic Energy Deficiency
CGIAR	Consortium of International Agricultural Research Centers
CI	Concentration Index
CIWA	Central Institute for Women in Agriculture
DBT	Direct Benefit Transfer
EBSCO	Elton B. Stephens Company
FAO	Food and Agriculture Organisation
FGD	Focus Group Discussion
GENDER	Generating Evidence and New Directions for Equitable Results
GPI	Gender Parity Index
ICAR	Indian Council of Agricultural Research
ICDS	Integrated Child Development Services
IFPRI	International Food Policy Research Institute
IFAD	International Fund for Agricultural Development
JSTOR	Journal Storage
MDM	Mid-Day Meal
NAARM	National Academy of Agricultural Research Management
NFHS	National Family Health Survey
NIH	National Institutes of Health
NCBI	National Center for Biotechnology Information
NRHM	National Rural Health Mission
NRLM	National Rural Livelihoods Mission
OBC	Other Backward Caste
OECD/DAC	Organisation for Economic Co-operation and Development's / Development Assistance Committee
PDS	Public Distribution System
PLOS	Public Library of Science
PRA	Participatory Rural Appraisal
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses.
SC	Scheduled Caste
SDG	Sustainable Development Goals
SHG	Self-Help Group
ST	Scheduled Tribe
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
WDDS	Women's Dietary Diversity Score
WEAI	Women's Empowerment in Agriculture Index
WHO	World Health Organisation
WTP	Willingness To Pay

Evidence based Gender Inequality in Agriculture and Food Systems in India

Abstract

Despite accounting for one-fourth of the global agricultural production and having a nearly equal sex ratio, India has a significant gender gap in terms of decision making, credit access, wage disparities, farm activities, marketing, extension services, food consumption, and food production & productivity. It's been seven years since the United Nations declared the Sustainable Development Goals in 2015 to promote prosperity while also protecting our planet. Gender issues, which are an integral part of the SDG-5, achieving gender equality and empowering all women and girls, have faced numerous challenges over the years. Gender inequalities in agriculture and food systems in India have been a persistent problem. This study used systematic review technique to examine the various literatures in order to comprehend gender disparities in India's agriculture and food systems and to provide tactical solutions to close the gender gap that already exists. It was determined that there is a need to conduct more qualitative and mixed method research nationwide in number of areas like decision-making, credit access, wage disparities, farm activities, marketing, extension services, food consumption, and food production & productivity, in order to effectively close this gap in the future. Keeping an eye on the results, there is still a long way to go in order to close the gender parity and empower farm women. A conceptual framework for the effects of gender inequality in agriculture and nutrition was developed, based on the investigations. To achieve gender equality by the year 2030, a gender issues action plan is also designed. Along with that, several strategies are suggested to ensure that the gender gap in India's food and agricultural systems are minimised.

Introduction

India has advanced to fifth place in the world economy, up from tenth place in 2010 (Wikipedia), but still it remains ranked 135th out of 146 countries, with a score of 0.629 in global gender gap index (Global Gender Gap Report 2022). Despite accounting for one-fourth of global agricultural production and having a nearly equal sex ratio, India has a significant gender gap in terms of decision making, credit access, wage disparities, farm activities, marketing, extension services, food consumption, and food production & productivity. It's been seven years since the United Nations established the Sustainable Development Goals in 2015 to promote prosperity while also protecting our planet. Gender issues, which are an integral part of the SDG-5, "Achieving Gender Equality and Empowering All Women and Girls", have faced numerous challenges over the years. Gender inequalities in agriculture and food systems in India have been a persistent problem. Furthermore, it's a major problem that needs to be handled. It is seen from various reports that women face discrimination in agricultural sector, specifically when it comes to employment opportunities, wages, and benefits. Gender inequality in agriculture sector has received considerable attention. It has been argued that farm women are at a disadvantage with respect to other occupations, as they have less access to credit, technology, and infrastructure. The main reason for this is that competent organisations do not provide sufficient specific training and awareness to women or support them in places of work where they face gender-based discrimination, such as farming, dairy farming, poultry and animal husbandry. So, there is a need to achieve gender neutrality as it one of the potential tools to end poverty and hunger.

In spite of the fact that women are integrating into the workforce, they continue to play a dominant role in agricultural production and food systems in India. In fact, women even have a prominent position in agricultural based livelihoods as they undertake most of the unpaid labour such as agricultural work and childcare activities. It is well known that gender inequality exists not only socially but also economically. While women are largely responsible for the agricultural production and food system along with their domestic duties, men engage themselves in other major areas such as mining, construction and non-agricultural activities instead of working on the farm which may result in loss of income for women who usually do all tasks related to agriculture on their own without any assistance from males.

Women are disadvantaged in agriculture and food systems. For instance, women earn less than men (from the same work) because their work is not valued as productive or valued at all. Women also have less power within the household, which affects how they spend their money on household items and access to education. As a result of these factors, they often do not have enough money to buy enough food for themselves or their families – leading them into poverty traps where they must choose between having enough food in hand or buying what they need today, instead of saving for tomorrow's necessities. This means that if there isn't enough money left over after paying for basic necessities like housing costs then this person cannot afford anything else either - so it becomes an endless cycle where people get trapped working long hours every day, so that they can survive another day without being able to do anything. It is important to include women in agriculture and food systems because they are the ones who produce most of our food. About 70% of the agricultural workers, 80% of food producers, and 10% of those who process basic foodstuffs are women and they also undertake 60 to 90% of the rural marketing; thus making up more than two-third of the workforce in agricultural production (http://www.wikigender.org). If their wages were raised, then there would be less poverty for all families across the nation. The problem is real and widespread. While there has been some progress in reducing gender inequality in agriculture, the number of women working on farms has increased only marginally over the past decade. Women are also less likely to have higher education than men, which makes them less likely to be able to enter into different positions within agriculture or food systems.

Since late 20th century there have been a good economic growth in India, still there is a state of food insecurity among the female counterpart due to diverse inequalities, such as restricted access to production assets, education, unpaid work, decision-making (Rao, 2006). In India, there are inequalities within the genders of food consumption. Some regions demonstrate women eat primarily more carbohydrate-dense foods and vegetables than men and sometimes it decreases significantly lower in order to feed their family. According to a recent report by the United Nations, India has the widest gender gap in food consumption in the world. In India, women consume an average of only 59% of the calories that men do. This is largely due to cultural factors, such as the fact that women are often not given the same priority as men when it comes to food. Women suffer from many forms of inequality, including in the realm of food consumption. The National Family Health Survey-5 (2019-21) points out that nearly 57% of women (15 - 49 years) in India are anaemic which rose from 53% in the previous survey (NHFS- 4). The daily intake of food among women is also lower than men,

as per the survey. They are often denied the same access to food as men, and when they do have access, they often lack the ability to make decisions about what to eat. This has lead to serious health problems, both in the short and long term. Greater the gender inequality in the society, the greater is the prevalence of hunger and malnutrition. Food security can only be attained only when we will successfully overcome gender inequality. According to a published report, 149.8 million women went hungry in 2021 which was 60.6 million when the 17 Sustainable Developmental Goals were formed at the UN summit in 2015 (CARE, 2022).

India is a land of contrasts where contradictions abound. This holds true when it comes to food as well. While there is an increasing awareness about gender inequality and its effects on society, when it comes to food, women are still not getting their fair share. In fact, they are eating less than men, both in terms of quantity and quality. This needs to change if India is to progress as a nation. One of the most formidable challenges that any government can take up is to address gender inequality in agriculture and food systems in India, so as to make them more equitable and sustainable. Gender inequality in agriculture, which is mostly understood as the domination of men over women in agricultural activities, has been reported to have serious repercussions on a number of factors including female empowerment and food security.

However, it can be easily overcome through effective strategies like education programs, awareness camps and gender specific policies & programs to address this issue through the integration of all the stakeholders at various levels. In order to effectively address gender issues, agricultural extension services are essential since they are connected at the grassroots level, where problems can be resolved and eventually stopped. And if that happens, it will be possible to combat global hunger and food insecurity as gender inequality is a key cause of both. However, in reality, extension services do not explicitly focus on women and gender; they frequently overlook the significant labour that women provide to agriculture and structural factors, including their domestic responsibilities, which can restrict the sort of training that is available to them. Government should therefore concentrate on integrating gender, recognising and meeting the diverse training needs through extension services.

1.1 Objectives of the Study:

With these backgrounds, following study on "Evidence based Gender Inequality in Agriculture and Food Systems in India" was undertaken with the following specific objectives:

- **To review the secondary sources in order to understand gender inequalities in agriculture and food system in India**
- **To suggest strategic measures to address the existing gender gap in agriculture and food system in India**

1.2 Limitations of the Study:

One of the major limitations of the evidence mapping exercise is the year of publication, year of study and geographical area i.e. India as an inclusion criterion. The cut-off year 2015 was selected both for publication and study year too so as to check the recent research initiatives and outreach of study themes on gender inequality in agricultural and food systems in India since the formation of the SDGs by the UN Summit. As a result, it does not include studies and historical evidence (published or studied prior to 2015) that may have influenced the current state of knowledge and practices and gender research initiatives. So there are thin evidences based on some of the sub-themes of interest in the current study. Secondly, papers published in English language have been included and papers in other Indian languages that may be relevant for various regions across India were excluded.

The current study had adopted a conservative definition of evidence (LEAD, 2021) and includes only journal articles. This leads to the exclusion of some relevant 'grey literature' so on which do not fall under the category of journal articles.

METHODOLOGY

In the light of the objectives of the study, systematic review technique was used to identify and analyse the literatures on gender inequality in agriculture and food systems in India.

A systematic review can well be said as a scientific investigation that focuses on a specific question and employs explicit, planned methods to identify, select, assess, and summarise the findings of related but distinct studies. Generally systematic reviews have several advantages. To begin with, they provide a clear and comprehensive overview of the available evidence on a given topic. Furthermore, Systematic reviews aid in the identification of research gaps in our current understanding of a field. They can identify methodological issues in research studies and use them to improve future work in the field. Finally, they can be used to identify questions for which the available evidence provides clear answers and thus no additional research is required (Peričić and Tanveer, 2019).

The basic objectives of systemic review are:

- To provide high quality, pertinent and up to date information.
- To eliminate bias through explicit research questions and methodology.

Characteristics:

- Comprehensive search to find relevant literatures
- Explicit methods of inclusion and exclusion
- Establish standards to appraise quality of study
- Precise methods for extracting and synthesizing study findings

Uses:

- Identifies, evaluates, and synthesises all available research relevant to a specific review question.
- Assembles all literatures on a specific topic and identifies the basis of that literature
- Comprehensive report using explicit processes, allowing external parties to examine the rationale, assumptions, and methods.
- It is possible to replicate and update

Limitations

- Systematic reviews with narrowly defined review questions yield specific answers to narrowly defined questions.
- Alternative questions that have not been answered usually require the reader to reconstruct them.

Steps in a systematic review:

1. Creation of a precise research question
2. Developing a research procedure
3. Conducting literature review
4. Choosing studies based on the procedure
5. Examining studies in accordance with procedure
6. Extraction of Data
7. Analysis and Interpretation of Data

The research was explicitly conducted on desktop mode, in three stages. It was based on a comprehensive secondary literature review of 26 resources that included qualitative, quantitative and mixed method studies on **gender inequality in decision making, farm activities, marketing, credit access, extension services, wage gap in agriculture, food production & productivity and gender inequality in food consumption** in Indian food systems since 2015.

- **Stage 1: Literatures from various database on broader aspect.**

  This comprised of a broad review of literatures using various key words used in the study. Evaluation reports and grey literature were obtained from websites of major donor organizations including CGIAR GENDER, JSTOR, EconLit, AGRIS, PLOS, NCBI, NIH, IFPRI ebrary, AgEcon Search, CAB Direct, EBSCO, USAID Lib, USDA, FAO, IFAD, World Bank, ADB, Google (advance search), Google Scholar, Science Direct, CIWA, PRO QUEST and OECD/DAC.

  The search keywords in the title and abstract included: gender, gender gap, wage, wage gap, decision marketing, credit access, Productivity, extension services, gender schemes, training, gender tools, marking, food systems and food consumption. The search terms narrowed the selection of agricultural sectors to programs prioritizing combinations of gender inequality in decision making, gender inequality in food consumption pattern, gender inequality in India, agriculture and gender inequality.

  In the process of listing, 3973 literatures were identified in relation to the gender inequality in agriculture and food systems of India across the 8 identified themes under it. A duplication search eliminated 338 articles, leaving 3635 articles. Of these, 460 literatures were screened on the basis of their titles and abstracts. Finally 31 articles were left after assessed based on the inclusion-exclusion-1 criteria and clarity of research methodology for the study (Table no. 1).

- **Stage 2: Additional literature through snowballing of references and bibliographies**

  1519 more literatures were identified, after snowballing of the 31 literatures left after stage-1 and were again put into thorough screening process. After removal of the duplications identified, 953 papers were selected. Of these only 75 were left, for stage-3, after screening on the basis of inclusion-exclusion criteria-1.

Table No. 1 Inclusion - Exclusion Criteria 1

Head	Inclusion Criteria 1	Exclusion Criteria 1
Geography	**India**	**Other than India**
Time period	**Published from 2015 onwards**	**Published before 2015**
Language	**English**	**Other than English**
Type of Studies	**Peer-reviewed - conforming to quality and relevance criteria**	**Blogs, newspaper articles, web pages, newsletters, press releases**

- **Stage 3: Refining of the literature according to the need of the study**

  After summing up the literatures from **Stage 1** (31 articles) and **Stage 2** (75 articles) screening process there were a total of 106 articles. Then finally these papers were studied thoroughly on each and every aspect based on the eligibility for inclusion-exclusion criteria-2 and ended up with **26 papers** for the current study (Table No. 2).

Table No. 2 Exclusion Criteria 2

Exclusion Criteria 2
• **The study period of the published literature before 2015.**
• **The literature must satisfy the objectives of the study.**
• **Documents without clear methodology and sample selection criteria**
• **Documents without clear Study Period.**
• **Review articles, Policy brief, Conference proceedings**

PRISMA Flowchart

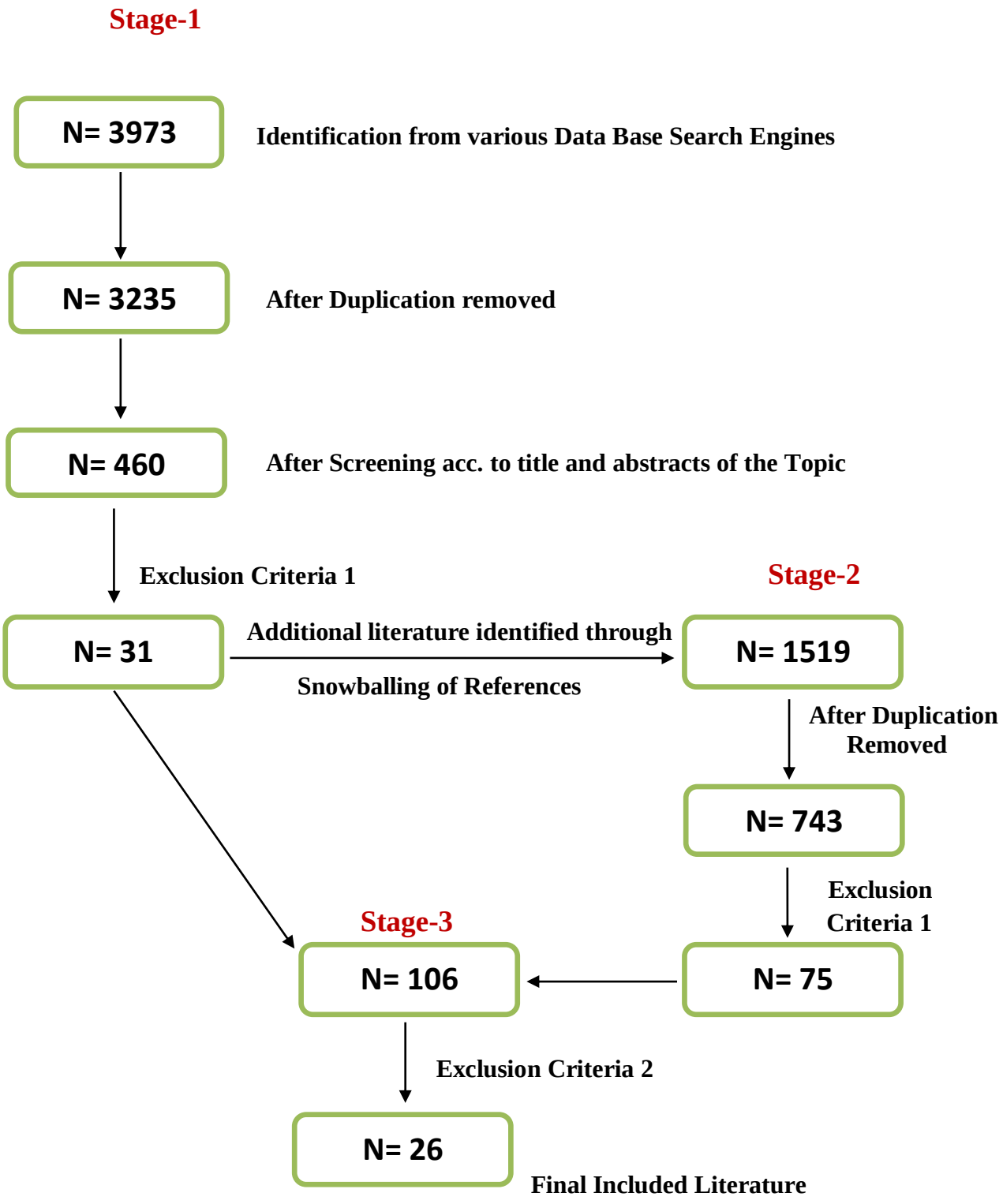

Figure 1: Procedure for Systematic Review of Evidence

RESULTS & DISCUSSION

1. **Nutritional outcomes of empowerment and market integration for women in rural India**
   Soumya Gupta, Vidya Vemireddy & Prabhu L. Pingali, 2019,
   Food Security Journal (Springer)

   The quantitative study was conducted between March and May 2017 with the goal of analyzing the relationship between market purchases, women's empowerment in agriculture, and dietary diversity among 3600 respondents across three States, namely Uttar Pradesh, Bihar, and Odisha. Women employed in agricultural activities were approximately 20-30% of the labour force in each of these districts. A quarter of those involved in these activities were farmers, while the remainder being agricultural laborers. Women in each district consumed four food groups out of ten on an average in the previous 24 hours. Cereals are the most frequently purchased per capita food group, followed by protein and micronutrient-rich foods. The findings also revealed that non-cereal market purchases (pulses, dairy, eggs, and meat, fish, poultry (MFP) were significant determinants of women's dietary diversity. Meat, eggs, and dairy products had the lowest per capita purchases. Munger has the highest market purchases of pulses, vegetables, eggs, dairy, as well as meat and fish. It was also discovered that empowering women in terms of market purchase improves the relationship between the quantities of pulses, eggs, meats, and dairy products purchased and the diversity of their food intake.

   Despite the fact that women have considerable representation in the agricultural activities, they could only consume 4 food groups, as they are not empowered to market the food items for family consumption. There was a positive relation between diet diversification and women empowerment w.r.t. buying food items for family consumption. So, farm women are to be empowered economically, particularly for buying food ingredients, so that they can improve the nutritional status of the family and themselves.

2. **Improvements to Female Autonomy and Household Decision-Making Power from an Intervention Targeting Improved Food Security: A Gender-Based Analysis of the Rajasthan Nutrition Project**
   Lindsay M. Belvedere, Siena F. Davis, Bobbi L. Gray, Benjamin T. Crookston, 2021
   Health journal

   The study was conducted with the goal to evaluate the observed changes in dietary habits and nutrition, as well as indicators of gender equality, female autonomy, and empowerment, as a

result of the Rajasthan Nutrition Project from 2015 to 2017. The quantitative study's data was gathered through a pre- and post-survey technique among female respondents in the Rajasthan districts of Banswara and Sirohi of Rajasthan. The differences between the baseline and endpoint are encouraging, indicating that the RNP is an intervention worth investigating further. Dietary habits and nutrition improved between the baseline and end line assessments of RNP, as did several indicators of gender equality, female autonomy, and empowerment, according to the study. The RNP resulted in significant improvements in household decision-making, communication, and mobility. Decisions about food purchases made by both the husband and wife increased from 24.8% to 48.7%. At the same time, decisions about food purchases made solely by the wife fell from 19.6% to 8.8%, while decisions made solely by the husband fell from 36.7% to 18.3%. These variations were all statistically significant. Women's decision-making power over how much food to serve to family members increased as well, with the wife, making the decision alone increased from 40.5% to 66.3% and both spouses making the decision together increased from 11.7% to 18.8%. Furthermore, the percentage of husbands who made the sole decision about how much food to serve to family members fell from 30.8% to 3.2%. These findings suggested that the RNP could be a potentially effective intervention.

Like Rajasthan Nutrition Project, more such target based programs should come up in especially in rural areas in order to equalize the gendered decision making for household dietary purchase which in turn helps in ensuring nutritional security of the family. Other such gender inequality dimensions can also be experimented.

3. Factors Affecting Decision Making Of Farm Women In Nayagarh District Of Odisha

Swati Sucharita and Indira Bishnoi, 2015

Progressive Research - An International Journal

A quantitative study was conducted in Odisha in 2015 with the goal of analyzing various factors influencing the decision-making process of farm women. The findings of the survey on 100 farm women revealed that majority of them had low social participation, with their involvement being concentrated in land preparation and harvesting operations and very limited in farm produce marketing. It was also discovered that farm activity decision making was primarily a male domain, with female participation in household decision making being minimal. A more comprehensive strategy, according to the study, would allow women to access community resources, challenge traditional norms, and access economic resources, eventually leading to women being more autonomous in decision making.

In areas where there is low female participation and decision making in farm as well as household works, such sensitization interventions should include both the gender in order to make them aware about their roles, breaking the traditional gender stereotypes.

4. **A study on gender disparity and female agriculture worker participation in decision making at Thanjavur district**

   Dr. G.S.Subashini and Dr.P.Vijayalakshmi, 2019

   Journal of the Gujarat Research Society

   With the objective of investigating gender disparities in labour force participation rates, the extent to which women lag behind men in wage payment in agricultural operations, and the effects of socioeconomic characteristics of women farmers on their participation in farm decision-making. The quantitative study's data was gathered from secondary and primary sources from Thanjavur district of Tamil Nadu. The average wage rate of male and female workers in rural areas in Thanjavur district was found to be less for female workers when compared to male workers in 2012. The wage rate for male was 200 to 250 rupees and female was found to be 100 to 150 rupees in 2017. The study also found that respondent's socio-economic characteristics such as annual income, educational level, farming experience, and farm size influenced their participation in farm and family decision-making in Thanjavur district.

   Labour market discrimination, education, experience and skill are still important factors prevailing in the society that contribute significantly to the gendered wage gap. Though with time the wage of the female farmers increased but still it is not at par with respect to male counterparts with can be addressed by educating and sensitizing the community on "Equal Work – Equal Wage" irrespective of any other factors.

5. **Women Self Help Group: A tool for Improving Decision Making in Agriculture Activities and Household Food Consumption Pattern**

   Veena Kumari, 2018

   International Journal of Current Microbiology and Applied Sciences

   The study was conducted in Saharsa district of Bihar during the year 2015-16 with the goal of examining the socio-economic conditions, role of SHG on women in decision making, changes in food consumption pattern of selected households before and after joining the SHG, and changes in the ability of the respondents while allocating the household income on various household expenditures. It was discovered that the decision making score of women

members after joining SHGs was significantly higher than that of women before joining SHGs. Except for cereals, all food items showed an increase in consumption of more than or equal to 40% after joining the SHG. It was also revealed that the farm women were engaged in agriculture activities on a regular basis, working as agricultural labourers and engaging in other activities. Farm women's lack of participation prior to joining the SHG may be due to low self-confidence, lack of knowledge, their belief that women are subordinate to male counterparts, illiteracy, a lack of access to farm information, and other factors. Participation in SHGs also helped them to get aware of the importance of food diversity. They had increased their income, due to adoption of improved package of practices and income-generating activities.

SHGs, the world's largest microfinance project, which was started to enhance the income of the marginalised, had been addressing a lot more than what it ought to be. It has been quite successful in empowering women to a great extent in terms of skill, participation, decision making, nutritional security, etc. The SHGs can further be strengthened as a Community Mobilization Organization to empower women and address gender issues in agriculture and food systems in India.

6. **What determines women's agricultural participation? A comparative study of landholding households in rural India**

   Itishree Pattnaik, Kuntala Lahiri-Dutt, 2020

   Journal of Rural Studies (Elsevier)

   This quantitative study sought to identify factors influencing rural women's labour contribution in agriculture in India, both on family farms (as cultivators or as family labour) and as agricultural wage labourers. It was based on the analysis of primary data derived from a survey of 800 households from the Indian States of Gujarat and West Bengal. While women's labour contribution in farms is high in both the States, their roles in decision-making are generally not significant within the households, with some exceptions. It was also discovered that in Gujarat, women's roles in agriculture are subordinate in cash crop-dominated, higher-income, and higher-caste households, and are primarily confined to performing tasks as unpaid family labour. In West Bengal, a State with lower income, more land under cultivation, and a higher incidence of poverty, an increase in income has no positive impact on women's work on family farms or as wage labourers. The survey also revealed that cash income does not necessarily increase women's autonomy in spending their earnings or making decisions about the family and the farm. Major decisions were made

solely by male members. Even when both men and women participated in economic activities, decisions about livestock, education, health, and small family purchases were made jointly, but decision making in farm-related activities was extremely low.

We are in the 21st century but still class and caste are the driving force for the women participation in the agricultural activities prevailing in many of the Indian states and major decisions are being still being taken by the male counterparts leaving a limited scope for the females. This can only be changed through education and awareness programs, including the spouse and the whole family to sensitize the family on the importance of gender equality.

7. **Food System Disruption: Initial Livelihood and Dietary Effects of COVID-19 on Vegetable Producers in India**

   Jody Harris, Lutz Depenbusch, Arshad Ahmad Pal, Ramakrishnan Madhavan Nair, Srinivasan Ramasamy, 2020

   Food Security Journal (Springer)

   A quantitative study was conducted through a rapid telephone survey with 448 farmers in four states, namely Jharkhand, Andhra Pradesh, Karnataka, and Assam, with the specific goal of investigating the effects of this multi-layered shock on production, sales, prices, incomes, and diets for vegetable farmers in India, both as producers and consumers of nutrient-dense foods. Vegetable consumption increased in a significant proportion of the households, with a 12% increase. The main reason for the increase in vegetable intake was due to own farm produce availability. Women farmers were significantly more likely than men to report a greater reduction in consumption of vegetables, fruits, and dairy when other factors were controlled for, and they were significantly less likely to be able to afford vegetables than men. Fruit and animal source foods other than dairy saw the greatest decrease in consumption, accounting for roughly half of all the households. Consumption of pulses, dairy, and vegetables has decreased in 20-30% of the households. According to the data, female farmers were more vulnerable in terms of both livelihoods and diet due to the pandemic, as they used more mitigation strategies to first secure their income and then to secure their diet.

   The COVID-19 pandemic was a one-of-a-kind pandemic with a multi-stakeholder impact. Though there had been an increase in vegetable consumption among the farmers, there had also been a decrease in consumption of other food groups related to animal sources, fruits, pulses, and so on. During these times, majority of the marginalised families used various

mitigation strategies to secure their diet and income, with the female members in the family bearing the cost of such brunts.

8. **Gender, time-use, and energy expenditures in rural communities in India and Nepal**
   Fiorella Picchioni, Giacomo Zanello, C.S. Srinivasan, Amanda J. Wyatt, Patrick Webb, 2020
   World Development (Elsevier)
   The study was conducted in Telangana state in India and Province No. 3 in Nepal during 2017-2018 to explore the time-use and energy expenditure profiles for men and women in rural areas. It was found that in the two case studies' rural agricultural households, men and women participated almost equally in several aspects of productive work, such as crop production and livestock maintenance. Productive work consumed the majority of the energy expended by both men and women, while reproductive work accounted for the least share. It was also observed that the reproductive work appears to be less elastic to seasonality, implying that extra seasonal productive work done by women is compensated at the expense of leisure time. The data also indicated that the productive asset ownership, household composition, and agricultural seasons appeared to be important factors influencing the energy and time allocations of selected rural households in India and Nepal.
   Many sources claim that women farmers spend the majority of their free time doing reproductive work than their male counterparts. Reducing women's workload from complementary services can save them energy and time, which can otherwise be put to better use in farming and childcare. Time poverty is emerging as one of the gender issuesin agriculture, posing several health issues to them, in addition to their drudgery prone activities. Gender division of role is key to be encouraged in order to relieve woes for the triple burden.

9. **Can Women's Self-Help Groups Improve Access to Information, Decision Making, And Agricultural Practices? The Indian case**
   Kalyani Raghunathan, Samyuktha Kannan, Agnes R. Quisumbing, 2019
   Agricultural Economics (Wiley)
   In an attempt to study the impact of SHG membership on agriculture pathway (access to inputs, markets, and technical knowledge), income pathway (access to finance, leading to increased income and asset accumulation) and empowerment pathway (women’s role in decision-making), the study was done in eight districts across five States in India i.e Odisha,

Madhya Pradesh, Jharkhand, Chhattisgarh, and West Bengal with a sample size of 1540 during 2015. With regard to the Agriculture pathway, it was revealed that women's groups improved access to information, but did not significantly increased the use of improved agricultural practices, number of crops grown, or diversification in cultivation. In terms of Income pathway, SHG membership had significant impact on access to bank accounts, loan taking behaviour, and consumer durable expenditure, though not on food-related expenditure. Coming to the third aspect of Empowerment pathway, it was found that women improved their decision-making power around agriculture, and the gender gap in empowerment within the household decreased. Further the report also predicted that NGOs working with SHGs can break the knowledge barrier by providing agriculture extension services directly to the poor women, and improve women's control over household income and suggested to identify the gaps between knowledge and practice; the SHG impact pathways through SHG programming and policy research.

SHG since its inception in India has been doing a commendable work in empowering women through improved decision making and also narrowed down the gender gap that was more prevalent in rural context. Government should frame policies to support existing SHGs and strengthen them to establish as a potential tool of women empowerment as it is easily adopted by the rural women and much popular among them.

10. Gender Perspective of Conservation Agriculture

Ujjwal Kumar, Ramesh Chandra Bharati, Ravi Kant Chaubey, K Rao, Ved Prakash, Abhay Kumar, 2018

Indian Journal of Agricultural Sciences

This quantitative study was conducted in Bihar during the cropping period 2015-16 to analyse gender segregated key benefits, advantages, disadvantages, issues, and key decision processes and criteria for Conservation Agriculture technology adoption. It was revealed that the technology was found to be useful. Some of its important features were labour reduction, time saving, higher yield, cost saving, low tillage cost, and reduced drudgery. It was also clear that all women's group expressed a positive response to drudgery reduction through the use of CA technologies. The labour reduction was primarily due to less labour required for nursery preparation, tillage, and replanting. Weed control, poor germination, and poor machine operation skill were among the major constraints affecting the performance of CA technologies.

Drudgery is one of the major problems in agriculture sector and was observed to have reduced to a considerable extent by integration of Conservation Agriculture technologies. Other than drudgery it had also helped in labour reduction, time saving, higher yield, cost saving, lowering tillage cost.

11. Gender Mapping in Vegetable Cultivation in Sangrur and Patiala districts of Punjab
Ritu Mittal and Gurmehar Kaur, 2021
Indian Journal of Extension Education

The quantitative study was carried out in Punjab with the specific aim of investigating gender participation in vegetable cultivation. According to the findings of this study, males participated significantly in preparatory activities, procurement of inputs except seeds, all activities of nursery management, and land preparation. Women were found to participate in hoeing and weeding in various intercultural operations. Participation of male was significantly higher in irrigation, earthing, and thinning. Male participated in all plant protection measures and fertiliser application significantly higher than female. Women, on the other hand, participated significantly more than men in harvesting of all vegetables. Female participation in post-harvest handling practises was significantly higher in cleaning and grading of the vegetables. Males participated significantly higher in vegetable marketing than females. Infact female in marketing was negligible. This study also suggested that extension agents identify farm women as potential trainees for these agricultural activities so that they can contribute more to family income and agriculture economics in general, as well as to sensitize rural populations to send farm women to such trainings.

In agriculture production, there has always been a gendered division of labour. For instance, male partners typically handle the more scientific and skilled tasks, such as nursery management, land preparation, plant protection measures, irrigation, earthing, thinning, fertiliser application, and marketing, while female partners handle hoeing, weeding, harvesting, washing, and grading. To alter this gender-based division of labour, there is a need to sensitize the whole farmer fairly so that they don't have set gender stereotype mentality and assign/ limit their role based on gender.

12. **Role performance of farm women in mushroom farming and development of a gender sensitive entrepreneurship model for enhancing income**

    Lipi Das, N Lugun, S Mahapatra, SK Srivastava, SK Mishra, AC Hemrom, S Pattanaik, 2020

    Journal of Pharmacognosy and Phytochemistry

    A quantitative study was conducted in Odisha with the specific goal of analysing the gender role with respect to awareness level, role performance, perceived training needs according to their knowledge and skill gaps in mushroom farming, and developing a gender sensitive entrepreneurship model for enhancing skill and income of women farmers. According to the study, cent percent of the women were fully engaged in compost preparation, mushroom production, watering, and harvesting, while 66.5 percent of the women were involved in income management and the same percent of men were involved in marketing. The farm women had complete control over irrigation and spawn production. The findings also revealed that farm women had no access to or control over the most important financial resource, bank credit, which was a matter of concern. Women were mostly involved in packaging (90%) and harvesting (62.5%). Farm women's awareness level was the highest in case of mushroom identification, with a mean score of 1.8, followed by crop duration and preparation of value-added products, with mean scores of 1.73 and 1.38 respectively. Farm women's perceived training needs for knowledge and skill enhancement revealed that they required training in post-harvest management, marketing, harvesting, packaging practises, and spawn production.

    Mushroom cultivation is one of the gender-sensitive entrepreneurship avenues for empowering women farmers because it can be done in a small area in and around the home of the women, therefore it is quite suitable for them as they can simultaneously focus on other and household activities. Additionally, this would generate a respectable net income in a short span of time. This study also showed the female farmers' interest in and attitude towards mushroom cultivation. Mushroom cultivation and many such livelihood security skills should be popularized among women so that they establish themselves as entrepreneurs and become economically empowered. But gender dimensions should be adequately addressed in any such enterprises, so that they are benefitted out of it.

13. Doubling Farmers Income through Gender Specific Interventions

J. Charles Jeeva, S. K. Srivastava, Anil Kumar, Sabita Mishra, A. K. Panda, Jyoti Nayak, S. Tanuja, Ankita Sahu, B. C. Behera, M. Prusty, Subrat Kr. Das, 2020

International Journal of Current Microbiology and Applied Sciences

With the objectives of profiling income generating activities of farm families and identifying points of interventions; conducting micro level studies to identify gender concerns and technological gaps in doubling farmers income; implementing technological modules for enhancing productivity with an aim to enhance farm income with emphasis on integrating gender roles and to study the impact of the interventions to develop a gender-sensitive model for doubling farmers' income, the mixed method study was conducted in a cluster of 50 farm women from selected villages in Odisha during 2017-2020. The study revealed that a gender sensitive model for increasing farmers' income by addressing gender concerns and technological gaps was developed, and gender perspectives were integrated through access to productive resources and extension services among farm families, community counselling and gender sensitization, and promotion of community organisations such as knowledge groups of men and women. Training, demonstrations, capacity building programmes, input support and advisory services, and promotion of high yielding varieties and hybrids were used to design and implement the need-based modules. Between 2017-18 and 2019-20, the impact of field level capacity building and technology transfer programmes were revealed in terms of an increase in annual farm income from Rs. 89,300/- to Rs. 1,51,200/- (69% increase), and an increase in cash in hand among farm women (mean annual savings) from Rs. 18,000/- to Rs. 42,000/- (113% increase). The study also recommended focusing on promotion of agricultural education among farm women, development of well-structured gender sensitive modules for effective technology transfer, gender mainstreaming in government programmes and policies, building resilience among farm women to deal with natural disasters and climate change, and the development of a database on women's participation in agriculture to mainstream gender in agriculture.

The article offers concrete evidence on how gender-specific interventions can help farmers raise their income and work toward doubling it. Small changes in the promotion of knowledge, skill, and access to useful resources can have a big impact on their net income. And to achieve a better outcome across the country, this strategy can be adopted in all other States.

14. **Gender roles in seed storage and management**

Laxmipriya Sahoo, M.P.S. Arya, Chakradhar Patra, Manoranjan Prusty, Ankita Sahoo and Monalisha Sahoo, 2020

International Journal of Science, Environment and Technology

An empirical study was conducted in selected villages of Odisha to assess gender involvement in seed production, processing, packaging, and storage. The study's findings revealed that, while both men and women played important roles in seed production and management, women were more visible in activities such as harvesting, cleaning and grading, packaging, and storage, whereas men were more visible in threshing and seed treatment. It was also discovered that farm women had good knowledge and consistently used ITKs for storing green gram and arhar seeds.

Women farmers have more knowledge on seed treatment and seed storage and its management. But the results of this study highlights that men were more engaged in seed treatment. This indicates a gender role reversal. Similar gender role reversal or equal sharing activities is expected and desirable at a larger scale to end gender division of role in agril. and household activities.

15. **Problems Concerning Women's Participation and Dropout from Self Help Groups in Koraput District of Odisha, India**

Moumita Baishya, Ananta Sarkarand, Shivaji Argade, 2020

International Journal of Current Microbiology and Applied Sciences

A quantitative study was conducted in selected villages of Odisha with a sample size of 200 respondents to identify the issues concerning women's participation and dropout from Self Help Groups. According to this study, major problems faced by women SHGs members included lack of transportation, long distance to market, lack of training on economic activity, members not attending meetings, and no economic activity other than micro lending. Non-members faced major challenges due to lack of transportation, lack of training in economic activities, long distance between markets, and the group leader's dominance. This study also suggested that the organisations behind the formation of SHGs conduct a review and audit of their financial records to avoid fund divergence by leader and irregular monthly savings. Furthermore, regular rotation of leadership among group members, regular training on income-generating activities by government organisations or NGOs and government improvements in transportation facilities would undoubtedly encourage women's active participation in SHGs and discourage their dropout.

Although SHGs play an important role in rural areas, particularly for women in their economic empowerment, there are some significant gaps. These issues must be addressed at the organisational level so that these micro economic activities can be more successful and contribute in their economic empowerment. Strengthening the SHGs by monitoring the execution of its primary objectives rather than simply lending and borrowing of credit which is done by majority. Proper capacity building should be done in order to increase and support members' entrepreneurial activities in SHGs and aid their growth, while those of non-members will aid in greater participation in the organisation.

16. **Gender Role Analysis for Institutionalizing a Women-Centric Rice Value Chain Model**
Lipi Das, P.S. Sethy, S.K.Srivastava, S. K. Mishra, A. C. Hemrom and S. Pattanaik, 2020
International Journal of Current Microbiology and Applied Sciences

A quantitative study was conducted in a selected block of Odisha's Cuttack district to analyze the gender role for institutionalising a women-centric rice value chain model and to establish a comparison between men and women in rice farming. The study found that there was equal access of both the genders resource, credit, and other facilities, but men had more control over them. Women farmers were fully aware of summer ploughing, fertiliser application schedules, and stages of value addition, which were ranked first in the awareness level ranking, followed by suitable variety of paddy for their location, but were least aware of critical periods and dough stage of paddy cultivation. According to this article, women farmers needed training in pesticide application and disease management for safe and profitable farming.

People are becoming more gender sensitive, but there is still a long way to go. In this case, access to all stakeholders is now shared equally by both genders but controlled by the male farmers. Mere access to resources has no meaning until and unless women have control over those resources, which they can use according to their need / requirement. Sensitization of the community needs through such organisations like ICAR-CIWA, to ensure that access is coupled with control at the family & community level.

17. **Gender based involvement of agro-input dealers in extension activities in Maharashtra state, India**

    S. Argade, A. Sarkar, S. Mishra, 2015

    International Journal of Agriculture Sciences

    An empirical study was carried out in a few districts of Maharashtra to determine the extent to which agro-input dealers are involved in extension activities. It was found that majority (53.34%) of the men agro-input dealers were less involved in extension activities, whereas majority (66.67%) of the women agro-input dealers were moderately involved in such extension activities. It was observed that the women agro-input dealers were unable to overcome socioeconomic barriers that were impeding their contribution to agricultural development, which was a barrier for women agro-input dealers to realise their full potential. It was also suggested that all stakeholders be encouraged to participate in the creation of awareness and capacity building of agro-input dealers in order to effectively equip them with skills and knowledge, which was critical in dissemination of farm technologies. It was also necessary to target women agro-input dealers in order to strengthen them through policy support for effective farm technology transfer.

    Although involvement of women in agro-input sector in this case was more than that of men, still they were unable to perform to their full potential due to existing socio-cultural norms. As a result, this must be suitably addressed through increased awareness and capacity building of input dealers through the EAS to provide them with the necessary knowledge and skills. Trained women agro-input dealers can also be used as a channel to reach out to women farmers to create awareness, built their capacities and motivate them to take enhanced participation in extension activities.

18. **Integrating Gender and Nutrition within Agricultural Extension and Advisory Services**

    Satarupa Modak, Suchiradipta Bhattacharjee, Saravanan Raj, 2018

    National Institute of Agricultural Extension Management (MANAGE) Discussion Paper

    Using mixed methods research strategy the study was conducted in Telangana State in 2017 and was published by MANAGE, Hyderabad with the objectives to understand the status of gender and nutrition as part of AEAS in different regions of the world; find out extension approaches adopted by various organisations to address gender and nutrition in AEAS in India; to critically analyse the challenges faced by the existing AEAS and opportunities for strengthening these services. According to the study, India has more than one-third of the world's undernourished children, and progress in combating under nutrition has been slow.

Women are in a unique position to improve household nutrition because they are primarily in charge of growing, purchasing, and preparing foods. Despite this, most developing countries' extension systems fall short of meeting the needs of female farmers and rural women. Gender and nutrition as a new cross-cutting theme of Agricultural Extension aids in the development of more robust, gender-responsive, and nutrition-sensitive institutions. Nutrition is a well-established, scale-proven mechanism for implementing effective extension approaches to provide improved advisory services to both men and women farmers. Problems identified in this study included lack of sensitised workforce, fewer female extension workers, lack of participation, and food intake misconceptions. Recommendations suggested that a family approach, rather than a group or individual approach, was required to prevent malnutrition, as well as increase efforts to educate grassroots workers about nutrition.

Gender in Agriculture and Nutrition goes together and should be addressed as core theme when implementing interventions on gender and nutrition. It should be looked as one concept if we need to address malnutrition & nutrition security because women play significant role in the family's food and nutritional security.

19. **Heterogeneity in male and female farmers' preference for a profit-enhancing and labour-saving technology: The case of Direct-Seeded Rice (DSR) in India**

    Pramod K. Joshi, Md Tajuddin Khan, Avinash Kishore, 2019

    Canadian Journal of Agricultural Economics (Wiley)

    An empirical study was conducted in Maharashtra with a sample size of 666 to examine male and female rice farmers' heterogeneity in preference for DSR with drum seeders. Both men and women preferred cheaper drum seeders and were more likely to adopt them if they were heavily subsidised from their current market prices. However, it was observe red that women are more interested in implementing DSR with drum seeders and were willing to pay more for it than the men in their families. Part of the data also showed that women had significantly less influence than men in household decisions about farming, such as crop selection, input purchases, and the adoption and purchase of new technologies and equipment. At the same time, it was also seen that, while women had less say in their family than men, they were not completely powerless. In fact, they had a significant influence on many household decisions. This study concluded by suggesting that existing development programmes, agricultural extension efforts, and policies to promote technology adoption in agriculture should not ignore women when promoting new climate-smart technologies, products, or practises, as this may reinforce gender inequalities.

Male and female farmers have different preference for the seeds, varieties and other agro inputs. Therefore any intervention or program designed to promote a technology / preferential varieties should consider these facts in order to address gender needs in agriculture.

20. Rural women and agricultural development in India

Archana Behera, 2019

International Journal of Development Research

In order to study the role and importance of rural women in agricultural field; to find out the gap between men and women in access to resources, service, support and opportunities, a quantitative study was conducted in selected districts of Odisha. It was found that women are burdened with dual work as they work in agricultural field and also does household activities. They did the same work as men, such as sowing, harvesting, weeding, and finally transporting the grains to the market. Besides from field work, they are also involved in farm production, which provides an additional source of income. It was also noted that the reasons for working in the field were 50.0% by choice and 50.0% due to poverty and unemployment. In crop production, the wages of women differed from those of men, but their investment in terms of time was more. It was therefore suggested that providing new technical know-how to female farmers would improve their agricultural skills and practices, thereby gender mainstreaming in agriculture.

There is clear gender division of role and a significant gap in terms of access to & control over resources in agriculture. Therefore package of practices should be developed considering gender division of their roles. Also policies should be designed that it favours women in having better access to control over the resources of production. Agriculture is gradually becoming more feminised in recent years, and this is due to socioeconomic factors as well as choice. There are numerous instances where women work more than men in a given situation in order to supplement their income but still earn less due to the large wage disparity between men and women. As a result, proper gender mainstreaming initiatives are needed to close the wage gap and help female farmers grow economically on par with male farmers.

21. **The power of the collective empowers women: Evidence from Self Help Groups in India**
Neha Kumar, Kalyani Raghunathan, Alejandra Arrieta, Amir Jilani, Shinjini Pandey, 2021
World Development (Elsevier)

To assess the impact of SHG membership on women's empowerment in agriculture, using the project-level Women's Empowerment in Agriculture Index (pro-WEAI) and the abbreviated Women's Empowerment in Agriculture Index (A-WEAI) a quantitative study was conducted in the selected villages of 5 States namely Madhya Pradesh, Chhattisgarh, Jharkhand, Odisha and West Bengal during 2015 to 2018. The findings indicate that SHG participation has a significant quantitative impact on the overall empowerment score as well as the empowerment gap between spouses (both pro-WEAI and A-WEAI), had a weak but positive impact on the overall empowerment scores for men (only A-WEAI). It also showed that closing the intra-household empowerment gap for women did not result in men being disempowered in the household. SHGs, which are primarily used as a platform for facilitating savings and credit activities among group members, were found to have a strong positive impact on women's credit access and decision making, as well as control over income use. There were also areas where SHG participation appeared to have a weaker impact, such as women's production decision making and asset ownership, which embodied deep-seated gender norms about women's participation in agriculture and asset ownership, norms that are slow and hard to change. The study also found that SHGs improved outcomes in the leadership domain in terms of active participation in groups.

Although being a SHG member may entail additional responsibilities that add to a woman's workload, such as attending meetings, participating in collective action, or undertaking livelihood activities, it still has a significant impact on mobility, participation, and so on. However, there is little effect on other indicators of empowerment, such as attitude towards intra-household violence, trust and harmony. These are reflection of more ingrained gender norms that are challenging to alter on a personal level or with a single intervention. Furthermore, for gender norms to change, SHG programmes must target husbands, in-laws, and community leaders through appropriate policy interventions.

22. **Impact Assessment of Vocational Mushroom Cultivation Training Programme on Knowledge Gain of Rural Women**

    Kavita Dalmia and Rakesh Kumar, 2018

    International Journal of Pure & Applied Biosciences

    A quantitative study was conducted in Bihar to assess the impact of the Vocational Mushroom Cultivation Training Programme on the Knowledge Gain of Rural Women. The study found a significant change in mushroom cultivation knowledge, ranging from approximately 32.0% in the pre-test to 100% in the post-training test. This was reflected in their earnings, which ranged from Rs. 8000 to Rs. 10,000 per month after selling their product at Rs. 200 per kg and Rs. 800 per kg (dried form). The study's findings clearly demonstrate that a well-managed vocational / off-campus training programme can provide the necessary information and guidance to rural unemployed farm women get started with entrepreneurial activities.

    Proper trainings, with a focus on practical exposure to both the genders through Extension Advisory Services (EAS), can yield miraculous results on the field. Appropriate steps should be taken, and policies should be developed, in order to assess the effectiveness of all initiatives after they have been implemented, so that farmers can benefit to a greater extent. It is clearly indicated that imparting skill based training to women can keep them in ensuring livelihood security. Women Friendly entrepreneurial skill based program need to be given to rural women for their economic empowerment. In addition to that they should also be empowered through digital and financial literacy to be more successful in their enterprise.

23. **Are Women in Rural India Really Consuming a Less Diverse Diet?**

    Soumya Gupta, Naveen Sunder and Prabhu L. Pingali, 2020

    Food and Nutrition Bulletin (SAGE)

    A quantitative study was conducted in 2017 using data from 3600 households from three Indian States: Bihar, Uttar Pradesh, and Odisha, with the goal of comparing women's dietary diversity to that of their respective households and measuring the dietary diversity gap. According to the results based on conventional measures of dietary diversity, women consumed 4 food groups on an average in the previous 24 hours, while other household members consumed nearly 6 food groups. Women consumed less diverse diets than their other household members. According to other strong evidences, and these findings were consistent across different study sites and definitions of dietary diversity. This study also suggested that information on women's dietary gaps can address the "lack of critical data on

which to base important decisions and design interventions" that will characterise the formulation of diet-related policies.

There is strong and consistent evidence that women consume less diverse and less amount of food than other members of the family. This frequently has a negative impact on the health of the women, resulting in malnutrition. More such evidence gap data is needed to support food and nutrition insecurity among women. Such evidence shall be the basis for formulating and implementing policies related to Food and Nutrition Security, so that the gender inequality in nutrition can be addressed. This will directly improve nutritional status of India, including children below 5 years of age.

24. Gender Differences in Nutrition in relation to Women's Access to Food Production in Rural India

Ruchira Bhattacharya, N. V. Madhuri, Sudeshna Maitra, Mohammed Sajid, 2021

National Institute of Rural Development and Panchayati Raj Report

A study was conducted in four Indian States: Tamil Nadu, Telangana, Madhya Pradesh, and Punjab to investigate the level of women empowerment and nutritional scenarios; decompose women's access to farming decisions; and investigate the linkages between women's empowerment within the farming system. The primary data was collected using a multi-stage, probability proportionate random sampling procedure on 578 agricultural dual households. According to the data, 37.45% of women were empowered, and 56.95% of women had gender parity in decision making with the primary male members of their households. It was also found that lack of community leadership (29.42%), a lack of leisure time (21.95%), and less input in productive decisions (20.92%) were the major factors contributing to women's disempowerment. Women in Tamil Nadu had the highest levels of empowerment, followed by Telangana, Madhya Pradesh, and lastly Punjab. The nutritional outcomes revealed that the surveyed women in Telangana had no inequality in malnutrition. Malnutrition was more prevalent among poorer women in other States. Women in MP and Tamil Nadu had the highest and lowest inequality, respectively. Logistic regression revealed that households with no gender parity had a lower probability of gender equality in nutrition than households with gender parity. The study identified some of the key factors that contributed to farmwomen's disempowerment, such as leadership, lack of leisure time, and lack of inputs in productive decisions. This, in turn, affects gender parity in other areas such as decision making, access to credit, and other resources, which leads to malnutrition directly or indirectly.

We can only achieve a nation free of malnutrition and hunger if we focus on gender equality and close the gender gap. This type of research should be conducted more in depth in order to provide more robust results.

25. The achievement of food and nutrition security in South Asia is deeply gendered

Nitya Rao, 2020

Nature Food

Lack of food can itself be understood as a form of structural or silent violence, or can provoke violence, and experiences of violence can also restrict women's mobility and ability to work and produce food. The idea of 'singlehood for security' could prevail in instances of severe male domination, yet in seeking a combination of economic security and a lower risk of violence, women in general are not necessarily looking for autonomy, but instead a degree of relational mutuality and reciprocity. An important dimension that needs serious policy attention is women's time burdens, especially in relation to unpaid care work. The lack of attention to these services contributes to a perpetuation of both poor nutritional outcomes and gender inequality in South Asia. Mobilization of women and collective action are critical to ensuring the enforcement of law and the implementation of gender responsive policies and programmes.

Addressing the time poverty issues of women farmers can really help in ensuring better health & nutritional outcomes of women farmers. This can be achieved if male members of the family share a portion of household and farm related activities of women farmers. This requires sensitization of whole family of women farmers.

26. Gender differentials in food consumption and dietary diversity among Indian adults and couples

Preeti Dhillon, Kabita Khatoon, Apyayee Sil, 2021

International Population Conference- 2021

The analysis for the study was done by using the data from the National Family Health Survey 2015–16 (NFHS-4), nationally representative survey of all States and UTs of India. The study revealed a significant pro-rich inequality in diet diversity among adults in India. Small household size with higher years of education and from a higher wealth index with working status and single marital status were associated with more dietary diversity in both men and women. Adults from rural areas and lower socio-economic groups had lower dietary diversity. Individuals who have control over resources such as land, property assets (jointly

or independent), control over their earnings, and made large household purchases either jointly or alone were observed to have consumed a diverse diet. The gaps in the diet diversity score are significantly lower in couples where only the wife works, than in couples where only the husband works. The gender gap in dietary diversity was narrower among couples in which the wife owns a home or land or makes major household purchases.

Empowering women to make decisions regarding expenditure on food item, can greatly impact the nutritional outcomes of the family. It is therefore important that women are supported through their personality development for participation in group discussions of family / community and given opportunity to exercise their decision making on such matters.

SUMMARY & CONCLUSION

Despite accounting for one-fourth of global agricultural output and a gender ratio that is nearly equal, India has a significant gender gap in decision making, credit access, wage disparities, farm activities, marketing, extension services, food consumption, and food production & productivity. In light of these facts, the study was carried out in order to investigate the causes of the existing gap and aid in its reduction through appropriate extension reforms and policies. A Systematic Review methodology was used in three stages to analyze the available literatures on these areas and highlight their major findings. This section summarizes the key findings from the identified studies on gender inequalities in agriculture and food systems.

4.1 Analysis of the Identified literatures:

I. Sub-themes:

Research on gender in agriculture and food systems has mostly focused on addressing some of the important issues since the formation of the Sustainable Development Goals in 2015, of which SDG-5, "Achieving Gender Equality and Empowering all Women and Girls, have faced numerous challenges over the years. The number of studies identified across the 8 chosen sub-themes has been represented in Figure 2. However, there are only a few studies available on the chosen areas in India, which is evidence of the lack of adequate studies on these areas and efforts to address these inequalities. It was strange to see that there was no study on impact of women on farm productivity since more than a decade and the other themes had only a handful number of researches done in since 2015. Until and unless robust evidence is gathered in support of the diverse gender challenges, the gender gap cannot be closed.

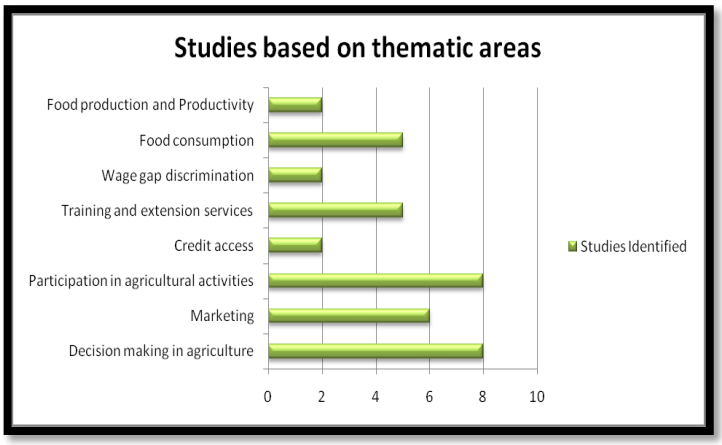

Figure 2: Number of the studies identified under various themes

II. Year wise Publication:

The various identified literatures were then grouped based on the year of publications to see the growth of the studies focused on the gender issues in agriculture & food systems and are graphically been represented in figure 3. The trend seen in the graph is very concerning as India being the 7th largest country, 5th biggest economy and 2nd most populated country could only produce handful amount of researches on, Gender inequality, one of the most important areas of concern. It only gender equality which can help us in stepping towards hunger free nation.

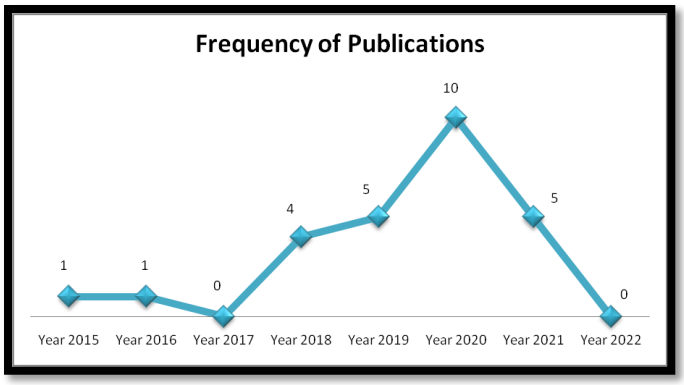

Figure 3: Year wise publication of the identified literatures

III. Research Design:

The studies were also classified based on the 3 basic types of research designs i.e. qualitative method, quantitative method & mixed are shown in figure 4.The data in the figure suggests that majority of the studies followed quantitative method (88%) then mixed method (8%) and finally qualitative research methodology (4%). But considering the subject of the topic i.e. gender, there is a need for more mixed method and qualitative methodology so as to provide a detailed, contextualized insights of qualitative data and the generalizable, externally valid insights of quantitative data through a deeper understanding of complexity and especially that of human behavior.

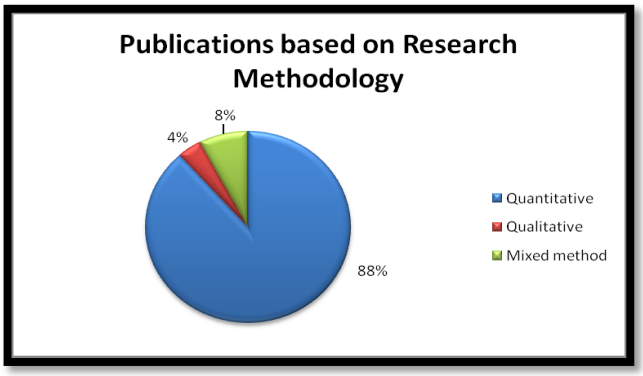

Figure 4: Number of the studies according to the Research designs

IV. Geographical Location:

The literatures were then identified according to the States across India where the studies were conducted on the selected sub- themes. Majority (46%) of the research were conducted in Odisha. One of the major reasons being the location of ICAR-Central Institute of Women in Agriculture, who is mostly focused to work for women in agriculture. But since it's a subject of national interest and gender dimensions vary widely across States, regions and cultures, there is a need to have many more such studies across the country. This shall provide sufficient data to understand the gender gap at national level. The number of researches conducted in almost 7 years of time is very low (26 on the selected sub-themes). If more research isn't done to pinpoint gender-related issues nationwide, the gender gap will continue to increase. To advance the country, it is important to recognize and address the strong legacies of gender segregation at every level and in every field. The number of studies with respect to the States can be accessed through the following link and also represented below:

https://datawrapper.dwcdn.net/WDYep/6/

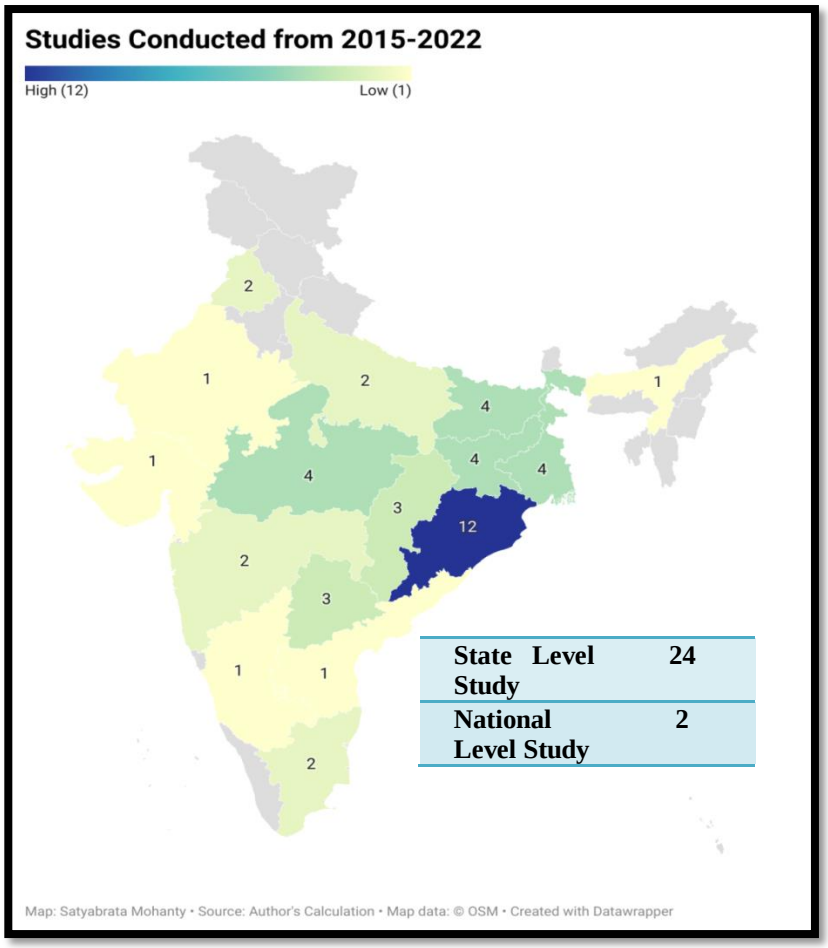

Figure 5: Number of the studies across the states

V. Research by the Institutions

The studies were organized based on the institutions / organizations that carried out the research across, various States of India. Encouraging research in a large and diverse country like India will aid in the development of the country as a knowledge hub on the global stage, therefore it is expected that all concerned institutions/ organizations realize its importance and contribute to address the gap through taking up more research studies on the topic.

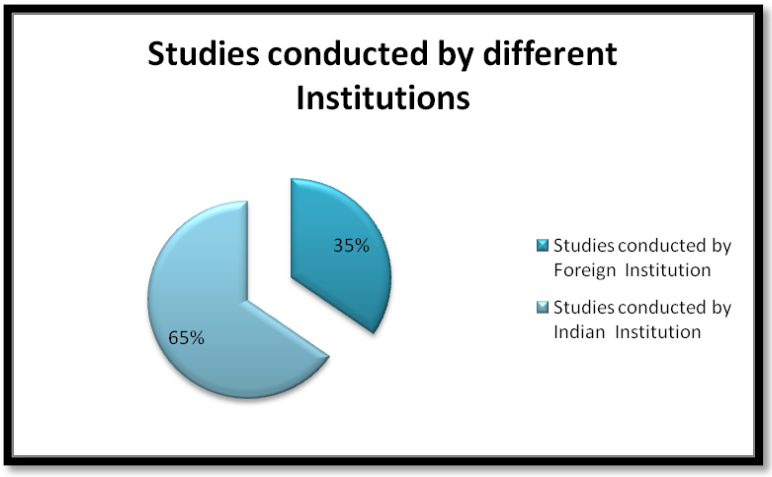

Figure 6: Number of the studies by different institutions

4.2 Major findings from the study:

- Women's empowerment in production decisions and membership in Self-Help Groups increased dietary diversity by purchasing non-cereals such as pulses, meat, dairy, and eggs.
- Promising intervention projects (Rajasthan Nutrition Project in Rajasthan) improved nutrition and female autonomy by improving household decision-making, communication, mobility.
- The decision-making pattern for farm activities was found to be predominantly male. Women agricultural workers, although they represent a big proportion of all agricultural workforces, continue to receive lower wages than men.
- The average wage rate of workers in rural areas in Thanjavur district was found to be less for female workers w.r.t. male workers. It was also found that respondent's socio-economic characteristics such as annual income, educational level, farming experience, and farm size influenced their participation in farm and family decision-making in Thanjavur district.

- Farm women mostly had taken joint decisions in almost every decision area of agricultural activities after becoming SHG members. This impact was gender development, achieving family peace, and improving the family's consumption pattern.
- Feminization of agriculture in India is distress-led, with both class (defined by income in Gujarat) and caste (social groups) connotations in Gujarat, whereas economic factors primarily influenced women's work in the farm sector in West Bengal.
- As a result of COVID-19, majority of farm households reported reduced ability to access nutrient-dense foods, with the largest falls in consumption in fruit and animal source foods other than dairy, in merely half of the farm households.
- Men and women participate equally in productive work; however, women bear majority of the additional reproductive work burden in rural households, at the expense of leisure opportunities.
- SHG membership increased women's access to information and participation in some agricultural decisions, but had little impact on agricultural practises or outcomes, possibly due to financial constraints, social norms, and women's domestic responsibilities.
- Labour savings, cost savings, increased productivity, time savings, less irrigation requirement, and higher yield were among the most important factors promoting adoption of zero tillage in rice-wheat systems, which was preferred by both genders.
- Females performed hoeing, weeding, and harvesting activities, whereas males participated heavily in irrigation, earthing, thinning plant protection measures, and fertiliser application. Males participated significantly more in vegetable marketing than females, which was almost negligible.
- The developed gender sensitive entrepreneurship model in mushroom farming increased farm women's skill and income, helping them in becoming successful female agripreneurs.
- The impact of field level capacity building and technology transfer programmes was realised in terms of 69% and 113% increases in annual farm income and cash in hand among farm women, respectively.

- Women were found to play a more prominent role in activities such as harvesting, cleaning, grading, packing, and storage, whereas men were engaged skilled activities like threshing and seed treatment.
- Lack of transportation, long distance to market, lack of training on economic activities, members not attending meetings, and no economic activity other than micro lending were found to be the major problems faced by women SHGs members.
- Both male and female farmers participated in intercultural operations, but men had 75% more control over it than women. Women paddy growers had higher level of awareness than men in terms of storage, value-added product preparation, line transplanting, weed management, and seed treatment.
- It was observed that the majority (53.34%) of the men agro-input dealers were less involved in extension activities, whereas the majority (66.67%) of the women agro-input dealers were moderately involved in extension activities.
- Nutrition was found to be a well-established, scale-proven mechanism for implementing effective extension approaches to improve advisory services for men and women farmers both. Lack of sensitised workforce, fewer female extension workers, a lack of participation, and misconceptions regarding food intake were some of the identified issues.
- Because women contributed a large portion of the labour for rice transplanting, much of which was unpaid work on family farms, they were more interested in the new technology (Direct-Seeded Rice (DSR) with drum seeder) and had a higher Willingness To Pay (WTP) for it because it helped them to reduce the drudgery prone backbreaking work.
- The reasons for women working in the field for 50% of the women were due to their own choice and for another 50%, due to poverty and unemployment. Although the involvement of both the genders was high, their wage differed significantly.
- SHG membership was found to have a significant positive impact on aggregate measures of women's empowerment and to narrow down gender empowerment gap. SHGs also helped in enhanced and active participation of women in community groups, greater control over their income and greater credit decision making.

- It was seen that the well-managed vocational off-campus training programme provided the necessary information and guidance, encouraging rural unemployed farm women to start agricultural businesses and earn a good living.
- According to the study, exposure to training increased farmers', farm women's, and youth's knowledge on mushroom production technology by 80.75 percent and helped them in establishing their own production unit.
- While women's contributions were recognised as critical to household and community food and nutrition security, their work was not adequately recognised or supported by public policy and social institutions. Women continued to face inequalities in key development indicators such as health, education, and nutrition, as well as discriminatory laws and high levels of precarity in terms of income, employment conditions, safety, and well-being.
- It was found that women consumed 4 - 6 food groups on an average as assessed through 24 hours recall method and also consumed less diverse diets than other members in their house.
- The gap in the diet diversity score was found to be significantly lower in couples where only the wife worked than in couples where only the husband worked, as well as in couples where the wife owns a house or land or makes large household purchases.

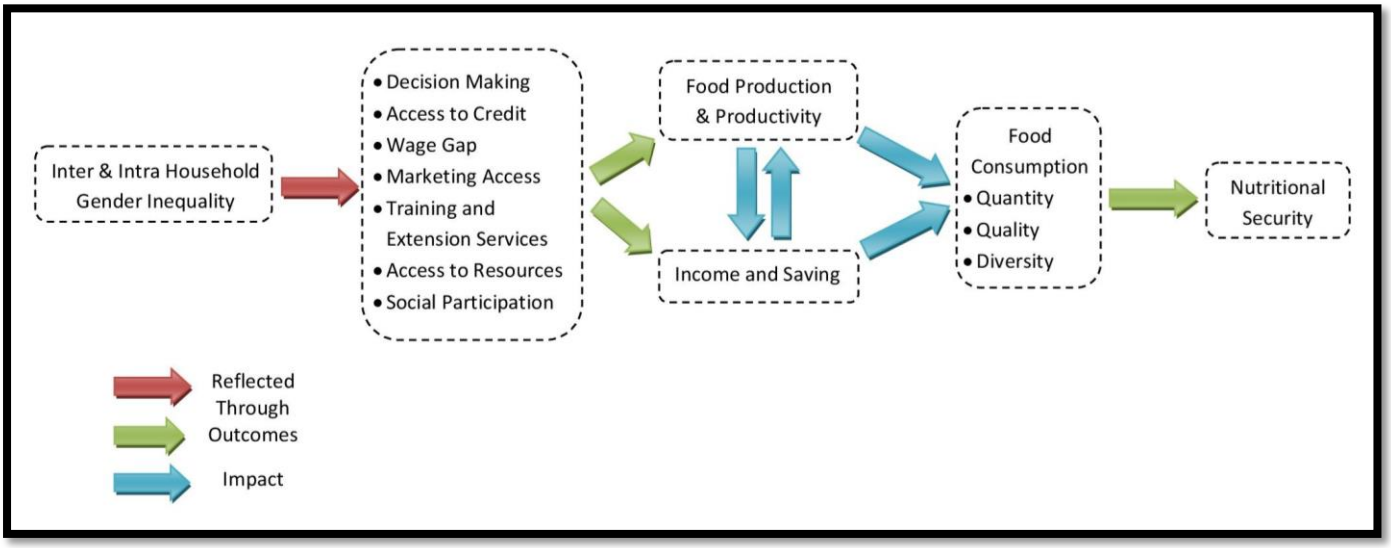

Figure 7: A Conceptual Framework on the Outcome of Gender Inequality in Agriculture & Nutrition

CONCLUSION:

Agriculture employs 80% of all economically active women in India; they make up 33% of the labour force in agriculture and 48% of self-employed farmers. (OXFAM, 2018) Women's increased contribution in agriculture and allied sectors, is slowly being recognized in the recent years, but at a very low scale. Empowering and mainstreaming rural women workers in agriculture can cause a structural shift in favour of economic expansion. As reported by Pingali *et.al.* (2019) women working in agriculture has increased as compared to the male over the time and also the GDP per capita. With the existing gender gap with regard to decision making, access to resources, credit and wage inequality, the female workforce in agriculture have contributed significantly to the GDP. If we ensure women-oriented reforms, access to resources, technology, education, health facilities, ownership rights and skill development then it will certainly improve agriculture productivity and help in building an empowered nation, providing nutritional and food security to India; while also reducing poverty and hunger. There is a need to address women's issues in agriculture from a gender perspective in order to overcome the constraints and become the torch-bearers for India's next dawn of agriculture. So, its high time to ensure the visibility of the invisible workforce in agriculture.

Implications of the study:

The action plan framework presented in Table 3 was developed based on the study, will help in accountability and transparency and is fundamental for meeting the gender specific objectives.

Table 3: Action Plan Framework for closing the Gender Gap

Realise	Prioritize	Integrate	Strengthen	Promote
• Various Gendered needs in the Agricultural Diaspora. • Role of all concerned stakeholders in closing the gender gap. ***** Stakeholders: Govt. authority, Private org., NGOs, Researchers, Policy makers	• Immediate, short term and long term gendered needs. • Research on gender friendly agricultural practices. • Research on existing gender gaps.	• Time to time gender specific interventions • All concerned stakeholders for addressing multilevel gender issues.	• Establish metrics to track progress in closing the gender gap (e.g.- WEAI, WDDS) • Situation based revision of policies & reforms	• For wider application of the successful interventions/ reforms/policies 

Approaches for addressing gender gaps:

- Provide women with technical & leadership training and encourage them to participate in decision-making process within the organisation so that they get the opportunity to exercise their leadership skill.
- Encourage farm women's participation in online marketplaces such as e-NAM and e-Mahila Hat to improve access to marketing opportunities for direct sale of their goods and services.
- Examine gender roles and restrictions in food distribution and sales, and implement initiatives to remove obstacles for women to enter.
- Encourage women farmers to take up skill & mechanised activities in agriculture and allied sectors to address their drudgery and save time for leisure and self care.
- Paradigm shift in gender roles at household level through sensitization of family.
- Examine minimum wage and equal pay legislation, to ensure its execution at ground level.
- Documentation of good gender sensitive agricultural practices to serve as a tool for upscalling at a larger scale.
- Ensure registration and certification of farm women at the gram panchayat level, so as to provide them farmer status.
- Capacity building of anganwadi workers, health workers, ASHA workers to educate rural people the importance of dietary diversity and nutritious food and equal food sharing practice at family level .
- Strengthen SHGs by encouraging its engagement in more economic activities rather than just internal borrowing and lending.

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