

REPORT

GENDER IN AGRICULTURE AND FOOD SYSTEMS: AN EVIDENCE GAP MAP



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EXECUTIVE SUMMARY

Background

The 2007-2008 global food-price crisis disproportionately affected women, particularly smallholder women farmers (Sexsmith et al. 2017).¹ The subsequent responses by governments, multilateral agencies and other institutions over the last decade do not seem to have had the intended effect of addressing underlying power imbalances in agriculture and food systems (Botreau and Cohen 2020).² CGIAR has been at the forefront of a mission to change the status-quo through impactful gender research. The CGIAR Generating Evidence and New Directions for Equitable Results (GENDER) Platform catalyzes targeted research on gender equality in agriculture and food systems and collaborates with decision-makers to achieve a new normal: a world in which gender equality drives a transformation towards equitable, sustainable, productive and climate-resilient food systems. Closing the knowledge gaps in gender and agriculture and food systems is a crucial step towards achieving this vision.

This Evidence Gap Map (EGM) attempts to consolidate and integrate evidence on gender in agriculture and food systems, and provides a framework for prioritizing research across different themes, enabling focused evidence synthesis and generation. While most existing EGMs (Moore et al. 2021)³ focus on synthesizing evidence on impact estimates of interventions, this EGM presents a broader landscape of evidence across eleven identified themes in gender in agriculture and food systems. This EGM, however, does not synthesise information, but presents a systematic and interactive matrix of outcomes across all themes based on the existing evidence. The map includes studies that use qualitative, quantitative and mixed method designs.

Identification of themes

The map includes studies spanning eleven themes that have evolved organically from CGIAR gender research over the years. These themes emerged from consultations with researchers and other experts in CGIAR and beyond. The identified themes include:

1. Food systems transformation for gender equality (GE) and women's empowerment
2. Agriculture, gender, risk, and resilience to shocks and stressors
3. Institutions and governance for sustainable food system transformation
4. Impact of agricultural technologies and innovation on gender equality and women's empowerment
5. Gender-responsive design and dissemination of crops, livestock, and sustainable production technologies and practices for gender equality and women's empowerment
6. Gendered labour dynamics and time use
7. Gender equality and women's empowerment in agricultural value chains, markets, and entrepreneurship
8. Transforming gender norms
9. Gender and breeding
10. Gender and seed systems
11. Nutrition and health

The sub-themes under each of these themes guided the search as well as the categorisation of evidence under most of the themes. For themes where the sub-themes were absent, the reviewers intuitively classified the papers based on the keywords from the themes.

Organisation of outcomes

The themes were then mapped against various outcomes and sub-outcomes as follows

- (i) Agricultural knowledge and behavioural

¹ Sexsmith, K., Smaller, C., Speller, W. (2017) How to improve gender equality in agriculture Investment in Agriculture. Policy Brief #5, International Institute for Sustainable Development (IISD)

² Botreau, H., & Cohen, M., J. (2020). Gender inequality and food insecurity: A dozen years after the food price crisis, rural women still bear the brunt of poverty and hunger: Chapter 2, Advances in Food Security and Sustainability Volume 5, 53-117

³ Moore, N., Lane, C., Storhaug, I., Franich, A., Rolker, H., Furgeson, J., Sparling, T., Snilstveit, B. (2021). The effects of food systems interventions on food security and nutrition outcomes in low and middle-income countries, 3ie, Evidence Gap Map, Report 16.

outcomes, including adoption of technologies and practices; knowledge, information and skill use; and spillover effects as sub-outcomes (ii) Economic outcomes (in agriculture), including yield; employment; income; farm investment; resource use efficiency; household assets; and savings as sub-outcomes (iii) Social outcomes (in agriculture), including time-use and efficiency; consumption and food security; nutrition; changes in social, cultural and gender norms; decision making; and gender-based violence as sub-outcomes and (iv) Environmental outcomes (in agriculture), including sustainable agricultural practices; and GHG emissions as sub-outcomes. The evidence around each of the themes is mapped against the outcomes of interest and the evidence was further analyzed by geographical locations and study methodology.

Inclusion criteria and search strategy

The Evidence Gap Map includes peer-reviewed publications that employ qualitative, quantitative or mixed methods to support or reject specific hypotheses. The publications included studies conducted in low and middle-income countries of Africa, Asia, Latin America and the Middle East and North Africa (MENA). The review includes studies published between 2007 and April 2021.

23 academic bibliographic databases (such as JSTOR, EconLit, NBER etc.), Google (advanced search) and Google Scholar were screened for evidence. For themes with thin evidence, a bibliographic back referencing on existing reviews was conducted and key authors were directly requested for relevant papers.

Stakeholder consultations were organized with relevant experts in the area of gender in agriculture and food systems to validate the approach of the EGM and its findings.

Findings

The Evidence Gap Map can be accessed through this [link](#). The findings from the exercise are categorised according to key research questions around the evidence availability in gender in agriculture and food systems.

Research Question 1. What is the empirical evidence on "Gender in Agriculture and Food Systems" in low and middle-income countries (LMIC) of Asia, Africa, South America, Middle East and North Africa (MENA)? What is the spatial and study-methodology distribution for the evidence?

Of the 752 studies included in the map, 48% employed qualitative methods for analysis, 30% employed quantitative methods, and 22% employed a mixed-methods approach. After 2010, there has been a rise in the use of mixed method approaches in gender research.

The majority of the studies were conducted in Africa, followed by Asia, with fewer studies focusing on Latin America and the MENA region.

Research Question 2. How is the evidence distributed across themes and outcomes?

Agriculture, gender, risk, and resilience to shocks and stressors; nutrition and health; and transforming gender norms are well-represented themes in the EGM. Gender and seed systems; gender and breeding; and food systems transformation for gender equality (GE) and women's empowerment are the least represented themes, suggesting a lack of evidence in these topics.

Qualitative methods were used most frequently across many of the themes.

The findings also suggest that the number of studies that examine social outcomes significantly outnumber those that capture either economic; environmental; or agricultural knowledge and behavioural outcomes.

Research Question 3. How does the available evidence evolve with time across the themes?

The cumulative evidence base across themes increased significantly across the study period, where the number of publications that meet the inclusion criteria for the review rose from 19 as of 2008 to 752 as of April 2021. The average annual growth rate in evidence availability after 2008 is 34%. Most themes follow the overall growth trend in evidence. Gender and breeding and gender and seed systems show a significant rise in the availability of evidence only after 2017.

Research Question 4. Where are the major evidence gaps? What are the implications of these gaps for research and policy?

The evidence mapping suggests that Latin America and MENA are especially deficient in evidence across many themes. The exclusion of non-English publications could be an explanation for this gap. The themes of food systems transformation for gender equality (GE) and women's empowerment; gender and seed systems; and gender and breeding had less than half the number of studies compared to other themes. Environmental outcome is the least reported outcome across studies.

The available evidence on gender in agriculture and food systems in low and middle-income countries has increased substantially over the study period. However, findings suggest a need for further research to address the evidence gaps in key themes across geographies. A

country-wise analysis of evidence can help identify geographical skews and inform future research efforts. Over the last five years, the inclusion of studies in food systems transformation for gender equality (GE) and women's empowerment; gender and breeding; and gender and seed systems has broadened the spectrum of gender in agriculture and food systems research. However, publications are often clustered around a few outcomes and sub-outcomes even for well-represented themes in the EGM, which suggests a need for more multi-dimensional research in future. Additional categorization of available evidence, as descriptive of gender-related challenges or prescriptive or evaluative of solutions that address challenges of gender in agriculture and food systems, may be important for policy and can be considered for future iterations of the EGM exercise.



LIST OF ABBREVIATIONS

3ie	International Initiative for Impact Evaluation
AGRIS	International System for Agricultural Science and Technology
CGIAR	The Consultative Group on International Agricultural Research
CSA	Climate Smart Agriculture
EBSCO	Elton B. Stephens Company
EGM	Evidence Gap Mapping
ELDIS	Electronic Development and Environment Information System
FAO	Food and Agriculture Organisation
FGD	Focused Group Discussions
GBV	Gender Based Violence
GE	Gender Equality
GENDER	Generating Evidence and New Directions for Equitable Results
GHG	Green-House Gas
IDEAS	Interest Determination Exploration And Assessment System
IFAD	International Fund for Agricultural Development
IRRI	International Rice Research Institute
JOLIS	Journal of Librarianship and Information Science
LA	Latin America
MENA	Middle East and North Africa
NBER	National Bureau of Economic Research
NCBI	National Center for Biotechnology Information
NIH	National Institute of Health
OECD DAC	Organisation for Economic Co-operation and Development - Development Assistance Committee
PLOS	Public Library of Science
SICI	Shastri Indo-Canadian Institute
UN	United Nations
USAID Lib	United States Agency for International Development Library of Congress
USDA	U.S. Department of Agriculture

1. INTRODUCTION

1.1 Background

The years 2007-2008 and 2010-2011 saw extreme volatility in the prices of primary commodities. Prices of commonly consumed cereals increased sharply; rice more than 300%, wheat 130% and maize over 30%, leading to the “Global Food Crisis” (FAO 2011a).⁴ Estimates suggest that the crisis pushed 44 million people in developing countries into poverty (World Bank 2011).⁵ The food price crisis was especially severe for women, particularly female smallholder farmers (Sexsmith et al. 2017).⁶ There was a concerted policy response by governments, multilateral agencies and other institutions after the crisis to support food production, food aid and prevention of food-export bans (Quisumbing et al. 2011).⁷ These and subsequent efforts over the last decade, however, do not seem to have had the intended effect of addressing underlying power imbalances in agriculture and food systems (Botreau and Cohen 2020).⁸

CGIAR has been at the forefront of a mission to change the status-quo by enabling people, especially women, to nourish their families better, while improving food system productivity and resilience through impactful gender research. In the face of climate change and demographic shifts, such research has become more relevant, and is now essential for ensuring social equity, sustainability of agriculture and food systems and shared prosperity.

The CGIAR Generating Evidence and New Directions for Equitable Results (GENDER) Platform catalyses targeted research on gender

equality in agriculture and food systems and effectively collaborates with decision-makers to achieve gender equality to drive the transformation towards equitable, sustainable, productive and climate-resilient food systems. The GENDER Platform will capitalise on the rapidly evolving digital ecosystem and new data tools, harnessing the power of gender data and analytics to facilitate information sharing and decision-making by farmers, governments, regional bodies, donors, multilateral agencies and agribusinesses. The Evidence Module of the Platform aims to generate knowledge and evidence and learning on gender in agriculture and food systems.

EGM

This Evidence Gap Map (EGM) is a systematic organisation and illustration of research evidence in selected themes centred around gender in agriculture and food systems and will provide a foundation for more focused evidence synthesis and generation. The EGM will be used to point users to available research, inform research priority setting, and define the focus of evidence synthesis such as systematic reviews (Katz, et al., 2003).⁹ It maps existing evidence on the effects of policies and programs in the thematic areas mentioned in Table 2, structured around a framework of themes and outcomes.

Most existing EGMs synthesize results from experimental or quasi-experimental impact evaluations and systematic reviews, and quantify effects of development programmes and policies (Moore et al. 2021).¹⁰ The focus is generally on a specific and narrow thematic area with respect to the programmes evaluated and outcomes measured (Snilstveit et al. 2017).¹¹ However,

⁴ FAO (2011). Price Volatility in Food and Agricultural Markets: Policy Responses

⁵ World Bank (2011). Food Price Hike Drives 44 Million People into Poverty

⁶ Ibid

⁷ Quisumbing, A., Meinzen-Dick, R., Behrman, J., Bassett, L. (2011). Gender and the global food-price crisis. *Dev. Pract.*, 21 (4-5), p. 488

⁸ Ibid

⁹ Katz DL, Williams AL, Girard C, Goodman J, Comerford B, Behrman A, Bracken MB. The evidence base for complementary and alternative medicine: methods of Evidence Mapping with application to CAM. *Altern Ther Health Med.* 2003 Jul-Aug;9(4):22-30. PMID: 12868249.

¹⁰ Ibid

¹¹ Snilstveit, B., Bhatia, R., Rankin, K., Leach, B. (2017) 3ie Evidence Gap Maps: A starting point for strategic evidence production and use

this EGM is a compilation of a large number of studies across a broad range of themes and not necessarily focused on effects of development interventions. It includes descriptive and diagnostic studies as well. Unlike most of the existing EGMs that exclude qualitative studies as evidence, studies using qualitative, quantitative and mixed methods designs are included in this EGM. In contrast to most EGMs (Moore et al. 2021),¹² this EGM does not synthesise information, but presents a systematic and interactive matrix of outcomes across all themes based on the existing evidence.

The evidence mapping focused on gender and social dynamics in all facets of food systems. This encompasses all the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production, processing, distribution, preparation, consumption and disposal of food, and the outcomes of these activities, including nutritional, food security outcomes but also socio-economic and environmental outcomes.¹³ The thematic areas were identified through discussions between experts from LEAD at Krea University and CGIAR. These thematic areas encompass a range of topics that are centred around food systems transformation and gender equality. Within each of these thematic areas, sub-themes have been listed, highlighting how the sub-theme links to the broad thematic area. For instance, 'land and resource rights and governance arrangements' is classified as a sub-theme under institutions and governance for sustainable food systems transformation. The rationale for this classification is that even though women rely on land for food security, income and household resources, they make up only 13.8% of landholders globally. Moreover, women often confront numerous legal and social barriers in all aspects of land rights – including rights to sell, manage or control the economic output from their land. Lack of land rights for women results in little decision-making power, and represents a significant barrier for women. This insecurity precludes their participation and/or leadership in

sustainable management efforts since they may not have decision-making power over how land is used and managed, when they do not own it. This suggests possible interlinkages across themes such as lack of property rights leading to low financial inclusion and low agency or decision-making power in the household. More specifically, women who manage land may want to adopt sustainable management approaches; however, if they do not have land title, they may not be able to access loans to invest in technology and inputs, or may not have control over decisions around the use of land.

The papers used for the evidence mapping have been bracketed into themes and outcomes, and the focus is on critically presenting key findings. There will be some thematic areas for which the literature and the conclusions presented herein will be relatively sparse and inconclusive because of certain limitations on the inclusion criteria of the language or year. Based on the existing evidence under the various themes and outcome categories, the map identifies evidence gaps for each of the areas.

1.2 Objectives of EGM and research questions

The objectives of the EGM are as follows:

First, the EGM will help identify evidence in the area of gender in agriculture and food systems across themes and outcomes of interest. The outcomes of interest are broadly classified as:

1. Agricultural Knowledge and Behavioural outcomes
2. Economic outcomes (in Agriculture)
3. Social outcomes (in Agriculture)
4. Environmental outcomes (in Agriculture)

Second, the map will identify methodological approaches and trends in approaches.

Third, the EGM will identify potential evidence gaps and serve as a platform to communicate evidence gaps with relevant stakeholders such as policymakers, researchers, and donors,

¹² Ibid

¹³ High Level Panel of Experts on Food Security and Nutrition (2017). "Nutrition and Food Systems, HLPE Report 12" Retrieved from <http://www.fao.org/3/i7846e/i7846e.pdf>

and inform the allocation of research and programming resources in low and middle-income countries. This will enable stakeholders to identify under-researched areas and prioritise resource allocation for research and evidence generation and synthesis.

The objectives will be addressed through the following questions:

1. What is the empirical evidence on "Gender in Agriculture and Food Systems" in Low and Middle Income (LMIC) of Asia, Africa, South America, Middle East and North Africa (MENA)? What is the spatial and methodology distribution of the evidence?
2. How is the evidence distributed across themes and outcomes?
3. How does the available evidence across the themes vary with time?
4. Where are the major evidence gaps? What are the implications of these gaps for research and policy?

1.3 Methodology

The EGM is developed to inform research and policymaking in identified thematic areas. The EGM does not synthesise information, but presents a systematic and interactive matrix of outcomes across all themes based on the existing evidence.

For the purpose of this review, a conservative definition of evidence as a set of observations obtained through the scientific method that support or reject specific hypotheses and have been published as peer-reviewed literature in journals, books and conference proceedings has been applied. This definition may leave out important unpublished work. The Cochrane Handbook for Systematic Reviews of Interventions¹⁴ notes that publication biases may arise as there can be a considerable lag between completion of studies and publishing relevant research in academic journals and peer-reviewed

publications. In order to partly address this dearth of published work (especially in themes where evidence was found to be thin), Grey literature¹⁵ is used solely to motivate and guide the study listing, but it has not been included in the list of studies. Some grey literature, especially blogs, may be more prone to inaccuracies and biases as they do not typically follow a process of systematic peer review. Given the breadth of the EGM and the challenges in assessing grey literature, the decision to not include it helped make the EGM process more manageable and time bound.

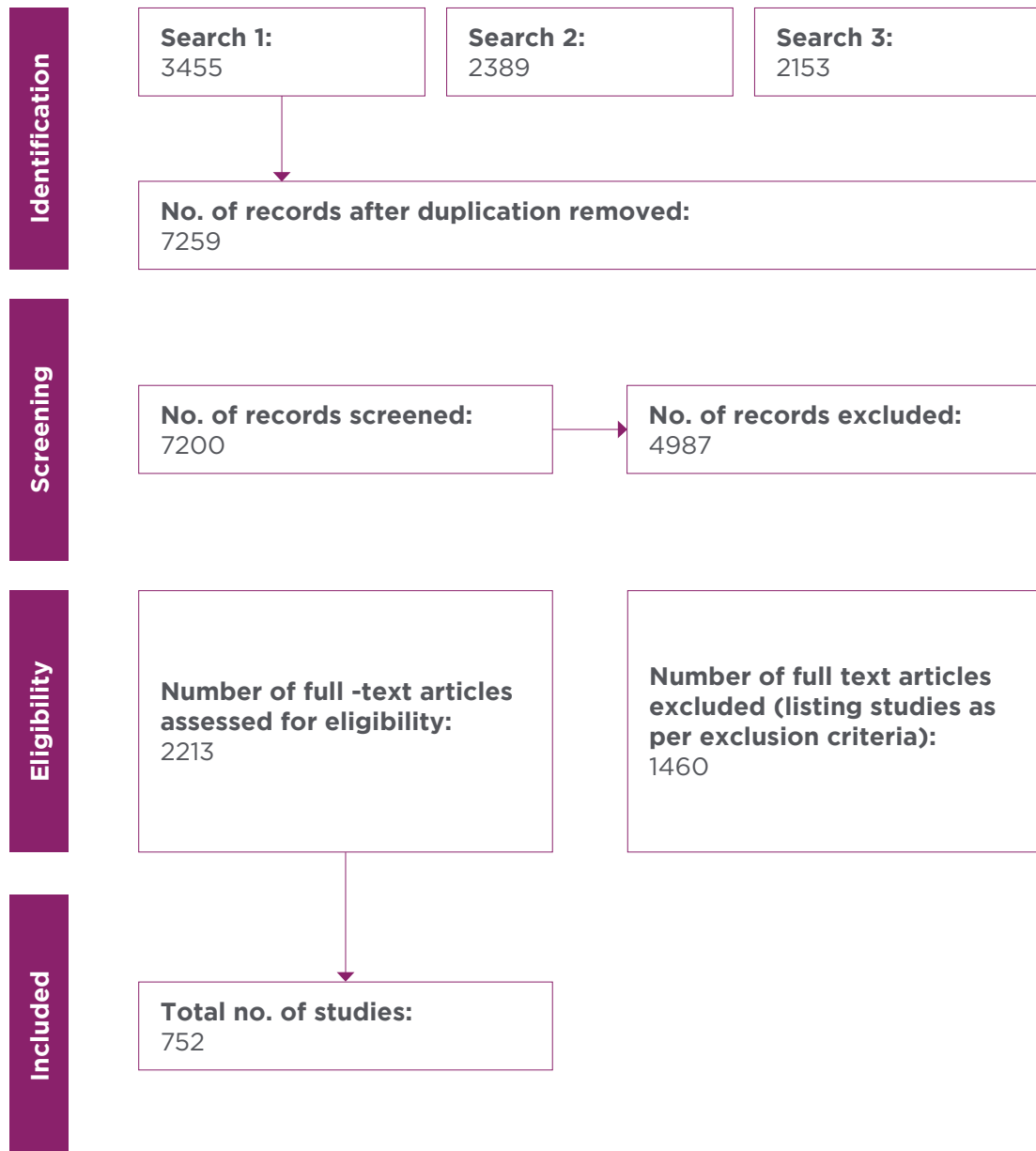
In the process of listing studies, 7997 articles pertaining to gender in agriculture and food systems across the 11 themes were identified. A duplication search expelled 738 articles, leaving 7259 articles. Of these, 7200 articles were screened on the basis of their titles and abstracts. 2213 articles were then assessed for eligibility on the basis of the inclusion-exclusion criteria and clarity of research methodology for the map. After the screening (Figure 1), 752 articles were included in the matrix framework.



¹⁴ Higgins JPT, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, Welch VA (editors). *Cochrane Handbook for Systematic Reviews of Interventions* version 6.2 (updated February 2021). Cochrane, 2021. Available from www.training.cochrane.org/handbook.

¹⁵ Grey literature is defined here as reports, theses, conference proceedings, fact sheets and policy documents that have not undergone a formal peer-review process and have not been published in journals.

FIGURE 1: PRISMA FLOWCHART



1.3.1 Inclusion criteria

1. Type of studies

The review includes publications that employ qualitative, quantitative and mixed methods approaches for analysis and that clearly describe their research (theoretical or empirical) framework. A further effort to rank and classify included evidence by quality was not undertaken. The gamut of impact evaluations, econometric modelling, panel and time-series studies, case studies and theoretical comparisons were covered.

2. Geographic scope

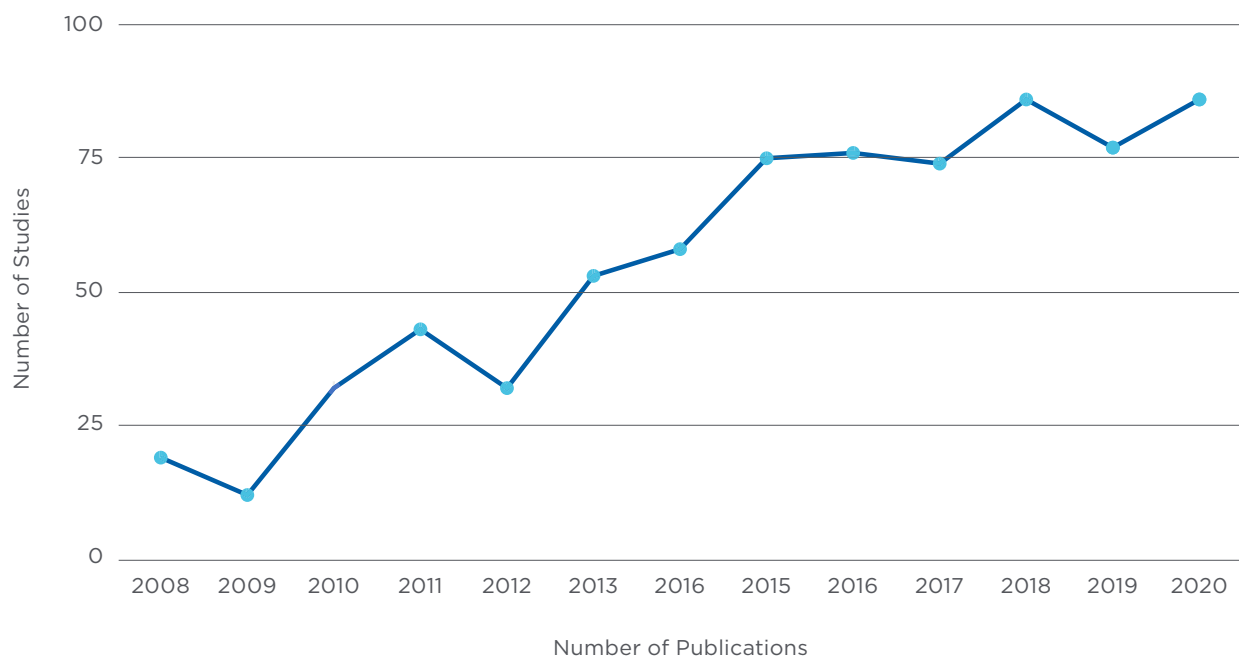
The evidence mapping focused on research undertaken in low and middle-income countries with emphasis on Africa, Asia, Middle East and North Africa (MENA)¹⁶ and Latin America. However, relevant publications from other geographies that help contextualise gender in food and agricultural systems have been included in the background discussion as necessary.

3. Year of Inclusion

The 2007-2008 food crisis renewed debates (Murphy and Schiavoni 2017)¹⁷ on the inequity and unsustainability of global food systems. FAO (2011b) showed that women in agriculture have less access to productive resources and opportunities than men and policy interventions for reducing gender gap could generate significant economic and social benefits. In subsequent years, there was a sharper focus on women's role (without the corresponding rights) in ensuring production and supply of food by the research and policy community (Botreau and Cohen 2020).¹⁸

This map features studies published between 2007 and April 2021. This will help to keep the evidence current and relevant to on-going discourses and developments in the sector. Figure 3 demonstrates the rapid increase in evidence availability after 2010 in the EGM's inclusion period.

FIGURE 2: NUMBER OF STUDIES BY PUBLICATION YEAR



¹⁶ Studies in the MENA and Africa region were extremely small in number when compared to other regions and hence any observations need to be viewed in this context

¹⁷ Murphy, S., Schiavoni, C., M. (2017). Ten years after the world food crisis: taking up the challenge of the right to food. The World Food Crisis: The Way Out, 2017/10th Anniversary Issue, Right to Food and Nutrition Watch

¹⁸ Ibid

TABLE 1: INCLUSION-EXCLUSION CRITERIA

Head	Inclusion Criteria	Exclusion Criteria
Type of studies	Peer-reviewed - conforming to quality and relevance criteria	Blogs, newspaper articles, web pages newsletters, press releases, documents without clear methodology and sample selection criteria
Geography	Asia, Africa, MENA, Latin America	Publications in other geographies
Time period	Published between 2007 - present	Published before 2007
Language	Available in English	Languages other than English

1.3.2 Method of listing studies (search strategy)

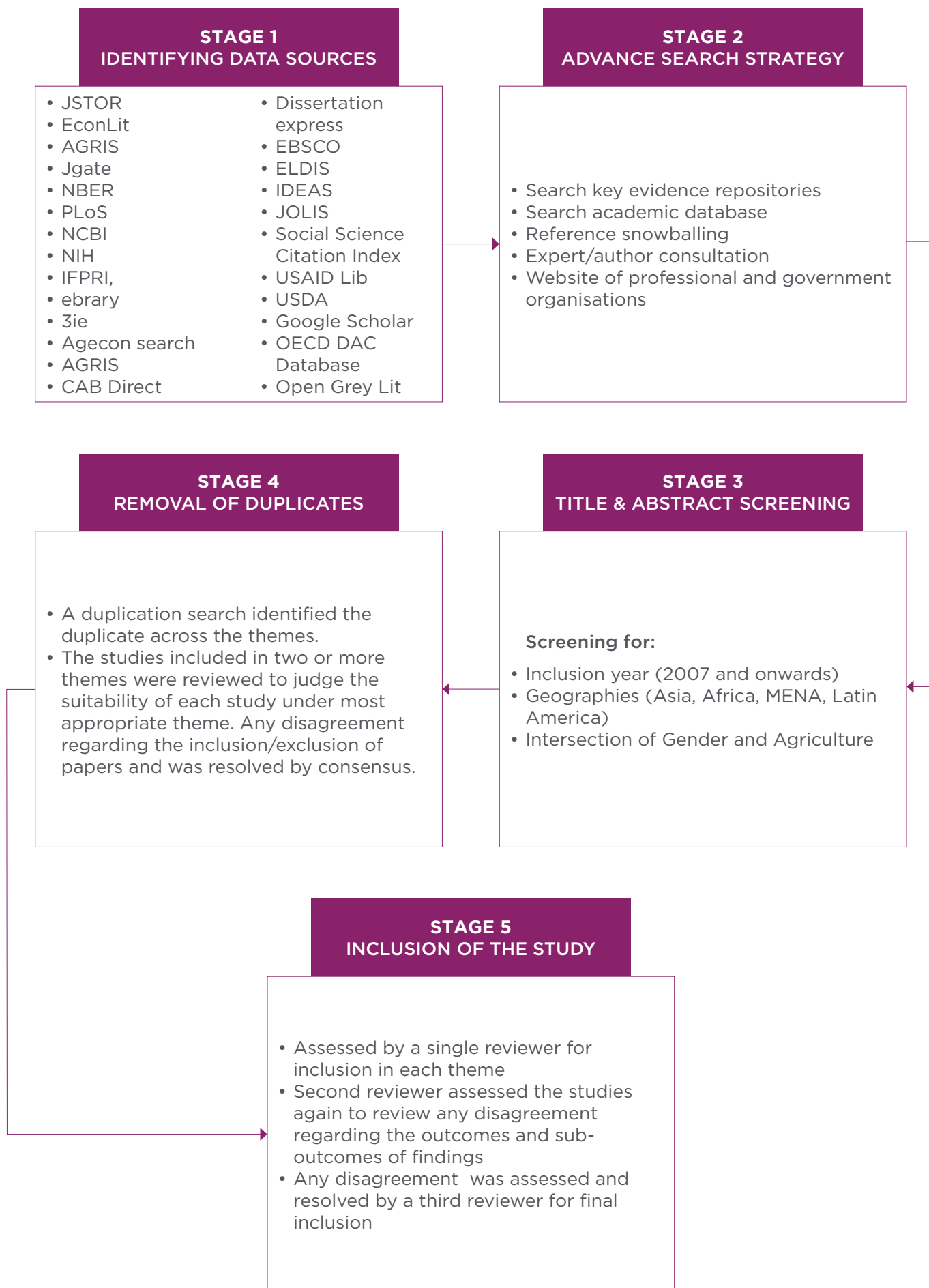
Search tags were created and a list of databases was identified for each of the thematic categories (Figure 3). The following databases were searched: JSTOR, EconLit, AGRIS, J-Gate, NBER, PLOS, NCBI, NIH, IFPRI ebrary, 3ie, AgEcon Search, CAB Direct, Dissertation Express, EBSCO, ELDIS, IDEAS, JOLIS, Social Science Citation Index, USAID Lib, and USDA. For grey literature, Google (advance search), Google Scholar, OECD/DAC Evaluation database and open grey literature were used.

Since the literature around gender and agriculture and food systems was relatively thin for some of the themes, an advanced search strategy was adopted. From the existing reviews on the topics, a bibliographic back referencing was conducted. Citation searches were also conducted on the Web of Science and Google Scholar for included papers. The names of key authors were selected in each theme and searched to ensure that their work has been included.

The process of sorting and visual scanning of the included papers and their bibliographies allowed the identification of papers that were highly cited, or papers that were highly relevant to specific themes. This process also helped identify authors who had frequently published and contributed to the growing body of evidence over the years. Some of these identified key authors were requested to provide additional relevant literature.

All studies thus retrieved were included in worksheets and a duplication search was conducted to remove duplicates. Studies were screened in two stages, firstly, a title and abstract screening was done, followed by a screening of the full paper. These studies were then assessed by a single reviewer for inclusion in each theme. In the next stage, a second reviewer assessed the studies to validate their inclusion under the respective themes. Any disagreement regarding the inclusion/exclusion of papers was resolved by consensus, followed by an assessment by a third reviewer.

FIGURE 3: SEARCH OR LISTING STRATEGY



1.3.3 Limitations

One of the major limitations of the evidence mapping exercise is the **year of publication** as an inclusion criterion. The cut-off year 2007 was selected in light of the global food crises, its impact on vulnerable groups across countries, and its implications on food and agricultural systems. As a result, it does not include studies and historical evidence (published prior to 2007) that may have influenced the current state of knowledge and practices and gender research initiatives. For some themes, the exclusion of evidence prior to 2007 may have resulted in thin evidence. Secondly, papers published in the **English language** have been included and papers in Arabic, French, Spanish or other languages that may be relevant for regions such as Latin America and MENA were excluded. The risk of language bias that may arise from excluding studies published in languages other than English is acknowledged. This language restriction is partly justified by the high costs and logistical challenges of including specialised non-English databases and search terms in the search strategy. Moreover, the language restriction is supported by literature from medicine and epidemiology which suggests that excluding non-English publications may have minimal or no impact on the results of systematic reviews (Neimann et al. 2018).¹⁹

The Evidence Gap Map has adopted a **conservative definition of evidence** and includes only peer-reviewed journal articles. This leads to the exclusion of some relevant 'grey literature' and institutional reports like those published by IFAD, FAO, World Bank and so on which do not fall under the category of journal articles.

Finally, this EGM is a compilation of a large number of studies across a broad range of themes and is not necessarily focused on effects of development interventions. It includes descriptive and diagnostic studies as well. In contrast to most EGMs, this EGM does not synthesise information, but presents a systematic and interactive matrix of outcomes across all themes based on the existing evidence.

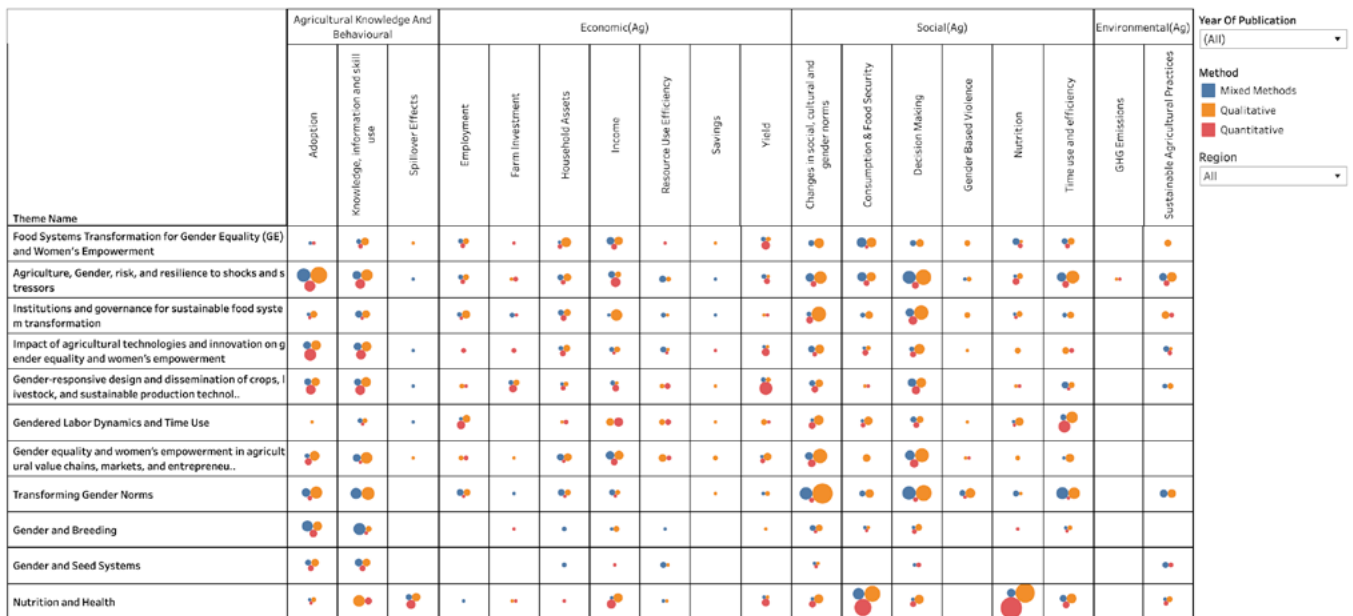
1.3.4 Visualisations

The visual representation of the EGM is based on the review of literature, and the number of articles categorized across themes, outcomes and sub-outcomes. The evidence mapping includes a summary table that lists each of the themes along with the number of papers reviewed, type of studies, regions covered, and the outcomes of interest. The evidence thus reported in each theme is mapped against the outcomes in a bubble diagram (Figure 4). The size of the bubble is indicative of the volume of evidence in each category of sub-outcome, while the colour indicates the method used, i.e., orange stands for qualitative methods, red stands for quantitative methods and blue stands for mixed methods. The map further has filters to illustrate the region-wise and year-wise evidence base across all themes. The dashboard is made interactive with additional filters for year, theme, region and methods to provide deeper insights into each of these themes.



¹⁹ Studies in the MENA and Africa region were extremely small in number when compared to other regions and hence any observations need to be viewed in this context

FIGURE 4: SNAPSHOT OF EGM



1.3.5 Stakeholder consultation

A series of stakeholder consultations with experts from CGIAR, and the broader gender and agricultural food systems area, was organised to gather feedback on the approach, validate the framework of themes and outcomes, discuss the implications of the review for the wider community and identify key priority areas for future research. Four stakeholder consultations were held virtually across three days, where experts were grouped as per their particular expertise across themes. The consultations were organised with the following objectives:

1. Present the Evidence Gap Map and a summary of key findings from the review
2. Seek inputs from experts on the approach and preliminary findings
3. Identify priority themes for evidence synthesis and generation

A feedback form was also circulated seeking inputs from a wider group of experts, who were unable to participate in the consultations. The stakeholder consultations provided valuable insights for strengthening the analysis presented in the EGM report. For instance, workshop participants deliberated on the inclusion criteria in terms of the cut-off date (2007), language and exclusion of grey literature. Based on feedback from the workshop, relevant justifications from

literature where applicable have been included in this report. Feedback on the classification of studies by the four outcome categories and themes was also collected. Clear definitions of the outcomes and the rationale for classifying studies as per these outcomes have been elaborated in the report.

The stakeholder consultations also provided key takeaways about the exercise and valuable suggestions for future research. Some takeaways are listed below:

- The increasing volume of evidence suggests that gender is being recognised as a valid area of research in agriculture and food systems. The growing evidence in themes such as climate and risk is linked with increasing policy and advocacy efforts in this space.
- The current scope of the EGM is broad. Granular data on the existing evidence and quality of evidence across themes and by methods is needed to comment on future implications for gender research in the context of agriculture and food systems.
- Advocacy and communication efforts must reflect the nuances of the findings from the EGM. Moreover, it is important to interpret the gaps in evidence across outcomes or themes in light of their wider context, and communicate these to key stakeholders in a sensitive manner.

2. SCOPE OF EGM

2.1 Analysis methods in the evidence

Publications that employ qualitative, quantitative and mixed methods for analysis are included in the EGM. For the purpose of this review, the following definitions have been employed:

Qualitative methods aim to “uncover understanding existing already in people’s experience” typically using nonnumerical data obtained through interviews, participant observations, focus groups, ethnographic research, discourse analysis etc. (Smythe and Giddings 2007).²⁰

Quantitative methods are defined as “explanation of phenomena by collecting by collecting numerical data that are analysed using

mathematical methods, particularly statistics” (Creswell 1994).²¹

Mixed methods involve “collecting, analysing, and interpreting quantitative and qualitative data in a single study or in a series of studies that investigate the same underlying phenomenon” (Leech and Onwuegbuzie 2008).²²

2.2 Organisation of themes and sub-themes

Learnings and insights from research conducted by CGIAR and its partners informed the selection of the themes to build the EGM, a choice that has been confirmed by consultations with the GENDER Platform Evidence Module working group. The themes describe the overall empirical or theoretical focus of the evidence. Each study in the EGM was assigned a unique theme based on Table 2, following the methodology outlined in section 1.3.2.



²⁰ Smythe, L., Giddings, L., S. (2007). From Experience to Definition: Addressing the Question ‘What is Qualitative Research?’ Nursing Praxis in New Zealand, Vol 23 (1).

¹⁴ Creswell, J. W. (1994). Research design: Qualitative & quantitative approaches. Sage Publications, Inc.

¹⁵ Leech, N., Onwuegbuzie, A., (2008) A typology of mixed methods research designs, Quality and Quantity, 43(2), March, pp. 265-275.

TABLE 2: LIST OF THEMES AND SUB-THEMES

Themes	Sub-themes
<p>Theme 1: Food systems transformation for gender equality (GE) and women's empowerment</p>	<ul style="list-style-type: none"> • Approaches to achieve GE in the context of food systems transformation • Institutions and governance of food systems transformation for greater gender equality • Social and political sustainability of agricultural production • Foundational/conceptual work on gender and food systems transformation • Enabling environment for more gender equality in food systems • Increasing agency, improving food security and diets, and reducing time burdens of urban poor consumers
<p>Theme 2: Agriculture, gender, risk, and resilience to shocks and stressors</p>	<ul style="list-style-type: none"> • Resilience of vulnerable groups • Gendered impacts of environmental change, resource degradation • Gender and resilience to climate change • Role of collective action in increasing resilience to climate change • Indigenous knowledge • Impact of shocks on men's and women's roles in and benefits from agricultural value chains • Resilience capacities in different livelihood/production/agro-ecological systems (e.g. coastal areas) • Gendered drivers and impacts of migration • Access to and use of information systems on climate change • Gender roles during periods of sudden disruptions • Interventions to address gendered impacts of Covid-19
<p>Theme 3: Institutions and governance for sustainable food system transformation</p>	<ul style="list-style-type: none"> • Institutional arrangements for women's empowerment • Land and resource rights and governance arrangements • Gender and social norms in landscape level NRM • Gender roles and outcomes in food, land, and water systems • Gender and soil and water conservation in crop and livestock systems • Women's voice and representation in local and higher-level government decisions • Role of gender in governance of resources • Gendered rights, access to, and control over land and natural resources • Collective agency • Women's participation in institutions driving food system transformation
<p>Theme 4: Impact of agricultural technologies and innovation on gender equality and women's empowerment</p>	

<p>Theme 5: Gender-responsive design and dissemination of crops, livestock, and sustainable production technologies and practices for gender equality and women's empowerment</p>	<ul style="list-style-type: none"> • Technology access, adoption, and women's empowerment • Role of agricultural R&D (CGIAR technologies and innovations) and equitable food system transformation • Trade-offs between women's empowerment and efficient and sustainable agricultural production • Reducing gender gaps in agricultural production (land, inputs, machinery) • Gendered preferences, needs and priorities for agricultural technologies • Gender and mechanization • Gender and sustainable intensification • Gendered trade-offs between productivity, sustainability and equity
<p>Theme 6: Gendered labour dynamics and time use</p>	<ul style="list-style-type: none"> • Gendered work burdens in crop and livestock systems • Sustainable production and gender labour dynamics • Livelihood diversification on and off farm and women's empowerment • Rural transformation and women's labour patterns and time use • Drivers and impacts of men's and women's time use, access to jobs, and economic decision-making • Gendered participation in informal and formal rural labour markets • The role of the care economy • Migration and feminisation of agriculture • Dynamic intra-household labour distribution
<p>Theme 7: Gender equality and women's empowerment in agricultural value chains, markets, and entrepreneurship</p>	<ul style="list-style-type: none"> • Equitable value chains • Financial inclusion and women's access to credit and insurance • Risks of agricultural commercialisation • Opportunities/pathways for women and youth empowerment as food systems transform (including business opportunities) • Gendered access to agricultural input and output markets
<p>Theme 8: Transforming gender norms</p>	<ul style="list-style-type: none"> • Gender and social norms and their influence on gender in agriculture, gender gaps, women's empowerment and GE • Measuring/contextualising women's empowerment • How do masculinities affect GE and women's empowerment? • Role of the private sector in gender transformative change • Masculinities and engaging men • Scaling gender transformative responses to climate change • Drivers of gender transformative change • Addressing structural barriers and norms • Methods to scale gender transformative approaches at multiple scales • Methods to apply social relations frameworks effectively
<p>Theme 9: Gender and breeding (crop, livestock, fish, forestry)</p>	
<p>Theme 10: Gender and seed systems</p>	

Theme 11: Nutrition and health

- Gender norms and nutrition and health outcomes
- Agriculture to nutrition linkages
- Nutrition knowledge and literacy
- Gender and nutrition-sensitive agriculture
- Equitable health and nutrition outcomes of food system transformation
- Nutrition and gender-sensitive agricultural interventions
- Women’s empowerment and child feeding
- Gender and sustainable diets
- Gender and diet diversity
- Nutrition trade-offs at the household level
- Women as consumers as well as producers
- Time use and nutrition
- Energy use and nutrition

Sub-themes guided the classification of evidence for most of the themes. Reviewers, however, had to adopt a different strategy for the few themes that do not have sub-themes. In the case of theme 9 - gender and breeding (crop, livestock, fish, forestry)’ and theme 10 - gender and seed systems, studies could be categorised into each theme intuitively based on the keywords in the themes themselves. Keywords such as women in breeding; plant breeding and women; gender-responsive breeding; and quality characteristics in agriculture, were used to search for studies under theme 9; while seed governance; women and men in seed systems were a part of the search strategy for theme 10. Assigning studies to theme 4 (impact of agricultural technologies and innovation on gender equality and women’s empowerment) proved to be more challenging as it shares keywords with Theme 5 (gender-responsive design and dissemination of crops, livestock, and sustainable production technologies and practices for gender equality and women’s empowerment). In order to disentangle the two themes, reviewers examined the focus of each study whose allocation was ambiguous and assigned to theme 4 those that focused on the impact of agriculture

technology on gender, and to theme 5 those that focused on gender-responsive design of innovations in agriculture. For instance, gender and agricultural information; women smallholders and innovation; agricultural empowerment and gender; agriculture technology, innovation and gender were a few keywords used under theme 4; while gender and sustainable intensification in agriculture; gendered trade-offs between productivity, sustainability and equity; gendered preferences, needs and priorities for agricultural technologies were keywords used for theme 5.

2.3 Organisation of outcomes and sub-outcomes

The outcomes (Table 3) emerged organically from the review of academic literature and some of the existing evidence gap maps in agriculture. They were further validated with experts in the field to ensure that the overlaps, if any, are acknowledged and appropriately addressed. Research in ‘gender in agriculture and food systems’ is often complex and multidisciplinary. To account for the complexity, studies were assigned to multiple outcomes where appropriate. The outcomes are listed under four broad categories:

TABLE 3: LIST OF OUTCOMES AND SUB-OUTCOMES

Outcomes	Sub-Outcomes
Agricultural knowledge and behavioural	<ul style="list-style-type: none"> • Adoption • Knowledge, information, and skill use • Spillover effects
Economic (in Agriculture)	<ul style="list-style-type: none"> • Yield • Employment • Income • Farm investment • Resource use efficiency • Household Assets • Saving
Social (in Agriculture)	<ul style="list-style-type: none"> • Time use and efficiency • Consumption & food security • Nutrition • Changes in social, cultural, and gender norms • Decision making • Gender based violence
Environmental (in Agriculture)	<ul style="list-style-type: none"> • Sustainable agricultural practices • GHG emissions



2.3.1 Agricultural knowledge and behavioural outcomes

The agricultural knowledge and behavioural outcomes include farmers' use and application of knowledge, information, good practices, and financial instruments. The sub-outcomes under this outcome are discussed in brief below:

» **Knowledge, information and skill use**

This refers to the gendered use of knowledge acquired through any dissemination mechanism on skills and information on agricultural practices and input use; information on market prices; control of credit; supply and demand; and weather information. Knowledge dissemination mechanisms include, among others, peer-learning, interventions or programs that

transfer information through social networks, communication devices, and training.

» **Adoption**

Adoption refers to the use or application of new agricultural practices, inputs, infrastructural services, aimed at boosting production or mitigating risk and shocks in agriculture.

» **Spillover effects**

Spillover effects of a program or intervention are the positive or negative effects that may occur in communities and households that are not a part of the target group or direct participants of a program or intervention for the agricultural households. For instance, integrated agriculture-nutrition programs that aim to positively impact nutritional knowledge and practice may lead to knowledge diffusion among non-treated households. The papers that provide evidence on the impact of a program on non-treated households along with the treated households are included in this sub-outcome.



2.3.2 Economic outcomes (in Agriculture)

Economic outcomes include changes in: yield or productivity and production; employment; labour use and efficiency; income; investments in inputs, tools and machinery, livestock, good practices; household and women's asset building including land, livestock, machinery and implements, jewellery, house, TV/Radio, furniture etc. This category also includes studies that have undertaken cost-benefit or resource use efficiency analysis as well as value chain interventions leading to improved economic gendered outcomes.

Sub-outcomes are discussed in brief below:

» **Yield**

Yield is defined as agricultural output per unit area or resource/input used (i.e., labour, fertiliser, pesticide etc.).

» **Employment**

It includes the employment status of women and men in agricultural and non-agricultural households, in both farm and non-farm related activities. It also includes changes in labour requirements of agricultural households and changes in the engagement of women and men as labour in agricultural activities. Finally, it covers studies with findings on paid employment from both the formal and informal sector as well.

» **Income**

This sub-outcome refers to changes in income, defined as any revenue (including rent on capital and equipment) or profit (i.e., monetary and non-monetary) derived from sources that include any agricultural activity or operations i.e., farming land, horticulture, agricultural labour etc. by the women and men in agriculture. It is important to mention that while studies incorporated in this

sub-outcome recognize that income is influenced by wage rates, workforce participation and labour market opportunities, they do not include decision-making about the use of income.

» **Farm investment**

This sub-outcome includes investment in land, land improvements, tools and machinery, and draft animals for enhanced and sustained farm productivity.

» **Resource use efficiency**

This includes studies conducting cost-effective analysis and/or equitable value chain interventions leading to improved gendered economic outcomes. Studies looking at the efficiency of variable inputs (e.g. credit, seeds, water, labour, fertilizer etc.) and value-chain participation on gendered economic outcomes are also included in this sub-theme.

» **Household assets**

The household assets sub-outcome includes gendered outcomes related to changes in ownership of, access to and control of households' assets including land, livestock, machinery and implements, jewellery, house, TV/Radio, furniture within the household.

» **Savings**

Savings is defined as the excess over income that is not spent by agricultural households. This sub-outcome includes use, control and access of savings by the women in agriculture.



2.3.3 Social outcomes (in Agriculture)

We refer to [Stephan et al. \(2016\)](#)²³, [Lazarrini \(2018\)](#)²⁴ and the [SICI](#)²⁵ working group discussions, social outcomes are defined as a "set of outcomes related to personal functioning and functioning in social settings (including

²³ Stephan et al. (2016). Organizations Driving Positive Social Change: A Review and an Integrative Framework of Change Processes. *Journal of Management*. Volume: 42 issue: 5, page(s): 1250-1281

²⁴ Creswell, J. W. (1994). *Research design: Qualitative & quantitative approaches*. Sage Publications, Inc.

²⁵ SICI Working Group - <https://www.sici-inspectorates.eu/Activities/Development-and-Research/Social-Outcomes>

immediate family)". These also include outcomes for communities and the societies. The sub-outcomes covered under social outcomes are:

» **Time-use and efficiency**

Women work in agriculture as "farmers on their own account, on family farms as unpaid workers, and as paid or unpaid labourers on other farms and agricultural enterprises" (FAO 2010-2011).²⁶ This sub-outcome looks at time-use and efficiency of women in the agricultural labour force, and their household time allocation and labour productivity. It includes time spent by women and men in "both crop and livestock production at subsistence and commercial levels, women as producers of food and cash crops and as managers of mixed agricultural operations often involving crops, livestock and fish farming and their time allocation and efficiency" (FAO 2010-2011).²⁷

The participation of women in productive activities in agriculture, reproductive activities, commercial agriculture and housework are governed by prevalent social, cultural and gender norms that add additional constraints to their efficiency. The classification of time-use and efficiency as a social outcome helps highlight the unequal and uneven distribution of time-use between the genders, primarily in terms of allocation of care responsibilities.

» **Consumption and food security**

Consumption and food security are defined as the amount of food consumed by household members, and access to sufficient, safe, and nutritious food by women in agricultural households. This sub-outcome was classified under the social outcomes group as it goes beyond merely quantifying consumption, but also looks at various social dimensions associated with it. It includes studies that discuss and exhibit markedly significant gender differences in food security, defined as a situation where 'women and men in agricultural households, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets

their dietary needs and food preferences for an active and healthy life (World Food Summit 1996)'.²⁸

» **Nutrition**

The sub-outcome 'nutrition' includes water, sanitation and health demand for nutritious foods, dietary diversification as well as anthropometry for women and men in agriculture. Nutrition sub-outcomes are related to 'personal functioning' (as per the definition of social outcomes adopted for this review) and hence included under social outcomes.

» **Changes in social, cultural and gender norms**

This sub-outcome includes studies that employ gender analyses to address the socially constructed differences between biological men and women that are ascribed to the social roles of men and women in a particular cultural context, and how they intersect with other principles of social differentiation. The cultural norms shape how people perform their gender roles, which has implications for how agriculture and food systems decisions are gendered. Hence the studies that focus or analyse how men and women interpret and relate to new norms for increased gender equality as well as to traditional norms, and to what extent existing gender roles are changing as a result are included in this category. This outcome also pertains to whether and how structural barriers to women's empowerment and gender equality are being addressed or not and what role they play.

» **Decision making**

Seymour and Peterman (2018)²⁸ link decision making to "motivational autonomy", the experienced behaviour that is willingly enacted and fully endorsed by the person. The authors go on to show that relationships between decision-making outcomes (as measured in standard surveys) and autonomous behaviour are very context-specific. Under this sub-outcome, studies on gendered decision making in agriculture and livestock resource control, labour allocation within and outside household activities, intra-

²⁶ Ibid

²⁷ Ibid

²⁸ Seymour G., Peterman A. (2018). Context and measurement: An analysis of the relationship between intrahousehold decision making and autonomy, World Development, Volume 111, 2018, Pages 97-112, ISSN 0305-750X.

household nutrition and health-resources allocation and control over expenses (Tavenner et al. 2018, CGIAR Working Report AAS-2012-31)²⁹ have been included. Specifically, these studies focus on or measure: women’s agency and decision-making power related to productive resources, agricultural management, and agricultural income; evidence on the theoretical causal pathways through which changes in women’s empowerment in agriculture, owing to gender-based differences in constraints or in decision-making, are hypothesised to affect any other agriculture outcome, long-term economic benefit, or social change.

» Gender Based Violence

Gender-based violence refers to any harm perpetrated against a person’s will on the basis of gender – the socially-ascribed differences between males and females. It is based on unequal power relations between men, women, boys and girls (UN Office for Coordination of Humanitarian Affairs 2004). Women and girls are often the targets because of social norms and beliefs that perpetuate their lower social status. The GBV sub-outcomes include studies that analyses GBV resulting from abuses of power, gender inequality, lack of access to education or training, lack of access to information, lack of trust, poverty, cultural practices, belief system, weak community sanction, attitude towards women, alcohol and substance misuse, low social status of women and the resulting effect on women farmers’ agricultural livelihood activities and other outcomes.



²⁹ Katie Tavenner, Simon Fraval, Immaculate Omondi & Todd A. Crane (2018) Gendered reporting of household dynamics in the Kenyan dairy sector: trends and implications for low emissions dairy development, *Gender, Technology and Development*, 22:1, 1-19

³⁰ Piñeiro, Valeria; Arias, Joaquin; Elverdin, Pablo; Ibáñez, Ana María; Morales Opazo, Cristian; Prager, Steve; and Torero, Máximo. 2021. Achieving sustainable agricultural practices: From incentives to adoption and outcomes. IFPRI Policy Brief February 2021. Washington, DC: International Food Policy Research Institute (IFPRI). <https://doi.org/10.2499/9780896294042>



2.3.4 Environmental outcomes (In Agriculture)

GSustainable agricultural practices and GHG emissions are the sub-outcomes examined under environmental outcomes. The sub-outcomes are described below.

» Sustainable agricultural practices

Sustainable agricultural practices include studies that measure use of practices and technology integrating land, water, energy, biodiversity and other natural resources by the women and men in agricultural households, that ensure sustainable ecosystems and livelihoods. “Sustainable agricultural practices are those that enable more efficient use of natural resources, mitigate the impact of agriculture on the environment, and strengthen capacity for adaptation to climate change and climate variability” (CGIAR 2021).³⁰ Some examples of such practices are natural farming, increased crop diversity, use of cover crops, no-till and reduced-till systems, integrated pest management, integration of livestock and crops, sustainable agroforestry practices, and precision farming, climate smart agriculture practices (CSA), crop rotation and conservative tillage. CSA here is defined as practices that respond to climate change to mitigate risk (economic, physical etc.) arising from climate change. It includes studies that discuss gender-responsive climate-smart agriculture practices and the resulting effectiveness and sustainability of CSA leading to environmental outcomes.

» GHG emissions

This includes studies that measure GHG emission, including measurement of carbon, nitrogen, potassium percentages and soil PH, attributed to agricultural activity performed by women and men in agricultural households.

3. FINDINGS

This section summarizes the key results from the EGM effort. The Evidence Gap Map can be accessed through this [link](#).

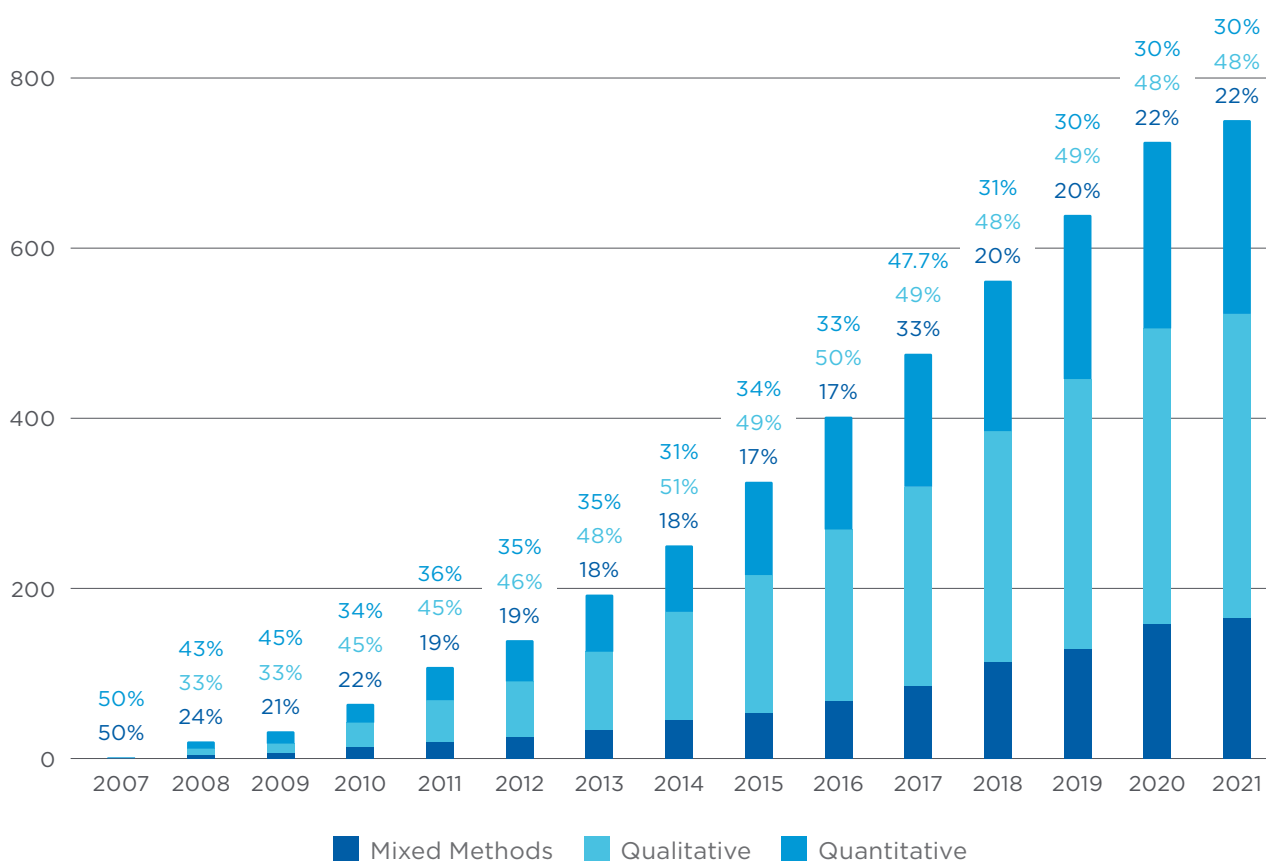
3.1 Results based on the number of studies

The evidence base increased by almost fourfold from 19 in 2008 to 752 in April 2021 (Figure 5) across all the themes. 65% of studies were published after 2014.

practices for gender equality and women’s empowerment; and nutrition and health, however are exceptions, and most of the included studies use a quantitative approach to measure and report the findings.

Qualitative gender research often focuses on gender roles and relations, gender analysis, gender norms, social and cultural norms and topics like gender-based violence, power relations, and household dynamics. Over the decades, gender research has evolved to include more non-traditional qualitative tools like life stories, personal histories involving individuals, social institutions, political institutions, various

FIGURE 5: CUMULATIVE NUMBER OF STUDIES BY YEAR



3.2 Results based on study methods

After 2007, studies in gender in agriculture and food systems have used more qualitative methods (48%), followed by quantitative methods (30%) and mixed-methods (Figures 6 and 7). Some themes like impact of agricultural technologies and innovation in gender equality and women’s empowerment; gender-responsive design and dissemination of crops, livestock, and sustainable production technologies and

cultures and social settings, besides the traditional tools like focused-group discussions (FGD), open ended interviews etc. Qualitative approaches allow for a more nuanced approach to understanding gender relations, and is clearly reflected in themes like transforming gender norms; and gendered labour dynamics and time-use.

Since the mid-2000s, there has been a growing body of research using mixed-methods to study complex phenomena in gender in agriculture

with a multi-disciplinary lens. Mixed-methods can provide a deeper understanding of various dimensions of gender issues and their use is becoming popular in emerging themes like gender and seed systems; and gender and breeding.

Asia, Africa and MENA have a similar distribution of studies (Figure 7) across methodologies while Latin America has a larger fraction of qualitative studies and a smaller proportion of quantitative studies. The percentage of mixed-methods studies is similar across the four regions.

FIGURE 6: DISTRIBUTION OF STUDIES ACROSS METHODS (IN PERCENTAGES)

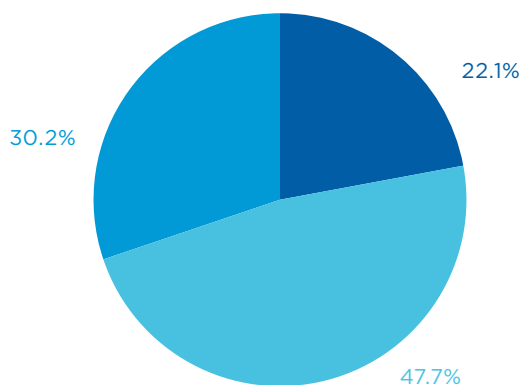
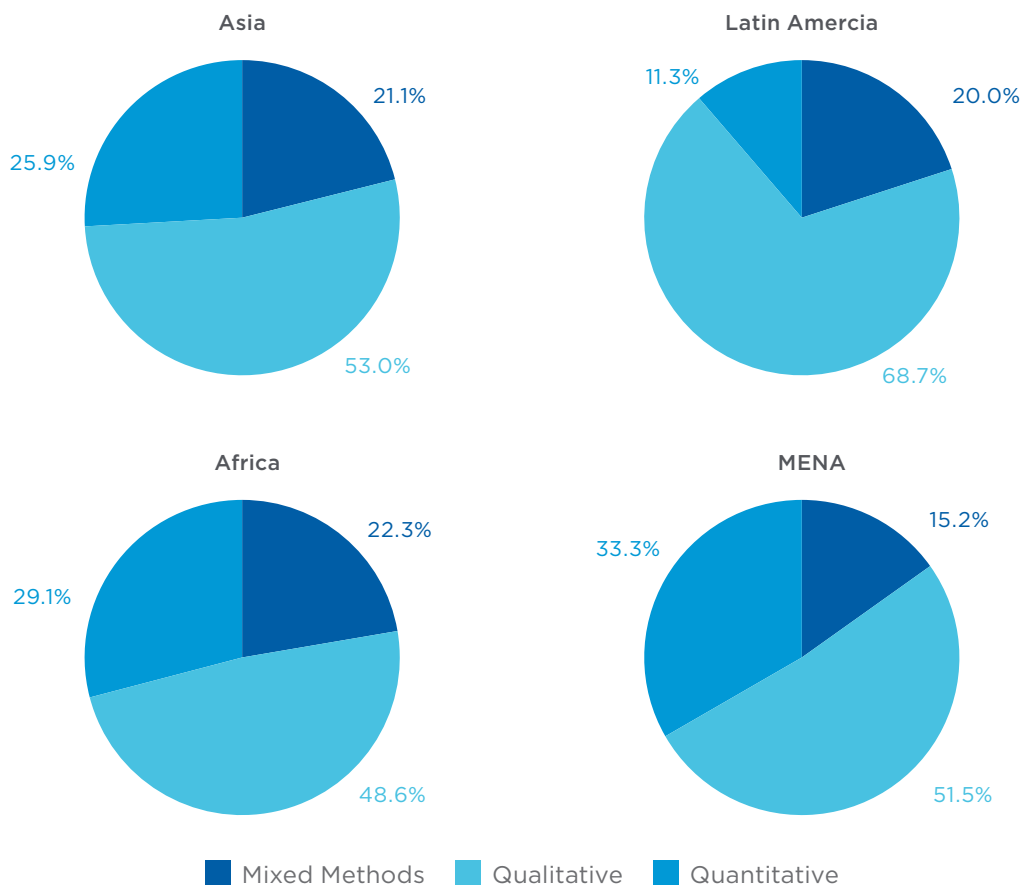


FIGURE 7: DISTRIBUTION OF STUDIES ACROSS METHODS AND GEOGRAPHY (IN PERCENTAGES)



3.3 Results based on outcomes

Research on gender in agriculture and food systems has mostly focused on addressing socio-economic issues (Figure 8), where social is the most reported outcome, followed by agricultural knowledge and behavioural outcomes, and economic outcomes. Certain sub-outcomes within the social outcomes however are more frequently reported than others - e.g. decision-making or agency followed by changes in social, cultural and gender norms. Gender-based violence is the least reported sub-outcome under social outcomes.

Under economic outcomes, income followed by yield, and household assets are the most

frequently reported sub-outcomes. Savings is however the least reported economic sub-outcome. Some studies also measured resource-use efficiency by looking at the efficiency of variable inputs (e.g. credit, seeds, water, labour, fertilizer etc.) and value-chain participation on gendered economic outcomes.

Most of the studies reporting agricultural knowledge and behavioural outcomes measured knowledge, information and skill use; followed by adoption as the sub-outcome. Spillover effect was the least reported sub-outcome.

Environmental outcome is the least reported. The sub-outcome, sustainable agricultural practices, under the environmental outcome has significantly more evidence than the GHG emissions sub-outcome.



FIGURE 8: PUBLICATIONS GROUPED BY OUTCOME

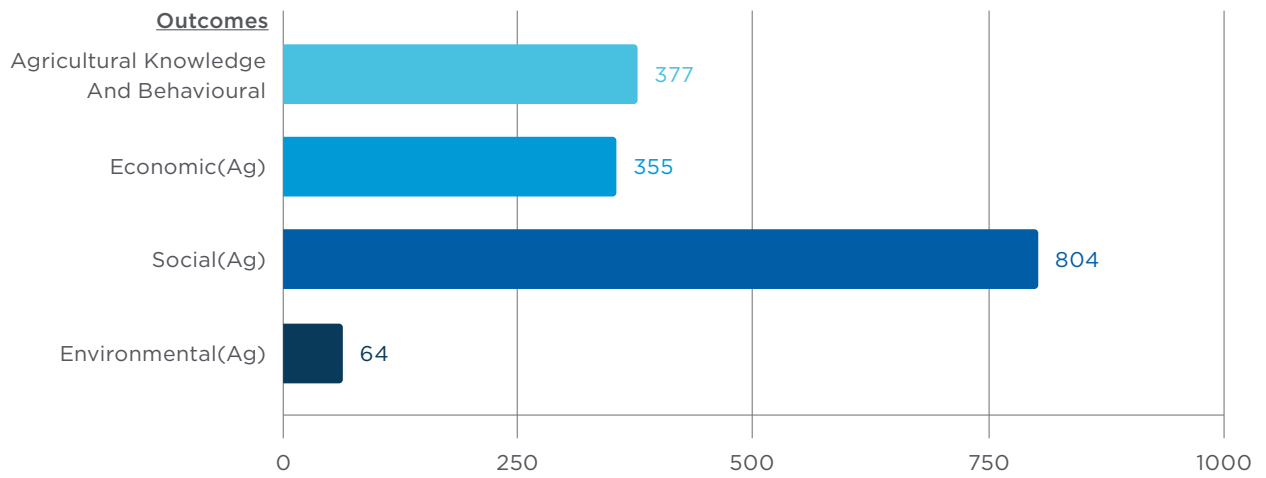
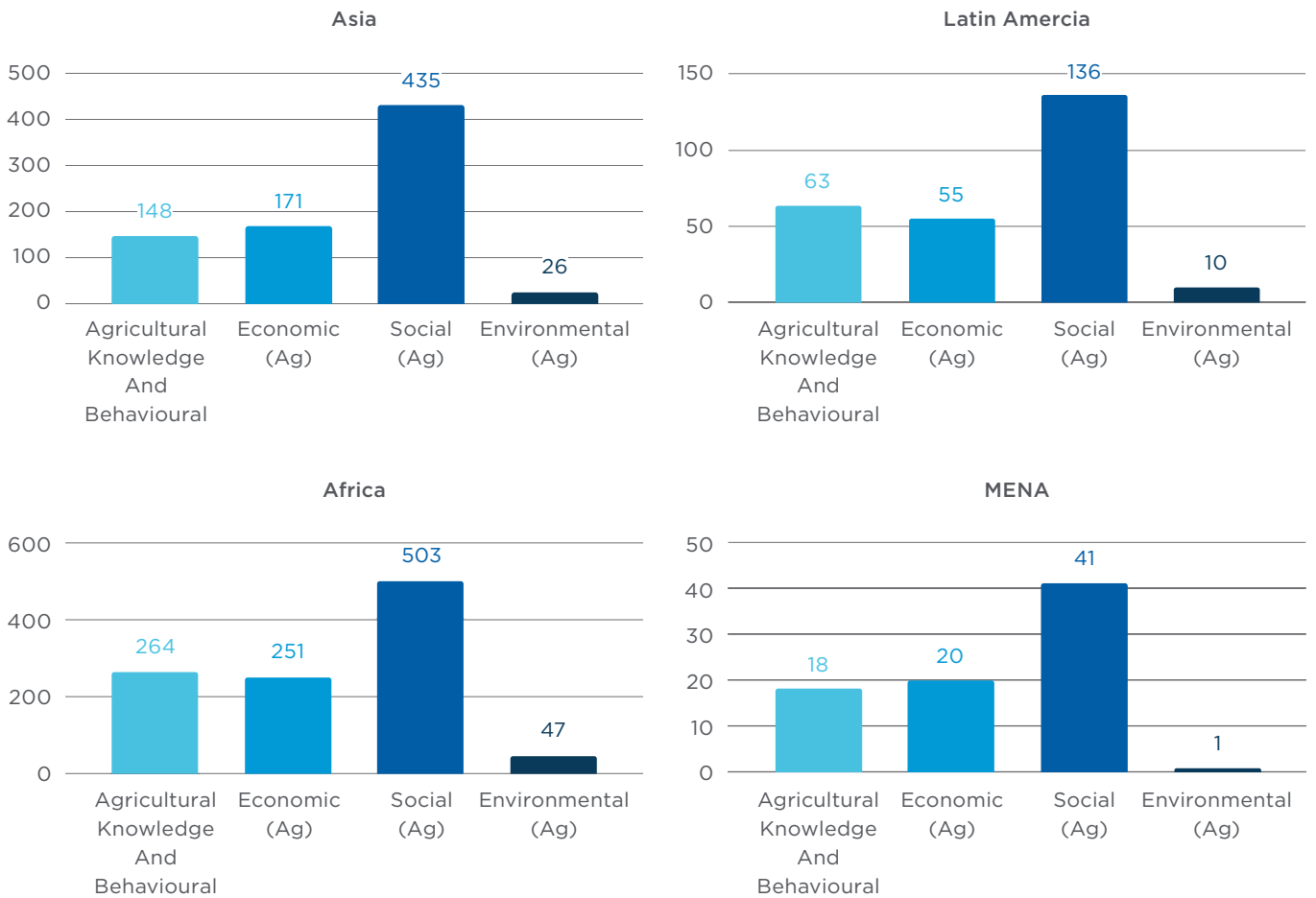


FIGURE 9: DISTRIBUTION OF STUDIES BY REGION AND OUTCOME



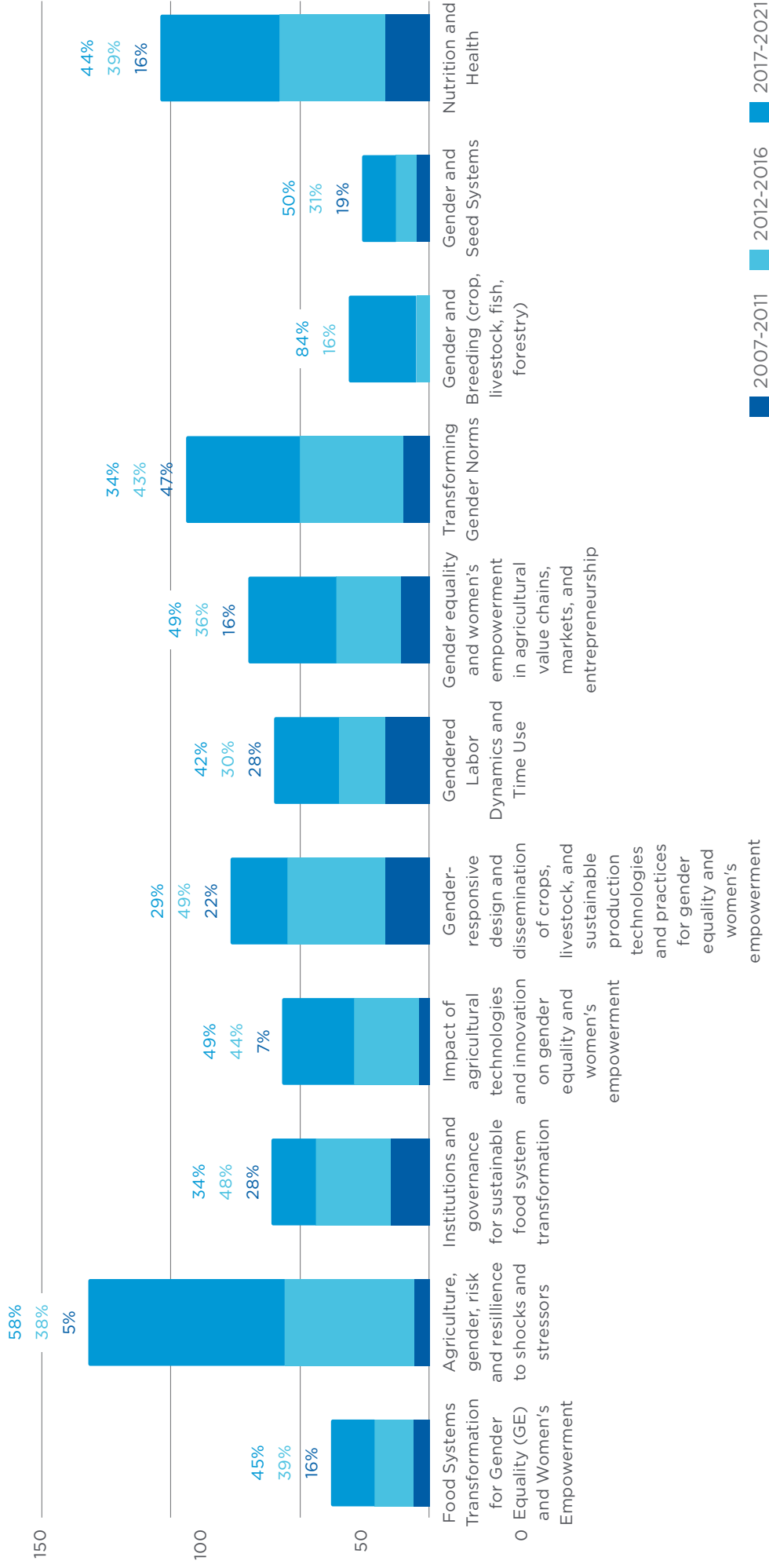
The distribution of outcomes grouped by geography (Figure 9) is similar across the regions.

3.4 Theme-wise analysis of magnitude, type of evidence and temporal trends

Evidence for all themes is primarily concentrated in Africa and Asia (Table 4), while the evidence base in Latin America and MENA is thin. The

exclusion of evidence in languages other than English could explain the geographical skew.²² The themes gender and breeding (theme 9) and gender and seed systems (theme 10) are poorly represented (Table 4) in the EGM and this may be due to the fact that these areas have emerged recently.

FIGURE 10: NUMBER OF PUBLICATIONS BY 5-YEAR BINS FOR ALL THEMES



Most themes show an increase in evidence over time mirroring the overall trend in Figure 5. The evidence under gender and breeding (theme 9) grew 5-fold after 2016 (Figure 10) and the evidence under gender and seed systems (theme 10) doubled after 2016.

²¹ Please see section 1.1.3, Limitations for more details on the issue of language selections and its implications for the validity of the EGM.

TABLE 4: DISTRIBUTION OF STUDIES BY REGION AND THEME

Theme No.	Themes	Region					Total
		Asia	Africa	Latin America	MENA	Others	
1	Food Systems Transformation for Gender Equality (GE) and Women's Empowerment	55%	76%	29%	5%	16%	38
2	Agriculture, Gender, risk, and resilience to shocks and stressors	39%	56%	5%	1%	8%	132
3	Institutions and governance for sustainable food system transformation	41%	67%	16%	2%	13%	61
4	Impact of agricultural technologies and innovation on gender equality and women's empowerment	22%	83%	14%	5%	3%	58
5	Gender-responsive design and dissemination of crops, livestock, and sustainable production technologies and practices for gender equality and women's empowerment	34%	73%	6%	3%	0%	77
6	Gendered Labor Dynamics and Time Use	52%	52%	20%	10%	7%	60
7	Gender equality and women's empowerment in agricultural value chains, markets, and entrepreneurship	35%	77%	30%	6%	6%	71
8	Transforming Gender Norms	50%	76%	26%	9%	3%	94
9	Gender and Breeding (crop, livestock, fish, forestry)	16%	65%	6%	13%	0%	31
10	Gender and seed systems	15%	77%	12%	4%	4%	26
11	Nutrition and Health	63%	55%	12%	1%	2%	104

The individual themes essentially follow the overall trend in methods (Figure 6), with qualitative studies being most in number, followed by quantitative and mixed-methods. Themes 4, 5, 6 and 11 have a higher percentage of their studies using quantitative methods. Mixed-methods approach is used most frequently in the gender and breeding theme.

Social outcomes are most commonly reported across themes (Figure 8). However, there are outliers to this general trend. Themes 4 and 5 that study the interaction of gender and technology, and themes 9 and 10 studying breeding and seed systems see an overwhelming

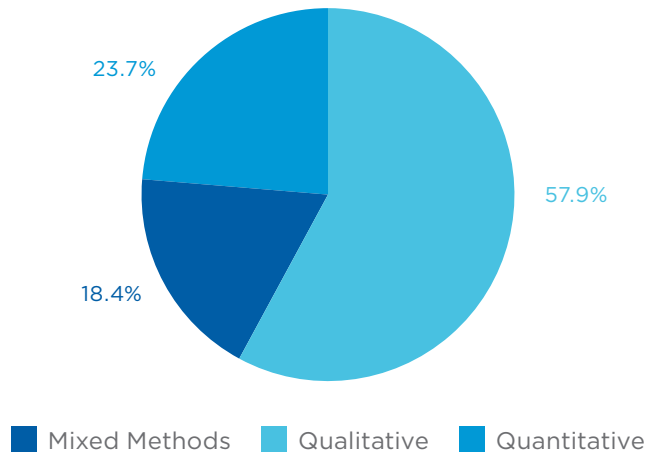
presence of evidence under agricultural knowledge and behaviour as the outcome and adoption as the sub-outcome.

3.4.1 Theme-wise analysis

3.4.1.1 Theme 1: Food Systems Transformation for Gender Equality (GE) and Women's Empowerment

Studies under the theme food systems transformation for gender equality (GE) and women's empowerment seem to predominantly adopt qualitative methods due to the ingrained complexity in the area (Figure 11).

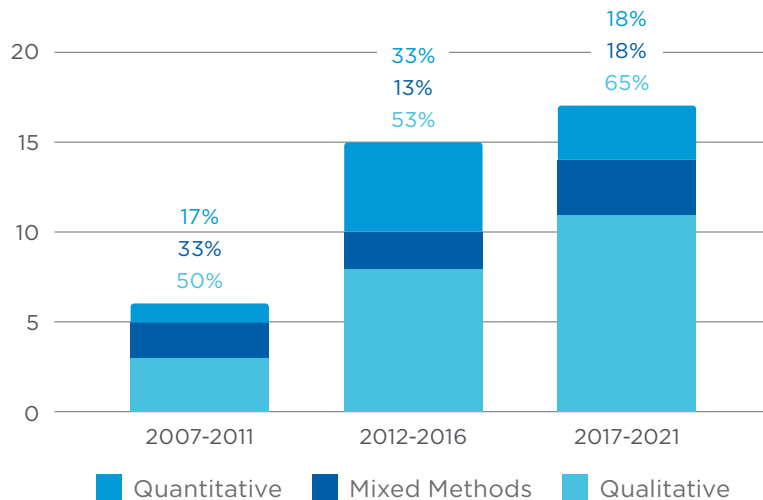
FIGURE 11: THEME 1 - DISTRIBUTION OF STUDIES ACROSS METHODS (IN PERCENTAGES)



Across regions, there has been a sharp increase (Figure 12) in the number of studies in this theme after 2012 - an indicator of a rising interest in understanding the changing structure of food systems. It is also interesting to note that after 2017 there has been an increased use of qualitative and mixed-methods.

evaluated frequently. Over the years, there has been a rise in the number of studies that evaluate economic outcomes.

FIGURE 12: THEME 1 - NUMBER OF PUBLICATIONS BY 5-YEAR BINS

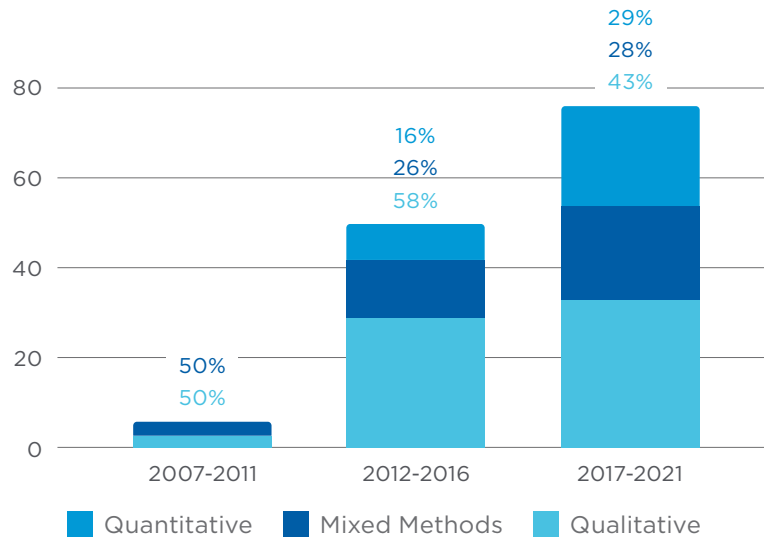


Social outcomes were by far the most common outcomes evaluated in the studies under this theme followed, in order, by economic; agricultural knowledge and behavioural outcomes; and environmental outcomes. Under social outcomes, consumption and food security were the most common sub-outcomes, followed by changes in social, cultural and gender norms; and time use and efficiency. Knowledge, information and skill use under the agricultural knowledge and behavioural outcome was also

3.4.1.2 Theme 2: Agriculture, gender, risk, and resilience to shocks and stressors

Women typically have limited access to resources, education, and finance to cope and effectively adapt to the impacts of climate change. Moreover, women are largely excluded from decision-making at all levels while dealing with shocks and stressors. A qualitative approach helps researchers identify gaps and present nuanced and region-specific solutions to these questions and 49% of the evidence in this theme use qualitative methods.

FIGURE 13: THEME 2 - NUMBER OF PUBLICATIONS BY 5-YEAR BINS



It is important to note that prior to 2011 (Figure 13), the evidence base in this theme is relatively thin, with limited literature on gendered reactions and responses to climate change and other risks posed to agriculture and food systems. Interest in this field grew after 2012. The number of studies adopting a quantitative approach has increased significantly after 2017, surpassing the other two categories in 2019. In the same period, the quantity of studies that adopt mixed-methods slightly increases as well. This shift can perhaps be attributed to the increasing quantification of the impact of climate change across different sectors and population segments.

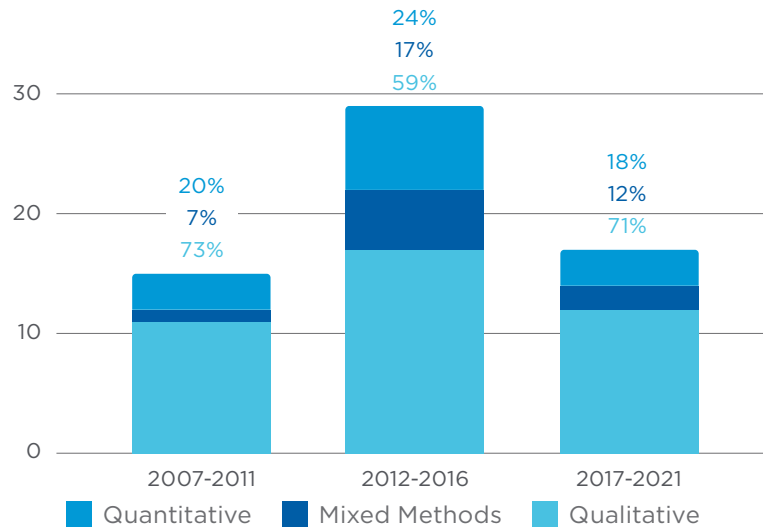
Across regions, social outcomes are the most commonly evaluated (45%), with decision-making being the most frequently reported sub-outcome. This was followed by studies that investigated agricultural knowledge and behavioural outcomes where adoption is one of the most frequently reported sub-outcome. While answering questions that try to understand gender roles during periods of sudden disruptions or gender and resilience to climate change, decision making (under social outcome) is one of the key driving forces behind adoption (under agricultural knowledge and behaviour outcome) of novel practices including

climate smart agricultural practices. Therefore, it is not surprising to observe that decision-making and adoption remain the most reported sub-outcomes.

3.4.1.3 Theme 3: Institutions and governance for sustainable food system transformation

The theme 'Institutions and governance for sustainable food system transformation' has seen a substantial body of work that uses qualitative methods (65%). Quantitative and mixed method studies comprise 21% and 14% respectively of the included studies. This can be attributed to the fact that qualitative approaches may be better suited for capturing the complexity of institutional and governance changes and impacts at the sub-national and regional levels. Studies use a qualitative lens to understand the role of gender in governance or resources or gender roles and outcomes in food, land, and water systems or even women's participation in institutions driving food system transformation. The few studies that apply quantitative approaches use econometric methods to map women's participation in institutions and quantify gaps in the system. However, it is important to note that FGDs, Surveys and Key Informant Interviews provide a majority of the data used by these quantitative studies.

FIGURE 14: THEME 3 - NUMBER OF PUBLICATIONS BY 5-YEAR BINS



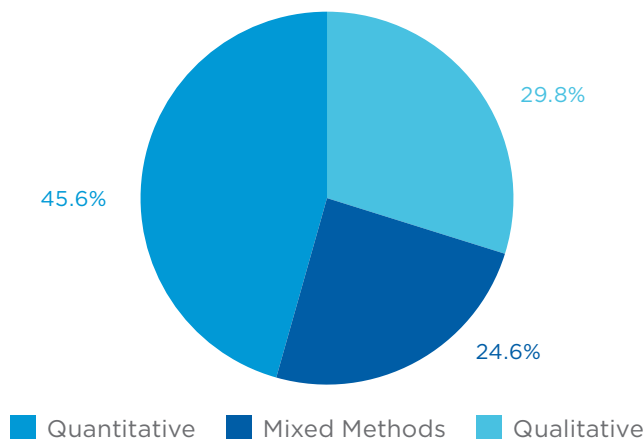
After 2016, 71% (Figure 14) of all studies were qualitative in their approach, where 19% and 9% of the studies employed quantitative and mixed-methods approaches respectively. Comparing this with papers published before 2016, 62% use qualitative methods. In this theme, 54% of the studies examined social outcomes, 28% of studies examined economic outcomes, 12% examined agricultural knowledge and behavioural outcomes, while only 6% examined environmental outcomes. Decision-making and changes in social, cultural and gender norms are the most commonly reported sub-outcomes under social outcomes. Under environmental outcomes, sustainable agricultural practices are the most commonly reported sub-outcome. The most reported findings under economic outcomes are household assets and income. Economic and environmental outcomes are yet to be adequately

addressed. Under social outcomes, decision-making is the most commonly evaluated sub-outcome of interest.

3.4.1.4 Theme 4: Impact of agricultural technologies and innovation on gender equality and women’s empowerment

In contrast to the general trend, a majority of the studies (45%) in this theme use a quantitative approach, 31% use a qualitative approach and the remaining 24% of studies use a mixed-methods approach (Figure 15). The impact of technologies in agriculture is often measured through productivity, and in this context, gender disaggregated productivity lends well to quantitative methods. Econometric analysis using constructed indices examines the effects of access and usage of agricultural technologies on women’s empowerment indicators.

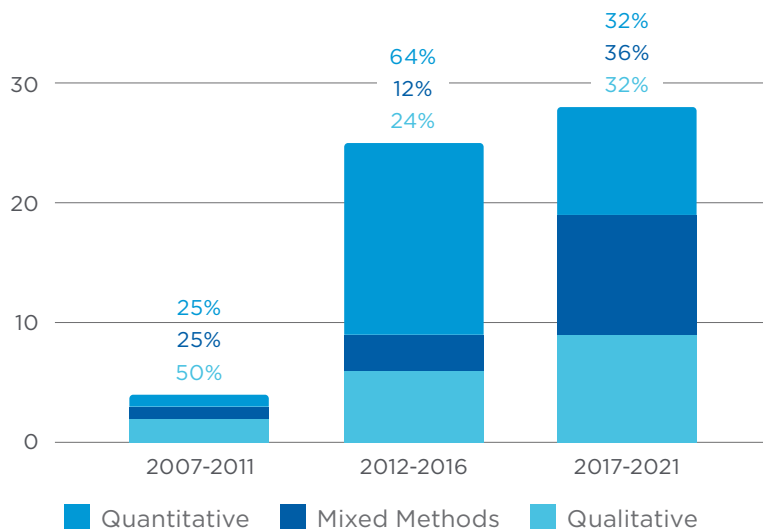
FIGURE 15: THEME 4 - DISTRIBUTION OF STUDIES ACROSS METHODS (IN PERCENTAGES)



In Asia, 54% of the studies apply a qualitative approach and only 23% of studies apply a quantitative approach. 75% of studies focusing on Latin America use a qualitative approach and only 13% use a quantitative approach.

use econometric reasoning to map the impact of technology on women's empowerment. The largest body of evidence supporting the agricultural knowledge and behavioural outcome stem from studies based in Africa, while Asia

FIGURE 16: THEME 4 - NUMBER OF PUBLICATIONS BY 5-YEAR BINS



There is a gradual increase (Figure 16) in the number of studies using quantitative methods over time. It is also important to note that interest in this subject has developed after 2012, as there is little evidence available prior to 2012. Between 2012 and 2015, 69% of the studies adopted a quantitative approach, 19% qualitative and just 12% used mixed-methods. From 2015 onwards, a rising interest in the adoption of mixed-methods and qualitative approach to address questions in this subject is seen.

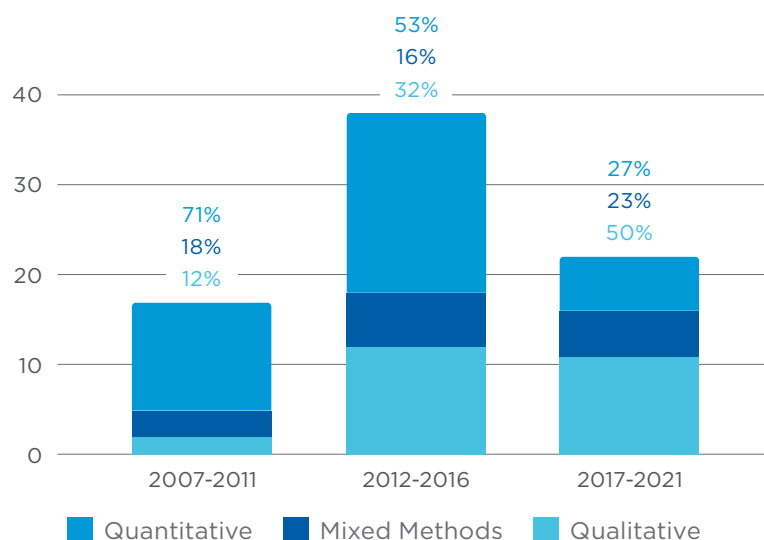
For the studies included in this theme, agricultural knowledge and behavioural outcomes are the most commonly evaluated outcomes (36%), closely followed by social (33%) and economic outcomes (26%). Adoption of practices is the most reported sub-outcome, followed by knowledge, information and skill use. This can be attributed to the body of evidence that includes quantitative analysis of technological interventions that have taken place in a variety of regions. These studies

and Latin America include less than half of such studies.

3.4.1.5 Theme 5: Gender-responsive design and dissemination of crops, livestock, and sustainable production technologies and practices for gender equality and women's empowerment

As a majority of studies under this theme adopt a quantitative approach, this theme has become one of the largest evidence bases of included studies for quantitative research work. Qualitative studies and mixed-method studies are also prevalent in this theme. The studies that employ quantitative analysis primarily examine the impact of the design of gender-responsive technologies, extensions, practices, etc. on indices such as yield, productivity and resource use efficiency. A significant number of studies also adopt quantitative techniques to understand how reduced gender disparities within households are associated with higher levels of technical efficiency.

FIGURE 17: THEME 5 - NUMBER OF PUBLICATIONS BY 5-YEAR BINS



Across regions, evidence before 2012 was thin (Figure 17). With growing interest in understanding the role of increased gender parity on adoption of sustainable practices and production technologies, there has been a significant increase in the number of studies in this field after 2012. In particular, it is interesting to observe that after 2017 the preferred method of research has shifted from quantitative to qualitative and mixed-methods.

As regards the outcomes and sub-outcomes, it is observed that economic outcomes are reported the most, followed by an equal reporting of social; and agricultural knowledge and behavioural outcomes. Despite this, the most frequently reported sub-outcome is knowledge, information and skill use, where extensive evidence on the impact of women’s access and usage of new production technologies on gender equality is observed. Several studies examine economic factors and therefore economic sub-outcomes such as yield, farm investment and resource use, and efficiency being reported frequently are seen as well. Over the years, it can be observed that studies have begun to use more qualitative approaches to understand the social aspects in this field.

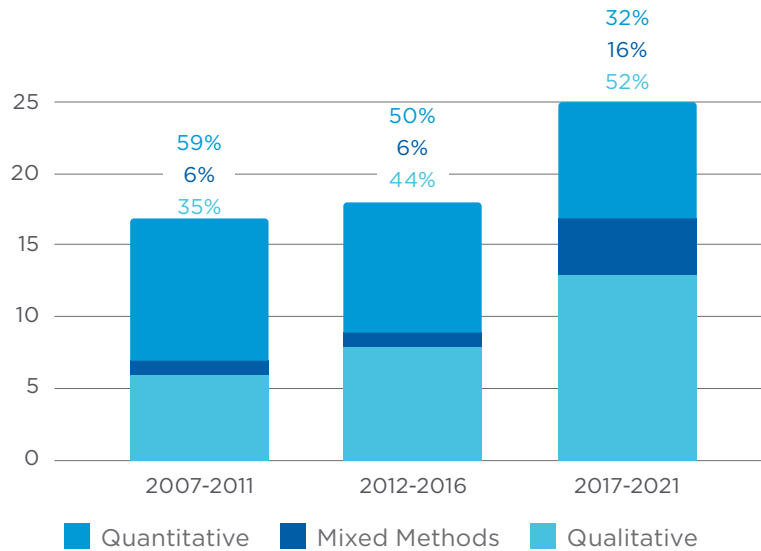
3.4.1.6 Theme 6: Gendered labour dynamics and time use

The theme gendered labour dynamics and time use is equally split between quantitative and qualitative studies (45% each), while only 10% use a mixed-methods approach. Studies that examine

labour dynamics and time use in an agricultural context often explore the disproportionate time poverty experienced by women, as they typically bear the burden of unpaid care work. It can be observed that the nature of the method adopted is mostly dependent on the region, and the crop being explored. Mixed-methods papers are mostly housed in Latin America and Africa. There is a gradual increase in the use of qualitative and mixed methods over time (Figure 18).



FIGURE 18: THEME 6 - NUMBER OF PUBLICATIONS BY 5-YEAR BINS



In Asia, quantitative studies (49%) and qualitative studies (45%) outnumber mixed-method studies which account for only 6% of the total share. This trend is seen in South Asia as well. However, in South East Asia, qualitative studies account for 50% of the included studies, followed by an equal share of quantitative and mixed-method studies (25% each). Studies conducted in Latin America are skewed towards qualitative methods (67%) and only 8% of studies adopted a quantitative approach.

This theme comprises 60% of evidence that report a social outcome, 34% that report an economic outcome and 6% that report an agricultural knowledge and behavioural outcome. Studies that report an environmental outcome were not found. Among studies that evaluated social outcomes, time use and efficiency are the most commonly reported sub-outcomes. The papers looking at household assets and employment are quantitative in nature and try to map the economics of gendered labour dynamics, with a heavy focus on productivity and yield. It is interesting to note that although research in this theme focuses heavily on the economic aspects of agriculture, evidence on the economic sub-outcome, savings, is very little. Among the studies undertaken in Africa, changes in social, cultural and gender norms, and decision making are the most commonly evaluated sub-outcomes. Moreover, some of the studies conducted in Africa use qualitative methods to

analyse labour dynamics and time use, instead of quantitative and mixed-methods, with a focus on findings that explore women’s decision-making capacity. Over the years, there has been a gradual increase in studies that evaluate social outcomes.

Women play a key role in agriculture, which is reflected in their time commitments to agricultural work. There is a strong link between agriculture, nutrition and time use. However, there is a lack of evidence on the ways in which participation in agricultural work determines people’s allocation of time to productive and reproductive work and its implications on nutrition. As discussed in many studies, there is a need to examine how development interventions that target women affect time constraints by increasing work burdens. It is also highlighted that researchers need to develop better metrics, conceptualize and analyze time use to understand gendered trade-offs in agriculture-nutrition pathways.

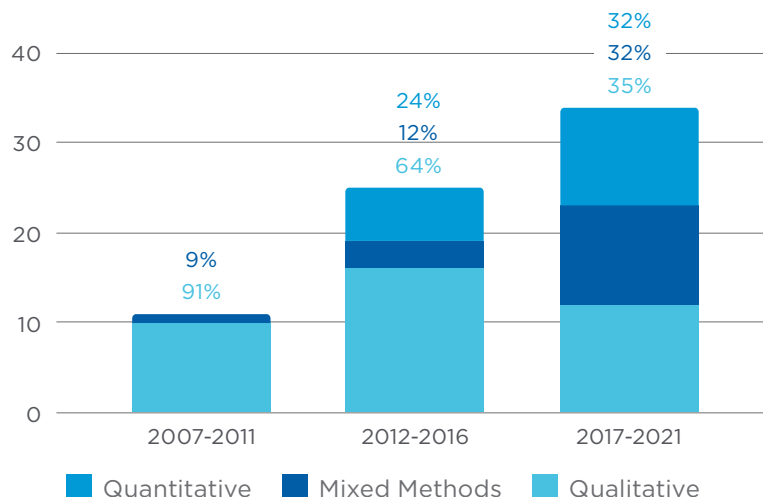
3.4.1.7 Theme 7: Gender equality and women’s empowerment in agricultural value chains, markets, and entrepreneurship

After 2016, there is a sharp increase in the number of quantitative studies, and a drop in the number of qualitative studies observed under this theme (Figure 19). This trend is accompanied by an increase in mixed-method studies after 2016.

After 2015, there is a sharp increase in the number of quantitative studies, and a drop in the number of qualitative studies. This trend is accompanied by an increase in mixed method studies after 2015.

to all the other themes. The studies under this theme examine gender and social norms and their influence on gender in agriculture, gender equality and empowerment, masculinities and engaging men, addressing structural barriers

FIGURE 19: THEME 7 - NUMBER OF PUBLICATIONS BY 5-YEAR BINS



47% of evidence is on social outcomes, 31% on economic, and 21% on agricultural knowledge and behavioural outcomes. The evidence is mainly concentrated around the sub-outcomes of decision-making, followed closely by changes in social, cultural and gender norms. Understanding the gendered nature of decision-making power in a household, and its impact on commercialization of agriculture, access to value chains and financial instruments are popular subjects under this theme. Social sub-outcomes such as gender-based violence and nutrition, however, have scant evidence under this theme. It is important to note that adoption and knowledge, information and skill use, which are sub-outcomes of the primary outcome agricultural knowledge and behavioural, have a strong body of evidence. This is mainly attributed to the studies on techniques or practices to promote financial inclusion of women through a range of technological innovations that were conducted in Africa.

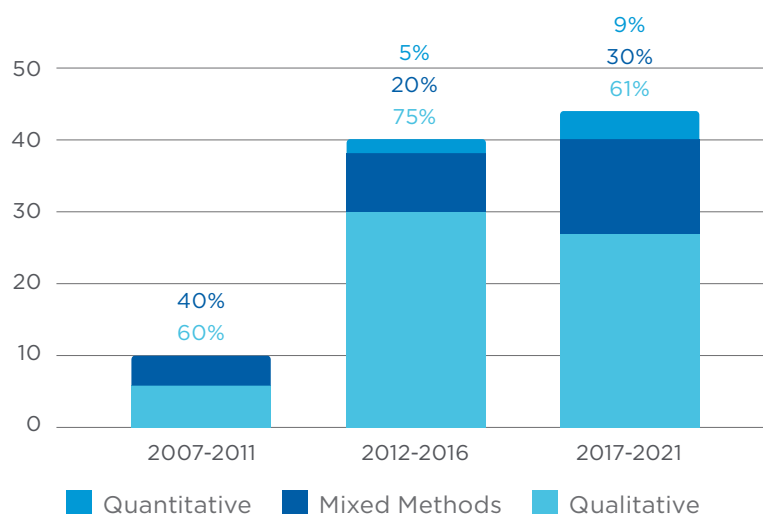
3.4.1.8 Theme 8: Transforming Gender Norms

Over two-thirds of studies under this theme (67%) used qualitative methods for analysis, followed by mixed-methods (27%), while few studies applied quantitative methods (6%). This theme also has a maximum number of studies with qualitative methods compared

and norms and methods to scale gender transformative approaches. Qualitative methods are well-suited to examine the complex interplay of gender norms and agriculture and food systems. From 2015, there has been an increase in the use of mixed-methods to study gender norms (Figure 20) and there has been a decline in the use of quantitative methods.



FIGURE 20: THEME 8 - NUMBER OF PUBLICATIONS BY 5-YEAR BINS



There is an increase in evidence for transforming gender norms after 2012 (Figure 15). CGIAR first made its foray into Gender Transformative Approaches (GTA) in 2012 as a part of its Aquatic Agricultural Systems Research Program. The projects and studies that followed in CGIAR focused on analysing the gender-transformative projects/policies/approaches that have influenced changes in power relations, norms, roles, and inequalities that define the differentiated experiences of men and women and the structural barriers that perpetuate gender inequality.

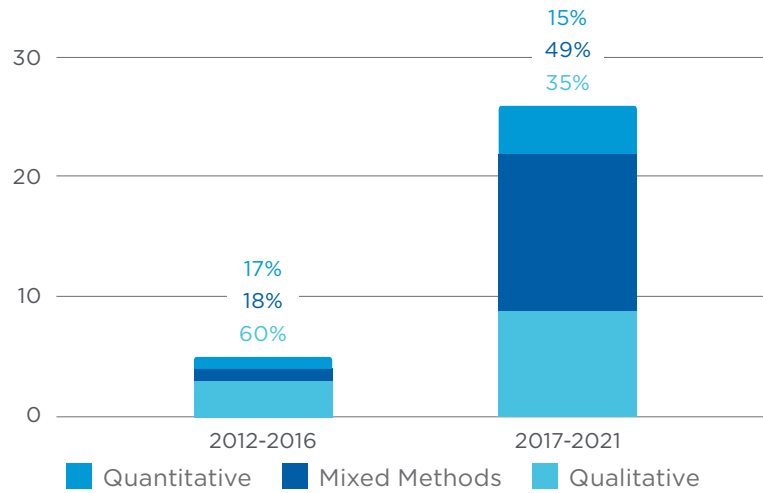
Nearly 62% of the studies in these themes examine social outcomes, followed by agricultural knowledge and behavioural (20%) and very few studies examine environmental outcomes (5%). Across all the included regions change in social, cultural and gender norms was the most reported findings, along with decision making, gender-based violence and time use. Most of these studies that discuss gender norms aim at understanding the gender roles, decision making process at various levels (individual, intra-household, groups, communities, institutions etc.) and how the prevailing gender norms

influence and shape women empowerment. Over the years there has been a rise in studies that examine agricultural knowledge and behavioural outcomes that discuss gender norms in the context of adoption, access and use of resources and economic outcomes such as employment and household assets.

3.4.1.9 Theme 9: Gender and breeding

There is very thin evidence in gender and breeding when compared to other thematic areas (Table 4). This theme, though relatively new as compared to others, has mostly been analysed through the use of mixed-methods (45%). The evidence before 2017 was very little (Figure 21) and the theme then used mostly either qualitative or quantitative methods to report the findings. After 2017, mixed-methods have become popular. A probable reason for this could be the increased focus of stakeholders in the intervention or program design and implementation that brought together multidisciplinary teams of plant and animal breeders, social scientists and gender researchers to understand gender responsive breeding with supporting tools of mixed-method research.

FIGURE 21: THEME 9 - NUMBER OF PUBLICATIONS BY 5-YEAR BINS



Thick evidence is observed around agricultural knowledge and behavioural outcomes. Most of the included studies report findings on adoption; knowledge, information and skill use as the focus of research in this theme has largely been around understanding breeding. Most of the papers discuss findings that help understand the priorities that women and men assign to determine traits preferences and gender dimensions in breeding programs. Further, some evidence is found around economic and social outcomes like income; change in social, cultural and gender norms; decision making; and time use and efficiency.

The existing evidence is largely concentrated in Africa and South Asia. It is observed that the studies in Africa mostly focused on adoption and knowledge; information and skill use whereas the studies in Asia had more findings on social outcomes (decision making; changes in social, cultural and gender norms; and time use and efficiency). However, studies that examine environmental outcomes or economic outcomes such as yield; farm investment; household assets; savings; and resource use efficiency, were not found highlighting an existing gap that the research in this theme can focus on.

Future research on gender and breeding can explore alternative ways of adapting the participatory variety-selection process with respect to the choice of plant and animal breeds to be multiplied to allow breeders to capture differences that may emerge within each gender group, especially as they are faced with the

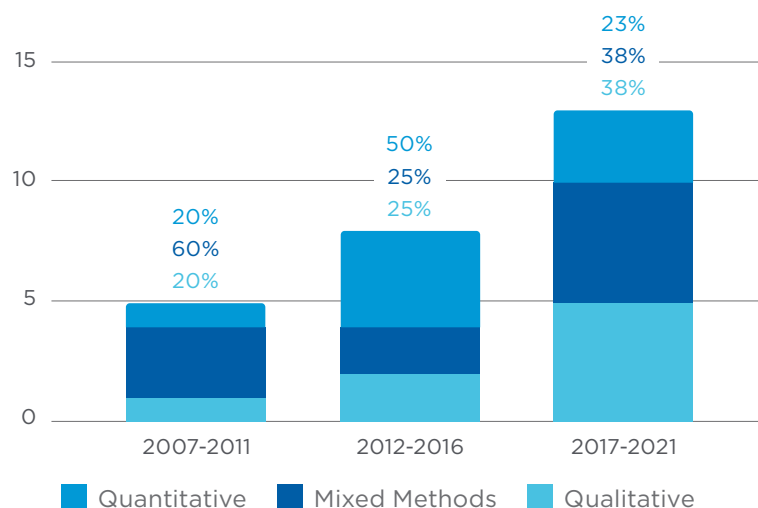
challenges of climate change and growing crop commercialization.

3.4.1.10 Theme 10: Gender and seed systems

While there is ample evidence on seed systems and seed security for smallholder farmers, there is relatively little literature around gender and seed systems. As suggested by the trend of evidence over the years, the publications around the seed system and gender dynamics grew quickly after 2016 (Figure 22).



FIGURE 22: THEME 10 - NUMBER OF PUBLICATIONS BY 5-YEAR BINS



Most studies examine agricultural knowledge and behavioural outcomes, followed by economic; social and lastly environmental outcomes. The included papers focus on the outcomes on gender aspects of access to seeds, and the impacts of seed systems development, gendered dimensions of seed information, preferences, seed sourcing and use, and sustainability. Other sub-outcomes of interest include empowerment of women smallholders in the global south with heavy concentration of evidence in Africa as compared to other regions, as most of the programs and interventions in seed systems have focused on this region. While some of the studies examine social outcomes such as changes in social, cultural and gender norms and decision-making, few studies explore the gendered dimensions of the seed system in the context of economic outcomes such as income, savings, household assets and employment. Most of the studies under this theme use a mixed-methods design.

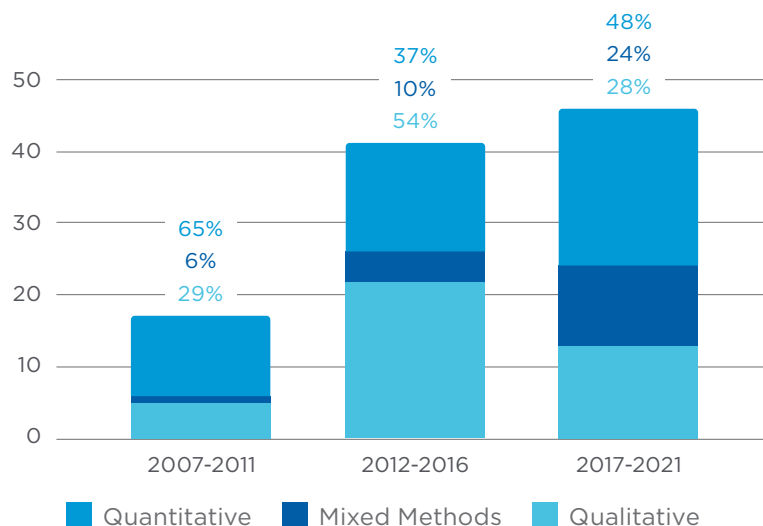
3.4.1.11 Theme 11: Nutrition and Health

Nutrition-sensitive agricultural research has gained momentum especially after 2013 (Figure 23). Ample evidence is observed on social outcomes, with the main focus being on nutrition, and consumption and food security. Most of the included studies measure the impact of agricultural or nutritional interventions on anthropometric measurements and dietary intake of mothers and children. Hence, approximately half (47%) of the included studies have used quantitative methods, followed by qualitative methods, with only a limited number employing

mixed-methods. While studying the linkages between gender and nutrition and its consequent impacts on dietary practices and children's education, it becomes crucial to employ econometric techniques that define a causal pathway that effectively map these links. Several studies therefore use a quantitative approach. It is observed that studies that employ a qualitative approach do so while investigating local trends in specific communities in select regions. Regional variations show that Asia (after 2013) and Africa (after 2014) have seen a similar and consistent increase in the use of both qualitative and quantitative methods.



FIGURE 23: THEME 11 - NUMBER OF PUBLICATIONS BY 5-YEAR BINS



Overall, most of the included studies report social outcomes, followed by agricultural knowledge and behavioural outcomes. Most studies included are under sub-themes such as gender and diet diversity, women’s empowerment and child feeding. In Asia, specifically South Asia, and Africa, most of the studies measure nutrition, followed by consumption and food security.

Over time, there has been an increase in measuring time-use and efficiency; adoption of dietary diversity and improved nutrition; knowledge, information & skill use. This theme also reports findings on spillover effects as many of the nutrition and health initiatives that target women in agriculture have close linkages with the nutrition and health of mothers, children and other household members. After 2013, an increase in the number of studies that examine the impact of health interventions in agricultural households on their Economic outcomes such as income and yield is observed.

4. CONCLUSIONS

The literature on gender in agriculture and food systems is growing and this Evidence Gap Map (EGM) contributes to guide future research and policy initiatives in this sector, providing information on what themes and outcomes have already been researched as well as where, when, and employing which methodology.

As part of the EGM, researchers screened 7,259 publications, out of which 752 studies were included in the final map. Studies were categorized into 11 themes and 4 outcomes. While assignments to themes were unique, meaning that one study could not fall under multiple themes, the EGM was built to allow for a paper to be categorized into multiple outcomes where necessary, to account for complexity in the evidence.

Based on the findings of Section 3 answers to the questions raised in Section 1.2 are reported below.

4.1 Answers to Research Questions

4.1.1 Research Question 1. What is the empirical evidence on “Gender in Agriculture and Food Systems” in Low and Middle Income (LMIC) of Asia, Africa, South America, Middle East and North Africa (MENA)? What is the spatial and study-methodology distribution for the evidence?

The majority of the 752 studies included in the EGM (52%) were conducted in Africa, followed by Asia (33%), Latina America (12%), and, finally, the MENA region (3%). Methodologically, it was observed that most studies employed qualitative methods (360 or 48%), 227 quantitative methods (30%), and 165 a mixed-methods approach (22%). The dominance of qualitative studies in gender

research is understandable given the subject matter, but it is interesting to note that there has been an overall rise in the use of mixed-method approaches in gender research after 2010.

4.1.2 Research Question 2. How is the evidence distributed across themes and outcomes?

More than half of all the evidence (54%) comes from just four themes:

1. Theme 2 - Agriculture, gender, risk, and resilience to shocks and stressors (18%),
2. Theme 5 - Gender-responsive design and dissemination of crops, livestock, and sustainable production technologies and practices for gender equality and women's empowerment (10%),
3. Theme 8 - Transforming gender norms (13%), and
4. Theme 11 - Nutrition and health (14%)

At the other end of the spectrum, three themes contribute to only 13% of the evidence base, suggesting that they might be understudied. These are:

1. Theme 1 - Food systems transformation for gender equality (GE) and women's empowerment (5%),
2. Theme 9 - Gender and seed systems (4%), and
3. Theme 10 - Gender and breeding (3%)

Each of the remaining themes (3, 4, 6, and 7) contribute to between 8 and 9 percent of the total evidence.

Methodologically, evidence on five out of eleven themes emerged mostly from qualitative methods:

- Theme 1 - Food systems transformation for gender equality (GE) and women's empowerment,
- Theme 2 - Agriculture, gender, risk, and resilience to shocks and stressors,
- Theme 3 - Institutions and governance for sustainable food system transformation,

- Theme 7 - Gender equality and women's empowerment in agricultural value chains, markets, and entrepreneurship, and
- Theme 8 - Transforming gender norms
- On the other hand, quantitative methods were mostly used to explore the following themes:
- Theme 4 - Impact of agricultural technologies and innovation on gender equality and women's empowerment,
- Theme 5 - Gender-responsive design and dissemination of crops, livestock, and sustainable production technologies and practices for gender equality and women's empowerment, and
- Theme 11 - Nutrition and health

Mixed-methods were used most frequently in two themes: for gender and breeding (theme 9), and gender and seed systems (theme 10).

Moving on to outcomes, studies that analyse social outcomes (50%) significantly outnumber those that capture either economic (22%); environmental (4%); or agricultural knowledge and behavioural outcomes (23.5%).

Focusing on social outcomes, the sub-outcomes decision-making or agency followed by changes in social, cultural and gender norms are the most frequently analysed. Interestingly, very few studies focused on gender-based violence as a sub-outcome.

Finally, considering the growing importance of this outcome, it is worth noting that, under the environmental outcomes group, the sustainable agricultural practices sub-outcome has significantly more evidence than the GHG Emissions sub-outcome.

4.1.3 Research Question 3. How does the available evidence across the themes evolve with time?

The cumulative evidence base grew almost 4-fold between 2008 and 2020, with more than 65% of the evidence added to the literature after 2014. 32 new studies were added to the evidence base in 2010, 75 were added in 2015 and this number increased to 86 in 2020.

In 2007, the start year of the EGM, studies were found under only 2 themes: gender-responsive design and dissemination of crops, livestock, and sustainable production technologies and practices for gender equality and women's empowerment; and transforming gender norms. The number of themes with publications increased to 9 in 2008. Interestingly, studies in theme 9, gender and breeding, first appeared only in 2012.

Most themes showed a steady increase in the number of studies after 2010. Gender and breeding (theme 9) and gender and seed systems (theme 10) show a significant rise in the availability of evidence only after 2017. Theme 3, institutions and governance for sustainable food system transformation; and theme 5, gender-responsive design and dissemination of crops, livestock, and sustainable production technologies and practices for gender equality and women's empowerment, do not show any clear temporal trends in the number of studies.

4.1.4 Research Question 4. Where are the major evidence gaps? What are the implications of these gaps for research and policy?

Latin America and MENA are especially deficient in evidence across many themes. 6 of 11 themes have ten or less publications in Latin America. All 11 themes have less than ten publications in the MENA region. The exclusion of papers in Arabic, French, Portuguese, Spanish or other languages that may be relevant to these regions could explain this gap.

The themes of food systems transformation for gender equality (GE) and women's empowerment; gender and seed systems; and gender and breeding had less than half the number of studies compared to other themes.

Environmental outcome is the least reported outcome.

Implications for Research and Policy

Women contribute to nearly 43 percent of the agricultural labour force globally and have

increasing roles to play in different facets of agriculture and food systems. Therefore, it is important to document the existing evidence and evidence gaps in gender research. The findings suggest a need for further research in filling the evidence gaps in key themes especially in Latin America and MENA. A country-wise analysis of evidence can provide more granular details on geographical skew and inform future research. Limiting the language to English is a common practice in evidence synthesis and systematic reviews and is considered a feasible option for rapid reviews. While the need to include languages other than English to avoid publication bias is acknowledged by all stakeholders, logistical challenges and lack of clear guidelines can hamper these efforts. Since this review finds sparse evidence for the Latin America and MENA regions, future research efforts can focus on mapping and synthesising evidence in other languages such as Spanish, French and Arabic to validate these findings.

Over the last five years, the inclusion of studies in food systems transformation for gender equality (GE) and women's empowerment; gender and breeding; and gender and seed systems has broadened the spectrum of gender in agriculture and food systems research. However, publications are often clustered around a few outcomes and sub-outcomes even for well-represented themes in the EGM, which suggests the importance of promoting more multi-dimensional research in future. The EGM has revealed the need to invest in gender research in agriculture and food systems to fill the critical evidence gaps and inform policies and priorities for sustainable transformation of food systems.

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