



# Moving Beyond Sisyphus in Agriculture R&D to Be Climate Smart and Not Gender Blind

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Gender differentiation in small-scale farming and agriculture and the need to recognize and act on the “feminization” of agricultural development are critical to poverty reduction. Evidence now demonstrates that the shocks resulting from climate risks to agriculture and food security, and related adaptive responses, are highly gender-differentiated. However, agricultural research and development have not delivered the transformative changes needed in small-scale farming from a poverty eradication and gender equality perspective, and particularly to support women adapt to climate risks. A range of responses to climate change, including that referred to as climate smart agriculture (CSA), have been introduced. These strive to enable changes in the ways that issues related to crop and livestock productivity, the climate adaptive capacity of small-scale agriculture, and the carbon footprint of farming are investigated and technologies transferred. However, international agriculture research and development have struggled to find effective ways of integrating gender equality dimensions into the processes and outcomes of agriculture programmes. High level strategic decisions have not prioritized resources for gender equality work resulting in CSA too often being gender blind. Knock-on effects down the research and development strata have meant that some development agencies have taken up a CSA approach without addressing gender inequalities. While others, including some international non-government organizations, are pushing for greater attention to gender equality in agricultural development. Methodological remedies that can enable gender equality to be better addressed through agricultural research and development have been identified from tool-boxes to epistemological change. But without a change in high level prioritization of resources the potential for a climate smart and gender responsive international agriculture research and development remains a task similar to that of Sisyphus<sup>1</sup>.

**Keywords:** climate, agriculture, gender, equality, research, development

<sup>1</sup> Sisyphus, in Greek mythology, is the cunning king of Corinth who was punished in Hades by having repeatedly to roll a huge stone up a hill only to have it roll down again as soon as he had brought it to the summit. See: <https://www.britannica.com/topic/Sisyphus>

## INTRODUCTION

Shifting demographics and the gender-differentiated impacts of different stress factors in the agricultural sectors of developing countries demand that agricultural research and development (R&D) directly address gender equality issues. For example, at the local level the technological innovations and changes in farming practices that climate resilience requires have implications for the ways that household members engage in small-scale agriculture and in other livelihood activities.

R&D of what has been termed “climate smart agriculture”<sup>2</sup> (CSA) has been led by international organizations with global mandates related to the generation of global public goods<sup>3</sup>. The political economy and governance of international agriculture R&D strategy and priority setting have played a large role in determining the CSA agenda. Programme level evaluations of the Consultative Group on International Agricultural Research (CGIAR) programme on Climate Change Agriculture and Food Security (CCAFA)<sup>4</sup> and of the Adaptation in Smallholder Agriculture Programme (ASAP)<sup>5</sup>, International Fund for Agricultural Development (IFAD), have revealed the ways and the extent to which these R&D programmes have addressed issues of gender equality. Other recent investigative work in countries of Africa and South Asia has shown the extent to which the CSA approaches have been taken up by non-state organizations and donor supported projects. The weaknesses in addressing gender equality have pervaded the adoption of CSA approaches, in part due to existing situational mechanisms<sup>6</sup> not being challenged by stronger emphasis of addressing gender inequalities through adaptation in small-scale farming.

Other currents in agricultural R&D (including agroecology<sup>7</sup> and conservation agriculture<sup>8</sup>) are led by various organizations where different political economies and governance are also important. However, addressing gender equality issues in the transformative ways required is generally lacking.

An analysis is put forward to assess how well agricultural R&D addresses gender equality, and how the hegemonic positioning of CSA has influenced the discourse and focus of other players in the agricultural development domain in developing countries. The paper explores aspects of contexts, mechanisms and outcomes to identify what components are needed for a more gender responsive climate resilient agriculture R&D.

<sup>2</sup>See: <http://www.fao.org/climate-smart-agriculture/en/>

<sup>3</sup>The International Task Force on Global Public Goods (2006) has defined global public goods as “issues that are broadly conceived as important to the international community, that for the most part cannot or will not be adequately addressed by individual countries acting alone and that are defined through a broad international consensus or a legitimate process of decision-making”.

<sup>4</sup>See: <https://ccaafs.cgiar.org/>

<sup>5</sup>See: <https://www.ifad.org/web/guest/asap>

<sup>6</sup>*Situational mechanisms* describe how social structures constrain individuals’ action and cultural environments shape their desires and beliefs. Operating across macro-to-micro levels these mechanisms identify how specific social situations or events shape the beliefs, desires, and opportunities of individual actors. See: <https://www.betterevaluation.org/en/evaluation-options/realistsynthesis> and Rycroft-Malone et al. (2012).

<sup>7</sup>See for example: <https://www.agroecologyfund.org/what-is-agroecology/>

<sup>8</sup>See for example: FAO. (2012). What is conservation agriculture. <http://www.fao.org/conservation-agriculture/overview/what-is-conservation-agriculture/en/>

## Gender Inequalities, Feminization, and Climate Risks in the Agricultural Sector

Women and girls are disadvantaged by gender inequalities in many circumstances and this has been recognized in a series of global level objectives and frameworks developed to assess gender inequalities and women’s empowerment. The third Millennium Development Goal aimed to promote gender equality and empower women and, thereby, contribute to improving productivity and increasing efficiency. In 2011 the Food and Agriculture Organization (FAO) stated that closing the gender gap in agriculture is essential to increase agricultural productivity, achieve food security, and reduce hunger (FAO, 2011). And the 2012 World Development Report on Gender Equality and Development pointed to the importance of women’s empowerment for the efficiency and welfare outcomes of project or policy interventions (World Bank, 2012). The Women’s Empowerment in Agriculture Index (Alkire et al., 2013) measures the empowerment, agency, and inclusion of women in the agricultural sector to identify and track key areas in which empowerment needs to be strengthened. The domains included in the index are decisions about agricultural production, access to and decision-making power about productive resources, control of use of income, leadership in the community, and time allocation. A second sub-index measures gender parity.

Sustainable Development Goal 5 is in place to achieve gender equality and empower all women and girls. Target 5.A is to ... “undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources ...” Progress is assessed through indicators that measure the proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; the share of women among owners or rights-bearers of agricultural land, by type of tenure; and the proportion of countries where the legal framework (including customary law) guarantees women’s equal rights to land ownership and/or control.

The gender inequalities of poverty and the means of escaping poverty show the scale of the tasks ahead to achieve gender responsive sustainable development. Twenty years ago Buvinic and Gupta (1997) in a review of research concluded that female-headed households were proportionally more likely to be categorized as poor. Indications are that the last two decades have not reversed this trend. It is important to note that, due to the facts that female-headed households are fewer in number than male-headed households<sup>9</sup> and have fewer household members, there are more women and girls in poverty in male-headed than female-headed households. Land ownership, management, and production in Africa and South Asia, as elsewhere, is biased in favor of men (Doss et al., 2015; Kieran et al., 2015; Slavchevska et al., 2016). Doss et al. (2018) conclude that stronger land rights are associated with greater bias in favor of men, and that women are more vulnerable to losing land access if household composition changes.

<sup>9</sup>There are notable exceptions appearing to this generalization. Recent work in Mozambique shows that female-headed households out number male-headed households where male outmigration and mortality incidence is high.

Feminization of agriculture processes have been reported from different locations around the world for some time. In 2005, evidence was reported from Latin America of growing numbers of rural women becoming principal farmers (termed own-account workers in agriculture). This was in response to the increasing proportions of rural female household heads, growing male outmigration and/or employment in off-farm pursuits, and the decreased viability of peasant farming under neoliberalism (Deere, 2005). The principal driver identified was the need for rural households to diversify their livelihoods.

In Nepal pull and push factors have been identified that result in significant male out-migration from rural areas. Women, have taken on additional responsibilities in what are traditionally male-dominant farming practices in addition to existing household and reproductive tasks, further increasing their work burden. These changes are associated with reduced food security (Tamang et al., 2014). In India, analysis of census data (1981–2011) shows high outmigration of men from rural areas and women taking on more agricultural tasks. This feminization process is not accompanied by improvements in women's social or economic empowerment. Instead, women's growing participation in agriculture is related to several indicators of poverty and what is described as the "feminization of agrarian distress" (Pattnaik et al., 2018).

O'Sullivan et al. (2014) reviewed evidence from six countries in Africa on farm productivity. They found that women's farms had lower per area productivity than men's by factors ranging from a tenth to a quarter. The differences were associated with access to resources and services. The review noted that equal access to the factors of production did not lead to equal returns nor to empowerment.

One of the results of the prevalent gendered socio-economic disadvantages is that the distribution of vulnerability to climate risks is often gender inequitable. Weak control over productive assets (land, water, forests) restricts women's capabilities to invest in climate adaptive actions or diversify their livelihoods away from climate sensitive areas. The need for diversified sources of income and the incidence of conflict can be exacerbated by climate risks.

In addition, the recognition of women and girls' climate vulnerability needs is often poor, their participation in climate resilience response decision making is low, and perhaps most importantly the redistributive actions necessary to address climate vulnerability do not account for the differential needs of women and girls. Furthermore, it has been seen that in some cases the incidence of harmful practices, including domestic violence, child marriage, courtship rape and female genital mutilation/cutting, increase during and following extreme weather events (Le Masson, 2016).

Le Masson et al. (2015) point to the slow progress in recognizing the social dimensions of climate risk. Reports from the Inter-governmental Panel on Climate Change and various other sources have shown the gender differentiated nature of climate change impacts including

those from extreme weather events and slow-onset disasters (Sultana, 2014; Vincent et al., 2014).

## How the CGIAR Has Grappled With Mainstreaming Gender Equality

At the CGIAR Consortium level the Gender Strategy (CGIAR Consortium Board, 2011) seeks the integration of gender analysis into agricultural topics which are the main focus of collaborative research programmes, such as plant breeding. It defines *gender analysis* as the identification of differences between men and women with respect to their vulnerabilities, assets, capacities, constraints and opportunities using quantitative or qualitative methods. *Gender research* is constituted by studies in which gender and gender relations are the main research topic. And, *mainstreaming* gender in research is the use of the analysis of gender differences to inform the entire research cycle: targeting, priority setting, research design, implementation, research adoption/ utilization, monitoring, evaluation, and impact assessment.

At the 2017 CGIAR gender conference in Ethiopia, Margreet van der Burg<sup>10</sup> provided a detailed timeline of how gender has been addressed in CGIAR research over the last 40 years. She drew attention to the 1990 report to the CGIAR mid-term meeting by Poats (1991) that diagnosed the lack of attention to gender issues in CGIAR research as being "cultural." Aspects of this culture were beliefs in the CGIAR that technology was gender-neutral and that technical solutions could be generated through reductionist research. There was a conservative political climate that saw gender issues as an intrusion, and a strongly masculine orientation to research that recognized farmers as males and that included very few women researchers. To counter-act this culture and to introduce gender frameworks into agricultural R&D, Feldstein and Poats (1990) identified five necessary conditions. These included: gender responsive policy mandates, carried through with leadership and support at high levels; gender explicit evaluation and monitoring; professional staff with gender expertise; and, gender equality training for researchers and other staff.

A gender scoping study (Kauck et al., 2010) commissioned by the CGIAR from the International Center for Research on Women showed that although there were substantive recommendations for gender equality mainstreaming into the CGIAR system and that notable instances of incorporating gender analysis in agricultural technology R&D did exist, consistent commitment to gender analysis by CGIAR centers was absent due in part to a lack of properly resourced support. This implies that those in senior positions able to make resource allocation did not prioritize gender mainstreaming. In fact, the scoping found that dominant beliefs and assumptions in CGIAR thwarted gender mainstreaming attempts. Also, that although guidance was available historical unresolved disagreement on the value of gender analysis existed in the CGIAR system.

The CGIAR has a series of strategies and tiered objectives to guide research. All research programmes should address

<sup>10</sup>See: <https://www.slideshare.net/CGIAR/change-in-the-making-building-on-the-past-gender-trends-in-cgiar-agricultural-research>

one or more of these objectives<sup>11</sup>. In the current CGIAR strategy (CGIAR, 2016) gender and youth are clustered as an issue that cuts across system level objectives. This strategy states that research by the CGIAR and partners must be gender sensitive and promote gender equity<sup>12</sup> by adapting to the needs and the aspirations of poor women. The current intermediate development objective is “equity and inclusion achieved,” and sub-intermediate development objectives are: gender-equitable control of productive assets and resources; technologies that reduce women’s labor and energy expenditure developed and disseminated; and, improved capacity of women and young people to participate in decision-making.

## POLICY AND PRACTICE RESPONSES TO CLIMATE CHANGE IN AGRICULTURAL R&D

### The Emergence of Climate Smart Agriculture (CSA)

CSA has been developed largely by international organizations—FAO, CGIAR, IFAD—and is intended to be a transformative response to perceived major climate change challenges to global agriculture and food security. The high-level programme theory is that productivity of food systems, and thereby food supply, is threatened by largely bio-physical effects of increased climatic variability and change that demand an adaptive response (Lipper et al., 2014). The ability of farming communities to cope with these climate impacts is compromised and R&D interventions are necessary to support farmers and farming systems to become resilient (Loboguerrero et al., 2018). In addition, there is a need to reduce emissions from food systems to limit global warming in accord with the Paris climate agreement. A global climate smart agriculture alliance (GACSA) has been formed and in May 2018 had 236 member organizations. CSA also has the support of some development donor agencies<sup>13</sup>.

Both the CSA concepts and the associated alliances for implementation have drawn criticism from civil society organizations and researchers in the global South and North<sup>14</sup>. Pimbert (2017) finds overlaps between CSA and agroecology, but he also notes that CSA embraces practices and technologies that undermine or are incompatible with agroecology e.g., herbicide-tolerant crops, toxic insecticides and fungicides, and genetically modified seeds. Pimbert also critiques CSA

for the commodification of carbon and the creation of private carbon rights.

Karlsson et al. (2017) assess the equity implications (distributive, procedural, and contextual) of CSA by analyzing its four principal areas of discourse, namely; climate mitigation policy goals, agricultural development and transformation, agri-business, and small-scale and community-based CSA. The analysis showed that discourses on climate policy, agricultural development, and agro-industry focus on efficiency-based distributive equity, and small-scale CSA discourse focus on needs-based distributive equity. In the discourses on climate policy, agricultural development, and small-scale CSA, efforts to increase participation of vulnerable and marginalized groups is emphasized. The agribusiness-related discourses privilege existing participation in markets that are inaccessible to most women in small-scale agriculture. Discourses across the four areas do not address transformation of underlying structures to improve resource access an improve equity, including social norms that limit women’s mobility, access to resources, land, information, and technology.

### Other Climate-Relevant Approaches in Agricultural R&D

According the International Panel of Experts of Sustainable Food System, agroecology “is a way of redesigning food systems from farm to table, with the goal of achieving ecological, economic, and social sustainability” (IPES-Food, 2018). Transdisciplinary, participatory, and change-oriented research and action links agroecology science to practice and social change movements. The theory and praxis of agroecology emphasizes the role of family farming. Family agriculture is seen to be at the frontline of alternative agri-food developments and building climate resilience (Altieri et al., 2012, 2015).

Yet, as Larrauri et al. (2016) point out, while agroecology seeks to address socially equitable rural development it is yet to incorporate the gender equality approaches necessary to identify and challenge gendered social relations. Indeed, the agroecology-based framework proposed by Gliessman (2016) that identifies five change levels for food systems does not explicitly refer to gender equality. There are three steps for farmers to take and two further levels for societal and food system changes. However, in some more recent cases of agroecological transition in the global South, the processes did include expanding women’s livelihood options and women taking up decision-making roles and there was sustained engagement of women in the initiatives (Schwendler and Thompson, 2017; Centrone et al., 2018).

The role of conservation agriculture (CA) in achieving greater climate resilience in small-scale agriculture is asserted (Thierfelder et al., 2014) and contested (Andersson and Giller, 2012). That being said, Farnworth et al. (2016) found scant understanding of how CA adoption is affected by gender relations. The authors state that research has ignored if, and if so how and whereby, CA could contribute to women challenging gender relations to their and their household’s benefit. To assess adoption rates of CA (and other practices relevant to climate resilience in small-scale agriculture) research

<sup>11</sup>Up to 2016 the CGIAR’s second ‘intermediate development objective’ addressed gender equality. It aimed at “increased control by women and other marginalized groups of assets, inputs, decision-making and benefits”.

<sup>12</sup>According to United Nations Educational, Scientific and Cultural Organization, gender equality means that the rights, responsibilities and opportunities of women and men do not depend on whether they were born male or female. Gender equity means fairness of treatment for men and women according to their respective needs. This may include equal treatment or treatment that is different but which is considered equivalent in terms of rights, benefits, obligations, and opportunities.

<sup>13</sup>See for example: IFAD - <http://www.ifad.org/operations/grants/ag4d/ciat.htm>

<sup>14</sup>See: <https://www.ileia.org/2017/06/26/agroecology-getting-root-causes-climate-change/>

is needed into the gendered aspects of access to services, access and management of resources, the micro-level mechanisms important in intra-household decision-making and macro-level changes that facilitate women's ownership of land and willingness to adopt and maintain CA technologies.

## Gender Differentiation in Outcome Areas Related to Climate Change and Agriculture R&D

Djoudi and Brockhaus (2011) pointed out that although the vulnerability of women is increasing, longer term changes could be managed to have favorable outcomes in terms of division of labor and power and access to economic and social spaces. They make the important point that though research should be expected to contribute to greater gender equality, wider societal and political change is required. After all, gender is a social construct and is rooted in the historical development of capitalist society (Roberts and Soederberg, 2012). For gender relations to change in the agricultural sector, as well as any other, the synthesis of dialectical changes in society and politics need to be forged in the direction of equality.

Johnson et al. (2016) explore how gendered distribution of assets within a household affects agricultural technology adoption and the livelihood strategies of household members. Findings from eight impact evaluations support the hypothesis that women with greater access and control over assets have greater say in livelihood decision making. The authors point out that the evidence shows participation in decision making most often results from women's asset strengthening, rather than women influencing outcomes, and that the constraints and trade-offs women face determine what they can do as regards to intra-household relations. Of eight intervention cases investigated, only one reduced the gender asset gap at household level. This work shows the importance of gendered assets to agricultural technology adoption and household level outcomes that benefit women.

Climate information services are considered an important component of the ways that small-scale agriculture households make adaptive management choices. However, as Partey et al. (2018) point out the gender equality aspects of climate information use need better understanding than is currently the case.

Mersha and Van Laerhoven (2016) provide a review of research on barriers to climate adaptation and the factors affecting farmers' choices when facing climate risks. They usefully move the discussion on by showing how, rather than perceiving gender as a barrier, to understand that barriers affect male and female-headed households differently. In north eastern Ethiopia the authors found that diversification of rural livelihood activities is the main climate adaptation strategy by female-headed households, but that male-headed households have access to a more diverse set of options. On-farm adaptation is the most important and temporary migration, resource and asset storage, and communal pooling are also practiced. This gendered differentiation in adaptation is shown to be due not to different preferences for activities nor perceptions of risks,

but an "outcome of gendered barriers to adaptation." Women are disadvantaged in several areas that could be important for climate adaptation (e.g., access to technical support; negotiating share-cropping; reciprocal labor exchange and pooled resource arrangements; and, restrictive norms against women plowing). Mersha and Van Laerhoven warn that ignoring the pernicious interconnectedness of adaptation barriers will leave female-headed households and other socially marginalized groups even more vulnerable to climate change.

A final theme related to outcomes of CSA is that of how women and men engage, interact and collaborate in small-scale agriculture. Female productivity in small-scale agriculture, and what is referred to as the gender gap, will remain without changes in gender relations that determine access and control over assets and resources. As Farnworth and Colverson (2015) state, men need to become partners and beneficiaries of gender equality in resource and asset access and control. Researchers have diagnosed that the dichotomies that characterize many approaches to gender research ignore collaborative decision-making on resource and assets (Fafchamps and Quisumbing, 2002). This gender blindness in research can have knock-on effects when research derived approaches are adopted by development agencies working with farmers.

## Gender Equality Dimensions in Reviews of Climate Change and Agriculture R&D Programmes

The CGIAR CCAFS programme and the IFAD ASAP programme can be considered to be under the CSA umbrella. Evaluative reviews were conducted of both programmes where approaches to addressing gender equality were explored. The CGIAR Independent Evaluation Arrangement commissioned an evaluation of CCAFS (Anderson et al., 2016) the results of which were published in 2016. Almost concurrently, IFAD commissioned a gender assessment and learning review of the ASAP programme (Hill and Scarborough, 2016). These two reviews were independent of one another, both were commissioned by the respective lead organizations and both involved independent evaluators.

### CCAFS CGIAR

CCAFS started in 2011 and has evolved into a large complex and influential research and action programme. It engages all CGIAR centers and has had an annual budget as high as USD 60–70 million. CSA guides CCAFS implementation in responding to climate change effects on agriculture and food security and by addressing the 3-fold objectives of productivity, climate adaptation (to climate risks), and climate mitigation (reducing carbon emissions). CCAFS operates across a range of developing countries of Latin America, Africa, and Asia often through partnerships, establishing climate-smart villages and seeking policy influence.

CCAFS published a gender strategy in 2012 (Ashby et al., 2012) for better integration of gender issues into research as demanded by the CGIAR Strategy and Results Framework. The gender strategy was framed under the social inclusion theme while recognizing that women are central to agriculture in

developing countries. In 2016, CCAFS published a Gender and Social Inclusion Strategy (Huyer et al., 2016) as an update to the 2012 Gender Strategy. The new strategy adheres to the CGIAR objectives to create opportunities and to promote equitable access to resources, information and power in the agri-food system for men and women.

From the findings of the CGIAR Independent Evaluation Arrangement evaluation of CCAFS (led by one of this paper's co-authors) a summarized assessment of the ways that the programme addressed gender equality during the period of 2011 to 2015 can be drawn. These findings are reviewed here in full recognition that CCAFS has since the evaluation embarked upon a new phase with new leadership of the gender and social inclusion component.

The CCAFS evaluation encountered that gender equality was the least well-developed area of the Programme, and certainly the one where greatest dichotomy was found among the views of the stakeholders interviewed. CCAFS focuses on gender equality through research, analysis, and mainstreaming. The gender strategy guided the development of regional gender equity impact pathways that in turn sought to shape research projects. These regional pathways developed were too generic and lacked good design. Integration of gender equality issues was weak in flagship programmes.

The gender intermediate development objective established by the CGIAR for research programmes sets the achievement bar for research impossibly, even disingenuously, high. A more relevant and realistic focus for CCAFS would have been on managing climate risks and building climate resilience of those disadvantaged by social norms. Action-research processes can facilitate the recognition, engagement, and benefit distribution from research activities and outputs to women and marginalized groups. But to anticipate that climate and agricultural research directly contributes to countervailing inequitable power structures is unrealistic. CCAFS has struggled to achieve relevant gender research and this relevance is not helped by the intermediate development objective framing. To improve the relevance of the CCAFS gender research the Evaluation suggested that more attention was warranted to assessing the gender responsiveness of policies and the coherence of national climate policy frameworks for agriculture and food security in terms promoting gender equality.

The evaluation identified apparent inertia within not just the CGIAR Centers, but also research partners, to take on-board gender equality aspects in research. The slow progress observed on these issues was at least partly due to the lack of financial resources allocated, to discontinuity in leadership and to uncertainty in the direction that the gender and social inclusion component should take.

The gender and inclusion toolbox (Jost et al., 2014) is a tangible output of the gender equality work by CCAFS researchers and partners. It is well-appreciated by users. The tool-box collates participatory action research methods framed for gender equality and climate change application. It achieved significant uptake among non-government organizations working on climate and agriculture themes, although less so among other CCAFS projects.

The awareness and training in gender analysis and research was generally appreciated by research staff. In a self-assessment of the CCAFS gender and social inclusion work it was concluded that "while the CCAFS quantitative gender survey has generated the most progress in terms of reducing the gender and climate change knowledge gap, the social learning process used to develop the participatory gender and inclusion toolbox has been the most effective for generating partner and next-user capacity in gender awareness and transformative approaches" (Jost et al., 2015).

## ASAP IFAD

ASAP was launched by IFAD in 2012. It is a large programme operating across 40+ countries focused on climate change adaptation by small-scale farmers. Its aim is to increase the capacity of eight million small-scale farmers to build their resilience to climate-related shocks and stresses.

IFAD commissioned a gender assessment and learning review of ASAP that assessed how ASAP-supported projects met planned gender equality and women's empowerment objectives in practice. The review reflects on how such interventions contribute to gender equality outcomes.

Eight projects under ASAP were sampled in the assessment. They were at different stages of implementation and all had been designed and implemented in different places including Bangladesh, Cambodia, Ghana, Mali, Mozambique, Rwanda, Uganda, and Vietnam.

The ASAP Results Framework does not refer to women's empowerment and ASAP had no specific gender outcomes or indicator categories. Sixty percent of ASAP result indicators need data disaggregated by sex. IFAD reports on indicators from its Results and Impact Management System some of which measure gender-related outcomes. In 2017, after the SAPA gender review the IFAD Independent Office of Evaluation developed guidance on "What works for gender equality and women's empowerment." It provides a gender evaluation framework.

ASAP project design is guided by the IFAD Gender Equality and Women's Empowerment Policy (IFAD, 2015) and IFAD's Gender Marker System assesses the gender-sensitivity of projects at various stages in the project cycle. This, in addition to CARE's "gender continuum" (Sterrett, 2015), were used in the ASAP review.

The ASAP review's findings are referred to as a reality check. The findings most relevant to the gender equality of CSA are summarized here.

The review of projects indicates attainment of women's participation targets in project activities or in leadership roles in producer groups and community committees. Evidence for participation increasing access to project opportunities is anecdotal in most cases and more empirical case studies exploring women's experiences are needed. Not all projects engage with gender norms, roles, and relations to assess how to promote gender equality and women's empowerment. More activities that engage men, leaders and key institutions in gender equality and women's empowerment are needed.

While the ASAP programmes were being evaluated, IFAD's Independent Office of Evaluation released an evaluation synthesis

from 57 IFAD evaluations to assess how programmes were contributing to gender transformative practices and results. Many of the findings from this report are reflected in the ASAP evaluation including that most of the targeting strategies used in IFAD programs assume that women benefit through participatory processes. However, <25% of programmes address underlying social norms or structural constraints that limit women benefitting from participatory processes. Even fewer programmes (12%) address women's time constraints. For example, increased participation of women in trainings does not translate to increased access to project derived benefits or to increased economic empowerment. Constraints to women's economic empowerment need to be integrated across project activities, or risk being forgotten entirely. But women's involvement in value chains remains at the productive level, with higher level marketing and profits still largely controlled by men. Some projects have supported women's adoption of labor saving and energy access technologies. However, women are highly under-represented in the development, testing and dissemination of climate-smart technologies and/or information. Very often such technologies have been designed without giving sufficient attention to the specific needs of women and girls and their limited access to resources, including capital, labor, time, or even the right to make decisions.

The projects have activities that demonstrate awareness of gendered differentiated needs, but not how to integrate these needs across project activities. This might be because gender-mainstreaming is integrated into each investment design with the assistance of a specialized Gender Desk in the Policy and Technical Advisory Division and gender/targeting consultants being part of project design missions. Projects are designed with existing gender roles and relations as regards to women's mobility, livelihoods, access to information etc. in mind. However, there is variation across the projects in the extent to which the design, the start-up and then the operationalization of interventions really engage with gender norms, roles and relations and how these can evolve to promote gender equality and women's empowerment. This would mean more activities to engage men, leaders and key institutions (e.g., providers of services for producers, systems of land and labor allocation etc.) in the process of working for gender equality and women's empowerment.

In a number of ASAP projects, planned gender analysis or gender staffing was not in place, sometimes well-beyond inception phase. In some cases, gender staffing, staff capacity development, or gender action plans were actively excluded from budget commitments, thereby hobbling an otherwise well-designed program without the staff to mainstream gender across program activities. There is a potential danger of assuming that agencies and the projects they support can accomplish the lofty goals set out in project design without the attendant investment in gender-mainstreaming.

There is also a notable gap across projects in terms of activities that support staff, partners, and project participants to analyze data or reflect on experience and consider what that is telling the project about the processes of change and the relevance and impacts of the project activities in increasing gender equitable

outcomes. There are notably few examples of ASAP programs that go beyond collecting sex disaggregated data on participation to monitoring greater impacts on women's empowerment and gender equality. Again, with few exceptions ASAP programs also did not invest in conducting a gender baseline against which to measure changes in gender impacts, particularly as they relate to climate resilience.

The ways that gender relations shape differentiated climate vulnerabilities and adaptive capacities have not been explored in the projects. The general focus is to deliver climate resilient interventions without understanding the different burdens that this implies for women and men. A better focus would be to assess the climate vulnerability, access to resources, capacities, and assets of women and men, and to design activities that strengthen the capacities of each (CARE International, 2009). Gender sensitive capacity assessments must inform adaptation plans from design through implementation.

Institutional enabling environments are critical to gender-mainstreaming. The review shows that it is wrong to assume that agencies are all able to implement gender mainstreaming. Political will and the championing of gender equality complemented by investment of resources in gender mainstreaming are necessary. But to the extent that IFAD's responsibility to national governments is to strengthen the capacity of partners and parts of the government to deliver sustainable services at scale, neither partners nor government staff have participated in training in gender-mainstreaming. IFAD's partners are often part of the government system, and have the discretion to inform and sensitize local authorities and rural populations on the need for and benefits of gender-mainstreaming. IFAD promotes the use of the Gender Action Learning Systems (GALS) methodology to promote gender equality and gender-transformative approaches. GALS supports women and men in households and communities to visually express their aspirations, develop plans to work toward their dreams, and find solutions to address the constraints they face as they pursue their livelihoods. Men and women examine their labor distribution, access to, and use of income and other resources, and benefit sharing. However, the rollout of GALS varies from project to project, and is not reaching project implementers and lead service providers, which in turn limits the reach to small-scale farmers. In the one program that did train staff and project participants in the GALS approach, the training was then cascaded to 160 GALS champions (women and men) who in turn trained nearly 250 others.

## Lessons From the Evaluations of CCAFS and ASAP

CCAFS is upstream of ASAP in terms of agriculture R&D and to an extent therefore needs to set the framework for integrating gender equality into CSA, and thereby into projects with CSA objectives.

As indicated above, gender blindness in research that develops approaches for development can have knock-on effects,

particularly when institutional mechanisms within and among development agencies already accept, do not challenge, or even perpetuate, gender inequalities.

It is important to realize that CSA will not tackle the underlying causes of poverty and related gender inequalities. Adoption of CSA practices may actually increase women's time burdens (e.g., reduced plowing—male domain, and increased weeding—female domain) and this can lead to the abandonment of CSA technologies, or worse the experience of other negative unintended consequences.

## DISCUSSION

### Addressing Gender Equality in Climate Change and Agriculture R&D

This policy and practice review is retrospective and the authors fully recognize that both CCAFS and ASAP programmes have evolved since the evaluations referred to above were conducted. This evolution has included some investments in the ways that gender equality is addressed.

The strong commonalities among the findings of the evaluations in regard of approaches to gender equality can be taken as indicative of the effects of the political economy and governance of international agriculture R&D. The evaluations of CCAFS and ASAP converge. Both programmes were assessed as weak on addressing issues of gender equality. This was found to be the case despite the institutional policy frameworks of both CGIAR and IFAD putting emphasis on interventions directly contributing to improvements in gender equality, the gender equality emphasis of the millennium development goals and much research that shows the significance of the feminization of agriculture.

Both evaluations found that CCAFS and ASAP programmes were struggling to implement the gender responsive policy mandates of their host institutions, in part because of discontinuous and/or weak leadership and a lack institutional support at high levels translating into a channeling of funding. Gender explicit monitoring, evaluation and learning was not practiced other than assessment of quotas in participation and beneficiaries. Professional staff with gender equality expertise were few and far between. Gender equality training for researchers and implementing staff was insufficient to bring about the necessary changes in awareness, understanding and practice.

A recent paper by Kristjanson et al. (2017) charts what has been learned in CCAFS about addressing gender equality and flags the current direction of travel. The paper provides a review of what CCAFS supported research has generated in terms of addressing gender equality. The authors review learning around gendered aspects of the climate signal, vulnerability context, adaptation arena, and well-being outcomes. They find that women will remain largely out with climate and agriculture information services and technological interventions unless gendered needs, preferences, and constraints are factored into design of provision. And the authors propose more research on the differences among women using participatory and

integrated qualitative–quantitative methods work linked ICT-based action research.

Another recent paper from CCAFS researchers focuses on how different ways of managing climate risks can contribute to poverty reduction (Hansen et al., 2018). This paper shows how the research of CSA has taken on-board issues related to diverse livelihoods trajectories and non-agricultural options for households to move out of poverty. Limited evidence is found that the risk-reduction interventions reviewed moved very poor farmers out of poverty. And, interestingly from the perspective of the ways CSA-related research addresses gender equality, this paper reaches these conclusions without referring to gender, women, or female-headed households.

In another recent paper from the same CCAFS stable (Thornton et al., 2018), the adaptive responses by farmers in low income countries to climate risks to food security are assessed. The need to address gender inequalities through national policies in order to reduce poverty is recognized, and the progress made in this regard in Uganda is highlighted. Aligned to policy change, agricultural technology options available to farmers need to match the evolving (climate) context and research is needed to understand how “different elements of the context are enabling (or not) adaptation and risk reduction, and for whom; male and female farmers, younger and older ones, all have different needs and priorities.”

The FAO has recently made gender equality integration in climate change programmes a priority, as enshrined in its corporate Strategy on Climate Change (FAO, 2017). A mass of literature and training material on gender and climate-smart agriculture has been published over the last 2 years. The World Bank, FAO and IFAD published a “Gender and Climate-Smart Agriculture”<sup>15</sup> module as part of the “Gender in Agriculture Sourcebook”<sup>16</sup> And the FAO has also recently published a training manual on “How to integrate gender issues into climate-smart agriculture projects”<sup>17</sup> and the “Climate-Smart Agriculture Sourcebook”<sup>18</sup>.

Collins (2018) used the gender and climate-smart agriculture module to examine how gender equality has been integrated into these global recommendations. She concludes that demonstrable progress has indeed been made toward more gender-aware policymaking, and that this has been achieved through CGIAR supported research work mainly from programmes other than CCAFS. The gender and climate-smart agriculture module also demonstrates that issues related to the political economy of CSA in terms of the market-led and productivity-orientation of the CSA approach, as promoted by the international agriculture R&D organizations, are not considered from a gender equality perspective. Collins finds that the module represents a more feminist agenda without examining the gendered implications of corporate-led and trade-driven CSA.

<sup>15</sup>See: <https://openknowledge.worldbank.org/handle/10986/22983>

<sup>16</sup>See: <http://documents.worldbank.org/curated/en/799571468340869508/Gender-in-agriculture-sourcebook>

<sup>17</sup>See: [www.fao.org/3/a-i6097e.pdf](http://www.fao.org/3/a-i6097e.pdf)

<sup>18</sup>See: <http://www.fao.org/climate-smart-agriculture-sourcebook/en/>



This is consistent with the overall apolitical framework that CSA has been found to operate within (Taylor, 2018), whereby technical solutions to climate risks to productivity are the focus (this echoes the findings in Susan Poats' assessment of CGIAR research in 1991). This depoliticized approach fails to address inequality, to challenge policy agendas and to question power, and it is contrary to the “identify and challenge” call from the new DFID Strategic Vision for Gender Equality<sup>19</sup>.

## **ACTIONABLE RECOMMENDATIONS—BETTER WAYS ADDRESS GENDER EQUALITY IN CLIMATE CHANGE AND AGRICULTURE R&D**

The CCAFS Evaluation recommends including gender equality at the project design stage; improving the integration of gender relations expertise in regional teams; identifying opportunities for generating benefits to women through low-emissions agriculture; focusing gender equality expertise in certain more propitious areas and applying lessons across the programme; and, greater research emphasis on gender relations aspects of CSA adoption through inter- and intra-household level research, including generation of gender differentiated data through baselines and monitoring. Meanwhile, recommendations from the gender review of the ASAP included that: learning and research partnerships combine expertise in gender equality and women's empowerment, participatory research, and gender dynamics in small-scale agriculture; incentives for developing approaches to transforming gender norms are put in place; critical reflection on gender equitable climate change adaptation in small-scale agriculture in the medium term and the development of design tools and learning products; the identification of what adaptation and adaptive practices really mean in terms of gender dynamics and different intersectionalities; and expanded capacity for gender-mainstreaming support from design through implementation and evaluation of interventions.

To complement, and in some cases challenge, the more orthodox approaches to gender equality, climate change and agriculture, there are a series of alternatives being proposed to better address gender inequality through agricultural R&D. These include: examining how gender-blind language can bias thinking; asking better gender-related research questions; and, recognizing not only women's diversity but also their potential, rights and demands.

The terminology used shapes and biases ways of thinking. For example, using the term “farmers,” rather than something more explicit like “households engaged in small-scale farming,” constrains how we are able to address gender inequality issues in agriculture. Margreet Zwarteveen makes a related argument in

a recent blog<sup>20</sup>. As she points out researchers use language with gender connotations to describe agricultural systems. Farms are public and where work takes place and livelihoods made, whereas homes are private and where consumption and reproduction take place. Farmers are most often imagined as male at least in part due to the normative idea that breadwinners are male and that carers, cleaners, and nurturers female.

As mentioned already, gender dichotomies have led research away from the importance of joint and collaborative management of resources by household members. Exploring gender relations in agriculture in order to identify and thereby better challenge inequalities demands a move away from the current concepts and images toward others that avoid ideological and normative bias. This will be key to reversing the bias in the institutional mechanisms of agricultural R&D that impose gender blindness.

Doss et al. (2018) warn against accepting stylized facts and what they term the “myths” of women and agriculture. This is important to be able to elaborate better research questions that can address gender inequalities in agriculture R&D. Nicole Lefore and colleagues<sup>21</sup> have identified four such research questions—how can we truly reach women? What do women value and prioritize? How can needs of different women best be met? What roles do and can men play? By using these questions researchers can avoid assumptions that benefits are gender neutral, that opportunities and needs are homogenous for women, and empowerment is only achieved through women's initiatives.

Recently methodological remedies and epistemological changes that aim to enable gender equality to be better addressed through agricultural R&D have been identified. The CGIAR supported GENNOVATE<sup>22</sup> is a global comparative research initiative that takes an instrumental approach to increasing understanding of gender norms and agency. Meanwhile, ThriveNet<sup>23</sup>, aimed at sustainable agriculture researchers facing funding constraints and communications deficits, has provided space for a series of challenging blogs on ways to better address gender equality in agriculture R&D. It is hoped that the influence of such initiatives will permeate into CSA programmes.

It is noteworthy that the new 10 year strategy of the Australian Center for International Agriculture Research<sup>24</sup> (ACIAR) includes an objective on improving gender equity and empowerment of women and girls. The ACIAR gender equity policy and strategy 2017–2022<sup>25</sup> commits the Center to applying gender equity and equality principles internally and externally. ACIAR's approach to women's empowerment is to create a more inclusive organization that embraces gender equity as a core principle.

UN Women convened an Expert Group that prepared a report for the Commission of the Status of Women on the

<sup>19</sup>See: <https://www.gov.uk/government/publications/dfid-strategic-vision-for-gender-equality-her-potential-our-future>

<sup>20</sup>See: <https://wle.cgiar.org/thrive/big-questions/what-truth/farm-wives-or-female-farmers>

<sup>21</sup>Nicole Lefore, Sophie Theis, Elizabeth Bryan, Claudia Ringer and Ruth Mainzen-Dick. Thrive blog: Let's start asking the right questions about women in agriculture. See: <https://wle.cgiar.org/thrive/big-questions/what-truth/start-asking-right>

<sup>22</sup>See: <https://gennovate.org/>

<sup>23</sup>See: <https://wle.cgiar.org/thrive/network-sustainable-agriculture-researchers>

<sup>24</sup>See: <https://www.aciar.gov.au/publication/Ten-Year-Strategy>

<sup>25</sup>See: <https://www.aciar.gov.au/publication/Gender-Equity-Policy-and-Strategy>

of “Challenges and opportunities in achieving gender equality and the empowerment of rural women and girls.” The report identifies the neo-liberal economic model and climate change as the most significant systemic barriers to advancing rural women’s human rights. The Expert Group report states that most climate adaptation measures are gender blind and fail to address barriers associated with gender differentiated ownership and control of resources, labor, and technology. To counter these barriers Barbara Van Koppen<sup>26</sup> (member of the Expert Group) has called both for a rights-based approach to empower women in agriculture and for agriculture R&D organizations to facilitate this. As an example, a rights-based approach to small-scale irrigation (an increasingly common adaptive measure to manage the risks from rainfall variability to crop production) would address who has the right to participate, how can all women access irrigation water for their priority needs, and how can women participate equally in the irrigation technology development, testing, and evaluation.

## CONCLUSIONS

Since the 1970’s it has been recognized that women do not equally benefit from agricultural development programmes. This discrimination was due to their ascription to the roles of mothers and wives (Boserup, 1970). Huyer (2016) diagnoses that a global gender gap in vulnerabilities and access to resources leads to gender differentiated climate adaptive capacity that disadvantages women and girls. Empowerment of women by the

<sup>26</sup>Barbara Van Koppen. “Rural women are not all the same, but their need for better rights is nearly universal.” See: <https://wle.cgiar.org/thrive/big-questions/what-truth/rural-women-are-not-all-same>

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- expansion their ability to make strategic life choices (Kabeer, 1999) through agriculture R&D requires changes in the ways that institutional priorities are set and support provided. This will require a change in both the governance and politics of international agricultural R&D organizations such as CGIAR and IFAD.
- International agriculture R&D has in the past found it difficult to address gender inequalities adequately and CSA R&D programmes have not been able to break this mold. The evaluations described here have shown that, at least in part, senior level resource allocation at programme and above programme levels constrained the space for the developing gender equality dimensions in climate change and agriculture R&D.
- According to many analysts the global food system is not fit for purpose. High level governance changes are advocated and the role of science to inform policy and programming is seen as paramount (von Braun and Birner, 2017). However, the recognition of gender equality as a good with global benefits for the food system is absent from this discourse. In such circumstances, and without changes in high level prioritization of resources toward more gender-responsive climate change and agriculture R&D, the realization of a climate-smart and gender-sighted international agriculture R&D remains a task similar to that of poor Sisyphus<sup>27</sup>.

## AUTHOR CONTRIBUTIONS

SA and VS contributed to the planning, drafting, and completion of the paper.

<sup>27</sup>As Albert Camus concludes in his essay *Le Mythe de Sisyphe* “The struggle itself... is enough to fill a man’s heart. One must imagine Sisyphus happy.”

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