

Gender implications of the Koronivia Joint Work on Agriculture: Background paper for the AGNES pre-SBs 50 strategy meeting on agriculture and food security

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Abstract

In Africa, women play an important role in food production, both paid and unpaid, and use of natural resources, while also serving as key figures in communities and the family. In regards to climate change adaptation, women and men will have different preferences and priorities based on their vulnerabilities, access to financial and natural resources, and ability to use information and extension services. Gender, therefore, is an essential factor in understanding how individuals, households, and communities adapt and respond to climate change. Rural women are especially vulnerable to climate change due to dual effects of their reliance on natural resources for income and food security and male-outmigration.

In 2017, the 23rd Conference of the Parties (COP23) to the United Nations Framework Convention on Climate Change (UNFCCC) made a landmark decision formally recognizing the relationship between agriculture and climate change. This paper presents background information on Gender Action Plan (GAP) and the Koronivia Joint Work on Agriculture (KJWA), in Sub-Saharan Africa including the catalyst for their development and a gendered perspective in climate change adaptation, agriculture, food security and nutrition, natural resource and environmental management. Next steps for climate negotiators and governments in Africa are also discussed.

Keywords

Gender, climate change, adaptation, COP, Koronivia Joint Work Plan, KJWA, Gender Action Plan, GAP, Africa, Sub-Saharan Africa, agriculture, natural resources, United Nations Framework Convention on Climate Change, UNFCCC

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Acronyms

AF	Adaptation Fund
CAN	Climate Action Network
CSA	Climate Smart Agriculture
COMESA	Common Market for Eastern and Southern Africa
COP	Conference of the Parties
EWEA	Early Warning Early Action
FAO	Food and Agricultural Organization of the United Nations
FbF	Forecast based Finance
GAP	Gender Action Plan
GACSA	Global Alliance on Climate Smart Agriculture
GEF	Global Environment Facility
GGCA	Global Gender and Climate Alliance
GCF	Green Climate Fund
IDRC	International Development Research Centre
KJWA	Koronivia Joint Work on Agriculture
KJWP	Koronivia Joint Work Plan
LDCs	Least Developed Countries
NAP	National Adaptation Plan
NDC	Nationally Determined Contribution
NTFP	Non-Timber Forest Products
SBI	Subsidiary Body for Implementation
SBSTA	Subsidiary Body for Scientific and Technological Advice
SDGs	Sustainable Development Goals
SSA	Sub-Saharan Africa
TEM	Technical Expert Meeting
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
WISAT	Women in Global Science and Technology
WDR	World Development Report

1. Introduction

Climate change affects communities, households, and individuals differently. The ability to act in response to, and in anticipation of, climate change is understood as a person's adaptive capacity and includes: access to and use of information and services, control over assets, access to institutions, entitlements to key resources, the ability to innovate in response to evolving challenges and opportunities, and flexibility and foresight in planning and decision-making (ALP, 2014).

Gender is key to understanding how individual and group climate change vulnerabilities, adaptation, and response capacities are shaped. Climate change affects people differently depending on their economic, environmental, cultural, and social situations and contexts. Age, wealth, class, and ethnic affiliation are also factors (Djouidi, 2015). Women's activities in food production, community, natural-resource, and biodiversity management, education of children, and family care place them at the centre of development. They are the collectors of fuel and water for their families and users of energy to prepare food and care for the sick. In developing countries, they engage substantially in agricultural production, both paid and unpaid. Thus, recognizing and supporting the activities and needs of women is essential for socio-economic development (UNCTAD, 2011).

Women often have different preferences, priorities, limits, and opportunities for climate change adaptation compared to men (Huyer et al, 2015). For example, women farmers appear to be less able to adapt to climate change because of financial or resource constraints as well as less access to information and extension services (Jost et al., 2016; Tall et al., 2014). Household responsibilities as well as increased agricultural work resulting from male out-migration negatively impact rural women in particular. One of the important effects of environmental stress is the intensification of women's workloads, while another is decreases in assets of poor households (Agwu & Okhimamwe, 2009; Jost et al., 2016). Research in Uganda found women experience time poverty as a result of a heavy unpaid care workload, limiting their ability to engage in other productive activities such as agriculture, livelihood activities, training, and capacity development (Boonabaana, Peace, Ahikire, & Najjingo-Mangheni, 2019).

The 23rd Conference of the Parties (COP23) to the United Nations Framework Convention on Climate Change (UNFCCC) concluded a landmark decision recognizing the role of agriculture in tackling climate change. Decision 4/CP.23 on the Koronivia Joint Work on Agriculture (KJWA) requests the Subsidiary Body for Scientific and Technological Advice (SBSTA) and the Subsidiary Body for Implementation (SBI) to jointly address issues related to agriculture.

It was at the same COP23 that, under Agenda Item 20: Gender and Climate Change, the Gender Action Plan (GAP) was adopted. The GAP, previously discussed during COP20, under the Lima Work Programme on Gender, was agreed upon in COP21, under the Paris Agreement. Its development supports the implementation of gender-related decisions and mandates under the UNFCCC process, which include priority areas, key activities and indicators, timelines for implementation, the responsible and key actors, indicative resource requirements for each activity, and further elaboration of its process of review and monitoring.

This paper presents a background on both the GAP and the KJWA, highlighting the events that led to their development, including issues related to gender and climate change, agriculture, food security and nutrition, natural resources, and environmental management. Implications of and next steps for negotiators and governments in view of the GAP and the Koronivia Joint Work on Agriculture (KJWA) in Sub-Saharan Africa are also discussed.

2. Gender and climate change

Each and every person around the world is experiencing the impacts of climate change. Detrimental effects can be felt in the short-term, through natural hazards, such as landslides, floods, and hurricanes, and in the long-term, through the gradual degradation of the environment. The adverse effects of these events are already felt in many areas, including agriculture and food security, biodiversity and ecosystems, water resources, human health, human settlements and migration patterns, and energy, transport, and industry (UN Women Watch, 2010). However, these consequences are not experienced evenly, as certain individuals are disproportionately affected, according to the Global Gender and Climate Alliance (GGCA).

Gendered aspects of vulnerability are often taken to mean effects on women and girls. While this group is often disproportionately impacted by climate change, men and boys will also have gender-specific vulnerabilities which should be addressed in policy and action. Cultural norms can affect control and ownership of assets for both women and men during droughts. For instance, in one case women gained increased control of household livestock when men sold their livestock first (Kristjanson et al., 2010). Additionally, men and boys are more apt to migrate to urban centres for employment. Changes in cropping practices, in response to climate variability, will have different impacts on control over crop income and workloads (Jost et al., 2016).

Political and socio-economic imbalances often render women disproportionately vulnerable to climate change impacts. For example, women are less likely to access credit to buy drought-resistant crops and, in land allotments, they are more likely to be allocated marginal lands that are at a heightened risk for climate impacts (e.g. flooding or downpours). Further, because women's livelihoods and traditional roles and responsibilities tend to be more reliant on natural resources, climate change will greatly affect their lives (UNDP, 2011).

A key approach for improving the capacity of women to cope with climate change are the efforts of many GGCA members to push for increased female representation in environmental governance institutions as well as gendered language in national and international climate policies. Because of gendered social roles, women and men often have different perspectives and understandings, and both women's and men's knowledge are needed to address issues related to climate change. However, women have been historically underrepresented in managerial roles in environmental policymaking¹.

According to the World Bank Group (2011), undertaking a gender analysis helps mitigate possible risks that may exacerbate gender inequality, while highlighting opportunities to enhance positive outcomes. In the context of climate change, this has three key implications:

1. Women are disproportionately vulnerable to the effects of natural disasters and climate change where their rights and socio-economic status are not equal to those of men.

Women usually have less of a voice and influence than men in shaping policies and prioritizing how climate finance is used. Women's rights, socio-economic status, and voice can all be strengthened through gender-sensitive and climate-smart development assistance. The World Development Report (WDR) 2012 framework shifts from a singular focus on the vulnerability of women and girls, and their role as victims, towards emphasizing their agency. This encourages a more nuanced and forward-looking approach to gender and climate change.

¹ <http://genderandenvironment.org/resource/egi-womens-participation-in-global-environmental-decision-making-factsheet/>

2. Empowerment of women is an important ingredient in building climate resilience.

There are countless examples where women's leadership within their communities contributes to climate resilience, ranging from disaster preparedness efforts in Bangladesh, Indonesia, and Nicaragua, to better forest governance in India and Nepal, to coping with drought in the Horn of Africa. There is also strong and mounting evidence at the country level that improving gender equality contributes to policy supporting better environmental governance. Increasing women's representation and voice within their communities, in society at large, at the political level, and through increased labour force participation is connected to this improvement in governance.

3. Low-emissions development pathways can be more effective and more equitable where they are designed using a gender-informed approach.

Billions of women around the world make decisions every day that influence the amount of carbon released into the atmosphere. This influence differs from that of men owing to women's socially ascribed roles as home-makers (where decisions influence emissions e.g. from domestic cooking), as farmers (influencing soil carbon emissions), and as consumers (purchasing decisions influencing emissions from the entire lifecycle of production, consumption, and waste disposal). Women's and men's choices can be expanded in ways that reduce carbon footprints, through such gender-sensitive approaches as the design and distribution of improved cook stoves, advice on low-tillage agriculture, or product labeling and recycling. Strengthening women's political representation and leadership roles within wider society is likely to contribute to the kinds of institutional transformations required to put countries on low-emission development paths.

Another key approach for improving the capacity of women to cope with climate change is financing. Climate financing is an important mechanism for funding projects designed to mitigate and adapt to the impacts of climate change in developing countries. These countries are likely to experience some of the greatest impacts of climate change, but often lack the necessary resources to develop infrastructure and institutions to address its effects. Such projects include renewable energy development, habitat restoration, sustainable infrastructure development, and capacity building to develop climate-resilient livelihoods practices.

3. Policy context of gender and climate change

There are several instruments that promote gender equality such as the Charter of the United Nations (UN) the Universal Declaration of Human Rights (1948), The International Convention on Economic, Social and Cultural Rights (1966), the International Convention on Civil and Political Rights (1966), the Beijing Declaration and Platform for Action (1995), and the Vienna Declaration and Programme of Action (1993). The UNFCCC, however, is the most comprehensive global framework to deal with climate change issues. Through the various COPs, the UNFCCC has, over the years, handled gender issues through the formulation of decisions, providing guidance on issues of adaptation, mitigation, technology transfer and development, finance, capacity building, and loss and damage. Gender and climate change issues have been mainstreamed across many areas of the negotiations under the UNFCCC, both through stand-alone and overlapping decisions.

3.1 UNFCCC Decisions

The following is a summary of key UNFCCC decisions, highlighting the chronology of gender and climate change at the UNFCCC:

Year	COP	Decision
2001	COP7	<p>Gender in the National Adaptation Plans (NAPs)</p> <p>Decision 36: “Improving the participation of women in the representation of Parties in bodies established under the UNFCCC and the Kyoto Protocol”.</p>
2010	COP16	<p>Gender in the Cancun Agreement/ Shared Vision</p> <p>The Preamble of Decision 1/CP.16 notes resolution 10/4 of the UN Human Rights Council on human rights and climate change and notes differential impacts of climate change on segments of the population, owing to intersections such as age and gender. Additionally, in the operative section on ‘Shared Vision’, the decision recognizes that “gender equality and the effective participation of women are important for effective climate action on all aspects of climate change”.</p>
2011	COP17	<p>Green Climate Fund (GCF)</p> <p>The GCF governing instrument states that the fund will take a gender-sensitive approach. The GCF board will give due to consideration to gender balance and develop mechanisms to promote the input and participation of stakeholders, including private-sector actors, civil society, organizations, and vulnerable groups, including women and indigenous people. The GCF secretariat will also take into account gender balance.</p>
2012	COP18	<p>Decision 23: Adopted in Doha</p> <p>“Promoting gender balance and improving the participation of women in UNFCCC negotiations and in the representation of Parties in bodies established pursuant to the Convention or the Kyoto Protocol.”</p>
2014	COP20	<p>Decision 18: Lima Work Programme on Gender</p> <p>“... enhance the implementation of decisions 36/CP.7, 1/CP.16 and 23/CP.18 by inviting Parties to advance gender balance, promote gender sensitivity in developing and implementing climate policy, and achieve gender-responsive climate policy in all relevant activities under the Convention.”</p>
2015	COP21	<p>The Paris Agreement</p> <p><i>Preamble:</i> “Acknowledging that climate change is a common concern of humankind, Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights, the right to health, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and intergenerational equity.”</p> <p><i>Article 7:</i> “Parties acknowledge that adaptation action should follow a country-driven, gender-responsive, participatory and fully transparent approach...”</p>

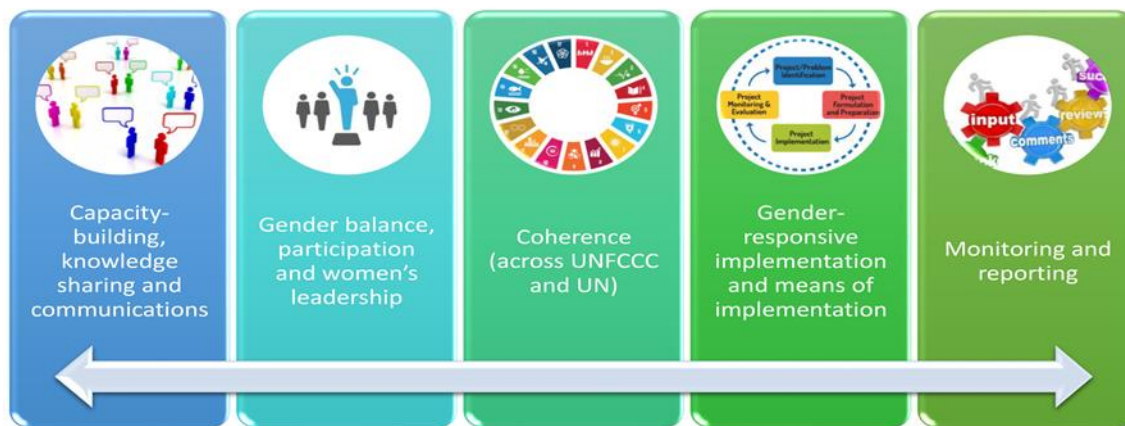
		<i>Article 11:</i> “Capacity-building should be guided by lessons learned, including those from capacity-building activities under the Convention, and should be an effective, iterative process that is participatory, cross-cutting and gender-responsive.”
2016	COP22	<p>Decision 21: Extending the work of the Lima Work Programme on Gender for three years, to be reviewed at COP25 in 2019, as well as the following new activities:</p> <ul style="list-style-type: none"> • Requesting both technical bodies and Parties, as well as the Financial Mechanism, to enhance communications and reporting on progress implementing gender-responsive climate policy; • Requesting that a gender perspective be considered in the organization of the technical expert meetings (TEMs) on mitigation and adaptation; • Requesting Parties to integrate local and traditional knowledge in the formulation of climate policy and to recognize the value of the participation of grassroots women in gender-responsive climate action at all levels; • Inviting Parties to appoint and provide support for a national gender focal point for climate negotiations, implementation and monitoring. Mandated Parties to develop possible elements of the gender action plan for consideration at SBI47 (COP23)
2017	COP23	<p>Decision -/CP.23: The Gender Action Plan</p> <p>“To support the implementation of gender-related decisions and mandates under the UNFCCC process, which may include priority areas, key activities and indicators, timelines for implementation, responsible and key actors and indicative resource requirements for each activity, and to further elaborate its review and monitoring processes;”</p> <p>“Gender-responsive climate policy requires further strengthening in all activities concerning adaptation, mitigation and related means of implementation (finance, technology development and transfer, and capacity-building) as well as decision-making on the implementation of climate policies. The GAP recognizes the need for women to be represented in all aspects of the UNFCCC process and the need for gender mainstreaming through all relevant targets and goals in activities under the Convention as an important contribution to increasing their effectiveness.”</p>

4. Gender Action Plan

The GAP was adopted at COP23 and focused on the following issues:

- Ensure women and men participate equally in solution-building and have equal access and input to the new economy to accelerate the move away from business as usual towards a transformative, low-carbon future.
- Gender equality and the empowerment of women and girls.
- Meet the ambitious 1.5°C target and limit warming to below 2°C. To do this, the needs, perspectives, and ideas of 100 percent of the population must be included if solutions are to be effective, just, and sustainable.

The 5 priority areas of the GAP are illustrated as follows:



Source: UNFCCC (2019)

Capacity-building, knowledge sharing, and communication includes the understanding and application of systematic gender integration in the thematic areas under the Convention and the Paris Agreement and in policies, programmes, and projects on the ground.

Gender balance, participation, and women's leadership will achieve and sustain the full, equal, and meaningful participation of women in the UNFCCC process.

Coherence strengthens the integration of gender considerations within the work of UNFCCC bodies, the secretariat, and other UN entities and stakeholders towards the consistent implementation of gender-related mandates and activities.

Gender-responsive implementation and means of implementation ensure the respect, promotion, and consideration of gender equality and women's empowerment in the implementation of the Convention and the Paris Agreement.

Monitoring and reporting improve the implementation and reporting of gender-related mandates under the UNFCCC.

4.1 Status of the Gender Action Plan

The GAP resulted from several UNFCCC events, including COP 20, 21, 22, and 23 where important milestones were covered. Currently, the GAP is influencing project implementation, with communications submitted on the progress being made. Below are some of the events that are expected to be reported on in 2019, in preparation for the 2020 review.

Katowice Climate Conference 2018 and the review of the Lima Work Programme on Gender and its GAP

During COP24, held in Katowice, Poland in December 2018, the following conclusions were made concerning gender and climate change, particularly in review of the Lima Work Programme on Gender and the GAP:

- The COP requested the upcoming fiftieth session of the SBI (June 2019), to review of progress, areas for improvement, and further work to be undertaken under the Lima Work Programme on Gender and its GAP. Submissions received and reports produced under the programme were of particular interest. The SBI will forward recommendations based on the outcome of the review for consideration and adoption at COP25 (November 2019). Parties and organizations gather and submit requested information, including sex-disaggregated data and gender analysis where applicable, including:
 - (a) Information on the differentiated impacts of climate change on women and men, with special attention paid to local communities and indigenous peoples;
 - (b) Integration of gender considerations into adaptation, mitigation, capacity-building, action for climate empowerment, technology and finance policies, plans and actions; and
 - (c) Policies and plans for and progress made in enhancing gender balance in national climate delegations.
- The COP invited Parties, constituted bodies, and observers to consult during 2019, including meetings, with the support of the secretariat as appropriate, to advance the GAP. Parties and observers can draw from outputs of these consultations when submitting information that will be synthesized in the report referred to in document FCCC/SBI/2018/L.22, paragraph 6, in the context of considerations on the way forward on the Lima Work Programme on Gender.

5. Gender and climate change in Africa

As in other regions, African women face a series of challenges in agricultural production. Substantial gender gaps in access and control continue to exist in regards to property rights and ownership, reliable financial services and credit, social, and economic knowledge, information and extension, and reliable technology (Dotto, 2019; Huyer, 2016a; Murray et al, 2016). Women often face insecure land tenure, resulting in lower access to credit and inputs, leading to inefficient land use and reduced yields. The Food and Agricultural Organization of the United Nations (FAO) notes that if gender inequalities in production and post-harvest losses are reduced, hunger in Africa could be ended by 2025 (FAO, 2018).

Female-headed farms tend to have less labour available for farm work, as they are typically smaller and women's unpaid household duties, such as fetching fuelwood and water, take them away from income-generating activities. As a result, women, especially those from poor households, are likely to face time constraints, affecting their ability to participate in community-based climate adaptation initiatives. Additionally, they may altogether reject practices that increase their labour burden (Behrman et al, 2014; Jost et al., 2016).

Women farmers in Africa play key roles in local seed systems, family nutrition and food security, preparing land for production, and processing and marketing food. They are also the predominant source of labour for agribusinesses and agro-industries (FAO, 2011). Nevertheless, they are not recognized as farmers and tend to be overlooked by development personnel, policies, and programs. As a result, they tend to be underserved by local, national, and global institutions (Cramer et al, 2016; Perez et al., 2015). Women are also not well-positioned in agricultural value chains (Galiè et al., 2018) and commercialization of dairy and other agricultural products tend not to benefit women (Tavener et al., 2019).

Supporting women's role in agriculture includes encouraging the safeguarding and improvement of local plant species and varieties maintained by smallholder farmers and their communities, recognizing the central role of women, supporting the development of farmers' organizations, and taking women's leadership into consideration (Vernooy, 2015).

A range of gendered perceptions affect this position, including women's lack of mobility due to gender norms or finances, access to public transportation for themselves or products, lack of security when travelling in remote areas, and lack of ability to transport heavy burdens. As a result, men will have more employment options than women in the value chain (Galiè et al., 2018).

Finally, in general, women have lower levels of land ownership and tenure, increasing their vulnerability to climate shocks. The size of land owned by women in sub-Saharan Africa is 20 to 70 percent less than that owned by men, with female headed households having, on average, 45 percent less land. Land owned by women is often of lower quality with less access to irrigation. Additionally, land held by women is often jointly owned: only 13 percent of females, have sole ownership on all or part of the land they own, compared to 40 percent of males (FAO, 2018b).

There is consensus on the need to enhance tenure security for women and men. Without this, farmers will likely be unwilling to make significant and long-term investments in soil improvement (Beuchelt & Badstue, 2013). A knowledge gap, however, exists on how to measure land tenure and the level of disaggregation required. Social and economic transformations have different effects on women and men in regards to tenure insecurity in customary tenure systems. Programs which aim to enhance land tenure security need to take into account the context and unique characteristics of communities and household groups (Ghebru, 2019).

Climate change is also increasing food insecurity and shortages, which tend to be the burden of women and girls. Female-headed households are more likely to be food insecure than male-headed households as a result of shocks, drought, and flooding. In many regions, women are more likely to reduce their food consumption in response to food scarcity.

The connection between empowering women in households, increased food security, and child nutrition is well-documented (Malapit et al, 2015), as well as the role of diet diversity for nutrition and food security as well as climate resilience.

In much of the world, women's dependency on local, natural resources and their position at the lowest levels of rural value chains mean that women's workloads usually increase as a result of extreme climate events, like drought or flooding (Brockhaus et al, 2013). Women continue to be disadvantaged by insecure access and property rights to forest and tree resources, low participation in decision making at the household, community, and national levels, and limited ability to influence resource allocation or research priorities (Acosta, Ampaire, Kigonya, & Kyomugisha, 2016; IUCN, 2015; Pham et al., 2016). Women and men may also have conflicting interests in natural resources management. For instance, moabi and caterpillar trees are highly valuable as timber for men, while women rely on the same species for non-timber forest products (NTFPs). For example, an adult moabi tree produces 327 kilos of fruit per year, from which women can extract over 100 liters of oil. Although sustainably harvested by women, these trees are the first to be cut in community forests (Tiani et al., 2016).

Lack of consultation during decision making was identified as one of the barriers limiting women's participation in forest management in Cameroon. A review of forest conservation approaches in Central and West Africa found that community-based forest conservation programs produced mixed results. Without a deliberate gender- or women-based focus, programs, by default, were advantageous for men in the form of grants for crop production, support, and employment. This selective benefit resulted in increased costs to women as a result of reduced land access. Conversely, other programs focused only on women, ignoring possible negative impacts on men. Consultation with

both men and women is needed to minimize potentially negative responses, especially if forest programs are intended to empower women by engaging them in traditionally masculine domains (Harris-Fry & Grijalva-Eternod, 2016).

There is evidence that including women in resource management groups for forestry and fisheries improves management outcomes, including forest conservation and regeneration (Agarwal, 2009; Leisher et al., 2016). Experience of forest restoration in Africa has found, however, that implementation of restoration activities is heavily dependent on local labour, with women often contributing the most manual labour for such activities. Regardless of labour contributions, access to long-term benefits can be blocked by gender trends in land ownership and decision-making power. To prevent such benefit inequalities, restoration plans and community based actions must be informed by gender analysis, inclusive consultations that recognize women and youth as stakeholders, and monitoring of socio-economic impacts (Ihalainen, 2019).

Participation in environmental decision-making at the local level for irrigation and other forms of water or forest management tend to be based on household headship, which may restrict women from participating. Rights to land and water may also be a constraint for poor communities. A review of case studies from Africa, Asia, and Latin America found that, to ensure the rights of the poor to water infrastructure, localized land reform must be put into place or their land directly selected. Water rights are accessible when they are for land users rather than land owners, and for both women and men, rather than just male household heads. A common barrier for women and the poor to access water is the requirement of some contribution to constructing the infrastructure. To address this, the investments of women and poor should be linked to rights to the infrastructure. Early inclusion in planning and consultation forums is also necessary to ensure transparent and fair use, including for allocation criteria and procedures, before construction starts (van Koppen, 1998).

Water

Some of the main issues related to climate and gender include water shortages, especially those exacerbated by weather events such as droughts and flooding, which may pollute water sources. Unequal distribution of clean water is another gender dimension. Women and children are often prioritized last and are less likely to have decision making power or access to water for drinking, cooking, or productive purposes (Huyer, 2016b). In relation to agriculture, irrigation for women's plots are often overlooked. Women often use manual, labour-intensive technologies, such as buckets and watering cans, to irrigate their fields, compared to men, who tend to use mechanical technologies such as pumps (van Koppen et al., 2012).

Energy

Unequal distribution of safe and clean energy limits productive options and exacerbates poverty for men and women. Reducing emissions that also produce health and environmental benefits is also especially important for women and other vulnerable populations. For instance, burning biomass fuel causes indoor air pollution and is linked to health problems most often affecting women and children. Especially in rural areas, women and girls spend significant amounts of time and effort fetching fuel, fodder, and water for homes. Droughts caused by climate change can increase the distances travelled to find fuel, which is both time consuming and, in conflict and post-conflict situations, poses a safety threat (Huyer, 2016b; UNCTAD, 2011).

Key agriculture issues include the use of renewable energy sources for irrigation. When implemented in a consultative, gender-responsive manner, irrigation systems can be sources of empowerment. In Nepal, solar irrigation systems were introduced to local women's groups, allowing the introduction of new crops such as vegetables, wheat, maize (in rice fallow system), and legumes. It also tripled production. Dependency on rainwater was reduced, which enabled this crop diversification. Combined with training and knowledge sharing, mobile based market information, as well as support from district agricultural office, female farmers grew high value crops and earned higher incomes (Khatri-Chhetri & Chanana, 2017).

Transport

Women and girls use transport, when it is available, for activities such as collecting fuelwood and water, transporting goods to the market, travelling to work, purchasing agricultural inputs, produce, and tools, going to school, and shopping for food. In general, they have less access to wheelbarrows, motorcycles, and/or other intermediate means of transport. Gender issues associated with transportation include negative health effects from carrying heavy loads for long distances, security if travelling on foot, and the time required for travel which could be more effectively used for education, health, or leisure activities. Lack of culturally-appropriate transportation for women and girls can restrict their mobility and school attendance (UNCTAD, 2011).

Key agriculture issues relate to the availability of transport for women. Since women generally tend to manage small livestock (goats, sheep, and poultry), draught animals are often not available for their use. For example, women in Malawi were unable to adopt CSA practices because they did not have basic energy and transport technologies to support their farming. As a result, they were overly reliant on manual labour (Murray et al., 2016). Another issue is access to markets, including the ability to transport their produce for sale.

Disasters

Because they are heavily dependent on the natural environment, the workload and livelihoods of rural women are also more directly affected by natural disasters. Cultural norms related to gender roles may limit women's ability to respond to or make quick decisions in the face of climate events. In the case of flooding, for example, the type of clothes that women wear or their responsibilities in caring for small children may restrict their ability to run or climb to avoid danger, resulting in women making up more fatalities in extreme events such as cyclones and tsunamis (Neumayer & Plumper, 2007). In rural areas, research has shown women are more likely to sell household or personal assets to make up for drops in food production and in response to disaster, since they are easier to recover than men's assets, such as land and large livestock. Children may also be taken out of school to help supplement the family's income or for household chores while their mothers take on additional work.

In some households, where men are working off-farm in cities, women may also lack the power to make timely farming decisions or to convince their husbands to agree to new practices (Goering, 2015; World Bank FAO, 2015).

Climate information and disaster warnings

Knowledge of the local environment and natural resources are important when monitoring hazards. Women and men have a different knowledge of their surroundings because they use different resources and are in charge of different activities – women tend to be based at or near the home, while men usually work outside the home. As a result, women have limited access to the same disaster warning resources as men. For example, SMS-based systems may not work in households where there is only one phone, since men will most likely be in charge of it. Or women's household responsibilities may limit their ability to access radio programs that deliver climate information at certain times. Women and men may also prefer to receive information in different formats. Research in Senegal found that different channels are needed to reach women such as radio, social interactions around a water source, religious institutions, or even a community billboard (Tall et al., 2014).

In relation to agriculture, women need different weather and climate information than men due to gender differences in crop production or production roles. In Kaffrine, Senegal, where men control draught animals and plows, women must wait to prepare their fields until men have finished. As a result, information provided on the timing of rainfall onset will benefit men but not women. Agricultural extension services are often biased toward male farmers, particularly in cultures where women are responsible for household food production and men are responsible for commercial crops. Where context-specific barriers limit women's access to particular communication channels, climate information can be incorporated into spaces and processes that are part of their routines and social networks, such as boreholes, women's groups, or health offices.

Actively involving rural women in the design of services and adapting communication channels to take into account their concerns, responsibilities, constraints, and schedules can reduce the barriers women face in accessing climate services. Based on experience in other contexts, social networks and community organizations play a crucial role in access to information, but can be combined with new ICT tools to improve women's access to climate services (Gumucio et al, 2019).

Migration

Climate induced migration from rural to urban areas is seen across the region and tends to be a male phenomenon, increasing the vulnerability of other groups, especially children. Studies in Mali and Burkina Faso find that, in households where men migrate, children, especially girls, tend to stop their education due to increased workloads. Tasks that children take on often include livestock herding, fetching water and fuelwood, and other basic livelihood activities. On the other hand, male migration also provides women the opportunity to engage in male-dominated activities in crop production and livestock (Djouidi et al, 2013).

Implications of the increasing feminization of agriculture in Africa are not fully understood and, in some cases, may be positive, such as when women gain greater decision-making power. At the same time, women experience increased workloads and lower levels of access to inputs, extension, climate and weather information, and credit.

6. Koronivia Joint Work on Agriculture and its relationship with the Gender Action Plan

Agriculture remains the backbone of many economies, especially those in Africa and other developing and least developed countries (LDCs). The United Nations Framework Convention on Climate Change’s (UNFCCC) COP23 Decision on Agriculture enshrines the Koronivia Joint Work on Agriculture (KJWA) (decision 4/CP.23). Through decision 4/CP.23, the UNFCCC requested both the Subsidiary Body for Scientific and Technological Advice (SBSTA) and the Subsidiary Body for Implementation (SBI) to jointly address matters related to the KJWA between the UNFCCC Conference of Parties (COPs) 24 and 26.

From the KJWA (United Nations Framework Convention on Climate Change 2018:1), the UNFCCC Parties and observers will address the following six key issues as per an already determined programme covering the period 2018 to 2020 (COPs 24-26):

- a. Modalities for implementation of the outcomes of five in-session workshops on issues related to agriculture and future topics that may arise from this work;
- b. Methods and approaches for assessing adaptation, adaptation co-benefits, and resilience;
- c. Improved soil carbon, health, and fertility under grassland and cropland as well as integrated systems, including water management;
- d. Improved nutrient use and manure management towards sustainable and resilient agricultural systems;
- e. Improved livestock management systems; and
- f. Socioeconomic and food security dimensions of climate change in the agricultural sector.

These activities are reflected in the roadmap below.

6.1 KJWA Roadmap

Period/Session	Activity
SBSTA/SBI48 April- May 2018	<ul style="list-style-type: none"> • Parties agreed on the road map

SBSTA/SBI 49 December 2018	<ul style="list-style-type: none"> Workshop on the modalities for implementation of the outcomes of the five in-session workshops on issues related to agriculture and other future topics that may arise from this work -Topic 2(a)
SBSTA/SBI 50 June 2019	<ul style="list-style-type: none"> Workshop on the methods and approaches for assessing adaptation, adaptation co-benefits and resilience -Topic 2(b)Improved soil carbon, soil health and soil fertility under grassland and cropland as well as integrating systems, including water management-Topic 2(c)Consideration of the reports from Topic 2(a)
SBSTA/SBI 51 November 2019	<ul style="list-style-type: none"> Workshop on improved nutrient use and manure management towards sustainable and resilient agricultural Systems-Topic 2(d)Consideration of the workshop report from topics 2(b) and 2(c)
SBTA/SBI 52 JUNE 2020	<ul style="list-style-type: none"> Workshop on improved livestock management systems, including agro-pastoral production systems and others - Topic 2(e)Workshop on social economic and food security dimensions of climate change in the agricultural sector - Topic 2(f)Consideration of the workshop from Topic 2(d)
SBSTA/SBI 53 November 2020	<ul style="list-style-type: none"> Consideration of the workshop report from Topics 2(e) and 2(f)Report to the COP on the progress and outcome of the work, including potential of future topics

Source: FAO (2018)

The above roadmap was agreed upon by parties. Submission and workshop timelines in the Koronivia Roadmap present an opportunity for subsidiary and constituent bodies to evolve and more concretely link with the GAP. Gender and climate change are addressed under socio-economic and food security dimensions of climate change in the agricultural sector.

There were several submissions made in order to make the KJWA more gender responsive and address issues relevant specifically to SSA's gender and climate change situation.

Climate Action Network (CAN) suggested that the KJWA make a particular effort to mainstream awareness of and strategies for gender-responsiveness and equity throughout all elements of its work. To develop synergies with existing UNFCCC processes, the KJWA should ask the COP to request the secretariat to organize in-session workshops within the GAP for gender-responsive climate policy and action. No climate action in agriculture should reinforce gender inequality. Climate change adaptation policies and actions in agriculture give a particular opportunity to address widespread gender inequalities in the agricultural sector (CAN, 2018).

According to the CARE submission to the UNFCCC (2018), the KJWA must move past discussions and enable Parties and other actors to undertake real, demonstrable action. The KJWA can play a critical role in fostering policy coherence and coordination by developing guidelines, criteria, and identifying gaps and the means to fill them in knowledge, technology, capacity, and finance. Developed tools and guidance also ensures that climate action in the agriculture sector respects the principles of the Paris Agreement.

Africa has been at the forefront in advancing issues related to gender in UNFCCC negotiations and gender is an integral part of the engagement process within the African Group of Negotiators (AGN). Since 2015, a team of agriculture, gender, and climate change experts from the five sub-regions of Africa, known as the Africa Group of Negotiators Expert Support Group (AGNES), have worked with the AGN to prepare technical and position papers on agriculture, gender, and climate change in Africa (Mungai, 2016). AGNES was created in 2015 to provide scientific expertise and evidence-based information to African climate negotiators and seeks to facilitate the exchange of ideas between experts and negotiators in an international setting. In this environment, scientific evidence is a major tool to inform the common African position on matters related to climate change. Since its

formation, AGNES has assisted the AGN to develop and defend their position using science-based evidence on agricultural and gender issues. In fact, the African Working Group on Gender and Climate Change (AWGGCC), the gender segment of AGNES, played a crucial role in the negotiations that led to the adoption of the GAP.

7. Implications of and next steps for negotiators and governments in view of the Gender Action Plan and the Koronivia Joint Work on Agriculture

7.1 Modalities for implementation of the outcomes of the KJWA

Financing

The KJWA outcomes, which are meant to provide African agriculture with a low carbon and climate resilient development pathway, can be implemented effectively if adequate financial resources are set aside. The Green Climate Fund (GCF), Adaptation Fund (AF) and the Global Environmental Facility (GEF) are examples of financing options. Finance flows should target where it is most needed. In addition to mobilizing climate finance for the food and agriculture sector, finance flows should target local level actions. This includes building the capacity of smallholder farmers and agribusinesses to access existing financial mechanisms, such as grants and investment loans. Innovative finance systems can reach farmers, particularly women, through inclusive and innovative business models (ex. implementation of mobile money mechanisms). Start-up funding to test innovative solutions should also be prioritized.

According to the UN Secretary General's office, the commitment of national governments, international financial institutions, national development banks, multilateral funds, including the GEF and GCF, bilateral donors, and the private sector, should strive for the majority of their finances (ideally >75 percent) to reach smallholder farmers, fishers, forest dwellers, and pastoralists, as well as small and medium-sized agroforestry, and agribusinesses in LDCs that promote sustainable and resilient food and agriculture systems (UNSG, 2019)

Funding mechanisms could report on successful agricultural project which, while working in the field, have failed to receive funding. The agricultural subsidy systems should be gender sensitive to transform smallholder activities and generate adaptation and reliance across sectors. Transforming agriculture into an attractive business and strengthening early warning systems for market-based activities are important elements to build resilience against future shocks and avoid detrimental consequences of poor farming methods. There should be deliberate considerations of microfinance and insurance options incorporated in KJWP and guidelines to report on them.

Coordination and delivery on outcomes

There is a need to establish a Food Security Focal Point in the Secretariat and a Food Security Working Group, with representatives from other Convention bodies, to foster coherence across the UNFCCC and ensure KJWA deliverables are met. The potential of the KJWA is significant, but its work is complex, given the relevance of so many other Convention bodies. With limited time during infrequent negotiations, a focal point and working group can ensure that work requested by Parties through the KJWA continues to progress between sessions. A focal point and working group can also facilitate continued collaboration and coordination between Convention bodies to avoid duplication and capitalize on synergies. Gender and social inclusion experts should be included in the working group.

Early warning

Early warnings should be emphasized as the way forward for KJWA, especially those accompanied by efficient early actions and targeted efforts to reach women, protect livelihoods, avoid triggering negative coping strategies, reduce humanitarian costs, and protect development gains. Early Warning Early Action (EWEA) and Forecast based Finance (FbF) provide a tool to move from a reactive to a proactive approach for managing disasters and crises.

Strengthening market-based early actions and the involvement of the private sector are key in scaling up EWEA-FbF to build resilience against future shocks and to avoid detrimental consequences on human well-being and development.

Technology transfer

To address vulnerabilities and decrease the labour required of women, there should be a deliberate effort to incentivize community-based approaches that engage local stakeholders in a science informed network for farm management and production technologies. Approaches include appropriate and affordable gender responsive irrigation facilities, scaling up coordination, partnerships, and institutionalization at regional and national organizations to make the agriculture sector attractive. Flexible funding modalities should also be established and prioritized. Climate risk insurance for agriculture and food-related sectors and shock responsive social protections should go hand in hand with early warning and easy access to funds.

Market

Setting up residence investment platforms at national and international levels is an important element in advancing agriculture. A deliberate effort to connect and incentivize investors to fund food and agricultural projects, especially those working with smallholder farmers and agribusiness, will attract more women to business, leading to gender responsive actions. Focusing on value chains for strategic enterprises will allow for KJWA to invest in product quality, quantity, market diversification, and excellence in agro-processing. Established markets should build the climate resilience of farmers' livelihoods, leading to food security and sustainability in Africa.

Civil society interventions

Emphasis should be placed on the importance of agriculture as part of the solution to climate change, especially climate change adaptation and the reduction of greenhouse gas emissions, while ensuring productivity and profitability for farmers. Any outcome from the KJWA would need to reach farmers and be realistic for real-life farming situations. The representative of the North American Climate Smart Agriculture Alliance noted the solution would require a systems approach, involving farmers, academia, non-governmental organizations, foresters, and agribusiness. Additionally, the representation of farmers and the continued exchange between the KJWA and the constituted bodies will enhance coherence and avoid duplicated efforts.

Knowledge sharing

Reporting on the outcome of KJWA in the next NDC submissions, as well as under the National Adaptation plans (NAPAs) Biennial Reports and National Communications, should be properly stipulated in the guidelines of reporting.

7.2 Implications of the GAP on agriculture

According to the FAO report of 2014, 80 percent of the agricultural production in Africa comes from small-scale farmers, who are mostly rural women. In addition, women comprise the largest percentage of the workforce in the agricultural sector, but do not have access and control over all land and productive resources. This significant gender gap in agriculture translates into a costly lost opportunity to improve the quality and quantity of Africa's food productivity and supply. Achieving gender equality is essential for attaining food security and nutrition, meeting all sustainable development goals (SDGs) and scaling up climate action in the agriculture sector (FAO).

According to Huyer, Gumucio & Nyasimi (2017), although agriculture is not specified as an important sector for attention, several aspects of the GAP have significant implications for gender equality:

- The FAO and World Bank identify a gender gap in agricultural productivity which stems from unequal access to inputs and resources such as finance, information, training, and resources. There are gender differences in technology adoption and use of purchased inputs. A major challenge is to identify the context-specific technologies and supporting measures that may be needed. The trade-offs and co-benefits of different options

will benefit women and help transform agriculture and rural development in ways that promote gender equality. This means finance, technology development and transfer, and capacity-building strategies developed to address adaptation and mitigation need to target gender differences in access, productivity, and opportunity.

- In relation to capacity building, knowledge sharing, and communication, policy makers and implementers at all levels need training in and access to knowledge on the gender gap in agriculture and approaches to increasing the empowerment of women smallholders, including project design, analysis, and indicators. This includes the development of toolkits and guidelines on gender and climate-resilience agriculture (ex. CCAFS-CARE Gender and Inclusion Toolbox and the GACSA-FAO-CCAFS Practice Brief, A Guide to Gender-Responsive Climate-Smart Agriculture). Uganda, for example, has organized workshops for policymakers and agricultural technical experts on decision making tools for gender and adaptation, particularly climate-resilient gender-sensitive value chain analysis and impact evaluation.
- Clear indicators and targets for monitoring and reporting based on sex-disaggregated data are needed to measure gender results in terms of the ability of women and men to access resources and opportunities for increased resilience and production, develop sustainable agribusinesses, retain control of assets, and participate meaningfully in household- and community-level decision making and leadership. At the national level, data and indicators are needed to assess the role of women in agriculture beyond the formal labour force, including gender differences in productivity, contributions to food security, control over land and other assets, and labour patterns.

In 2015, the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) and partners gathered to share lessons on integrating gender in adaptation projects with smallholder farmers which could serve as guidance for those who will implement adaptation measures in agriculture. The next step for negotiators is to ensure that a gender-transformative agriculture adaptation is accompanied by:

- Analysis of gender and social norms, policy, differential resilience and vulnerability to climate risks;
- Equal access to agriculture and climate information, inputs, technology, and access to land, water, and forest resources;
- Addressing women’s information priorities;
- Promoting access to market opportunities and equitable credit and finance;
- Using innovative, farmer-led, community-based approaches for capacity building;
- Promoting anticipatory, flexible, inclusive, and forward-looking adaptation planning and decision-making processes;
- Equal representation in decision making at household, community, and national level forums;
- Integrating consultative learning, capacity building, monitoring, and knowledge management processes;
- Investing in staff capacity to mainstream gender transformative approaches during program implementation (Huyer et al, 2015).

The KJWA needs to clearly elaborate on the importance of gender mainstreaming in agricultural activities. This can be done through detailing gender mainstreaming activities and actions to take in socio-economic and food security dimensions of climate change in the agricultural sector.

A database dedicated to monitoring and evaluating the GAP in relation to agriculture in SSA needs to be generated. Reporting guidelines in the GAP should specifically elaborate on the reporting framework for agriculture with indicators showing progress in different SSA regions.

7.3 COMESA recommendation on gender and agriculture

These recommendations are drawn from the Climate Action Network submission to the UNFCCC on the Common Market for Eastern and Southern Africa (COMESA) and the KJWA in October 2018:

- Promote and upscale sustainable agricultural, fisheries, and aquaculture practices that benefit the livelihood activities of women and promote women’s participation in sustainable agriculture projects and programmes, including technologies and farm inputs (ex. terracing, use of power tillers, fertilizers).
- A provision of financial support for knowledge exchange and information sharing on gender responsive agricultural technologies to increase awareness, knowledge, and participation of women and youth in farm experimentation in order to enhance their role in scaling up sustainable agriculture and land management practices.
- Develop and transfer innovative, low carbon, and cost-effective post-harvest methods and storage facilities that are user friendly for women to enhance the capacity of women to access facilities which are beneficial and responsive to their needs to enhance agricultural productivity, product quality, increased market access, and increased income generation.
- Provide technical and financial support to build women’s skills and capacities to manage climate related-risks and vulnerabilities, including the promotion of incentives for women to manage risk associated with the impact of climate change in agricultural sector.
- Promote microfinance schemes for women to access credit and financial services to build women farmer’s capacity to access improved farm inputs and innovative agricultural technology, while adding value to agricultural production.
- Develop tools, methodologies, and guidelines to develop gender responsive agricultural policies and strategies in Africa.
- Enhancing gender equality as a guiding principle and a cross-cutting issue for all climate finance instruments, particularly the GCF.
- Develop and integrate gendered analytical tools into all phases of programme design, implementation, monitoring, and evaluation.
- Establish gender-based criteria in fund allocation, project selection, and other aspects of decision-making.
- Operationalize regular audits of the gender impacts of funding allocations to ensure gender responsive delivery.
- Improve women’s access to finance from multilateral and microcredit institutions for the purpose of mitigation and technology transfer projects.

7.4 AGNES gender submission on the implementation of the GAP, identifying areas of progress, areas for improvement and further work to be undertaken in the subsequent action plans

The year 2019 is crucial for the GAP as it is supposed to be reviewed. These recommendations and suggestions are drawn from discussions around the development of a submission by the AGN and the Workshop on Gender and Climate Change held from 16 – 18 June 2019 in Bonn, Germany.

Key issues for consideration emerging from these discussions include the following:

- The capacity building of policymakers across scales on various gender responsive approaches including gender mainstreaming in climate change actions and the collection and analysis of sex disaggregated data to inform climate actions in all sectors is critical.
- The need to build the capacity of African women negotiators to participate effectively in the UNFCCC, including enhancing the capacity of all negotiators to articulate gender issues across climate discussions.
- The provision of financial support to participate in the UNFCCC and clarity and transparency on the mechanisms for how travel funds select whom to support.
- While several African countries already have gender responsive policies, plans, and programmes, there is still a gap in some countries. Most of these efforts are led by the gender focal points. Parties that have not nominated a gender focal point should be encouraged to do so in addition to enhancing the capacity of nominees.

- Based on a suggestion to institutionalize gender and climate change trainings, a training of trainers, targeting national partners in all African countries and working with parties to develop fully funded training programs, could be delivered online and within credible institutions.
- There is a need to undertake an analysis of all climate change related policies including agriculture for gender responsiveness.
- Link the GAP to relevant instruments of implementation, such as the Nationally Determined Contributions (NDCs), to facilitate the development of gender responsive indicators and tracking within countries.
- Trainings targeted at decision makers at the national level, and possibly including ministries of finance and Central Banks, could increase gender responsive climate financing, including the development of tools and mechanisms for gender impact assessments within climate finance interventions.
- It is important to identify gender responsive technologies and utilize knowledge when drafting the Technology Executive Committee (TEC) report. Thus a gender responsive Technology Needs Assessment (TNA) framework should be developed.

8. Conclusion

African countries should put in place gender-responsive adaptation and mitigation plans in NDCs, NAPs, and climate-smart agriculture (CSA) frameworks which suite local environments. According to the UNDP (2017), CSA seeks to balance these seemingly competing interests by integrating climate change into the planning and implementation of sustainable agricultural strategies.

The climate challenge in agriculture requires integrated approaches that increase productivity, enhance adaptive capacity, and reduce net emissions. However, despite significant strides made in addressing gender inequalities over the years, rural women are still among the most marginalized groups in society and are particularly vulnerable to current and future climate change and food insecurity.

The major issue for negotiators and governments in SSA is to ensure that the GAP and the KJWA are closely linked, with the latter incorporating more guidelines from the former, especially in terms of elaborating on the five priority areas. This, coupled with cooperation between all stakeholders, agencies, implementing partners, and governments, along with effective monitoring and evaluation of progress, will promote gender mainstreaming in agriculture and climate change adaptation.

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