



Photo: Shiela Chikura/CIKMAYT

Policy Paper

Gender Equality and Social Inclusion in Climate Smart Agriculture Implementation in Eastern and Central Africa

Mary Nyasimi

Key Messages

- » CSA initiatives should be informed by a gender analysis and should have a deliberate gender and social inclusion focus during the design, technological development, and scaling up of CSA practices. This is critical to provide a close understanding of the target population: who they are, what they do, what socio-cultural barriers they are experiencing, what power and decision-making structures exist, what resources they have at their disposal, and what capacities they can draw on.
- » In addition to the gender and social inclusion lens, stakeholders need to apply an intersectionality lens to avoid homogenizing women youth and indigenous/marginalized people (WYIMP) and capture intra-gender differences between these social groups.
- » Involving more youth in CSA is crucial and requires a major focus on technological advancement and profitability.
- » Networks, partnerships, and platforms are providing novel and innovative spaces for youth to collaborate, share, and exchange information on CSA interventions, thus empowering and enhancing their adaptive capacity.

This policy brief focuses on the CSA initiatives targeting Women, Youth, and Indigenous/ Marginalized People (WYIMP) in the 12 ASARECA member countries in Eastern and Central Africa. These countries include; Burundi, the Democratic Republic of Congo, Eritrea, Ethiopia, Kenya, Madagascar, Republic of Congo, Rwanda, South Sudan, Sudan, Tanzania, and Uganda. It highlights the critical role that CSA practices and technologies play in increasing food security, enhancing adaptive capacity, and advancing gender equality and social inclusion and offers recommendations for concrete actions to empower the WYIMP.

Introduction

Climate change is emerging as the biggest threat to agriculture in Eastern and Central Africa, where women and men of different ages, wealth, and ethnicity are deriving livelihoods from agriculture. However, the impacts of climate change are more pronounced among women, youth, and indigenous/ marginalized people (WYIMP). These groups are highly exposed and sensitive to climatic threats and have limited capacities and opportunities to cope and

adapt, depend heavily on the rain-fed agriculture, occupy areas prone to shocks, have inadequate access to social services or political influence, and have limited or no access to improved climate resilient technologies (UNFCCC, 2019). For women, the role that they play in these agrarian livelihoods is often unrecognized and unappreciated. Across the ASARECA member countries, women make up about 40-50% of the agricultural labour force and are vulnerable to impacts of climate change due to their high dependence on natural resources, low incomes and literacy levels, and lower levels of access to and control of key productive assets such as land, information, and technology (Palacios-Lopez et al. 2017). Due to this, women have a lower adaptive capacity, thus hindering them from participating in agricultural adaptation strategies such as CSA (Nyasimi and Huyer, 2017; Perez et al. 2015; Nyasimi et al. 2014).

The youth aged between 15-35 years farm on smaller land sizes compared to their parents and have limited access to innovative agricultural technologies, weather, and agro-advisory services, financing, and markets (FAO, 2014). Although over 85% of the youth in Africa live in countries where agriculture is the mainstay economic activity, reports show that the youth are disappointed and frustrated with agriculture (FAO, 2014). To address this appalling situation, ASARECA countries must identify and implement strategies that can connect the youth with agriculture both as a source of livelihood and a career. Under the changing climate, youth must be empowered with profitable and innovative CSA technologies and investments to overcome obstacles that hinder them from engaging in agriculture.

Within ASARECA member countries, most of the indigenous/marginalized people live in marginal and fragile areas. Evidence shows that climate change is taking the largest toll on indigenous/marginalized people (UNFCCC, 2018) leading to increased vulnerability. This vulnerability is further compounded by factors reinforcing inequalities (such as geographic location, poverty, gender, ethnicity, disability, and language) which increase the risks from climatic hazards (Boko et al. 2007). Marginalized people are also often excluded from agricultural development programs and face extreme and persistent food insecurities

(Ford et al. 2016). Overall, the women, youth, and indigenous/marginalized people face barriers and inequalities in accessing and hence adopting CSA practices and technologies. The increasing negative impacts associated with climate change are poised to exacerbate these inequalities unless concrete measures are taken to address them.

2 Methodology

This study was commissioned by ASARECA to identify CSA initiatives that target women, youth, and indigenous/marginalized people in ASARECA member countries i.e. Burundi, DR Congo, Ethiopia, Eritrea, Kenya, Madagascar, Republic of Congo, Rwanda, South Sudan, Sudan, Tanzania and Uganda, and identify a range of CSA practices and technologies that target each category. To identify the CSA initiatives, a mixed-methods approach was used, which entailed a desk review and stakeholder survey (through emails and telephone) to collect both qualitative and quantitative data. A sampling of survey participants was through contacts provided by ASARECA Secretariat and snowballing sampling was integrated to identify more respondents. The CSA initiatives database was subjected to content analysis to identify CSA initiatives that specifically had the following terms: women; youth; indigenous/marginalized people; gender; mothers; children; female-headed households; widows; equality; equity and inclusion. Once the CSA initiatives that have the above terms were identified, they were subjected to four-point criteria (Nelson and Huyer, 2016) to evaluate whether the initiatives had a gender and social inclusion lens. The criteria used included the following aspects: (i) the process of development and implementation of CSA initiative is informed by a gender analysis, (ii) CSA initiatives promote participation and engagement of WYIMP, (iii) CSA initiatives make efforts to reduce the constraints to the uptake of CSA practices and technologies by WYIMP and (iv) CSA initiatives lead to benefits for WYIMP.



3. Result

3.1 Target Populations

Subsistence smallholder farmers dominate the agricultural landscape and are practicing mixed crop-livestock and pastoral systems under a rain-fed system. These farmers and livestock keepers operate under different climate systems and the various CSA initiatives are supporting them to transform their agricultural systems so that they become resilient and food secure in the face of changing climate. Due to the huge and increasing numbers of smallholder farmers, national governments and organizations are addressing the climatic risks affecting the communities, through the implementation of CSA initiatives. Content analysis of the CSA initiatives shows that different populations in the countries were targeted by the CSA initiatives (Figure 1). The most common target group identified during the review was smallholder farmers and was mentioned in 65.6% (n=321) of the CSA initiatives identified. The group operates in mixed crop-livestock-agroforestry systems. Other target groups include a) farmer associations and farmer groups operating under rain-fed and irrigated agricultural systems, b) pastoralists and agro-pastoralists majorly operating in arid and semi-arid lands, c) fishing communities operating in marine, freshwater and aquaculture waters, d) youth (both male and female), e) women and female-headed households, f) policymakers and decision-makers at relevant Government Ministries, Departments, and Institutions, f) Technical experts and extension agents and g) private sector (Figure 1 below). Examples of CSA interventions identified targeting smallholder farmers include early warning systems, capacity building, micro-irrigation, improved seeds and agricultural inputs, sustainable value chains, credit, soil and water management among others.

3.2 Mainstreaming Gender and Social Inclusion into CSA Initiatives

CSA initiatives offer the potential for small-holder farmers and fishing communities to increase food productivity, build resilience, and reduce greenhouse gas emissions. However, certain members of the community are often excluded through social and cultural biases such as gender, age, and ethnicity (Mwangi et al. 2012). Therefore, CSA initiatives designed without a gender lens may fail to reach vulnerable categories such as the WYIMP. While designing CSA initiatives and creating synergies across other sectors such as energy and water, gender responsiveness and social inclusiveness should be an end in itself, rather than a means of achieving some of the goals of CSA. Once such commitment exists, mainstreaming and integrating gender and social inclusion perspectives in CSA initiatives should become the priority and focus of national governments as well as other stakeholders (including NGOs, CBOs, Donors, research among others). Out of the 489 CSA initiatives identified, 77.6% (n=358) have mainstreamed Gender and Social Inclusion (GSI) approach to reduce inequalities and exclusion. A quarter of CSA initiatives reviewed (26.8%, n=131), do not have a GSI lens. Out of the 358 initiatives, 79.9% of them directly mention women, mothers, female-headed households, gender, equality, and equity. Under this study, these beneficiaries have been lumped together as Women. This is a great achievement particularly for women given their critical roles in agriculture and food security in Eastern and Central Africa. About 26.8% and 9.8% of the CSA initiatives target youth and indigenous/marginalized people, respectively (Figure 2 below). Most of these CSA initiatives target one, two, or three of the above-mentioned target groups.

Figure 1: Target populations under CSA initiatives (N=489)

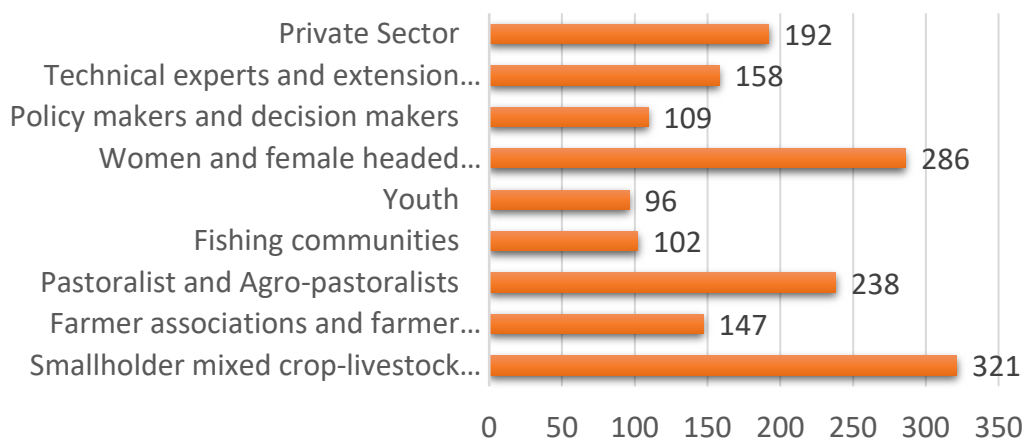


Figure 2: Percentage of CSA initiatives targeting vulnerable communities (N=358)

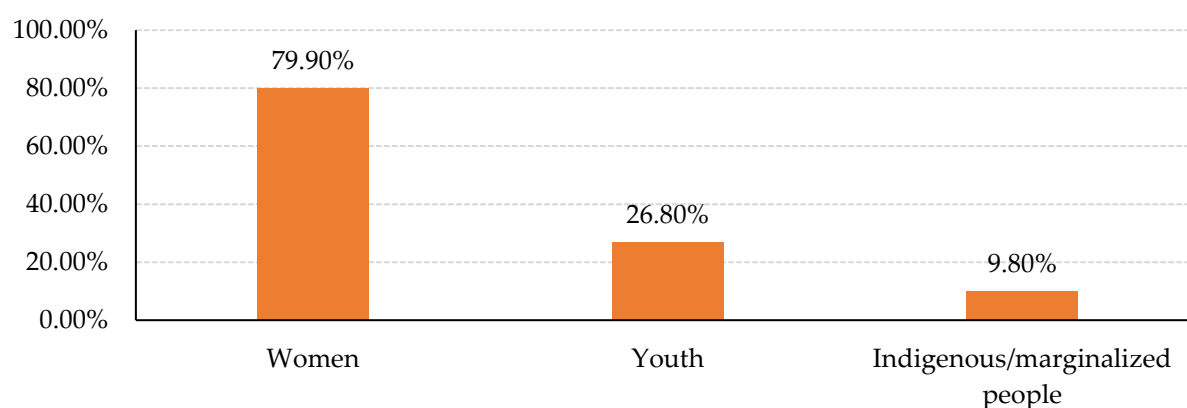


Figure 2: Percentage of CSA initiatives targeting vulnerable communities (N=358)

Countries with the highest number of CSA initiatives targeting WYIMP were: Kenya (52), Uganda (41), Tanzania (36), Rwanda (37), and Ethiopia (33). Eritrea (4) and the Republic of Congo (4) had the least number of CSA initiatives (Table 1 below). The high number of gender and socially inclusive CSA initiatives in some countries is due to the existence of legislation that aims to achieve gender equality within these countries. For instance, Rwanda has embraced pro-women and gender policies and globally, and it is ranked in the top 5 globally for gender equity (Equal Measures, 2030). Additionally, Rwanda also leads the world in terms of the share of women in the National Legislature, and therefore, laws and policies adopted are likely to have a gender and social inclusion lens. Gender equality principles are also espoused in Ethiopia, Kenya, Tanzania, and Uganda and are integrated into Constitution, national developmental agenda, and strategies.

‘Youth and women in Kenya are benefiting from the Aquaponics project that integrate fish and vegetables production. The project uses nutrient dense multi-loop aquaponics that contain Tilapia fish and water is circulated into vegetable greenhouses. The system reduces the need for water and labor by over 90% and requires no pesticide and less fertilizers. The system is financially and environmentally sustainable, socially inclusive and climate resilient.’

3.3 CSA Initiatives Contributing to Reducing Gender Gap in Agriculture

Studies show that the gender gap in agriculture is about 10.6%, 11.7%, 16%, and 13% in Ethiopia, Rwanda, Tanzania, and Uganda respectively (UN Women, 2015). This gap is quite high and gender inclusive CSA initiatives have the potential to reduce this gap (Nyasimi and Huyer, 2017; Perez et al. 2015; Nyasimi et al. 2014). Using the above four-point criteria to evaluate whether the CSA initiatives had a gender and social inclusion lens, results show that 62.3% (n=358) of the initiatives were focused on increasing benefits to WYIMP in ASARECA member countries, while 48.3%, 46.4%, and 21.8% looked at gender analysis, promoting participation and engagement and removing constraints to the uptake of CSA amongst WYIMP, respectively (Figure 3 below) Key interventions implemented through different CSA initiatives to increase benefits to women mainly included: promotion of CSA products, services, and technologies targeting women to produce enough food and earn income while using fewer resources. Such interventions include: (i) the Climate Smart Villages designed by the CGIAR Research Program on Climate Change Agriculture and Food Security (CCAFS) which provides CSA inputs (drought-resistant crop seeds, smart goats and chicken); (ii) establishment and stocking of fish ponds; (iii) financial solutions; (iv) weather and agro-advisory services; and (v) market access to individual women, women groups and female youth in Tanzania, Uganda, Ethiopia, and Kenya.

The implementation of CSA initiatives is critical in reducing the gender gap since it strengthens the income-earning capacity of WYIMP, reduces their labor demands, and improves their access to weather and agro-advisory information, credit, and markets. For example, labor-saving technologies such as rainwater harvesting reservoirs, minimum tillage, use

Table 1: Number of CSA initiatives in ASARECA member countries targeting women, youth, and indigenous/marginalized people (n=358)

Country	Women	Youth	Indigenous/ marginalized people	Total
Burundi	8	3	0	11
DR Congo	9	4	5	18
Eritrea	3	1	0	4
Ethiopia	19	10	4	33
Kenya	41	5	6	52
Madagascar	9	7	0	16
Republic of Congo	1	1	0	2
Rwanda	23	14	0	37
South Sudan	7	6	1	14
Sudan	8	7	4	19
Tanzania	23	8	5	36
Uganda	25	9	7	41
Regional (Within Africa)	95	12	3	110
Global	15	9	0	24
TOTAL	286	96	35	417

Table 1: Number of CSA initiatives in ASARECA member countries targeting women, youth, and indigenous/marginalized people (n=358)

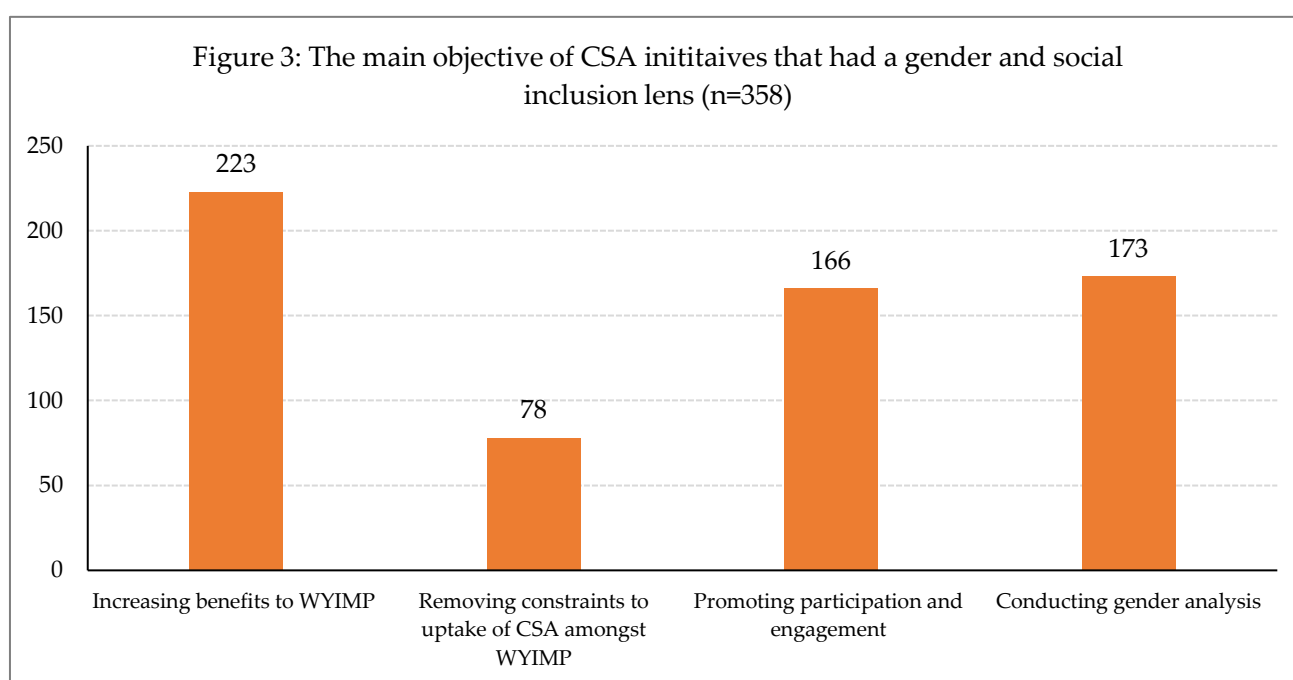


Figure 3: The main objective of CSA initiatives that had a gender and social inclusion lens (n=358)

of weeders, shellers, and biogas units have the potential to reduce the burden of women and youth farm duties, save time and facilitate increased crop production. Some of the CSA interventions targeting WYIMP are shown in Table 2 below.

3.4 Removing Constraining Barriers to Women's Adoption of CSA Initiatives

Women in farming and fishing communities in ASARECA member countries are often invisible and yet they play a major role in ensuring food security, caring for their families and communities.

Furthermore, despite the critical role, women lack the power to secure rights to vital resources and services such as land, training, information, credit, inputs, weather, and agro-advisory services. Their vital contribution to society goes largely unnoticed.

ASARECA member countries aim to change this by dedicating various CSA initiatives that actively target women of different ages, economic statuses residing in households with different configurations (married, female-headed, widow, etc.). The addition of an intersectionality lens to CSA initiatives ensures that women of different ages, economic status, religion, literacy levels, and marital status are included in the CSA initiatives.

Results of the study show that 286 CSA initiatives are targeting women by conducting gender analysis and using the data to understand and address the underlying social and cultural structures that relate to gender relations and access to key resources, increasing their participation and eventually benefiting from CSA interventions. The types of women targeted include; female and widow-headed households, poor women, women with low literacy levels, women in

male headed households, lactating mothers, single women, and female youth. The goals and objectives of most of the CSA initiatives, especially projects, and programs are aimed at increasing CSA benefits to women and increasing their participation through women groups and marketing associations. Some of the CSA initiatives are focused on empowering women through capacity building and strengthening women groups and farmers' associations. The study found only one CSA initiative targeting only women, that is, the Climate Resilience Livelihood Opportunities for Women Economic Empowerment (CRWEE) in Uganda. In terms of achieving the three pillars of CSA, the common pillar targeted is enhancing agricultural productivity (Figure 3). This implies that most of the CSA initiatives aimed to strengthen women's returns from implementing CSA interventions, while at the same time, increasing their participation, and strengthening their ability to choose to implement CSA interventions. These interventions remove barriers (e.g. lack of decision making, lack of training, inability to access extension services) that prevent women from participating and benefit from CSA.

3.5 Targeting Next Generation Farmers – the Youth

Studies show that the best strategies for enticing the youth in ASARECA member countries are to make agriculture (crop, livestock, and fishing) digital, mechanized and profitable (Farayola et al. 2020; Yami et al. 2019; Irungu et al. 2015; Mungai et al. 2018). Analysis of the CSA initiatives (n=358) with gender and socially inclusive lens shows that 96 (26.8%) of the initiatives directly targeted the youth (Table 1). The majority of initiatives targeting youth were observed in Rwanda, while the least number was reported in the

CSA interventions promoting participation and engagement by women, youth, and marginalized people	CSA interventions that reduce the constraints to the uptake of CSA practices and technologies by women, youth, and marginalized people	CSA interventions that increase benefits for women, youth, and marginalized people
<ul style="list-style-type: none"> Capacity building along the CSA value chains Formation of women, youth, and farmer group 	<ul style="list-style-type: none"> Labor-saving CSA practices and technologies Provision of social safety nets Purchase of insurance schemes Provision of weather and agro-advisory Provision of drought-resistant crop seeds and fertilizers Gender and socially inclusive policies and strategies Access to credit and financing mechanisms Access land 	<ul style="list-style-type: none"> Creating employment such as aquaponics and vegetable production Climate-resilient post-harvest storage Access to markets Provision of improved goats and poultry Agroforestry especially planting of fruits tree Establishing tree nurseries

Table 2: Examples of CSA interventions targeting women, youth, and marginalized people in Eastern and Central Africa

Republic of Congo. The most popular CSA initiatives for the youth are projects (28), networks/partnerships (25), programmes (13), strategies/plans (11), CoPs, and hubs/platforms (9). On the other hand, only 1 policy was reported as targeting the youth. It's worthwhile to note that Networks/Partnerships, Community of Practices, and Hubs/platforms are essential for peer-to-peer knowledge sharing, training, and mentorship. Currently, the CSA Youth Network (CSAYN) is active with country offices in Ethiopia, Madagascar, DR Congo, Kenya, Rwanda, and Uganda. Using networks, partnerships, hubs, and platforms, more youth across ASARECA member countries are becoming strong advocates of CSA, especially for climate resilient agribusiness, advocating for digitalization and mechanization of CSA and utilizing efficient production processes that mitigate negative climatic consequences. A total of 32 CSA initiatives targeting the youth are directly focusing on digitalization and mechanization of CSA practices for example; the Index-Based Livestock Insurance (IBLI) which worked with pastoral youth to develop innovations that use satellite data to monitor the quantity and quality of forage for their livestock in Ethiopia and Kenya

3.6 Reaching and Empowering Indigenous/ Marginalized people

A review of the CSA initiatives in ASARECA member countries shows that only 9.8% (35 of the 358) of the CSA initiatives are targeting indigenous and marginalized people (Table 3). Programs and projects are the common CSA initiatives targeting marginalized people. The distribution of CSA initiatives that target marginalized people shows that Uganda has the highest while South Sudan had the least number of initiatives. Burundi, Eritrea, Madagascar, Republic of Congo, and Rwanda do not have any CSA initiatives targeting marginalized people. This is disheartening considering that the livelihoods of these communities are dependent on natural resources, and yet their habitats are undergoing rapid environmental change and experiencing a disproportionate burden of morbidity. This perhaps suggests that organizations, including national governments, have overlooked the impact of climate change on indigenous and marginalized people and thus excluded them as a target group. Uganda, DRC Congo, and Kenya had the highest CSA initiatives probably due to the existence of ethnic minorities who are being dis-empowered and discriminated against on economic, social, and cultural grounds. Besides, their livelihoods are being threatened by changing climate and declining land and natural resources on which they depend on their livelihoods as pastoralists, hunters, and gatherers.

‘Climate Resilience Livelihood Opportunities for Women Economic Empowerment (CRWEE) is a CSA project targeting only women and girls. CRWEE targets 52500 and over 100,000 direct and indirect beneficiaries in Uganda. 180 government officials (male and female) will be trained and empowered to design and implement gender-transformative climate change adaptation and mitigation actions. Specific activities include; improving women’s access to and control of productive resources and decision-making capacity and improving household income and capacity to adapt to and mitigate climate change through gender-responsive livelihood opportunities’

Table 3: Distribution of CSA initiatives in ASARECA member countries targeting indigenous and marginalized people (n=35)					
Country	Plans/Strategies	Policy	Programmes	Projects	Total
DR Congo	0	0	2	3	5
Ethiopia	2	0	2	2	4
Kenya	1	1	1	1	6
South Sudan	0	0	0	1	1
Sudan	1	0	2	2	4
Tanzania	1	0	1	3	5
Uganda	0	0	3	3	7
Regional	0	0	1	2	3
TOTAL	4	1	12	18	35

Table 3: ODAs and Foundations funding CSA initiatives in ASARECA member countries

Analysis of data collected shows that Indigenous/Marginalized people were targeted with CSA interventions such as capacity building and advocacy that addressed social and cultural barriers. For instance, the Vulnerable and Marginalized Groups (VMGs) Framework under the Eastern and Central Africa Agriculture Transformation (ECAAT) project (to be implemented in Uganda, Republic of Congo, Burundi, DRC, and Kenya) focuses on how to increase awareness, participation and decision making of VMGs (KCSAP, 2016) and thus achieve broader and wider community support. These outcomes (increased awareness, increased participation, and decision making of VMGs) will be achieved through training, sensitization, and advocacy activities.

4. Conclusion

This study found that different social groups such as women, youth, and indigenous/marginalized people are targeted with various CSA initiatives in ASARECA member countries. Furthermore, the CSA initiatives applied an intersectionality lens within the above social groups to further differentiate the groups socially and economically. This is important to avoid homoge-

nization with the social groups. In so doing stakeholders will capture intra-gender differences such as income, age, marital, and power differences that influence the adoption of CSA interventions. Most of the CSA initiatives that targeted women and Indigenous/Marginalized people are conducting gender analyses and using the data to understand and address the underlying social and cultural structures that relate to gender relations and access to key resources, increasing their participation and eventually benefiting from CSA interventions. On the other hand, youths need to be targeted with CSA interventions that are digitized, mechanized, and economically attractive or profitable.

5. Implications and Recommendations

Women, youth, and indigenous/marginalized people who derive their livelihoods from mixed crop-livestock farming, fishing, pastoralism, and hunter-gathering have experienced challenges including access to and control of key productive assets such as land, information, and technology, lack of decision making power and low incomes. Climate change is further exacerbating their challenges leading to increased



food insecurities. CSA initiatives help to address the changes that climate change poses through the provision of CSA interventions that can increase their food security and adaptive capacity. CSA interventions range from climate smart crop and livestock practices, irrigation, insurances, credit, weather and agro-advisory services, advocacy, and sensitization interventions. If stakeholders, especially national and sub-national governments do not target WYIMP, it will result in a very precarious food security situation that will negatively impact the health of WYIMP especially children and the elderly, further pushing these communities deeper into impoverishment and marginalization. In some cases, increased cases of violence and theft of food have been reported as a response measure by the rural youth and indigenous/marginalized peoples.

Targeting of WYIMP with CSA initiatives will result in increased food security and adaptive capacity. Evidence shows that when WYIMP have secure rights and land access, they utilize resources sustainably. Therefore, including WYIMP in CSA interventions will help guarantee sufficient food for their families. Given their roles and contribution to agriculture, women are

well suited to adopt CSA interventions that can prevent food insecurities and hunger. CSA interventions will offer WYIMP opportunities to tackle the challenges of climate change.

Based on the foregoing, some recommendations for ASARECA Secretariat are to:

- » Support member countries and other stakeholders to design and implement gender responsive and socially inclusive CSA initiatives while integrating an intersectionality lens to (i) avoid homogenizing women , youth, and indigenous/marginalized people and (ii) capture intra-gender differences between these social groups
- » To support member countries to establish national CSA strategies and plans that have incentives such as insurance and safety nets that can enhance and support the adoption of CSA amongst women, youth, and marginalized people
- » To develop and disseminate CSA innovations that offer business and investment opportunities to help the youth make informed decisions and meaningful to engage in CSA



- » To continuously strengthen the skills and knowledge of women and youth groups, farmer association to enable them to participate and benefit from CSA interventions and empower them with bargaining power, especially when dealing with the private sector.
- » To establish gender and socially inclusive extension and advisory service to promote CSA particularly for women and youth
- » To establish a youth empowerment model for young farmer development and support. Through this model, the ASARECA secretariat will mentor a new cadre of young agri-entrepreneurs to champion a sustained transformation at various parts of the CSA value chain
- » To collectively use social media platforms for engaging with the youth.

References

- Boko, M., I. Niang, A. Nyong, C. Vogel, A. Githeko, M. Medany, B. Osman-Elasha, R. Tabo, and P. Yanda. (2007): Africa. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge UK, 433-467
- [EM2030] Equal Measures. (2019): Harnessing the power of data for gender equality. Global Report, 2019. https://data.em2030.org/wp-content/uploads/2019/05/EM2030_2019_Global_Report_ENG.pdf
- Farayol, C.O., Adebisi, L.O., Akilapa, O., Gbadamosi, F.Y. (2020): Does Innovation Enhance Youth Participation in Agriculture: A Review of Digitalization in Developing Country? International Journal of Research in Agriculture and Forestry Vol. 7(2): 7-14
- FAO. (2014): Youth and agriculture: Key challenges and concrete solutions. (Available from <http://www.fao.org/3/a-i3947e.pdf>). Accessed on 19 March 2018.
- Ford, J.D., Cameron, L., Rubis, J., Maillet, M., Nakashima, D., Willox, A.C., and Pearce, T. (2016): Including Indigenous knowledge and experience in IPCC assessment reports. *Nature Climate Change*. 6, 349-353
- Irungu, K.R.G., Mbugua, D. and Muia, J. (2015): Information and Communication Technologies (ICTs) Attract Youth into Profitable Agriculture in Kenya, *East African Agricultural and Forestry Journal*, 81:1, 24-33, DOI: 10.1080/00128325.2015.1040645.
- [KCSAP]. (2016): Kenya Climate Smart Agriculture Project. Accessed on October 23, 2020 from <http://documents1.worldbank.org/curated/en/161821479207793853/pdf/SFG2646-IPP-P154784-Box396327B-PUBLIC-Disclosed-11-14-2016.pdf>
- Mungai C, Muchaba T, Szilagyi L, Radeny M, Atakos V, Ntiokam D. (2018): Youth engagement in climate-smart agriculture in Africa: Opportunities and challenges. Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Available online at: www.ccafs.cgiar.org
- Mwangi, E., Markelova, H., and Meinzen-Dick, R. (2012): Collective action and property rights for poverty reduction. Philadelphia: University of Pennsylvania Press
- Nelson S. and Huyer S. (2016): A Gender-responsive Approach to Climate-Smart Agriculture: Evidence and guidance for practitioners. Climate-Smart Agriculture Practice Brief. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).
- Nyasimi, M., Radeny, M., Kimeli, P., Mungai, C., Sayula, G., & Kinyangi, J. (2014): Uptake and Dissemination Pathways for Climate-Smart Agriculture Technologies and Practices in Lushoto, Tanzania. Working Paper No. 173. CGIAR Climate Change, Agriculture and Food Security Programme. Copenhagen, Denmark
- Nyasimi, M. and Huyer, S. (2017): Closing the gender gap in agriculture under climate Change. *Agriculture for Development*, 30: 37-40
- Palacios-Lopez A, Christiaensen L, Kilic T. (2016): How much of the labor in African agriculture is provided by women? *Food Policy*. 67:52-63. doi:10.1016/j.foodpol.2016.09.017.
- Perez, C., Jones, E. M., Kristjanson, P., Cramer, L., Thornton, P. K., Foerch, W., & Barahona, C. (2015): How resilient are farming households and communities to a changing climate in Africa? A gender-based perspective. *Global Environmental Change* 34, 95–107. <http://doi.org/10.1016/j.gloenvcha.2015.06.003>.
- UNFCCC. (2018): Considerations regarding vulnerable groups, communities and ecosystems in the context of the national adaptation plans. UN. Accessed on October 23, 2020 from <https://unfccc.int/sites/default/files/resource/Considerations%20regarding%20vulnerable.pdf>.
- UNFCCC. (2019): Differentiated impacts of climate change on women and men; the integration of gender considerations in climate policies, plans and actions; and progress in enhancing gender balance in national climate delegations. Accessed on October 23, 2020 from https://unfccc.int/sites/default/files/resource/sbi2019_inf8.pdf.
- UN Women. (2015): UN Women, UNDP-UNEP PEI (United Nations Development Programme-United Nations Environment Programme Poverty-Environment Initiative) and World Bank. 2015. The Cost of

the Gender Gap in Agricultural Productivity in Malawi, Tanzania, and Uganda. New York and Washington, DC: UN Women, UNDP, UNEP and the World Bank Group. 1K. and Crane, T. (2019): Beyond ‘women and youth’: Applying intersectionality in agricultural research for development. Outlook on Agriculture. Vol 48 (4): 316-325. <https://doi.org/10.1177/0030727019884334>.

Yami, M.; Feleke, S.; Abdoulaye, T.; Alene, A.D.; Bamba, Z.; Manyong, V. (2019): African Rural Youth Engagement in Agribusiness: Achievements, Limitations, and Lessons. Sustainability 2019, 11, 185.

In partnership with



ASARECA Partners





Photo: ICRISAT

The **Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA)** is a not-for-profit sub-regional organization of the National Agricultural Research Systems (NARS) of 11 member countries, namely: Burundi, the Democratic Republic of the Congo, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, South Sudan, Sudan, Tanzania and Uganda.

ASARECA brings together scientists from the national agricultural research institutions of the member countries, national agricultural extension service providers and other strategic development oriented partners to generate, share and promote knowledge and innovations to solve common challenges facing agriculture in the member countries.

The ASARECA's strategic plan (2007-2016) and both the first (2009-2013) and second operational plans (2014-2018) have been aligned to the CAADP and the Science agenda. ASARECA significantly contributes directly to the CAADP Pillar IV, while also supporting the other 3 Pillars in joint collaborations with other like-minded institutions and partners.