

The Role of the Southern African Development Community (SADC) in combatting the Effects of Climate Change among Small-scale Farmers - The case of Zambia

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Abstract – This study set out to explore the role of SADC in combatting the effects of climate change among small-scale farmers using the case study of Zambia. The methodology adopted was an explorative qualitative design. A qualitative thematic analysis that involved building a thematic coding frame based on the key research question was used to analyse the study. The findings show that SADC has developed and implemented a series of projects to help small-scale farmers combat the effects of climate change. SADC also established the Plant Genetic Resources Centre (PGRC), among other initiatives relating to mapping out related projects in soliciting funds. Therefore, this research recommends: integrating SADC programmes with government programmes at the national level to ensure that all agricultural extension officer's capacities are built and developing a regional authority responsible for generating climate finance.

Keywords: Climate change, Small-scale farmers, Adaptation, Vulnerability

I. INTRODUCTION

Climate change affects all economic sectors of Africa, and it presents challenges if the continent is to achieve sustainable development goals. The African continent is already plagued by poverty, lack of infrastructure and high dependence on subsistence agriculture, and these tend to be boosted by the stresses triggered by climate change. Also, taking cognisance of the reality that the region's population mostly relies on natural systems such as the rains for input in food production, climate change is a threat to the area's food security and efforts towards poverty reduction (Shiferaw and Holden, 1998). Therefore, climate change is viewed as a phenomenon that seems to be eroding decades of development gains. More effort will be required to reverse this narrative (Bhole et al., 1994; IPCC, 2007; McCarthy et al., 2001).

The effects of climate change have manifested differently across Africa. For example, in the Southern Africa Development Community (SADC) region, climate change is manifested through high frequencies of extreme meteorological conditions, such as flooding storms and droughts. Such effects on the natural systems directly link to

the human systems, such as the agricultural systems/food production systems (SADC, 2019).

In SADC, the agricultural sector contributes about 35 percent to the Gross Domestic Product (GDP) and employs nearly 61% of the region's population, and most of the farmers in the region are small-scale farmers who cultivate on land less than 5 hectares (SADC, 2015). As such, the sector requires the right amount of rainfall at the right time. It was reported that the West and Central parts of the SADC region have been experiencing low rainfall patterns since 1981. These patterns have a continuous effect on the size of the area planted and the germination of crops leading to low harvests at the end of the farming season. To the other extreme, estimates indicate that 3.8 million people from Malawi, Mozambique, Comoros and Zimbabwe alone were affected by flooding caused by severe weather events such as heavy rains, strong winds, hailstorms, and tropical cyclones (SADC, 2019).

The region has been consistently faced with crop failure as countries that would typically produce surpluses are now producing deficits. The result of this is a decline in the time taken to exhaust food reserves from five months to between zero and three months in October 2019 (SADC, 2019). It is indicated that 41.2 million people in the 13 countries of SADC were estimated to be food insecure due to the cumulative effect of persistent drought combined with floods, pests, conflicts, economic challenges, and chronic structural issues. Climate change is a propellant of the underlined causes. The significant increases of food insecure people have been recorded in Zambia (144%), Zimbabwe (128%), Eswatini (90%), Mozambique (85%) and DRC (80%) (SADC, 2019).

In the SADC region, maize accounts for 80% of the total serial production. The others include rice, wheat, sorghum and millet. In 2019, Zambia and South Africa recorded below-average, reducing the regional surplus from 7.5 million tons to 1.4 million tons which were different from the previous year, 2018, when Zambia recorded a surplus of 1.8 million tons but had a deficit of 0.3 million tons in 2019. SADC trends indicate that the previously irrigated land, which stood at an average of

seven percent, could no longer engage in vegetable production during the dry season to earn a supplementary income due to low irrigation (SADC, 2019).

In areas where crop production is marginal, cattle rearing are dominant, for example, in Countries like Botswana, Eswatini, Namibia, Tanzania and South Africa. However, the dilemma comes when trying to find water and grazing land in other areas because of climate-related conditions such as droughts. Breakouts of new diseases mostly accompany such occurrences. For example, East Africa's foot and mouth disease has been reported in Zambia for the first time. These occurrences threaten the whole livestock industry in the region. In Namibia, over 30,000 drought-related cow deaths were recorded between October 2018 and April 2019 as drought within the region affects water supply for domestic, agricultural and industrial use. The fisheries of the regions are also an area that is affected by the impacts of climate change. Countries like Mozambique have reported having their fishing ponds and equipment destroyed by the cyclone Kenneth (SADC, 2019).

Given this vulnerability of the SADC region to climate change, it can be observed that small-scale farmers are at the centre of being vulnerable to climate change, as evidenced by the share of agriculture in the economy of the region. The overall objective of this paper is to investigate the role of SADC in combating the effects of climate change among small-scale farmers given that regional institutions are supposed to complement nation states' efforts to alleviate challenges that go beyond their boundaries. The following section shows the history of SADC to generate its foundation and what it stands for. Climate change stands as an obstacle to the region's goals and aspirations.

A. The Southern African Development Community (SADC): History

Since most African states got their independence, there have been attempts to industrialise through import substitution industrialisation. (Mendes et al., 2014). Despite the optimism in the industrialisation process, public investments in technological innovation in the agricultural sector, these were not extended to peasants, either, who were the majority and who grew crops using outdated practices and technology. Moreover, the overvalued exchange rate policy, aimed at favouring the local industry, led to a reduction in African agricultural exports' competitiveness in the international market. These aspects discouraged crop production not only for export but also for domestic consumption (Mendes et al., 2014). Failure to industrialise gave precedence to regional integration as a means to achieve structural transformation in Africa. Regional integration is embraced by most African countries as a development strategy that would help alleviate the economic constraints faced by small and fractionated economies working in isolation (UNECA, 2019).

The establishing treaty sets out the main objective of SADC to achieve development for the peoples of Southern Africa

through regional integration. According to the SADC Treaty, these objectives are primarily achieved (SADC, 2012).

Despite the ambitions set by the community, its member states are still plagued by various challenges that undermine its efforts to achieve the stated goals. Climate change propels these problems, as described in the previous section. It is against this backdrop that this research investigates the role of SADC in combating the effects of climate change among small-scale farmers in Zambia. Small-scale farmers from an engine of the community as they determine the success or failure of the region.

B. Statement of the Problem

The impacts of climate change in the SADC region have been evident (IPC, 2019; SADC, 2019). Countries such as Zambia and Zimbabwe have been experiencing erratic rainfall, and because of this, governments have used up the food reserves in their buffer stocks, causing the price of the staple food, mealie meal made from the traditional crop maize, to increase more than three times (SADC, 2019). The most vulnerable in such societies have been hard hit to the extent that in 2019 IPC (2019) reported that 1.7 million Zambians were facing severe acute food insecurity, and this number was projected to increase in the later months. For the first time in the nation's history, the severity of the situation demanded that the government requests food relief from the international community.

Attaining the Sustainable Development Goals of eradicating poverty, such as No poverty (SDG 1), Zero Hunger (SDG 2), and Decent Work and Economic Growth (SDG 8), is not possible without directly addressing the impacts of climate change (SDG 13). Small-scale farmers supply over 60 percent of the region's agricultural production, meaning that their ability to produce is directly correlated with the region's food security. As such, the implications of climate change on small-scale farmers reach deep into the region's very socio-economic fabric (Lewis et al., 2018; Serigne, 2006).

Given that small-scale farmers are the primary domestic agricultural producers, climate change impacts extend beyond the farm to the region's food security. Policymakers need to determine the most effective ways to support small-scale farmers' agricultural production and productivity under changing climate conditions and increasing uncertainty. Some areas will likely be shifted out of productive zones, which suggests that it will also be essential to consider the impact these changes will have on agricultural investments and agricultural transformations (Lewis et al., 2018).

The recent events communicate that even with the various efforts put in place, there is still a lot more that needs to be done regarding strengthening the vulnerable people's adaptive capacity. It was acknowledged by Speranza (2010) that information seems to lack on the link between the adaptations strategies by small-scale farmers and initiatives at higher

levels such as those of the region (Adger and Tompkins, 2004).

SADC is an establishment of member states, and it is supposed to complement existing intervention by states not only on issues that cannot be handled by individual states but also on issues that affect everyone, such as those of the environment and climate change. Climate change-related impacts continue to plague the entire region in a multi-dimensional way. The problem is that despite the recognition of climate change as a global threat, the impacts of climate are still upscaling (SADC, 2019), thereby raising a question of the strength of the region's adaptive capacity, especially regarding the small-scale farmers who depend on the natural environment.

C. Key Strategic Priorities for Regional Agricultural Development Investments by SADC and their Implication on Small-Scale Farmers' Adaptation to Climate Change

SADC has developed several strategies and plans to boost small-scale farmers' position to combat climate change. Most of the programs and projects implemented by SADC that have contributed or can build small-scale farmers' adaptive capacities stem from the broader continental initiatives on agriculture, such as the Comprehensive African Agricultural Development Program (CAADP). SADC fine-tuned the CAADP through the Regional Indicative Strategic Plan (RISP) and the 2004 Action Plan for Enhancing Agriculture and Food Security for Poverty Reduction in the SADC region, also known as the Dar es Salaam Declaration. The SADC Multi-country Agricultural Productivity Programme (SADC MAPP), on the other hand, was initiated to translate Pillar 4 of CAADP and the intentions of the Regional Indicative Strategic Plan (RISDP) and the Dar es Salaam Declaration into action. Lastly, SADC also developed the Climate Change Strategy and Action plan in 2015.

The RISDP was designed to realign the region's priorities and refocus SADC's policies and strategies to address SADC challenges. RISDP also intends to use the opportunities for development that globalisation presents while containing global trends' adverse effects. In this context, the RISDP points out the region's priority intervention areas and maps out general goals and targets for the period 2005 to 2020. The goals include trade, economic liberalisation and development, infrastructure support for regional integration, sustainable food security, and human and social development (SADC, 2014).

As enshrined more specifically in the Dar es Salaam Declaration, SADC's strategy for agriculture shares the principal elements and priorities of CAADP and closely emulates its emphasis on agricultural productivity. The Declaration calls for an increase in the investments and institutional development directed toward improving national and regional agricultural technology and production systems such as agricultural research, agricultural advisory services, and other related programs and institutions. Regional activities are seen as a critical element of the strategy, which calls for an

expanded role for programs at the national and regional levels markets (SADC, 2008).

SADC Multi-country Agricultural Productivity Programme (MAPP) is designed as a comprehensive 15-year programme of change, arranged around three five year phases. The overall programme goal is to bring about pluralistic and strengthened agricultural technology generation and dissemination and strengthen linkages among agricultural institutions in the SADC region to accelerate smallholder productivity. The result was to be market- and smallholder-responsive and accessible agricultural technologies that will create agricultural growth and increased incomes, especially amongst the rural poor (SADC, 2008).

The SADC Climate Change Strategy and Action Plan (SAP), on the other hand, was developed in the year 2015 by SADC Secretariat to provide a broad outline for harmonised and coordinated Regional and National actions to address and respond to the impacts of climate change in line with global and continental objectives. Its goal is to provide a regional framework for collective action and enhanced cooperation in addressing climate change issues to improve local livelihoods, achieve sustainable economic growth and contribute fairly towards preserving a global good. The strategy considers the need for enhanced adaptation to climate change impacts, bearing in mind the diverse and gender-differentiated levels of more pressing vulnerabilities for the region (SADC, 2015).

II. THEORETICAL FRAMEWORK

A. Intergovernmentalism Theory

Intergovernmentalism theory is a state-centric theory developed by Stanley Hoffmann, who considered Regional Integration as a sub-discipline of International Relations. Hoffmann's aims were different from other scholar's such as Ernst B. Hass, who studied the evolution of a supra-national body such as the EU (Jansen, 2006).

Nugent describes Intergovernmentalism as arrangements in which nation-states, in situations and conditions can control, cooperate on matters of common interest. Within such circumstances, states are free to cooperate or not and can set the level of cooperation. A state can choose to block any other parties' proposal through veto (Nugent, 2003). In SADC, this can be observed when the Front-Line States leaders consolidated their nations and would join efforts to combat a common obstacle to retaliate apartheid South Africa by reducing dependence on it through the Southern African Coordination Conference (SADCC).

Hoffman considers factors perceived by policymakers, such as common historical and geographical experiences, as more important than being alike or similarities in objectives. In this light, prospects for integration should bear a 'light baggage' on their past. In instances where historical ties and responsibilities burden a nation-state, integration is discouraged. In SADC member states, the creation of SADCC

resulted from shared standard colonial histories and the Front Line States' quest to liberate Africa. In this regard, the formation of the SADCC offered a 'light baggage' in that it contributed to the fight against oppressive regimes that were still prevailing in countries like Zimbabwe and South-Africa. When this goal was obtained, the next logical step was to transform the coordination conference into a development community to enable member states to carry light baggage in issues that affect them, such as poverty, development and environment, which is in the context of the current research as it tackles climate change (Jansen, 2006).

According to the theory, nation-states are characterised by distinctive differences in their national interests explained by their distinct historical backgrounds, geopolitical settings and diverse challenges in their domestic and international settings (Hoffmann, 1983). Nevertheless, nation-states still benefit from the regional integration process as regional bodies help them achieve better performance relating to their national challenges and power position in the international system. Nation-states control the regional integration process according to their interests. Furthermore, Regional Institutions do not incite nation-states' demise but rather support them in their survival and adaptability to the changing international environment (Jansen, 2006). Applying to the present study on SADC and climate change, the regional body was founded on nation-states' rationalistic reasoning to enhance their performance. For member states to survive the impacts of climate change, especially among the most vulnerable people of the region (small-scale farmers), SADC reinforces such people's adaptive capacities directly through the formulation of policies, programs, and projects. Making it evident that even though regional organisations are created and shaped by member states, in this context, it is also evident that Regional Organisations also shape the actions of member states, thereby contributing to the nation-states' interest in survival. Simultaneously, this also ensures the smooth operation of the regional institution and the attainment of its goals since, according to this theory, the satisfaction of member states' internal requirements is primary over trans-national or regional goals.

B. Supranationalism

Supranationalism is the other theory that is considered for the current study as it describes how some aspects of state responsibility are delegated to a higher body (regional body) created by nation-states. In this line of thought, it can be stated that some level of responsibility on issues to do with climate change has been delegated to SADC, which is above the nation-state. In this manner, SADC has designed plans and initiatives for member states to cooperate to handle the effects of climate change.

According to Nugent (2003), Supranationalism refers to governance arrangements where states decide to delegate some level of responsibility for decision making to a body or decision making forum that stands above the nation-state.

States lose the right to veto and agree to be bound by majority decisions of cooperating states and lose some control. In the initial phases, the states have to agree to pool sovereignty. States will have to go along with a policy that contravenes their particular stance in a given instance.

The Commission, for example, (generally thought of as a supranational entity) sometimes follows the lead of member states (in some external matters, for example). The Commission is the driver of European policy while taking the lead ahead of national capitals. Furthermore, while the EU has become more supranational in general as time has gone on, states still try to reach a unanimous consensus in supranational forums, even when technically speaking they do not have to (Nugent, 2003).

SADC institutions' Supranational tendencies can be limited because, unlike the EU, SADC has not developed into a supranational institution headed by the Commission. Nevertheless, instead, SADC is headed by the summit of heads of state. Even though there is a recognised body seemingly above the nation-state, individual nation-states still control and shape most aspects of the supranational institution. This might explain why SADC might be limited in enhancing efforts to combat climate change among small-scale farmers.

III. METHODOLOGY

An exploratory research design was used in this research as this kind of research intends mainly to explore the research questions but do not intend to offer final and conclusive solutions to the existing problem (Saunders, 2012). The study drew participants from SADC, and line Government Ministries for climate change action. This target population was purposely selected because of the nature of their employment, positions, and expertise in small-scale agriculture. The approach of selecting the above officials is because the current research argues that the local methods of climate change adaptation which the governmental implementing bodies can determine, are essential to determine the levels of success of the initiatives determined at the higher levels of governance (SADC level).

Ethical considerations were considered in this study to ensure that data was collected according to scientifically accepted standards, such as obtaining consent from the participants to be interviewed. This process was crucial for ensuring that participants clearly understood the risks of participating, if any, the levels and nature of participation and given the assurance of confidentiality (Giordano et al. 2007; Sarantakos, 2005). The research participants were treated anonymous, given the nature of work or position at their places of work. Other ethical procedures involved during data collection were obtaining permission to access the respondents or premises where other respondents were located.

IV. RESULTS

Respondents of the study

Key Respondents	Government Division
RESP. 1	Ministry of Agriculture and Livestock.
RESP. 2	Ministry of Agriculture and Livestock.
RESP. 3	SADC office, Ministry of Foreign Affairs.
RESP. 4	Ministry of Lands and Natural Resources.
RESP. 5	Ministry of Agriculture and Livestock.
RESP. 6	Ministry of National Development Planning.
RESP. 7	Ministry of Agriculture and Livestock.
RESP. 8	Ministry of Water Development, Sanitation and Environmental Protection.

Source: Author

1) *What role does SADC play in combating climate change among small-scale farmers?*

Respondent 2 (2020) expounded on how Zambia Agricultural research institute (ZARI), a National Agriculture Research System (NARS) for Zambia, has been a pivotal link between SADC's Centre for Coordination of Agricultural Research Development for Southern Africa (CCARDESA)¹In this regard, the NARS are empowered to enhance farmers' skills and capacities through skills transfer and knowledge sharing on agriculture and climate-smart technologies.

According to respondent 2 (2020);

With improved seed varieties, those varieties that can be grown with a minimum amount of water, and climate-smart agriculture, a way of growing grain and yield under the prevailing circumstances, SADC is packaging information about improved technologies which is then shared with countries within the SADC region. This information is then disseminated to the farming communities.

Respondent 2 (2020) also gave an example of the Agriculture Productivity Program for Southern Africa (APPSA) funded by the World Bank from 2013 to 2019. This project aimed to make improved seed technology available to small-scale farmers across the region. The project was to be done by empowering smallholder farmers with knowledge and skills in seed production.

¹ SADC member states founded the Centre for Coordination of Agricultural Research and Development for Southern Africa (CCARDESA) to harmonise agricultural research and development (R & R&D) in the SADC region. CCARDESA intends to address agricultural research and design issues in the SADC region through Coordinating implementation of regional agricultural R&D programmes; Facilitating collaboration among stakeholders of the NARS; Promoting public-private partnerships in regional agricultural R&D; and Improving agricultural technology generation, dissemination and adoption in the region through collective efforts, training and capacity building (CCARDESA, 2017).

According to Respondent 2, the way to achieve this was to harmonise the individual country's seed role. Upon identifying a seed variety per country, the varieties are then tested in 2 countries, after which they are marketed throughout the region.

In adapting to climate change, new seed varieties suitable for prevailing climatic conditions are now available to small-scale farmers. Farmers can now produce more and earn an income by selling the surplus produce, thereby mitigating climate change. (Respondent 2, 2020).

The other benefit of the project to the small scale farmers, according to respondent 2, was that the project facilitated the formation of cooperatives among small-scale farmers who were trained on seed production in Chongwe, Petauke and other areas where the project was implemented. ZARI now licenses the trained farmers, and the seed control and certification institute are now supplying agro-dealers/seed companies from Zambia, Malawi and Mozambique. A good number of these small-scale farmers are women. Through them, more small-scale farmers are now able to access improved seed varieties (legume-based products; Sorghum and maize) to mitigate the effects of climate change.

Documented evidence supports this response as according to IIAM (2018:11), the Chief Seed Officer at Seed Control and Certification Institute (SCCI),² Dr Nathan Phiri,

More than 1341 farmers have been trained in seed production or multiplication in Zambia and Mozambique under the project. In Zambia, for instance, 501 farmers have benefitted from our training, and two seed inspectors have strengthened their capacity in seed testing, quality and certification to work in the major rice production areas in the country.

On the other impact of SADC's initiative, Respondent 2 (2020):

The capacity of officers (research and extension) within the ministry has been built due to SADC's contribution. They are trained in crop production, fertility and protection. The SADC initiative had a component of dissemination. Meaning that whatever is developed at the level of SADC has to reach small-scale Farmers.

SADC, through CCARDESA and GIZ, is also implementing a project known as the "Out-Scaling climate-smart technologies to smallholder farmers in Malawi, Zambia and Zimbabwe"³ under the Adaptation to Climate Change in Rural Areas in Southern Africa (ACCRA)⁴ This project aims to contribute to

² Seed Control and Certification Institute (SCCI) is the designated national seed certification authority and forms the epicentre of seed certification services in Zambia. For quality control, the Zambian seed legislation provides rules and standards for the sale of 83 agricultural and horticultural crops, certified or have their quality declared (IIAM, 2018).

³ This project is documented and can be found at <https://www.cimmyt.org/news/climate-smart-agriculture-a-winning-strategy-for-farming-families-in-el-nino-seasons/>.

⁴ ACCRA is a SADC GIZ programme that supports the implementation of climate-relevant elements of the SADC Regional Agricultural Policy through

increased productivity, food security, and climate resilience of smallholder farmers managing maize-based farming systems in contrasting environments of Zambia, Malawi and Zimbabwe through climate-smart technologies. It aims at delivering evidence on how to build resilience in the maize value chain, which can be out-scaled to other countries in the SADC region. Farmers from 19 rural communities in the three target countries received training on climate-smart agriculture practices and technologies, such as mulching, rotation, and direct seeders and ripper tines to practice no-tillage.

A documented testimony from Joseph Maravire, one of the beneficiaries of the project, is as follows:

"It soon became clear to us that using a direct seeder or ripper tine, combined with mulching, was the best option, as these sections of the field retained more moisture and produced more maize than the conventional system. We learned that cowpeas leave nitrogen in the soil, and by the time of harvesting, the leaves from the cowpeas also fall to the ground as residue and add to the mulch for the soil. The shade of cowpea also reduces weed pressure and manual weeding."

They interviewed officials were also probed by questioning them: "What else is SADC doing to combat climate change among small-scale farmers?"

Respondent 2 (2020) answered this question by stating:

SADC is also doing something to help small-scale Farmers with the plant genetic resources centre (PGRC) to help scale farmers adapt to climate change. What needs to be understood is that climate change is a factor that erodes genetic resources on farms. The traditional varieties are disappearing because of climate change. The PGRC is an institution for the conservation of genetic resources. All SADC countries are part of the network. Farmers now have an opportunity to fall back on what was lost before for restoration. This role that SADC plays is very crucial for small-scale farmers. Small scale agricultural farming cannot be talked about without the traditional crop varieties. The institution provides a foundation to create improved varieties to be used by farmers.

Documented evidence supports these findings as it states that the seed bank works in partnership with the SADC Seed Security Network (SSSN)⁵. The SADC Plant Genetic Resources Centre (SPGRC) is located in the Chongwe district of Zambia. It aims at maintaining plant genetic resources for

strengthening the capacity of CCARDESA to act as a knowledge broker, coordinator and moderator for agricultural research and development programme.

The project is working in three areas such as Regional dissemination of knowledge for climate change adaptation in agriculture and climate-smart agriculture; Accessing climate finance in the SADC region; and Climate proofing of agricultural value chains. (<https://www.ccardesa.org/accra>).

⁵ SADC Seed Security Network (SSSN) of the Crop Development Unit of the Food, Agriculture and Natural Resources Directorate has primary goals to improve food security through increased seed security and increase disaster preparedness (<https://www.sadc.int/themes/agriculture-food-security/crop-production/>).

the long term and immediate use. It has goals to conserve and guarantee crop and wild plant resources. It provides for the exchange of information, including scientific, cultural and traditional knowledge. If farmers find that they have run out of a specific seed type, they can go to the Chongwe SPGRC seed bank and request it. This resource also trains personnel, harmonises seed policies among its members and works with gene banks in member states; in Zambia, the national seed bank is found at ZARI (SADC, 2020).

Additionally, when Respondent 4 (2020) was asked to comment on the role of SADC in combating the effects of climate change among small-scale farmers, the following was the response.

SADC has many Protocols, agreements and strategies that give guidance on how small-scale farmers should adapt to climate change. Some of these include; SADC Protocol on Environmental Management for Sustainable Development, the SADC Climate Change Strategy and Action Plan; The Regional Indicative Strategic Development Plan (RISDP) and others.

Respondent 5 (2020) further stated that SADC, through CCARDESA, is also mapping out climate-smart agriculture projects in each member state; in Zambia, it is through the National Conservation Agriculture Taskforce (NCATF). The necessary climate required actions are also identified and linked to the national levels.

Documented evidence supports this response. A report from CCARDESA states that concept notes for investment were being developed based on the completed climate-proofing projects feasibility studies for out-scaling climate-smart practices in SADC member states for different value chains (maize-legumes, sorghum and cattle/rangelands). These are currently promoted at different levels, including through Ministries of Agriculture within the Member States, regionally through CCARDESA and directly through ACCRA.⁶

According to respondent 6, a range of partnerships with regional and international organisations have been formed, and regional investment proposals are developed and promoted wherever an opportunity presents itself. An investment proposal pipeline on CSA has been set up, and ACCRA working with its partners, has developed investment proposals for scaling up best practices in climate-smart agriculture for submission to potential funders.

In Zambia, as stated by Respondent 6:

The government established the National Designated Authority (NDA) under the Development Planning Department under the MNDP as the link between GCF and Zambia. The established NDA is responsible for financing climate change-related programmes/projects.

⁶ <https://www.ccardesa.org/accra>

The NDA receives both solicited and unsolicited applications (open throughout). Ad hoc adverts are also done to jump-start the country pipeline of projects for submission to GCF. Concepts are received through the Permanent Secretary-National Development Planning and Administration. During the review of the applications, the committee sees that the concepts align with the 7th National Development Plan, National Policy on Climate Change and the National Agricultural Policy (GRZ, 2016; and GRZ, 2017).

According to Respondent 6 (2020),

The government has strengthened resource mobilisation for the implementation of climate change interventions. Over USD 1.2 billion has been raised over the last eight years as part of the initiative to improve rural livelihood.

V. DISCUSSION

SADC is a regional body of Southern Africa and is supposed to complement nation-states' efforts to combat the effects of climate change (Balsiger & Debarbieux, 2011). Thus, the study's findings indicated that the Southern African regional body has put in place initiatives to help small-scale farmers in combating the effects of climate change. SADC established CCARDESA in order to harmonise the implementation of agricultural research and development (R&D). Concerning small-scale farmers, CCARDESA aims at improving agricultural technology generation, dissemination and adoption in the region through collective efforts, training and capacity building (CCARDESA, 2017). This initiative falls in line with continental priorities such as CAADP as it provides for an evidence-based planning process with knowledge as a critical primary input and human resource development and partnership as central factors (AU, 2002).

In line with the SADC RIDSP (2015) to strengthen farmer support services and transform subsistence agriculture to commercial production and promote rural industries, the findings indicate that through SADC, the National Agricultural Research Systems (NARS) are being empowered to facilitate the enhancement of skills and capacities for farmers through skills transfer and knowledge sharing on agriculture and climate-smart technologies.

Respondent 2 highlighted how officers' capacity (research and extension) within the ministry had been built due to SADC's contribution. These people are trained in crop production, fertility and protection. The SADC initiatives (projects and programmes) also tend to have a component of dissemination. Meaning that whatever is developed at the level of SADC has to reach small-scale Farmers.

SADC has also developed several technologies, including improved crop varieties and climate-smart agriculture, which is disseminated to small-scale farmers (CCARDESA, 2017). This initiative falls in line with the identified regional priorities such as SADC RISDP and the SADC MAPP, which recognise agricultural research and technology generation as one of the prime movers of agricultural development and

economic growth (SADC, 2008; SADC, 2003; SADC, 2014). The ultimate result of the developed technologies is that farmers under the projects can now produce more and earn an income through surplus produce. These efforts partly contribute to SADC RIDSP (2015) strategy, 'to increase production, productivity and profitability of crop, livestock and fisheries taking into account comparative advantages.'

The SADC projects through CCARDESA are identified to have yielded positive benefits to small-scale farmers. With documented testimonies such as a good number of small-scale farmers, the women have acquired skills in seed production. More small-scale farmers can now access improved seed varieties (legume-based products; Sorghum and maize). To mitigate the effects of climate change (*the seed project*), farmers from 19 rural communities in the targeted countries received training and guidance on climate-smart agriculture practices and technologies, such as mulching, rotation, and direct seeders and ripper tines to practice no-tillage.

These findings are milestones regarding the identified priorities in the CAADP; SADC MAPP, RISDP, and the Climate Change Strategy and Plan. However, these milestones recorded in the identified projects from the findings might not be enough to sufficiently combat climate change among the small-scale farmers because of food insecurity due to declining agricultural productivity over the years (SADC, 2019). In this regard, SADC needs to upscale efforts to make their programmes and projects comprehensive enough to meet most small-scale farmers in the region.

Applying the theory of intergovernmentalism, it can be observed that SADC is playing a complementary role which can be described as 'ad-hoc.' According to the theory, nation-states drive the integration process and only pursue areas of national interest in order to maximise successful enforcement of these interests (Jansen, 2006). The creation of CCARDESA is a classic example of how nation-states drive the integration process according to their interests. Nation-states also tend to benefit from the process as regional bodies help them achieve better performance relating to their national challenges and power position in the international system (Jansen, 2006). Hence, selected small-scale farmers in Zambia and other countries within the region benefit from the SADC initiatives, such as the projects under the APPSA and ACCRA programs through CCARDESA. According to the findings, more than 1341 farmers have been trained in seed production or multiplication in Malawi, Zambia and Mozambique under the seed project (APPSA), with Zambia having 501 small-scale farmers who benefitted from the project training on seed technologies. Trained farmers are now able to produce more and can earn an income by selling the surplus produce.

The findings also indicate that SADC is also coordinating the mapping of climate-smart agricultural projects in each member state to identify necessary climate required actions and linking them to the national levels. Within its RIDSP, SADC has a strategy to enhance the region's ability and

capacity to mobilise resources, access technology and build capacity to facilitate adaptation and mitigation actions (SADC, 2015). However, the extent to which this coordination by SADC can be attributed solely to SADC is questionable because, at the national level, the GRZ is also soliciting funds for climate-smart agriculture among small-scale farmers independently.

It becomes challenging to identify which fundraising ventures can be attributed solely to SADC. For example, Respondent 6 stated that the GRZ established the NDA as a link to solicit funds from the Global Climate Fund (GCF). This body is active throughout to jump-start the country pipeline of projects for submission to GCF. Concepts are received through the Permanent Secretary-National Development Planning. The findings show that GRZ is developing concept notes aligned with its 7th National Development Plan and other national policies. There was no mention by the official on whether this move to establish the NDA came from SADC. Perhaps the role of SADC is to harmonise to see to it that what the government is doing to solicit for climate finance is replicated in other member states as well. If this is the case, then it can be argued that the role of SADC to solicit for climate finance is not enough as it is merely compiling information from nation-states so that the efforts might be duplicated in other states. Despite this being positive for the region's advancement, SADC as a regional organisation is expected to go further by initiating new original initiatives. In this way, it can be easy to gather data on what results are attributed solely to SADC.

Basing this argument on the theory of Supranationalism, it can be argued that the regional body (SADC) is supposed to drive the integration process by leading the development of initiatives given that elements of responsibility such as those of climate change are delegated to it. Hence, SADC is supposed to develop new and original strategies of which nations states ought to follow as a preferred way of combating climate change effects among small-scale farmers.

Also, the findings identify the different stakeholders in climate-smart agriculture projects through the NCATF. NCATF comprises all the primary stakeholders involved in climate agriculture adaptation efforts. On a positive note, SADC is putting in place efforts to map out climate-smart agriculture projects to ensure that efforts for the same cause are not duplicated. Many players have come on board to promote climate-smart agriculture in the region. In this regard, SADC is perceived to be playing a coordination role. However, nation-states would generally do either through bilateral agreements with neighbouring countries or with cooperating partners such as the donor community. It is hence difficult to state precisely at which point SADC is coming in throughout this process.

It seems again that SADC is soliciting information through its national desk officers on what activities the nation-states are implementing, then afterwards reinforcing already existing

efforts. In this line of thought, it can be argued that the nation-states can easily undermine the sovereignty of the regional institution as most of what SADC is implementing has been implemented before by individual states or through agreements with other states. Hence again confirming the intergovernmentalism theory, i.e. states drive the integration process or that nation-states' interests are primary over the regional institution (Jansen, 2006).

The multi-level governance theory applies to the various stakeholders involved in climate governance, such as those in the NCATF. The term 'governance' generically denotes the sum of regulations brought about by actors, processes, and structures and justified concerning a public problem (Enderlein et al., 2017). According to the theory, the process of governance is on two dimensions, horizontal and vertical. Horizontally, various non-state actors from the civil society and the private sector, such as collective groupings and businesses, are involved. Findings indicate that a range of partnerships with regional and international organisations have been formed, and regional investment proposals are developed and promoted wherever an opportunity presents itself.

Hence it becomes difficult to point out the clear demarcation of the role of SADC in combating climate change among small-scale farmers. From the analysis, SADC seems to play an ad-hoc role (coming in to reinforce and duplicate already existing efforts), leading to nation-states undermining the regional body further.

On a positive note, SADC has proven to take leadership by demonstrating its supranational tendencies by establishing the SADC Plant Genetic Resources Centre (SPGRC), based in Zambia's Chongwe district. Respondent 2 indicated that climate change is a factor that erodes genetic resources on farms with regards to small-scale farmers. The traditional varieties are disappearing because of climate change. The PGRC is an institution for the conservation of genetic resources. The respondent stated *SADC plays is very crucial for small-scale farmers. Small-scale agricultural farming cannot be talked about without the traditional crop varieties.* This initiative is in line with SADC strategies and priorities such as the RIDSP and MAPP, 'establish a food reserve facility; promote food-related safety nets, and adopt measures to ensure availability of and access to agricultural inputs.' In this way, SADC efforts are visible in assisting small-scale farmers to successfully combat climate change because seed varieties are stored for small-scale farmers and the farming community to access in the event of depletion.

VI. CONCLUSION

The study found that, indeed, SADC has come up with initiatives that complement member states' efforts in building adaptation capacities of small-scale farmers to make them resilient in the prevailing climatic conditions. SADC set up CCARDESA, a subsidiary body of the regional organization that harmonises agricultural research and development implementation. This subsidiary organization has built

capacity for the National Agricultural Research System of Zambia, as its implemented projects had training components. Other than that, technologies that SADC is initiating through CCARDESA are disseminated to small scale farmers. The NARS and the agriculture department facilitate the newly acquired knowledge to the small-scale farmers through workshops and demonstrations. Despite these efforts, the analysis has reviewed that the initiatives are limited in scope as only a few small-scale farmers and extension workers are selected to participate in the projects. Also, there seems to be a lack of continuity at the end of the projects.

Among the other SADC initiatives include mapping out climate-smart agricultural projects in Zambia through the National Conservation Taskforce to identify the necessary climate required actions and link them to the national levels. According to the findings, SADC also helps member states solicit finance from institutions such as the Global Climate Finance (GCF). The analysis has shown that it becomes difficult to identify which efforts are solely attributed to SADC because GRZ is already making efforts to solicit finance. SADC also established the Plant Genetic Resources Centre (SPGRC), based in Zambia's Chongwe district, to protect crop varieties. This initiative is considered to be vital for the protection of local varieties.

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