



Conceptualizing capacity building in the context of agriculture among smallholder farmers: The case of Hurungwe District, Zimbabwe

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ABSTRACT

The widely recognition of the importance of capacity building towards the attainment of developmental objectives at global, regional, national and community levels especially in developing countries, has attracted the attention of several scholars and practitioners across different disciplines. This requires to come up with a best fitting and holistic conceptual framework to guide capacity building interventions both in theory and practice. Contextualized conceptual framework tailor-made to address real and specific issues in the targeted communities is urgently required. Nevertheless, information about a holistic conceptual framework to guide CB particularly in the Global South is scant in the literature because most of the CB initiatives are spearheaded by the development agents of the North. However, the globalization of western CB paradigms is not materializing in some parts of the world especially in the Global South. In order to bridge this gap, this paper aims to contribute to the development of a holistic conceptual framework for CB in the context of agriculture among smallholder farmers in Hurungwe through the systematic review of related literature. The paper suggests community capacity mapping framework (CCMF) to guide agricultural CB initiatives in Hurungwe because it shows related variables in a clear and simplified way.

Keywords: Capacity building, conceptual framework, agriculture, smallholder farmers, community capacity mapping

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1. INTRODUCTION

The increasing recognition of the importance of capacity building (CB) towards the achievement of global, regional, national and community developmental agenda especially in developing countries, has attracted the attention of many scholars and practitioners from several disciplines such as sustainable development, public health, economics, public administration and governance (Ndimo et al., 2025). For example, Mbithi et al. (2021) argue that the ability of the African continent to achieve global sustainable development goals lies on capacity building. However, Kacou et al. (2022) argue that most CB initiatives are implemented by development agents of the Global North, prompting the adoption of Western paradigms that usually fails to produce the intended effect in developing countries especially in marginalized rural communities such as Hurungwe. The success or failure of CB programs is influenced by several factors such as tools being used, resources and the expertise of the implementers. One of the most critical tools in the implementation of CB is the conceptual framework that is the plan within which CB interventions are designed, formulated, executed and evaluated (Adom et al., 2018; Luft et al., 2022). Therefore, it is imperative to come up with a best fitting conceptual framework to guide CB interventions both in theory and practice (Kacou et al., 2022) particularly in the Global South.

CB requires holistic and contextualized conceptual framework tailor-made to address real and specific issues in the targeted communities such as Hurungwe District which has high potential for agricultural production (Mirzoev et al., 2022). Despite possessing high potential for agriculture, agricultural production has been declining in Hurungwe for the past decade. Yet agriculture is the backbone of several economies especially in developing countries such as Zimbabwe. Hence, prompting the government, private sector and development practitioners to implement several agricultural development strategies. Nevertheless, information about a holistic conceptual framework to guide CB in agriculture particularly in the Global South is scant in the literature (Kacou et al., 2022).

This paper aims to bridge this gap by contributing to the development of a holistic conceptual framework for CB in the context of agriculture among smallholder farmers in Hurungwe through the systematic review of related literature. Several sources such as journals, books, book sections and reports published between 2016 and 2025 were systematically reviewed. The inclusion process was guided by key words such as capacity building, conceptual framework, smallholder farming and community capacity mapping. The paper suggests community capacity mapping framework (CCMF) to guide agricultural CB initiatives in Hurungwe. The relevance of CCMF to this study is premised on its ability to contextualize CB in Hurungwe, assesses community capacities, enables stakeholder engagement and evaluates the effectiveness of agricultural capacity building interventions such as trainings. Despite valuable contributions made by the CCMF, critics are leveled against its over emphasis on specific context that limit its generalizability to other contexts out of Hurungwe District. Therefore, it is recommended to integrate CCMF with other models in order to enhance generalizability. Research questions to guide this paper include (i) what is a conceptual framework? (ii) how do one conceptualize capacity building in agriculture? (iii) what is a best fit conceptual framework for CB initiatives in the context of agriculture? After the introduction, the paper presents the literature review followed by methodology, then results and discussion and finally the conclusion.

2. LITERATURE REVIEW

The literature was drawn from peer reviewed journals, books, book sections and reports on capacity building, conceptual frameworks, smallholder farming and community capacity mapping published between 2016 and 2025. This section defines conceptual framework and conceptualize capacity building in the context of agriculture.

2.1. Defining conceptual framework

According to Luft et al. (2022) a conceptual framework is a snapshot which shows major concepts underpinning the study and their linkages. It is a model representation of research variables under study, usually constructed in diagrammatic form (Adom et al., 2018; Oyewobi et al., 2024). Similarly, Salawu et al. (2023) defines conceptual framework as a model that shows the whole research in brief. Oyewobi et al. (2024) argues that a study can either adopt or develop a new conceptual framework depending with the demands of the study's context. In order to have a comprehensive understanding of the conceptualization of capacity building in agriculture among smallholder farmers in Hurungwe, this study adopts the community capacity mapping framework (CCMF). This conceptual framework is grounded in the belief that agricultural capacity building initiatives enhances performance which will promote agricultural productivity among smallholder farmers and ultimately result in sustainable poverty reduction (Imam and Temple, 2025).

Grounding a research study in a conceptual framework enhances its quality, credibility, generalizability and understandability (Adom et al., 2018; Luft et al., 2022; Wald and Daniel, 2020). Salawu et al. (2023) notes that a conceptual framework lays the foundation upon which the study could be erected. Similarly, it provides a logical way on how the study is going to be carried out (Oyewobi et al., 2024; Tabuena, 2021). It clearly shows the problem under investigation (Adom et al., 2018; Tabuena, 2021) and informs the development of an appropriate worldview to deal with such a problem (Luft et al., 2022; Oyewobi et al., 2024) specifically in the context of Hurungwe. Conceptual framework illustrate how the present study seeks to bridge the identified research gaps as well as highlighting areas for further research (Adom et al., 2018; Crawford, 2020; Luft et al., 2022). It justifies the significance of the study, and the chosen methodology (Crawford, 2020; Wald and Daniel, 2020). Hence, the need for adopting the CCMF.

2.2. Conceptualizing capacity building in agriculture

According to Antwi-Agyei and Stringer (2021) capacity building refers to exercises or activities undertaken by people with the aim to enhance knowledge, skills and expertise in agriculture in order to increase productivity and sustainability. Said et al. (2021) argue that capacity building is a process of strengthening already existing capacities in order to improve performance. Capacity building involves multiple activities tailor made to enhance the abilities of individuals, institutions and nations such as trainings, self-help learning, acquisition of resources, market linkages, credit facilities and networking (Sujata, 2022). The definition by Sujata well define capacity building in the context of Hurungwe smallholder farmers who requires the mentioned activities to enhance their agricultural performance in order to attain sustainable poverty reduction. The importance of capacity building in agriculture and other development programs is indispensable (Chigavazira, 2021; Nebere et al., 2024; UN-Habitat, 2020). Therefore, prioritizing capacity building research is vital (Kacou et al., 2022). In so doing it is critical to adopt or develop best fit theories and concepts rather than focusing on the previously failed models (Kacou et al., 2022).

Agriculture is the practice of growing crops and rearing of animals either for business or family consumption at different scale (Monteiro et al., 2021). It is the science of utilizing soil and other resources to produce crops and animals to enhance human livelihoods (Agarwal and Tarar, 2021; Singh, 2021). In the context of smallholder farmers in Hurungwe, agriculture is mainly for family consumption and self-employment where they sell the surplus (Fawzy and Shaymaa, 2020). It is usually small scale mixed subsistence farming involving the growing of crops such as maize, nuts and vegetables just to mention a few and keeping of domesticated animals including cattle, goats, sheep, donkeys and poultry in Hurungwe rural areas (Fawzy and Shaymaa, 2020; Monteiro et al., 2021). Smallholder farmers refers to small scale subsistence farmers who utilize an average of 3 hectares of land usually dominated by family labor (Zerssa et al., 2021) mainly including women, children and the elderly.

Capacity deficiencies are intensified in smallholder agricultural practice whereby farmers lack adequate skills, knowledge and resources for productive farming (Fawzy and Shaymaa, 2020), resulting in low agricultural productivity leading to food insecurity and poverty especially in rural areas such as Hurungwe. The widespread of commercialized crops such as tobacco, soya beans, cotton and chili due to the eruption of global financial institutions in rural smallholder farming exacerbate food insecurity and posing threats to rural livelihoods (Yanuartati, 2023). Some farmers are neglecting the production of staple crops as they opt for cash crops which are usually failing to pay them off the money that suffice the purchase of adequate food and address other forms of poverty such as deprivation to education and sanitary. Therefore, capacity building in agriculture is expected to vehicle agricultural transformation through improving smallholder farmers' performances in terms of effectiveness, efficiency, quality and equity (Ndimo et al., 2025). However, there is lack of universal conceptual framework to guide agricultural capacity building activities among smallholder farmers both in theory and practice especially in rural communities of the global south such as Hurungwe.

Smallholder farmers are not fully aware of climate change, its impacts and mitigation measures (Chigavazira, 2021). They possess limited knowledge and skills for adaptation to climate change and its impacts (Zerssa et al., 2021). Yet they are the most vulnerable population to climate change and its adverse impacts. The impacts of climate change such as drought, heavy winds and thunderstorms are associated with various myths among Hurungwe smallholder farmers (Ndimo et al., 2025). Droughts are usually associated with community punishments by spirit mediums after commitment of sins. Therefore, it is important to capacitate smallholder farmers with the appropriate knowledge on the causes and impacts of climate change (Chigavazira, 2021) especially in Hurungwe where deforestation is on the rise mainly due to the growing of tobacco (Sibanda and Tsuyuki, 2022).

Sustainable poverty reduction is a multidimensional process involving activities, strategies and systems aimed at the continuous elimination of poverty (Yuheng et al., 2021) while maintaining the natural ecosystem for the benefit of the present and future generations (Emina, 2021). While there is an array of poverty reduction strategies, however their sustainability depends on human capabilities particularly in agriculture which is the mainstay for several developing countries such as Zimbabwe. Hence agricultural capacity building is expected to enhance sustainable poverty reduction in developing countries especially in smallholder farming dominated rural areas such as Hurungwe. However, it is not an easy task because successful agricultural capacity building requires effective planning and implementation. Yet empirical evidence to support agricultural capacity building blueprints particularly in rural settings such as Hurungwe is scant in the literature.

Saputra et al. (2024) argue that the world requires practical intervention and solution based conceptual frameworks. Afrianto et al. (2023) and Kacou et al. (2022) concurs that there is a need for a pragmatic and systematic approach that address the shortfalls of previously adopted conceptual frameworks in the field of capacity building. Developing a comprehensive conceptual framework that integrates community assets, capacity building, and agriculture enhances the understanding of how these elements collectively address poverty sustainably (Saputra et al., 2024). It is critical that the conceptual framework captures the multidimensionality of capacity building in the context of Hurungwe (Kacou et al., 2022). While coming up with a universally acceptable framework is less feasible, it is important to adopt frameworks that address contextual needs.

3. METHODOLOGY

The paper employed systematic literature review. Peer-reviewed journals, books, book sections and reports on capacity building, conceptual frameworks, smallholder farming and community capacity mapping published between 2016 and 2025 were included in order to gain contemporary perspectives. While studies out of this context were excluded, key words such as capacity building,

conceptual framework, community capacity mapping or community mapping and smallholder agriculture were used in the search of relevant literature. Reflexive thematic analysis was used to analyze data in order to enable the interpretation and synthesis of literature on capacity building and smallholder farming (Broun and Clarke, 2019) in Hurungwe District.

4. RESULTS AND DISCUSSION

According to Kacou et al. (2022) most of capacity building programs fail to achieve the intended goals due to the adoption of standardized models, the one size fits all approaches. They further argue that there is need for a pragmatic approach that focuses on best fit rather than best practices. This entails the model that prioritize the contextual situational analysis of Hurungwe District before the proposal of solutions (Kacou et al., 2022).

4.1. *Community capacity mapping framework (CCMF)*

Community capacity mapping is a process of assessing community's capabilities including assets, resources, skills, knowledge, competencies, infrastructure and other linkages in order to identify the existing gaps and informs decision making through stakeholder engagement (Saleh et al., 2022). CCMF is a systems oriented approach to capacity building programs. There is scarce empirical data to support the conceptualization of such an integrated systems based approach to agricultural capacity building interventions (Mirzoev et al., 2022) especially in rural settings such as Hurungwe. CCMF provides an integrated approach that addresses agricultural capacity building needs at multiple levels including individuals, households and communities making it suitable for Hurungwe District.

The decision to adopt CCMF was arrived after the review of case studies where this concept was successfully applied in the real world situations across the globe. Food and Agricultural Organization (FAO) conducted multiple community capacity mapping to establish climate change induced challenges, vulnerabilities and institutional capacities around the world. Countries including Mali, Sri Lanka, Senegal and Somalia were included in the process. The mapping enabled better understanding of the impacts of climate change on agriculture around the world such as droughts, excessive rains and floods and led to the implementation of climate smart agricultural (CSA) practices to address those challenges (FAO, 2021). However, more updated information on the impacts of climate change remains insufficient and it is still required.

In Scotland community mapping was conducted to find out the influences of communitarian philosophy in public policy focusing on Scottish public library strategy by Paton and McMenemy. They note that community mapping is a community empowering tool through stakeholder engagement. It helps to unearth community values, resources and needs (Paton and McMememy, 2023). Nevertheless, community mapping falls short of not clearly showing on how to deal with power structures and inequalities in the community.

In Uganda participatory capacity mapping was conducted to determine the local perspective on community vulnerability and risk to disasters. The study was conducted in a rural set up within the African context. The approach provided a nuanced understanding of community vulnerability and responses to disasters. Factors contributing to the occurrence of disasters and the types of experienced disasters surfaced during stakeholder engagement. Also roadmap towards disaster risk reduction (DRR) was provided (Sullivan-Wiley et al., 2019). However, it was noted that disparities in the availability and accessibility of resources including communication adversely impacts on community capacity mapping.

Evidence from reviewed case studies such as the one conducted by FAO with the global coverage shows that effectively implemented community capacity mapping promote engagement, capacity assessment and context specificity which are critical aspects for the development of capacity

building programs that address community needs. Despite community capacity mapping challenges highlighted in the reviewed case studies, CCMF still remains ideal for this study because its benefits outweigh those limitations.

The key components of CCMF shown in Figure 1 include capacity assessment, stakeholder engagement, gap identification, action plan, capacity levels (community, household and individual), capacity strengthening programs and outcomes of both increased productivity and reduced poverty. Aspects such as context specific, inclusiveness, sustainability, monitoring and evaluation and continuous engagement are the indicators used to assess the effectiveness of agricultural capacity building in Hurungwe by the CCMF. The framework also highlights the key factors that include the socio-cultural, economic, political and environmental factors that may influence the capacity mapping process. These main components of CCMF and their linkages with the given indicators are shown in Figure 1, below.

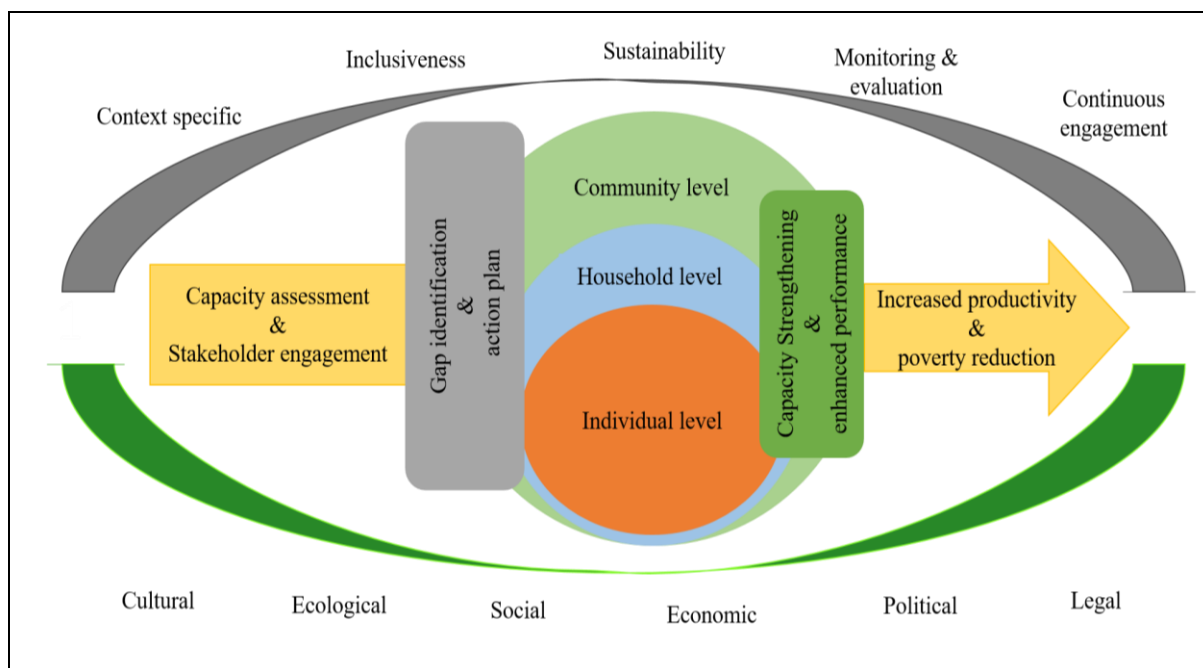


Figure 1: Community Capacity Mapping Conceptual Framework (Adopted from: Mirzoev et al., 2022:3)

The section below describes and explain the components of the CCMF shown in figure 1 above in the context of Hurungwe District.

The CCMF considers capacity assessment and stakeholder engagement as a prerequisite for resource mapping and the overall capacity building process (Mcknight et al., 2022). Mirzoev et al., (2022) concur that CCMF considers the role of stakeholder engagement in resource mapping and gap identification as mapping is done. It emphasizes that agricultural capacity building initiatives implemented in Hurungwe such as trainings, financial support and technical assistance should be needs driven rather than externally endorsed (Kacou et al., 2022). However, the framework does not clearly specify on how to deal with demographical factors such as differences in gender, age and educational attainment that may affect participation (Sullivan-Wiley et al., 2019). Hence, the need for complementing mechanisms during the engagement process and data collection in order to address issues of power dynamics.

The CCMF aims to build capacities from local assets (Mirzoev et al., 2022) therefore it prioritize community capacity assessment. CCMF is an eye opener to the local people that empowers them to appreciate their local endowments and transform those resources into meaningful and usable end

products in an effective way. It is a value addition tool to rural communities that addresses the needs of poor smallholder farmers (Mirzoev et al., 2022). As such it suits the context of Hurungwe District which is endowed with several resources such as vast tracks of arable land, sunlight, minerals, fauna and flora (Elizondo, 2017).

Capacity assessment under the CCMF can be best explained in terms of assets or capitals that depict a comprehensive community situation comprising of all resources available (Mirzoev et al., 2022). CCMF intersects with the Sustainable Rural Livelihood Framework (SRLF) on incorporating livelihoods assets including human, financial, physical, natural, social and cultural capitals in the context of Hurungwe District (Kacou et al., 2022). The following section describes and explain capacity assessment in terms of capitals in the context of Hurungwe District and how they link to the local environment including cultural, social, ecological, economic, legal and political.

Human capital involves knowledge, skills, competences and health of smallholder farmers in Hurungwe (Mbithi et al., 2021; Yanuartati, 2023). Human capital is the most fundamental aspect in agricultural capacity building programs which determines how other capital assets could be generated, utilized and managed by Hurungwe smallholder farmers (Nyongesa, 2017; Serrat, 2017). However, human capital in rural areas such as Hurungwe is being undermined by outward migration as men and the youth go to urban areas in search of greener pastures due to economic hardships leaving behind women and the elderly thereby compromising agricultural production. While CCMF provides a snapshot of human capital in the community, it does not take in to account seasonal variations caused by migration in rural areas.

Yanuartati (2023) states that financial capital involves money in its multiple forms such as cash, money in banks, insurance and other assets that can be easily converted to money including livestock, minerals and stocked harvested crops. Financial assets extend to the linkages and accessibility of financial institutions by smallholder farmers. Mhalanga (2021) argue that financial assets are very scarce in most rural areas such as Hurungwe, thereby limiting their capacities to buy certified seeds, pesticides and fertilisers to improve their farming. Financial constraints in Hurungwe are mainly caused by political, economic and legal factors. Most of the smallholder farmers lack legal requirements to access financial credit and they are usually politically and economically marginalized.

Physical capital entails the infrastructure development in rural areas such as multiple forms of buildings, roads, dams, boreholes and bridges (Yanuartati, 2023). Infrastructure is scarce in most rural areas such as Hurungwe. Where the infrastructure can be available usually it may be in dilapidated state such that it can be difficult to use or completely unusable.

Hurungwe has a rich ecological environment that support its natural capital base which include land, aesthetic value, mountains, springs, rivers, minerals, sunlight, air, animals and forestry that builds the valuable rural ecosystem resources (Elizondo, 2017; Mcknight et al., 2022).

Intra and inter social linkages and networks in rural communities such as Hurungwe are known as social capital (Yanuartati, 2023). While community's set of beliefs, rituals, spiritual, values, intellectual, dress code and stories that distinctively characterize a group of people are known as cultural capital (Mcknight et al., 2022). Social and cultural capital are closely linked and they are all intangible community assets that shape community's modes of life. CCMF recognizes the existence of both broken communities and well knitted communities and their implications on community development initiatives. Hurungwe community possess strong social ties and abide to their cultural values. For instance, in Hurungwe community members work together in community field known as (Zunde ramambo) and the practice promote agricultural productivity. On the other hand, they

observe two socio-cultural resting days per week known as (Chisi) whereby community members are not allowed to enter in to their fields. Some members also observe other religious resting days such as Sabbath summing up to three unproductive days per week and other working days may be lost as local members attend to community social ills such as funerals and taking care of the sick. CCMF assesses the nature of community social and cultural capital in order to harness the good of it and address its pitfalls to encourage the implementation of agricultural capacity building programs in Hurungwe. On the other hand, it is difficult for CCMF to attain some of the social and cultural data as some of the information is regarded as sacred by local community members hence they shun to divulge it (Sullivan-Wiley et al., 2019).

These capitals directly or indirectly link with each other (Yanuartati, 2023). One asset influences another capital so they should be analyzed and constructed holistically to enhance agricultural capacity building programs and ultimately achieve SPR among smallholder farmers in Hurungwe. Through assessing these capitals, CCMF identifies resource gaps that should be filled by capacity building interventions.

Gap identification is a process of assessing the community capacity building needs against the available capacities (Kacou et al., 2022). For example, shortage of smart agricultural skills, lack of access to inputs and lack of technical skills are some of the gaps in Hurungwe community. CCMF helps to establish community capacity building needs such as trainings in CSA and inputs subsidies in order to bridge the identified gaps. The formulation of agricultural capacity building programs in any given context should be grounded in the identified community capacity building needs. Capacity building gaps or needs are usually shaped by community assets. However, resource availability and accessibility varies within communities making it difficult for CCMF to come up with a community universal gap and solution.

CCMF is considered as an integrated systems approach which connects the existing circumstances with the foreseeable projects. It create an enabling environment for a smooth transformational process. Taking into account the effects of external environment including social, cultural, political, economic, environmental and legal (Mirzoev et al., 2022). Action plan involves defining goals, identifying tasks and activities, assigning responsibilities, setting timeframe and resource allocation. It is the blue print that guide the implementation of agricultural capacity building initiatives such as knowledge and skills sharing, resource accessibility, credit facilities accessibility, market accessibility and networking (Antwi-Agyei and Stringer, 2021; Said et al., 2021; Sujata, 2022). Most of the activities such as trainings and input distribution in Hurungwe are performed by extension service professionals however, they are less capacitated in terms of training materials and transport to reach all smallholder farmers.

Capacity building occurs within or across structural levels including individuals, household and community (Mirzoev et al., 2022). Capacity at one level has potential to influence other levels (Kacou et al., 2022). For instance, CSA trainings offered at individual level can impact household and finally the community level and vice versa (Roumell et al., 2020). These levels also present nodes or points of engagement for capacity building initiatives in Hurungwe (Mirzoev et al., 2022). Situating agricultural capacity building in such a framework helps to come up with well planned, organised, coordinated and integrated interventions which are community driven rather than externally prescribed. Locally initiated agricultural capacity building programs such as trainings and inputs distribution are more effective, efficient and sustainable in areas such as Hurungwe. CCMF has a potential of showing the capacity building process more clearly and it shows what should be attained by invested capacity building efforts.

The key output of human capacity building initiatives is improved performance in different agricultural domains (Saputra et al., 2024; Soomro et al., 2021; UN-Habitat, 2020) Such as assets management, human performance, creativity, methods employed and consumption among

smallholder farmers in Hurungwe (Park, 2024; Soomro et al., 2021). Performance entails individual, household or community's ability to achieve agricultural set objectives effectively and efficiently (Saputra et al., 2024). This can lead to improved effectiveness, efficiency, quality and equity among smallholder farmers in Hurungwe (Flink & Chen, 2021; UN-Habitat, 2020). Enhanced performance result in improved agricultural practices that increase productivity and ensures sustained rural livelihoods as outcome deliverables (Saputra et al., 2024). The ultimate goal will be sustainable rural poverty reduction as shown in fig 1.0.

Monitoring is a continuous process of collecting and analyzing data throughout the project's life cycle in order to track if the initiative is in line with its aim and objectives (Rumenya and Kisimbi, 2020). While evaluation is a process of data collection and analysis at given intervals to assess the attained impact against the set target (Rumenya and Kisimbi, 2020). Monitoring and evaluation assesses the effectiveness and efficiency of agricultural capacity building initiatives implemented in Hurungwe such as financial and technical support (Mirzoev et al., 2022). However, evidence supporting the effectiveness of these endeavors in attaining the intended effect in Hurungwe within a set timeframe is scant. Monitoring and evaluation is a decision making tool for both Hurungwe local community members and external experts that can be used to inform decision making for way forward in relation to agricultural capacity building (Abiddin et al., 2022).

The relationship shown by CCMF outline that properly conducted capacity building in agriculture positively impacts on sustainable poverty reduction in Hurungwe. The effectiveness of CCMF is measured against its ability to give a clear snapshot of the prevailing circumstances in a given area and provide insights for informing decision making. In addition to its major components, CCMF offers several indicators such as contextually specific, inclusiveness, sustainability, monitoring and evaluation as well as continuous engagement to assess the agricultural capacity building process in Hurungwe. CCMF assumes that successful projects or programs should have to meet these indicators, while unable to satisfy these indicators is associated with project's failure. CCMF framed agricultural capacity building in the specific context of smallholder farmers in Hurungwe, Zimbabwe. Hurungwe is in the northern part of Zimbabwe and it has high potential for agricultural production however, agricultural production in this area has been declining in the recent years. CCMF enabled the engagement of multiple stakeholders involved in agricultural capacity building in Hurungwe such as smallholder farmers, extension officers and external experts. Most of the initiatives, such as agricultural trainings and distribution of inputs seem to be unsustainable due to continuous declining of agricultural production. CCMF enhanced the monitoring and evaluation of agricultural capacity building activities in Hurungwe. Also, there is room for continuous engagement with smallholder farmers because they are local members of Hurungwe community. However, capacity mapping framework proves to be time consuming.

CCMF is a pragmatic and hybrid model that focuses on solving real world problems sustainably. It focuses on developing practical capacity building interventions based on the given context. This notion is not aimed at abolishing the scalability of previously successful projects, methodologies and approaches. Rather, it intends to find what best works in the given context through a rigorous situational analysis (Kacou et al., 2022). In the quest for best fit capacity building strategies across the global geographical landscape, race, gender and culture (Kacou et al., 2022) CCMF employs a multifaceted approach (Mirzoev et al., 2022). Regardless of its limitations, this pragmatic model informs the epistemological, ontological, axiological and methodological worldviews for agricultural capacity building initiatives in Hurungwe (Kacou et al., 2022).

4.2. *Relevance of the CCMF*

CCMF is a relevant model for the conceptualization of CB in the context of agriculture among smallholder farmers in Hurungwe because it shows knowledge and skills development mechanisms, contextualizing the phenomenon through resource assessment and stakeholder engagement (Kacou

et al., 2022). CCMF has the ability to assess assets including human, financial, physical, natural, social and cultural for individuals, households and the whole community in Hurungwe district. The integration of community capabilities through CCMF fosters positive community relationships (Paton and McMememy, 2024). CCMF emphasize the effective and efficient utilization of community assets to promote the capacities of local people and considers the sustainability of the outcomes and their continuity (Mcknight et al., 2022). This framework shows how ACB is expected to enhance SPR among smallholder farmers. It shows ACB as a system outlining inputs, processes and outcomes as well as indicators for tracing the progress in a clear and simplified way (Mirzoev et al., 2022). CCMF has the ability to show the cyclical relationship whereby CB can be both the input or the output in a development process (Kacou et al., 2022). This means agricultural capacity building can enhance rural livelihoods and vice versa. CCMF takes in to account the external environmental factors that influences the implementation of agricultural capacity building in Hurungwe District such as political, economic, cultural, social and legal. However, it is worth noting that CCMF focuses much on the given context for example Hurungwe District thereby limiting its ability for generalizability to other contexts (Sullivan-Wiley et al., 2019). Also, conducting CCM requires a lot of resources such as experienced human capital, financial and time making it difficult for many communities to conduct it.

CONCLUSION

Capacity building has become the central focus of many development programs both in theory and practice. Scholars and practitioners from disciplines such as sustainable development, public health, economics, public administration and governance have grown interest in this subject. However, little has been known about a holistic conceptual framework to guide CB initiatives by both scholars and practitioners especially in the context of agriculture among smallholder farmers. CB interventions are mainly fostered by international development agents than local people and scholars thereby limiting empirical evidence. This paper bridged the gap by conceptualizing CB in the context of smallholder farming in Hurungwe through the systematic review of related literature. In so doing the paper defined conceptual framework, conceptualized capacity building in agriculture and suggested CCMF as a conceptual framework for CB initiatives in the context of agriculture. The ability of the CCMF to contextualize the phenomenon and continuous stakeholder engagement among its other advantages makes it a relevant model for conceptualizing agricultural capacity building among smallholder farmers in Hurungwe. However, it is worth noting that the over emphasis on specific contextual limit the ability for the generalizability of CCMF. To address this and other challenges associated with CCMF this paper recommends policy makers to put more support on community capacity mapping process because it requires more resources including human, financial and time. To practitioners the paper recommends the integration of CCMF with other models in order to enhance its generalizability to other contexts. It is recommended that researchers should triangulate data collection tools during stakeholder engagement and gap identification in order to gain more insights on socio-cultural perspectives. The scope of this paper covered rural smallholder farming only leaving room for focusing further researches on this topic to other contexts such as urban areas.

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REFERENCES

- Abiddin, N. Z., Ibrahim, I., & Abdul Aziz, S. A. (2022). Non-Governmental Organisations (NGOs) and part towards sustainable community development. *Sustainability*, 1-13. doi:10.3390/su14084386
- Adom, D., Hussein, E. K., & Agyem, J. A. (2018). Theoretical and conceptual framework: Mandatory ingredients of a quality research. *International Journal of Scientific Research*, 7(2277-8179), 438-441.
- Afianto, Y., Munadi, R., & Goeritno, A. (2023). Systematic mapping study: Research opportunities on capacity planning. *Journal RESTI (Rekayasa Sistem dan Teknologi Informasi)*, 7(4), 904-913.
- Agarwal, S., & Tarar, S. (2021). A hybrid approach for crop yield prediction using machine learning and deep learning algorithms. *Journal of Physics: Conference Series*, 1-9.
- Antwi-Agyei, P., & Stringer, L. C. (2021). Improving the effectiveness of agricultural extension services in supporting farmers to adapt to climate change: Insights from Ghana. *Climate Risk Management*, 32(2021), 1-13.
- Broun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, 11(4), 589-597.
- Chigavazira, T. (2021). Behaviour change in drought response and management: Case study of Mudzi District, Zimbabwe. *Journal of Public Administration and Governance*, 11(2), 2161-71.
- Crawford, L. M. (2020). *Conceptual and Theoretical Frameworks in Research*. Thousand Oaks: SAGE Publications, Inc.
- Elizondo, D. (2017). *Guidance Note: Application of the Sustainable Livelihoods Framework in Development Project*. Panama: UNDP.
- Emina, K. A. (2021). Sustainable development and the future generations. *Social Sciences, Humanities and Education Journal (SHE Journal)*, 2(1), 57-71.
- FAO. (2021). *Climate-smart agriculture case studies 2021_Projects from around the world*. Rome: FAO.
- Fawzy, Z. F., & Shaymaa, I. S. (2020). Subsistence farming towards sustainable economic agriculture of small farmers in the developing countries. *NASS Journal of Agricultural Science*, 02(01), 1-3.
- Flink, C., & Chen, C. (2021). Management capacity, financial resources and organizational performance: Evidence from state transportation agencies. *Public Performance and Management Review*, 44(6), 1341-1366.
- Imam, P. A., & Temple, J. R. (2025). State capacities and growth regimes. IMF working paper 2024/014. Washington D C: International Monetary Fund.
- Kacou, K. P., Ika, L. A., & Munro, L. (2022). Fifty years of capacity building: Taking stock and moving research forward. *Public Administration and Development*. DOI: 10.1002/pad.1993, 42(4), 1-18.
- Luft, J. A., Jeong, S., Idsardi, R., & Gardner, G. (2022). Literature reviews, theoretical frameworks and conceptual frameworks: An introduction for new Biology education researchers. *CBE-Life Science Education*, 1-10.
- Mbithi, P. M., Mbau, J. S., Muthama, N. J., Inyega, H., & Kalai, J. M. (2021). Higher education and skills development in Africa: An analytical paper on the role of higher learning institutions on sustainable development. *Journal of Sustainability Environment and Peace*, 4(2), 55-70.
- Mcknight, J. L., Kretzmann, J. P., & Beaulieu, L. J. (2022). Mapping community capacity. In M. Minkler, & P. Wakimoto (Eds.), *Community organizing and community building for health and social equity* (pp. 166-174). New Jersey: Rutgers University Press.
- Mhalanga, D. (2021). Financial access and poverty reduction in agriculture: A case of households in Manicaland Province, Zimbabwe. *African Journal of Business and Economic Research*. Volume 16, 75-95.
- Mirzoev, T., Topp, S. M., Afifi, R. A., Fadlallah, R., Obi, F. A., & Gilson, L. (2022). Conceptual framework for systemic capacity strengthening for health policy and systems research. *BMJ Global Health*, 7(8), 1-7.
- Monteiro, A., Santos, S., & Goncal, P. (2021). Precision agriculture for crop and livestock farming-Brief review. *Animals*, 11(2345), 1-18. Retrieved from <https://doi.org/10.3390/ani/082345>
- Ndimo, B., Manyani, A., Bowora, J., & Gomo, M. T. (2025). The applicability of sustainable rural livelihoods framework in agricultural capacity building initiatives: The case of Hurungwe District, Zimbabwe. *International Research Journal of Modernization in Engineering Technology and Science* Volume 7(04), 3822-3829.
- Nebere, K., Azene, M., Mebrat, A., & Afework, S. (2024). Farmers' perceptions of climate change and variability and determinants of adaptation strategies and coping mechanism in Ethiopia. *Journal of Science and Inclusive Development*, 6(2), 43-66.
- Nyongesa, T. R. (2017). *Capacity Building Interventions on Smallholder Farmers and Food Security in Siaya Country Kenya. Dissertation Submitted in Partial Fulfilment of the Master of Science Degree in Project Management to Jomo Kenyatta University of Agriculture and Technology*. Nairobi: JKUAT.
- Oyewobi, L. O., Okanlawon, T. T., Medayese, S. O., Ogunbode, E. B., & Jimoh, R. A. (2024). Is Pursuing a PhD without theoretical and conceptual framework a journey without roadmap. *ETSI*, 15(2), 138-149.

- Park, S. (2024). Organizational performance and government resource allocation: Panel evidence from Washington State's public programs. *Public Performance and Management Review*, 47(1), 30-55.
- Paton, C., & McMememy, D. (2023). Communitarian philosophy in public policy: Mapping the discourse of Scottish public library strategy. *Journal of Documentation*, 80(1), 73-100.
- Roumell, E. A., Todoran, C., & Salajan, F. D. (2020). A Framework for Capacity Building in Adult and Workforce Education programming. *Journal of Adult Literacy Education*, 16-32.
- Rumenya, H., & Kisimbi, J. M. (2020). Influence of monitoring and evaluation systems on performance of projects in Non-Governmental Organizations: A case of education projects in Mombasa Country, Kenya. *Journal of Entrepreneurship and Project Management*, 5(2), 44-66.
- Said, M., Cahyasari, E., & Winoto, S. (2021). Capacity building of village-owned enterprises in strengthening village economy. Dordrecht: Atlantis Press International B.V.
- Salawu, R., Shamsuddin, A. O., & Bolatitio, S. (2023). Theoretical and conceptual frameworks in research: Conceptual clarification. *European Chemical Bulletin*, 12(12), 2103-2117.
- Saleh, A., Mujahiddin, M., & Gunawan, M. D. (2022). Optimizing corporate Social responsibility funds for community empowerment and regional planning in urban slums. *International Journal Reglement and Society (IRJS)*, 3(3), 203-209.
- Saputra, N., Putera, R. E., Zetra, A., Azwar, Valentina, T. R., & Mulia, R. A. (2024). Capacity building for organizational performance: A systematic review, conceptual framework and future research directions. *Cogent Business and Management*, 11(1), 1-39.
- Serrat, O. (2017). *The sustainable livelihoods approach. In knowledge solutions*. Singapore: Springer.
- Sibanda, S., & Tsuyuki, S. (2022). Identifying the rates and drivers of spatiotemporal patterns of land use and land cover changes in the Hurungwe District, Zimbabwe: A GIS and remote sensing approach. *Journal of Geographic Information System*, 14(6), 652-679.
- Singh, R. P. (2021). Resent trends, prospects, and challenges of nanobiosensors in agriculture. In R. N. Pudake, & e. al, *Biosensors in agriculture: Recent trends and future perspectives, concepts and strategies in plant science* (pp. 1-13). Bern: Springer Nature.
- Soomro, B. A., Mangi, S., & Shah, N. (2021). Strategic factors and significance of organizational innovation and organizational learning in organizational performance. *European Journal of Innovation Management*, 24(2), 481-506.
- Sujata, K. (2022). Teacher's views on training and capacity building in education. *International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)*. DOI: 10.48175/IJARSCT-2545, 2(1), 279-285.
- Sullivan-Wiley, K., Short Gianotti, A., & Casellas Connors, J. P. (2019). Mapping vulnerability: Opportunities and limitations of participatory community mapping. *Applied Geography*, 105 (4), 47-57.
- Tabuena, A. C. (2021). Preliminary methods and illustrative examples in formulating the research frameworks on the research writing process for senior high school students. *International Journal of Advance Research and Innovative Ideas in Education*, 7(1), 8-15.
- UN-Habitat. (2020). *UN Habitat Capacity Building Strategy Presented by the Executive Director to the Executive Board January 2020*. New York: UN-Habitat.
- Wald, N., & Daniel, B. K. (2020). Enhancing students' engagement with abstract ideas through conceptual and theoretical frameworks. *Innovations in Education and Teaching International*, 57(4), 496-505.
- Yanuartati, B. Y. (2023). Understanding the framework of sustainable rural livelihoods in the implementation of market-led rural development. *Journal of Research in Science Education*, 9(5), 3800-3807.
- Yuheng, L., Wenhao, W., & Yongsheng, W. (2021). Global poverty dynamics and resilience building for sustainable poverty reduction. *Journal of Geographical Science*, 31(8), 1159-1170.
- Zerssa, G., Feyssa, D., Kim, D., & Eichler-Lobermann, B. (2021). Challenges of smallholder farming in Ethiopia and opportunities by adopting climate-smart agriculture. *Agriculture*, 11(192), 1-26.