University community partnerships for climate change adaptation in Malawi: Exploring contributions, potential opportunities and challenges

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ABSTRACT

Partnerships with local communities have emerged as a prominent educational strategy within university functions, aligning with the ethos of an institution dedicated to community engagement. These partnerships serve not only to empower communities with essential skills to address societal challenges, notably climate change, but also reflect a broader shift in academia towards fostering collaborative relationships with local stakeholders. For students, partnerships offer invaluable hands-on experience by immersing them in direct engagement with community members, bridging the gap between theoretical knowledge and practical application to enrich their educational learning outcomes. This article explores the multifaceted benefits and contributions of partnerships to sustainable community well-being while addressing the inherent complexities that arise when universities engage with communities in promoting human development. Drawing upon qualitative data obtained from interviews with lecturers, students, and community focus groups involved in climate adaptation initiatives, the study investigates the contributions and potential opportunities presented by partnerships and examines challenges encountered by stakeholders in advancing partnerships interventions. Despite the positive impact of partnerships on community skills and empowerment, I argue that while partnerships are contributing towards sustainable community well-being, coordination, funding, and mindset change remain key issues to be addressed. Further, educational practices and pedagogical approaches should prioritize addressing the multidimensionality of climate change and fostering agency and empowerment among community leaders to actively engage in partnership activities. This includes giving them a voice in the choice of adaptation interventions and inclusion of communities' voices in the monitoring and assessment of partnership interventions. By doing so, partnerships can be more effective in promoting sustainable community well-being and improving students' learning outcomes.

Introduction

Universities' potential to address emerging societal challenges such as climate change is widely acknowledged (Yanda et al., 2010; McCowan, 2020). Aside from being the hub of knowledge creation and teaching, universities have been challenged to integrate societal challenges as a means of building stronger and more resilient societies through different levels of community partnerships (Henderson, Bieler & McKenzie, 2017; McCowan, 2020). Henderson *et al*. (2017) argue that through research and community partnerships, universities are crucial in providing a wide range of solutions to the challenge of climate change. It is therefore not surprising that universities' unique and critical role in addressing emerging transnational threats such as climate change is highly reinforced in the United Nations (UN) sustainable development goals (SDGs) (Mc Cowan, 2020; Kivaa, 2021). Specifically, Goal number 13 (climate action) calls for action to combat climate change and its impacts. The idea of communities partnering with universities in the higher education (HE) discourse represents a shift from the traditional one-way, top-down model to a two-way version, where the latter emphasises interactive knowledge exchange between universities and communities (Weerts and Sandmann,2008; Brown-Luthango, 2013; Mtawa *et al.*, 2016; Bowers, 2017). At the core of reinforcing university community partnerships lies the enhancement of collaborations between the university campus and the local community (Kellogg Commission, 1999). Nevertheless, there has been less limited scholarly inquiry than one might expect into the characteristics and dynamics of these partnerships between universities and communities (Sandmann, Kliewer, Kim & Omerikwa, 2010; Sathorar & Geduld, 2021), albeit with some notable exceptions in sub-Saharan Africa.

This article presents a critical analysis of the contributions, potentials, and challenges of university-community partnerships on sustainable community well-being within the context of Malawi, a country in sub-Saharan Africa characterized by high poverty levels, with a multi-poverty index of 56.1 (UN Development Program (UNDP), 2023), and where 80% of the population resides in rural areas, heavily reliant on natural resources (Government of Malawi (GoM), 2019a). In this study, community well-being is framed within the human development paradigm, emphasizing the empowerment of communities to pursue their values and aspirations for overall flourishing. Despite the growing interest in such collaborative initiatives, there remains a knowledge gap regarding their potential in promoting sustainable community well-being, particularly in addressing climate adaptation challenges faced by local communities. Focusing on the case of the Lilongwe University of Agriculture and Natural Resources (LUANAR), renowned for its practical programs in agriculture and natural sciences, this research investigates: the (i) contributions of university-community partnerships to sustainable

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community well-being; (ii) potential avenues for enhancing sustainable community well-being; and (iii) challenges encountered in implementing partnership interventions with communities. The study is guided by key inquiries: How do these partnerships contribute to sustainable community well-being? What opportunities exist for furthering sustainable community well-being through partnerships? What challenges/obstacles are encountered in the execution of partnership initiatives?

Literature review

Universities and climate change adaptation

The recurrent episodes of human-induced climate change represent an opportunity for a more established role of universities to support a people-centred response mechanism that promotes sustainable community well-being. As part of responding to climate change, the Intergovernmental Panel on Climate Change (IPCC) (2018) supports member countries to invest in education, information, and community approaches, including those informed by indigenous knowledge and local knowledge, to limit global warming to 1.5°C. Universities play a crucial role in shaping the future of our communities (Leal Filho, Aina, Dinis, Purcell & Nagy, 2023). For instance, by supporting community approaches, they create a positive impact on society and shape more sustainable societies (y (Benneworth et al., 2008; Farrar & Taylor, 2009; Weerts & Sandmann, 2008). Universities have access to resources, knowledge, and expertise that can address the causes and impacts of climate change by offering training and capacity building, conducting awareness campaigns, and providing advice to communities and policymakers (Leal Filho *et al.*, 2023). Universities are crucial in addressing climate change through research, teaching, and community engagement (Leah Filho et al., 2023). In terms of research, Stern, Sovacool & Dietz (2016) argue that universities can prepare communities to adapt to the impacts of climate change by providing research on sustainable adaptation options (Stern *et al.*, 2016). This can be achieved by integrating community views into solutions and serving as hubs for inventing, testing, and disseminating climate adaptation knowledge in local communities (Wu & Lee, 2015). Universities can also participate in co-production efforts with neighbouring communities to support local adaptation and mitigation initiatives (Khayyam *et al.*, 2021). In addition, universities are responsible for teaching students about climate change and reviewing curricula to ensure that climate education is integrated into all development disciplines and that graduates are prepared for a workforce impacted by climate change (IPCC, 2014; Ramaley, 2014; Feinstein & Mach, 2019). For this to be achieved, universities need more radical changes in their curricula and practices, including management and engagement with the local community, to adequately meet students' needs now

and in the future (Lotz-Sisitka, 2014). As such, teaching and curriculum review should go beyond imparting knowledge to engage community views in addressing societal challenges (Mpuangnan & Ntombela, 2024).

While Africa is regarded as one of the continents most vulnerable to the impacts of climate change (Adger, Huq, Brown, Coneway & Hulme, 2003; Bie, Mkwambisi & Gomani, 2008; Anderson, 2012), African universities' potential to contribute to response efforts has not been explored to the extent that it has been elsewhere in the world. Only a few universities in Africa can be considered "hotbeds of activism" for defining future climate projections (Padgham, Virji & Seipt, 2013) or for research, community engagement, and curricula aimed at improving climate change responses (Andrew, 2012). Yet Stern *et al.* (2016) argue that universities have a critical role in preparing communities to adapt to the impacts of climate disruptions by providing research on sustainable local-based adaptation options. Therefore, universities can serve as hubs in their local communities as the medium for inventing, testing, and disseminating climate adaptation knowledge (Wu & Lee, 2015). Through partnerships with local communities, African universities could prepare graduates for adaptation work and engagement in research for mutual learning and better animation of climate action (Ssekamatte, 2020).

Universities and university-community partnerships

Universities and university-community partnerships play a pivotal role in fostering collaboration between academic institutions and the local community, situated in neighbourhoods where community members reside. These partnerships serve as a bridge between theory and practice, allowing students and faculty to engage in real-world projects that address community needs (Bakko & McBride, 2017). Through these collaborations, universities can leverage their resources and expertise to create meaningful impact in areas such as education, healthcare, and social services (Dulmus & Cristalli 2012). As Buys and Bursnall (2007) contend, working closely with community organizations and stakeholders, universities can enhance their relevance and social responsibility while providing valuable learning opportunities for students.

Moreover, universities benefit from these partnerships by gaining insights into local challenges and opportunities, which can inform their research agendas and educational programs. The exchange of knowledge and expertise between universities and the community leads to innovative solutions to complex societal problems (Preece, 2017; Sandmann et al., 2010; Ogunsanya et al., 2019).

Additionally, university-community partnerships contribute to the development of a more inclusive and sustainable society by promoting civic engagement and empowering communities to address issues collectively (Medved & Matjaz Ursic, 2021). Ultimately, these collaborations not only enrich the academic experience but also strengthen the ties between universities and the communities they serve, creating a mutually beneficial relationship that fosters growth and development for all stakeholders involved. "Community engagement is more than a structural manifestation, essentially, it is a philosophical belief that can help evolve, shape, and progress higher education for local, national and international communities" (Bernardo, Butcher & Howard, 2012: 191). The success of university community partnerships therefore depends on factors such as trust and equal power relations to avoid provoking a sense of resentment and mistrust (Miller & Hafner, 2008; Strier, 2014).

University-community partnerships and climate change adaptation

The benefits of universities collaborating with their local communities are manifold. This explains why the IPCC (2018) supports member countries to invest in education, information, and community approaches, including those informed by indigenous knowledge and local knowledge, to limit global warming to 1.5°C. University-community partnerships play a crucial role in climate change adaptation efforts, fostering collaborative initiatives between academic institutions and local communities (Leal Filho *et al*., 2022, 2023). These partnerships serve as a platform for knowledge exchange, capacity building, and the co-creation of sustainable solutions to mitigate the impacts of climate change (Hsieh & Lee, 2021). Universities have access to resources, knowledge, and expertise that can help solve community problems and create meaningful change. For example, universities can leverage their influence to address the causes and impacts of climate change by offering training and capacity building, conducting awareness campaigns, and providing advice to communities and policymakers (Leal Filho *et al*., 2023). On the other hand, communities play a vital role in implementing and sustaining climate change adaptation strategies, as well as providing valuable local knowledge, resources, and perspectives that can enhance the effectiveness of adaptation initiatives (Rieckmann *et al*., 2021). Further, by engaging with local communities, universities can better understand the specific vulnerabilities and needs related to climate change, leading to more targeted and effective adaptation strategies. Collaborative efforts between universities and communities have been shown to enhance resilience, promote sustainable practices, and foster innovation in response to climate change impacts.

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Furthermore, university-community partnerships contribute to capacity building and empowerment at the local level, enabling communities to take ownership of adaptation initiatives (Rieckmann *et al*., (2021). Through participatory approaches, such as co-design and co-production of knowledge, these partnerships foster a sense of shared responsibility and collective action in addressing climate change challenges (Strier, 2011). Therefore, by leveraging the strengths of both academia and local communities, collaborative partnerships have the potential to drive meaningful change, build social cohesion, and create a more sustainable future in the face of climate uncertainty.

Theoretical framework

The paper draws from the theoretical foundations of the human development approach, which aims to conceptualise the ideology and practicality of a human-development centred university-community partnership for climate change adaptation Considered the brainchild of Pakistani economist Mahbub ul Haq, the human development approach was developed as a critique of the Gross Domestic Product (GDP) approach, which measures development progress in terms of economic progress. Ul Haq (2003) championed the idea that development should be "people-centred" and should focus on expanding the richness of human life beyond just the economy (ul Haq, 2003; Stewart, 2019). He argued that "human lives can go much better and be much richer in well-being and freedom, as the human agency can deliberately bring about a radical change" (ul Haq 2003: 21). Several scholars have shown how the human development approach can be used to theoretically and empirically explore the relationship between universities and communities in addressing social challenges and over a range of issues relating to human well-being. Amartya Sen, a Nobel Prize-winning economist, has written on human development and its application to education. In his book *Development as Freedom*, Sen contends that education is a crucial factor in human development and should be regarded as a means of enhancing human capabilities (Sen, 1999). Other scholars further contend that the human development approach serves as a normative framework and is used with the capability approach to explore and design interdisciplinary frameworks on HE and human development, social justice, quality of education, inequalities, and epistemic justice (see Hart *et al*., 2009; Walker & Boni, 2016; Mtawa, 2017; Mathebula 2018). Specifically, in the context of Southern Africa, Mtawa and Fongwa (2022: 70) posit that the human development approach "provides framing elements for service-learning partnerships to be equitable, inclusive, empowering and sustainable, while enhancing community members' voices and their capacity to exercise the principle of each person as an end". Therefore, conceptualising the university community partnership for climate adaptation requires a broad approach that recognises the expansion of people's choices and opportunities for a better life. For

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instance, while not writing on climate adaptation partnerships, Jacoby and Associates (2003: 7) incorporate the principle of reciprocity, which adds further dimensions to the understanding of authentic partnerships, and they underscore that:

> Truly reciprocal partnerships are also termed collaborations, defined as a mutually beneficial and well-defined relationship [that] includes a commitment to: a definition of mutual goals; a jointly developed structure and shared responsibility; mutual authority and accountability for success; and sharing not only of responsibilities but also of the rewards.

In this paper, the human development approach is applied to explore what kind of contribution that partnership makes to communities and whether it aligns with the human development pillars of equity, efficiency, participation, and empowerment and sustainability. The approach attempts to foreground the critical role of universities in partnering with communities to address societal challenges. It locates partnerships with the community as a core function of universities and a requirement to uphold the university's social responsibility of working with the communities it serves (Bender, 2008; Mtawa *et al.*, 2016; Bhagwan, 2017).

Methodology and study location

The qualitative approach was selected because the study's exploration relied heavily on narrative accounts and thick descriptions to determine how the current partnership contributes to sustainable community well-being, exploring the opportunities and the challenges it presents. Unlike the quantitative or mixed-method designs, which emphasise testing data based on pre-designed hypotheses, the choice for a qualitative approach was further motivated by the fact that the evidence gathered was drawn from multiple views for deeper understanding. As Leedy and Ormorod (2013) argue, qualitative research recognizes the complexity of a topic being studied and aims to represent it in its diverse and multi-dimensional nature.

This study adopted the single case study of the LUANAR in Malawi because the main issue is understanding the current operationalisation of the partnership between the university and communities. The single case study is merited for being more nuanced and empirically rich while providing the researcher with a holistic account of specific phenomena (Cresswell, 2017; Yin, 2012). I selected LUANAR because (i) it is the first public university in Malawi to offer agriculture and natural resources courses which encompass climate change issues (Kanyama-Phiri, 2016); (ii) has a separate office running outreach programmes and (iii) it is located in a rural area, making it easily accessible to

communities. Within LUANAR, the study focuses on the Faculty of Natural Resources and the Faculty of Development Studies for the following reasons, summarized in Table 1.

Table 1: Description of participants suitability

Description	Justification
Suitability of respondents	The faculties employ qualified academic staff with a climate adaptation and outreach work background.
Relevance	The faculties offer courses related to climate change adaptation and outreach and produce graduates engaged in rural extension and climate change adaptation work.
Students' climate change and outreach internship	The faculties offer internships to third-year students to prepare them for outreach work.
Edge on securing donor funds	Staff from the two faculties receive the most donor grants for climate change and outreach.

Using a qualitative case study design, the study employed a purposive sample of 21 lecturers, support staff, students, and community members as summarized below:

a. Four (4) LUANAR university lecturers working under the Faculty of Natural Resources and Development Studies were interviewed. The lecturers included two (2) heads of faculties, one from each faculty, and two (2) lecturers. Lecturers were targeted and selected based on the following criteria: position of office (in the case of deans); lecturer that doubles as an attachment coordinator since they supervise students while on outreach programs; and lecturers that have more than two years of lecturing experience on climate change adaptation and extension modules

b. Two LUANAR support staff from the office of the Director of Research and Outreach (DRO) and the Programs Coordinating Office (PCO) were interviewed. The two were purposively selected because of their overall oversight role on policy and implementation of research and outreach projects. As per LUANAR statutes, the DRO office was introduced as a policy and coordinating office for research and outreach work, while the PCO is an implementing sub-office under DRO, specifically mandated to implement outreach interventions

c. Five (5) third-year students from the Faculties of Natural Resources and Development Studies were interviewed through semi-structured, in-depth interviews. The third-year students were targeted because they were undergoing internship programs with communities as part of fulfilling a college requirement for a four-year degree program in their respective faculties. This allowed the study to benefit from current perspectives of students' partnership experiences. The internship program involves students working with communities to apply knowledge from the classroom to real-world experience.

d. Ten (10) local community stakeholders sourced from LUANAR's three surrounding areas, namely Mkwinda, Chiseka, and Pondamali, also referred to as Extension Planning Areas (EPAs), were organized into two (2) Focus Group Discussions for interviews. I engaged community stakeholders because they have been in a long-term partnership (more than 10 years) with the university and are engaged in the partnership's initiatives.

In total, 11 semi structured interviews were conducted involving 11 participants, and 2 Focus Group Discussions involving 10 community participants. Thematic data analysis was conducted to generate themes that guided the presentation of the data.

Results and discussion

Partnership contribution to community well-being

Providing multiple adaptation options

In responding to how university-community partnerships contribute to community well-being, lecturers explained that one of the roles the partnership contributes to sustainable community well-being is strengthening rural communities' adaptive capacity to respond effectively to climate uncertainties. The ultimate goal of strengthening adaptive capacity was described in various ways, ranging from climate knowledge, practical skills for climate action, and financial savings, to accumulating various assets such as livestock that act as livelihood coping mechanisms in times of climate-induced shocks. Thus, it would imply that the element of freedom for communities to choose from a range of adaptation options was central.

The lecturers' responses were diverse regarding adaptation options that could enhance community well-being. For instance, one lecturer viewed community well-being as the community's understanding of climate risks and their ability to acquire knowledge and skills [1] that would enable them to make informed decisions on adaptation strategies. Another lecturer linked skills acquisition to empowerment and well-being but was quick to point out the necessity to ensure the availability of enabling factors such as community willingness and support systems to translate skills into practice. He shared that, through capacity-building sessions, the partnership offers relevant skills and knowledge on climate adaptation, which in turn empowers communities to address radical weather uncertainty that may disrupt their normal livelihoods. He explained:

> Our entry-level interventions are mostly training sessions aimed at capacitating communities with skills and knowledge on several aspects of climate adaptation. The emphasis on skills and knowledge is to create a spirit among community members to

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[1] When asked to define skills, Mr Chibwana described skills in terms of both soft and hard skills where soft referred to a mix of social and interpersonal skills that characterize relationships between people whereas hard skills referred to those gained through formal training or workshop experience.

underscore the how what, and when aspects of climate change so that they can make decisions on their own.

In addition to skills and knowledge, lecturers identified reforestation and afforestation initiatives as adaptation strategies to restore degraded forests and establish new ones to promote biodiversity. Trees were deemed vital in regulating the water cycle, mitigating soil erosion, and reducing the likelihood of floods and droughts.

Other lecturers spoke of how the partnerships have promoted diversity in supporting communities with a range of early maturing or drought-resistant crops to adapt to the impacts of climate change. Key issues included a partnership supporting farmers to adjust farming systems and crop varieties over time in preference for early maturing varieties that minimise crop loss in times of climate risks.

Strengthening collaboration with established local government structures

Another contribution that university-community partnerships make towards human development in rural communities is strengthening local government-established structures. According to lecturers, partnership interventions involve working with existing local structures such as Village Development Committees (VDCs), Area Development Committees (ADCs), and Civil Protection Committees (CPCs) as sustainability structures. Theoretically, as Spoth et al. (2004) argued, working with local systems increases the possibility of sustaining interventions. The partnership exhibits a preference for utilising pre-established community structures to facilitate engagement. This is because the use of local resources guarantees that communication and activities are appropriately aimed and aligned with community interests and capabilities, which are vital prerequisites for accomplishing implementation objectives (Cox *et al*., 2010). The lecturers explained that university stakeholders provide training to representatives of community structures on various climate adaptation strategies, as well as leadership skills to equip them to collaborate with communities and spearhead sustainable climate adaptation initiatives. Consider the views below from one support staff member:

> Local leaders are key in ensuring that interventions run smoothly. They manage relationships and operations between the university and the community and act as a bridge between the university and the community, helping to mobilise communities; hence, they need to strengthen.

The inclusion of local leaders yields two important outcomes. Firstly, it relates to ensuring community participation and empowerment in the process of identifying local community needs and further stimulate their agency for adaptation work. Local leaders ensure that all community perspectives are

considered by engaging in consultations with local chiefs and reaching out to all community groups. This aligns with the principles of participation and empowerment in human development, which allow individuals to participate in, negotiate with, influence, control, and hold accountable institutions that impact their lives (Narayan, 2005).

Connected with the views above, one of the lecturers explained that local structures play an indispensable role in monitoring the adaptation interventions continuity beyond the project scope. Such views are expressed in the lecturer's statement below:

> Whether it's the students or other university staff that engages with the communities, we realize that we will not be there for an extended program at the end of the day. Students graduate and lecturers' projects come to an end. So, to ensure that the benefits accrued are sustained, we engage a strategy of working with village development committees to ensure that interventions must be sustained beyond the actual interface or when the university is not physically present in the community.

The excerpts above demonstrate how VDCs ensure sustaining positive outcomes steadily over time. As can be deduced from the excerpts above, engaging the VDCs not only ensures that the partnership reaches out to more communities but also contributes to the sustainability of the interventions. From the excerpts, we see how both lecturers explain the value of the committee's role in ensuring the interventions' continuity, ownership, and sustenance. The views can be linked to the notion of efficiency, which, in human development terms, implies optimal utilisation of the least cost-effective measures to reach the desired goal (Alkire & Deneulin, 2009). By broadening the scope of reach, the partnership was able to offer the highest impact in terms of reaching out to more people with adaptation opportunities and also demonstrated that involving local government structures was crucial for intervention sustainability.

While lecturers' views on strengthening local leaders sounded commendable, there are concerns about the timing and approach of the process. Community members shared that mostly the leadership of these structures is engaged during the initial phase and towards the end of the project timeline. This means that it would be hard for community leaders to monitor and provide technical support beyond the project timeframe when left out of the actual implementation of the interventions. It appeared that the leadership are not engaged throughout the implementation of the interventions due to resource constraints, time, and sometimes scheduling of interventions. Given that university community partnership efforts heavily rely on these leaders for sustainability (Mosier & Ruxton, 2018) and that most rural communities continue to be affected by recurrent climate threats manifested in floods and droughts (GoM, 2019b), one would expect universities to continuously engage them for

the purpose of strengthening their skills to oversee the operations of the partnership. The major problem with minimal involvement of the local leaders is that it locates local structures' leadership as partial agents in the development process. Such an understanding has the potential to demotivate local structures' commitment to spearheading the sustainability of the interventions.

The partial involvement of local structures in the adaptation interventions was further cemented by the perspectives of some community members who admitted that even community members are less involved in the adaptation interventions. They argued that needs assessment exercises do not happen frequently or are not conducted in detail such that they fail to incorporate emerging issues and clarify the community's role. The argument is that by allowing active participation, communities would better understand their expectations and easily identify entry points for their engagement. One community member expressed the need for the university to consider inclusive decision-making in the way partnerships are operationalised. She explained:

> I am sure if you ask around, most community members will struggle to articulate their role in climate adaptation partnership work which makes it even more difficult to appreciate the relevance of university ideas, knowledge, and skills. What I think the university can do is consider laying the groundwork by conducting wider consultations with us and allowing us to contribute our ideas on what should be done. In this way, we feel recognised, trust them and establish a solid foundation for collaboration.

Views suggest that the university must take the lead in ensuring a systemic change in the way partnership is operationalized. As can be seen from the excerpt, one way is through wider consultations that involve the active participation of communities. It appeared that wider consultations would enhance the university and the community to critically reflect on their role in the adaptation partnership

Stimulating community agency to address climate threats

Participants underscored the idea that the partnership interventions have reignited community members' interest in undertaking partnership activities, empowering communities to move beyond research fatigue. One student expressed that due to research fatigue, some community members feel exhausted or overwhelmed by university outreach functions—particularly when they do not see tangible results from the partnership activities. He narrated that partnership outcomes have been beneficial to the communities, leading to an increased interest from more communities in participating in the interventions. One student explained:

> Earlier, we had problems getting community buy-in support just because they complained that they don't realise many benefits of working with the university. Communities felt they were being used because the university could get information from them and never return for feedback until the next project gets funding.

Related to the above, community members expressed appreciation for the university's efforts in engaging them in implementing partnership interventions as they feel motivated to implement and sustain them. One community member lamented:

> In my experience, it was a rough start in the beginning because you would understand the frustration shared. We were tired of students imposing ideas on us and later leaving the community without completing the interventions. We felt they needed our input for academic purposes only.

Evidence suggesting community agency was also demonstrated by efforts of community members to request extension services from LUANAR. One lecturer recalled several occasions when community members called her for support on their tomato production project, thus highlighting the demand-driven approach to extension as prescribed by the government. The calls further signify the benefits that community members saw in the university's support. One lecturer shared:

> We had a project to promote indigenous vegetables through seed multiplication and after realizing that other members had benefited with sale of Amaranthus vegetables, we were called by the community to come and support them at their cost.

Another lecturer shared that, in some cases, community members offered transportation to students to support their mobility during field visits. This demonstrates improved agency and value for community members in engaging in university partnership interventions.

> We had a student last year who was supported by community in terms of transport. This student was helping them address pest and diseases in tomato production. So, the community decided to pay for her transport, because she was helping them address a dire need. So, they felt that their tomato was doing very well because of her help in integrated pest management techniques, and they knew she was only a student and decided to help her.

Through the human development approach lens, it is evident that partnership interventions have successfully reignited community members' interest in engaging in collaborative activities, thus empowering communities to overcome climate adaptation challenges. The testimonies provided highlight the shift towards tangible and beneficial outcomes for communities, fostering increased participation and motivation. By addressing past issues of perceived exploitation and lack of tangible benefits, the university's efforts have been appreciated by community members, leading to enhanced community agency and value. The examples of community members seeking extension services and

offering support to students demonstrate a demand-driven approach and a sense of mutual benefit in engaging with university partnership interventions, ultimately fostering sustainable and meaningful collaborations for community development.

Linking indigenous knowledge to scientific knowledge

While acknowledging the aforementioned contributions, lecturers emphasized the importance of partnerships in bridging scientific knowledge with indigenous knowledge regarding adaptation strategies. They expressed that universities should lead the way in utilizing their expertise to connect scientific and local knowledge in evaluating climate-related risks. One lecturer noted that there is often a disconnect between the theoretical concepts taught in classrooms at universities and the adaptation strategies valued by communities. To promote mutual learning, universities must demonstrate how partnerships enhance existing local practices by introducing new, highly responsive, and culturally acceptable adaptation options, as expressed below:

> It is sometime unfortunate to disregard the fact that communities have survived long periods of climate uncertainty because they could use their local knowledge, make critical decisions concerning their well-being and implement them. With progress in scientific research on climate change, the danger is that oftentimes, scientific research is viewed as superior to local knowledge.

The voice in the excerpt above seemed to indicate the lecturers' conviction in the university's role in integrating scientific and local knowledge to enhance climate adaptation partnerships. It suggests that although the knowledge systems and practices of indigenous peoples are acknowledged as crucial resources for climate change adaptation, they have not been consistently utilized in adaptation endeavours. From the lecturers' perspective, universities would play a great role in integrating scientific and local knowledge systems that will inform policy and practice on climate adaptation. These efforts align with the agreement reached at the twenty-first session of the Conference of the Parties (COP 21) in Paris, where countries acknowledged that adaptation action should be based on and guided by the best available science and, where appropriate, traditional knowledge, knowledge of indigenous peoples, and local knowledge systems.

Addressing climate multidimensionality

Addressing the multidimensionality of climate threats was also seen as an opportunity to enhance sustainable community well-being. Lecturers' perspectives indicated that the existing adaptation options are predominantly fragmented and lack diversity, suggesting that these options do not complement one another and overlook the multifaceted nature of climate responses. More than half of the interviewed lecturers noted that a lack of coordination and collaboration within the university and between the university and communities results in most advocated strategies lacking significant co-benefits, synergies, and trade-offs due to their disjointed implementation. Thus, one could argue that the current adaptation options do not fully leverage available technical expertise and resources to enhance communities' capacity to adapt to the impacts of climate change. Consider one of the lecturer's views below:

> Perhaps our most significant challenge is that our departments work in isolation, and the interventions we design target specific components. Even our students are more focused and mostly prioritise what they think will be completed within the short time frame. In short, they lack diversity, but this is entirely our problem because coordination between these departments would have led to integrated projects.

Due to coordination challenges, the university fails to come up with integrated adaptation programs, a strategy that can address the multidimensionality aspect of climate change: Another lecturer shared:

> As a university, this is an area we have errored enormously…. we also fail to come up with partnership proposals that can integrate different aspects of climate adaptation so that we give communities more options to explore various adaptations options. Our review meetings have also flagged issues and recommended that communities be actively engaged in designing interventions.

Based on lecturers' views, the role of university-community partnerships for climate adaptation is to design and offer a diversity of options for communities' adaptive capacity, thereby widening their choices in undertaking valued adaptation options. Such views support the UN Framework for Climate Change (1992) recommendations that diverse options for communities often lead to increased confidence, positive thinking, and adequate knowledge of adaptation before making decisions on exploring prospects. From a human development perspective, these observations align with the concepts proposed by Sen (2000). Sen argues that individuals can improve their opportunities and overall well-being through freedom. Having multiple options available provides communities with the freedom to choose and aligns with their interests in selecting and acting upon valued options.

Opportunity for more collaboration

Participants in this study identified opportunities to reach numerous farmers through digital technologies, radio usage, and collaborations with government offices to achieve a greater impact. These opportunities would enhance the university's capacity to provide enhanced outreach services to the surrounding communities. One lecturer mentioned, "We are in the process of introducing a radio program and will soon be applying for a license. The groundwork is nearly complete, so this will be another platform for us to engage with communities, allowing them to communicate their needs to us." Additionally, the university plans to establish strategic partnerships with the Ministry of Agriculture, as emphasized by another lecturer:

> Through the Department of Agricultural Extension, we are currently formalizing an agreement with the Ministry of Agriculture. We aim to have them officially invite us to participate in climate change programs and initiate programs through their platform. This partnership and agreement with the Ministry of Agriculture will enable us to frequently interact with communities.

Another significant proposal that emerged is the suggestion to establish a large-scale farm and introduce an additional fifth year to the undergraduate program, allowing students more time to apply theory to practice. One lecturer expressed:

> We are in the final stages of proposing to the management the addition of an extra year to the four-year program, dedicated solely to practical experience. Our students will then engage in hands-on activities aligned with their learning, working directly with communities on our Bunda commercial farm. This initiative will also leverage the establishment of the government's mega farms dream.

This initiative can enhance the effectiveness of partnerships in contributing to sustainable community well-being, as students and communities will collaborate on interventions over an extended period.

Strategic collaboration was also highlighted as crucial for driving the dissemination of innovation and technology development. One support staff member mentioned that there is currently a knowledge and awareness gap between the technologies introduced by the university and the needs of the community. He stated:

> When we develop technologies and innovations, many of them do not effectively resonate with the communities. We often fail to engage with them, resulting in some innovations becoming obsolete and remaining unused. For instance, our Department of Agricultural Engineering has recently developed several irrigation technologies and enhanced the treadle pump, but these advancements are largely unknown to communities or are not well-suited to their specific contexts.

Challenges that affect partnership contribution to sustainable community well-being

While acknowledging the contributions of partnership interventions to community well-being, this study further uncovered challenges related to funding, specialized degrees that do not address community needs, mindset change, and limited coordination between universities.

Funding

The adequacy of funding streams for partnership interventions, whether sourced internally through government subvention or externally via research contracts with private stakeholders, is insufficient to fully support climate adaptation efforts, thereby jeopardizing the sustainability of these interventions. In the case of many outreach programs, universities rely heavily on donor resources to sustain partnership initiatives. One lecturer expressed concern over this dependency on external funding sources as explained by one support staff member:

> We are still a subvented institution which relies on the government to give us funds to run programs. The funding levels are mostly very low which means it's practically impossible to allocate more funds for adaptation outreach programs. Engaging with communities required a solid financial base. That is why we encourage our staff to win more funding grants from private donors.

Calls for increased allocation of resources towards adaptation partnership interventions were underscored by support staff, who emphasized that the time-intensive nature of nurturing partnerships often leads to a temporal gap between inception and tangible outcomes. One lecturer suggested the "need to diversify funding sources to ensure consistency, continuity of the adaptation interventions and also cushion financial setbacks in case one partner decides to pull out". One lecturer lamented that the program coordination office is heavily dependent on one donor partner:

> Most of the programs have been supported by the Norwegians and it makes a huge difference but they can't do it all. There is need for multiple funding streams because …
> for instance the Norwegians stop funding, most of our operations will be paralysed.

The recurring theme of financial constraints also loomed over discussions regarding students' formation process within climate adaptation partnerships. The insufficient funds have led to a troubling trend where lecturers are unable to dedicate ample time to supervise students effectively on partnership work. A significant number of lecturers expressed this concern, indicating that the current level of funding falls short in supporting staff to provide adequate supervision and mentorship to students engaged in these partnerships as described by one of the lecturers below:

> We have argued that maybe we may need support just like the way government extension services are supported because we are also delivering the same extension services to farmers, so we need support in terms of transportation, our students need supervision, and they need teaching materials to use when working with farmers, so all that need to be supported because they are doing the public good and it needs adequate financing.

Similarly, students viewed resource challenges in terms of logistical support to enable them to reach out to communities for outreach adaptation work. They elaborated that the scarcity of resources results in certain students being unable to be physically present in the communities at the designated times, despite their eagerness and imperative to participate. One student shared:

> My visit to communities depends on the availability of funding. Most times I can't be there when needed because I have no money to travel. So, this affects my planning because during the times I have the resources, I discover communities are also busy with their assignments. Sometimes I negotiate with extension workers to use their bikes if I contribute something for fuel.

The financial constraints not only impede the progress of partnership initiatives but also impinge on students' learning experiences within climate adaptation partnerships, limiting their ability to engage meaningfully with communities due to logistical and resource challenges. Students mention that sometimes they miss out on field visits or cancel appointments with communities due to logistical challenges. Addressing these financial constraints is paramount to fostering effective collaboration, supervision, and mentorship within partnership initiatives, ultimately enhancing the impact and sustainability of climate adaptation efforts in the academic and community spheres.

Specialized degree curriculum not addressing multidimensionality of climate threats

In aiming to address the diverse needs of the community, participants mentioned that the specialized degree curriculum, in contrast to the discontinued general degree, does not provide a suitable foundation for students to effectively address community adaptation challenges. Lecturers have noted that the prevailing economic conditions in the country do not favour specialized degrees but rather emphasize general undergraduate degrees, as farmers' challenges are multifaceted and require students with comprehensive knowledge of various aspects of climate resilience. Consequently, lecturers shared that communities have raised concerns about students' lack of proficiency in certain areas, as they are unable to effectively respond to certain issues: Refer to the voice of one lecturer below:

> It is true that most recent graduates cannot match those who graduated twenty years ago. Because then, you were learning everything, it was general degree. But now when

you ask them about agriculture, they cannot tell you everything. They don't know much about that. So, it's like they are more focused. But is this farmer is focused? He/ she has problems 360 degrees and this one is only trained 45% so with the rest they don't know how to deal with the issues. That is why farmers are frustrated, they develop trust thinking they will be helped but when they ask them, they say let me go and find out. But the question is how do you trust a person who goes and finds out, I thought that person knows already? if you ask them a problem, "what is this disease, how can I solve this? What's wrong with these chickens? and they say, let me consult- they will go and consult because they don't know much because we have specialized a lot.

Due to the current economic conditions, lecturers shared concerns that specialized programs not only restrict students' capacity to effectively assist communities but also impact their employment opportunities. One lecturer articulated: "Given our economic situation, it is financially burdensome for the government to hire individuals who focus solely on poultry and rabbit farming, or on crop production, when the same individual could offer comprehensive solutions encompassing both areas".

Mindset change

During the staff interviews, a prominent theme emerged concerning the need for a mindset shift, emphasizing the attitudes and behaviours of lecturers and communities in advancing partnership initiatives. Staff members pointed out that a considerable number of lecturers intentionally ignore directives from designated authorities regarding the execution of partnership projects for reasons that are not clearly discerned. This defiance undermines the credibility of institutional leadership and subsequently weakens the collective push for cooperation, collaborative planning, and efficient resource utilization in community engagement endeavours. A support staff member shared below:

The issue of mindset change is a big challenge-starting for the university itself. You find staff that have been here for several years uttering words like you just came here and all you want is to change how we used to work? when did you come here? This is not how we do things here ok? So, convincing such people to think outside the box, would be a very big challenge. Of course, some have been supportive, and you could see that we are getting along well.

Linked to the issue of mindset transformation is the capacity of faculty members to align their efforts with the DRO or the PCO. The establishment of the PCO and the DRO aimed to coordinate all outreach endeavours, including programs dedicated to climate adaptation initiatives. However, support staff have identified persistent shortcomings in the coordination and collaboration between faculties and these offices, leading to a lack of comprehensive responses to the multifaceted challenges posed by climate threats. The inadequate coordination fosters fragmented and disjointed approaches that only address isolated facets of community well-being, neglecting the holistic nature of climate-related

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issues. In human development terms, collaboration and participation relate to equity, participation and empowerment principles. These principles denote fairness in undertaking development processes and inclusive decision-making (ul Haq 1995; Alkire & Deneulim, 2009). Therefore, by working together, the partnership would ensure that everyone has equal opportunities to contribute to interventions that promote sustainable community.

Another issue raised was the lecturers' emphasis on the significance of communities acknowledging that university initiatives are formulated for their advantage, underscoring the need for a shift in emphasis towards long-term adaptation goals rather than short-term benefits, such as financial incentives. This perspective stemmed from staff observation that certain community members were primarily motivated to engage in partnership work due to the allure of financial rewards, indicating a divergence in expectations regarding the anticipated outcomes of collaborative endeavours.

Limited collaboration between universities

Collaboration among universities is crucial for ensuring the standardization of approaches aimed at improving sustainable community well-being. All the lecturers interviewed emphasized that universities should align their efforts, similar to how other non-governmental organizations (NGOs) collaborate when working together. Apart from the Ministry of Education and the National Council for Higher Education (NCHE), each with distinct mandates, one participant highlighted the necessity of establishing an overarching organization. For example, one lecturer shared that when developing a program, it is essential to review existing initiatives, identify gaps, and evaluate the uniqueness of the proposed program. He articulated:

> We don't have that such a platform and it becomes a challenge to agree on best partnership models. So, the partnerships that we build whether within Malawi or regionally or global level are the initiatives of those university. But there is no established organization or board that puts universities together, or maybe check what programs they are offering. You are free to just offer any other program as long as NCHE approves it.

Collaboration was also linked to program design as communities shared that most times the university does not engage them in project designs or assessments of students on internship. One community member shared below:

> We treat them as our children and aim to ensure they succeed. However, given a chance, we can also help the students interact with us better because we can easily point out that student A engages better with us than student B.

The aforementioned points underscore the absence of collaboration and coordination at the university and community level, which is crucial for identifying and prioritizing optimal strategies to ensure sustainable community well-being in the context of climate change. There is limited evidence supporting platforms where universities can engage in capacity assessments and mapping exercises to evaluate their capacity in addressing community climate challenges. Further, evidence suggest that the community's involvement in evaluating the projects was minimal and non-existent in assessing students' performance during outreach work, which undermined the principle of efficiency in the human development approach. Similarly, there is scant evidence indicating that partnerships for climate change adaptation are regarded as a primary standalone issue for universities to focus their efforts on when working with local communities. Additionally, the positions within the DRO or PCO are advertised without a specific requirement for individuals trained in climate change or institutional partnerships to lead these offices. This raises concerns about the potential risk of assigning staff members who may lack interest or expertise in climate adaptation outreach work to spearhead adaptation initiatives.

Transparency regarding outcomes

The ultimate goal, structure, and design of partnership programs pose challenges regarding expectations, leading to confusion about whose interests they serve. In terms of human development, clear management of expectations enhances efficiency by directing resources to where they are most needed and preventing both the university and communities from feeling overwhelmed by responsibilities that may be unfeasible to implement. Many partnership interventions are formulated from the university's standpoint with minimal, and at times no, input from local communities. To a significant extent, communities perceive these interventions as geared towards supporting university functions and note that the university often prioritizes consultation with government officials in the project design phase. However, assuming that local government structures represent the entire community's perspectives can be problematic, as it may constrain individuals' freedom and agency within that community. Human development aims to improve people's well-being and expand their capabilities by empowering them to make choices aligned with their values and preferences (ul Haq, 1995). Inclusive and transformative participation and empowerment entail involving communities in all stages of the process and empowering them to take charge of adaptation decisions and actions to address their adaptation challenges.

The short duration of interventions, which normally end when university outputs are achieved, such as academic articles, students' internships programs, and scientific research results means that communities play more of a recipient role rather than active participants. Additionally, community members felt the need to demonstrate continuity of university partnership interventions. One of the community members mentioned that every year new technologies are being introduced without taking stock of the previous ones. Another community member suggested that it would be beneficial for new students engaging in partnership initiatives to build upon the work left by previous students, noting that many interventions seem student-centred rather than community-led. A community member remarked, "I perceive it as a deliberate issue that we often leave projects unfinished, either due to resource constraints or time limitations". One lecturer even admitted that project completion delays are often attributed to excessive workload, as the rise in enrolment creates additional pressure on their teaching responsibilities.

Conclusion, recommendations, and limitations

In conclusion, the university-community partnerships for climate change adaptation interventions have contributed to sustainable community well-being in various ways. Some of the ways include successfully reigniting community members' interest in participating in activities, effectively empowering communities to overcome research fatigue, and encouraging increased involvement in interventions. Despite initial challenges in securing community support due to concerns about perceived lack of tangible benefits and potential exploitation by the university, community members have since shown appreciation for the university's efforts in engaging them in partnership initiatives. The study has further revealed that active participation of community members in requesting extension services from LUANAR exemplifies their agency and the demand-driven nature of the community's approach to partnership interventions, underscoring the benefits derived from the university's support.

Despite the positive impact of the partnership interventions, the study highlights critical issues such as inadequate funding, specialized degree programs not addressing community needs, the necessity for mindset change, and limited collaboration between universities as key challenges to be addressed. These challenges impede the effectiveness and sustainability of climate adaptation efforts, leading to reliance on external funding sources, students lacking necessary supervision and mentorship, and communities facing logistical challenges in engagement. Addressing these challenges through initiatives such as increased funding diversification, curriculum adjustments, mindset transformation,

and enhanced collaboration is essential for fostering effective partnership initiatives and enhancing the impact of climate adaptation efforts on community well-being.

The primary limitation of the study pertained to the participant scope, which lacked disaggregation of contributions based on gender. Given the varied impacts of climate threats on distinct demographic groups, particularly women and children, who are notably susceptible and vulnerable to climate change effects, there could have been disparities in the effectiveness of partnerships contributions across these groups. To enhance future research endeavours, it is recommended that a study consider contributions through a gender-specific lens. This approach would enable the identification of tailored strategies within partnerships to address the unique needs of diverse community groups.

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