International Review of Philanthropy and Social Investment (2025), 4(1). 15–33
ISSN (Print) 2708-3314
ISSN (Online) 2708-3322
http://dx.doi.org/10.47019/IRPSI.2025/v4n1a2

RESEARCH ARTICLE

Leveraging social networks and philanthropy for climate action: Insights from Botswana

Keratiloe Sishoma Mogotsi*

Centre on African Philanthropy and Social Investment, Wits Business School, South Africa and School of Business and Enterprise, Chatham University, USA.
* Corresponding Author: keratiloemogotsi@gmail.com

Abstract

Philanthropic organizations are increasingly viewed as key players in advancing climate action and supporting the Sustainable Development Goals (SDGs). Their interactions and networks with local communities, particularly in vulnerable regions, are critical for fostering effective climate adaptation strategies. This study explores the social networks, innovation, and dynamics between philanthropic organizations and smallholder farming communities in Botswana to facilitate climate adaptation for vulnerable populations. Guided by social network theory and qualitative methods, including 11 in-depth interviews, the research examines the interactions, social support, and interdependence between these stakeholders. The findings reveal that the networks are dynamic and driven more by shared interests in climate action than financial incentives. Indigenous systems of adaptation were found to be more readily accepted by farming communities compared to externally imposed, Western solutions. While farming communities play a crucial role in shaping philanthropic activities, the impact of these initiatives remains constrained by bureaucratic hurdles and the informal nature of the networks. Moreover, some interventions require governmental authority and resources to address systemic challenges effectively and achieve scalability. The study also highlights the innovative ideas and climate adaptation strategies emerging from the farming communities, which are well-received locally but lack the structural support for broader implementation. These findings address significant research gaps related to sustainable development in indigenous and developing communities like Botswana. Practically, the research provides actionable insights for practitioners and philanthropic organizations, emphasizing the importance of prioritizing the human aspect of societal outcomes to drive effective climate change mitigation and adaptation strategies.

Keywords: Social Innovation, Climate Philanthropy, Social Networks, Climate Action, Climate Adaptation, Botswana

JEL classification: H2, 01, C33, 055

1. Introduction

Effective climate adaptation is a pressing global priority, yet it remains a multifaceted challenge requiring contextualized and multisectoral solutions to safeguard human lives and ecosystems (Alongi & Tilghman, 2021). For many developing nations, financial and infrastructural constraints exacerbate their vulnerability to climate change, hampering the implementation of robust adaptation strategies (Caretta & Morgan, 2021). These countries face severe consequences, including water scarcity, unreliable rain-fed agriculture, increased climate-induced disasters, and food insecurity—threats

that profoundly impact lives and livelihoods (Caretta & Morgan, 2021; Maantay et al., 2012). Consequently, scholars and practitioners have called for urgent attention to develop mechanisms that address these challenges while advancing sustainable development goals (Bajwa et al., 2023).

In Southern Africa, and specifically Botswana, gaps persist in understanding the mechanisms and networks essential for fostering climate adaptation and resilience. Small-scale social networks and associations are posited as potential facilitators of collective action and risk management (Rodima-Taylor, 2012). However, their structure, dynamics, and efficacy in addressing climate challenges remain underexplored. Philanthropic organizations, with their growing influence and resources, have emerged as critical catalysts for achieving climate adaptation and sustainable development goals (Kumi, 2019; Nisbet, 2019). Their ability to mobilize resources and drive climate action is projected to rival or even surpass national governments in certain contexts (Nisbet, 2019).

Philanthropic organizations, however, operate through social networks and collaborations with communities, aiming to reduce inequality, alleviate poverty, and support marginalized groups (Searle et al., 2013). While they play a vital role in addressing societal challenges, a people-centered approach is crucial to ensure that marginalized groups—such as women, children, Indigenous populations, and smallholder farmers—are not overlooked in climate adaptation efforts (Bose, 2017; Caretta et al., 2021). Research increasingly emphasizes the need for innovation and community-focused interventions to address the human dimensions of climate change (Bergman et al., 2010; Bajwa et al., 2023).

Social network theory provides a valuable framework for understanding the relationships and interactions between philanthropic actors and local communities, particularly smallholder farmers. By examining network composition, social support, and interdependencies, this study seeks to address persistent gaps in the literature on how these networks operate and contribute to climate adaptation. In the context of Southern Africa's accelerating climate vulnerabilities (Bauer, 2010; Kumi, 2019), such insights are crucial for reducing vulnerabilities and advancing sustainable development.

This study focuses on the dynamics between philanthropic actors and smallholder farmers in Botswana, exploring how their networks facilitate social change and climate action. The research addresses three key questions:

- What is the social network composition of philanthropic actors and smallholder farmers pursuing climate action?
- How does social support influence the implementation of climate action initiatives?
- What interdependencies and feedback loops exist between philanthropic actors and smallholder farmers in these networks?

The findings contribute to understanding the interplay between philanthropic organizations and local communities, offering theoretical and practical insights into climate adaptation strategies. By framing the study within social network theory, the research highlights the importance of collaborative, people-centred approaches to achieving climate resilience and the United Nations' 2030 Sustainable Development Goals (Bajwa et al., 2023).

This article begins by outlining the research methods, reviewing the relevant literature and presenting the findings, followed by a discussion and conclusions. The study aims to address knowledge gaps and provide actionable insights into the role of social networks in driving climate adaptation and resilience in vulnerable communities.

2. Research Methodology

The study used a qualitative approach to explore the social network dynamics, focusing specifically on the interdependencies and social support between philanthropic organizations and smallholder farmers. It adopted a phenomenological research design, targeting a sample of philanthropic and grassroots organisations in Botswana. It was very important to derive the direct lived experiences

from the philanthropic actors and members of the social network to avoid misrepresentation and any insinuations with the limited data available from the Botswana context. Creswell (2017) suggested that interview schedules are well-suited for qualitative research.

Using purposive snowball sampling methods, the study conducted semi structured interviews which are helpful in understanding "why" and "how" phenomena happen (Creswell, 2017). Although snowball sampling can introduce bias, this was an unavoidable issue due to the small population size. This was a limitation the study needed to navigate as the small, tightly knit community of philanthropic organizations meant that the participants were likely to know one another.

2.1 Sampling

The population of Botswana is small with just over 2 million people in total. As a result, the population of registered philanthropic organizations specifically handling climate issues is small with 20 registered philanthropic organizations, and 52000 registered smallholder farmers in various parts of Botswana (Agri-Census, 2015). The study thus drew a sample from this population. Purposive sampling was pursued and a targeted representative sample of 11 of the 20 total philanthropic organizations working with farming communities was confirmed as participants. A sample size of 11 is deemed appropriate for qualitative research if it addresses the research questions of the study (Creswell, 2017).

The sample size of 11 was also appropriate for the study to achieve desired results due to the small population of such organizations and the concentrated network of these organizations. Reaching more than 50% of the population is desirable to answer the research questions of the study.

2.2 Data Collection Process

The population of the 20 registered philanthropic organisations were contacted and invited to participate in the study. The sole criteria for the organizations to participate was that they were registered, working on climate initiatives, and working with smallholder farmers. All 20 registered organizations from the population were eligible to participate thus the first 11 that responded and represented diversity whilst confirming availability were scheduled. We also ensured diversity by scheduling with different size organisations, different locations in Botswana and varying ages of the organization to ensure a variety of voices were incorporated.

Moreover, we sought signed consent from the registered philanthropic organizations that responded and used their guidelines to identify the smallholder farmers that they work with. It was important to do this to include members of an existing network and not aspirational. Interviews were conducted in person and online based on the availability of the respondents. Participants responded to the questions outlined in the interview guide in appendix A. On average, the interviews lasted over 20 – 30 minutes. We allowed the participants to elaborate on each of the questions and categorized the responses to each research question. The interviews were conducted online and in person – depending on the availability and preference of the participant. All were recorded and transcribed for analysis on qualitative NVivo software.

2.3 Ethical considerations

As established, primary data collection was collected through in-depth interviews with members representing philanthropy actors and smallholder farmers. Ethical clearance was provided, and all ethical considerations were observed through maintaining confidentiality and anonymity of all participants. Issues of vulnerability were seriously considered and no vulnerable members such as minors were included in the study.

The respondent profiles are presented in table 1. Research protocols and guidelines were upheld in accordance with the ethics committee for human participant research. Consent to participate in the interviews was provided verbally and in writing. Furthermore, all participants were provided with the study information sheet.

2.4 Data analysis process

The data was transcribed in NVivo software where responses for each question were categorized in themes that were built from the social network theory, specifically, social network composition, social support, and interdependency. Grouping the responses into the preset themes from the theory enabled the analysis to transpire thematically by isolating the specific responses to each theoretical theme. Codes were generated to contain short descriptors for each respondent and the accompanying themes from the research questions. To ensure credibility and reliability of the data, the responses and generated codes were cross checked to corroborate findings from different perspectives as conducted in qualitative research (Foley, 2021).

Descriptive information also helped to shed light into the focus areas of the philanthropic organisations and basic demographics that maintained anonymity of the specific respondents. Table 1 presents the basic demographic information. This thematic analysis was then employed through NVivo software to provide the findings of the study.

But first, a review of relevant literature offered a framework for the analysis and discussion:

3. Literature review: Philanthropy in climate action

People are at the forefront of climate effects and philanthropy has been documented to shift the attention to communities and achieve societal changes that reduce the adverse effects of climate change. The effects of climate change are widely reported in academic platforms and local media platforms and they heavily affect marginalized communities such as low income households, elderly, women and children residing in rural lands (Searle et al., 2013).

Philanthropy has been associated with several significant initiatives aimed at addressing climate change. These include promoting food security through micro-finance and leveraging micro-finance to advance renewable energy technologies (Chirambo, 2017), the introduction of blockchain technologies, artificial intelligence and big data analytics in funding and support efforts (Ooro et al., 2023) and, specifically in Botswana, investing in climate-smart agriculture to reduce dependency on rain-fed agriculture (Mushita et al., 2019). Indeed, philanthropic actors have been instrumental in creating societal changes (Chirambo, 2017). Some of these societal changes supported by philanthropy are paramount to the success of climate action goals because climate change increasingly affects local communities in various parts of the world. The adverse effects of climate change are more pronounced in marginal and indigenous populations that rely on natural resources for their livelihoods (Rodima-Taylor et al., 2012b). To address these adverse effects, and reduce society's environmental impact, social innovation has been identified as a means because of its ability to create change (Schartinger et al., 2017).

Social innovation includes behavioral changes through new ways of conducting activities that reduce the exacerbating effects of climate change. It has been considered as essential for climate action and increasing societal outcomes (Bergman et al., 2010).

Understanding pro social behaviors exhibited by philanthropic actors and the local communities is prudent as philanthropy in Africa needs to cater for the continents dynamics and influences (Fowler & Mati, 2019). Philanthropy and development in Africa are intertwined and supported by strong relational building concepts (Moyo, 2011). In essence, social interactions cannot evolve in the absence of social relations (Vonneilich, 2022), thus a social network theoretical lens is required to fully fathom the dynamics pertaining to climate action and the networks present between philanthropic actors and local communities most affected by climate change – the small holder farmers in Botswana.

Vulnerable regions like Botswana are underrepresented in the literature and yet previous studies have highlighted the significance of Southern Africa in providing solutions to adaptation due to the increased climate related events like droughts, flooding, and wildfires (Mogotsi et al., 2022). The country, unlike others in Sub-Saharan Africa, has been praised for its stable economy and social development, however, Botswana is still characterized by natural resource dependency (Hillbom,

2012), with high populations (over 50,000 as of 2015) living on farming the land and livestock production. The country is known for its urban and export market for beef production. Botswana, and the Southern African region at large, faces an increased threat to marginalized communities because of the effects of climate change and calls have been made to better document the dynamics at play due to players like smallholder farmers who are heavily reliant on rain fed agriculture for their survival (Mushita et al., 2019). It is prudent to study these societies to understand various ways of climate adaptation as these could manifest differently for indigenous and marginalized communities in areas like Botswana where indigenous communities exist.

.

3.1 Social network development for climate action

Indigenous people have been studied and previous studies raise some causes for concern as their methods for adaptation are less understood and yet - they bear the brunt of climate change impacts with their reliance on climate patterns (Bose, 2017). For this article, indigenous populations refer to inhabitants of a local community that are reliant on natural resources such as land and rain for their livelihood.

The smallholder farming community in Botswana presented several subsistence farmers that rely on seasonal rains and weather patterns for their livelihood. The country is an exporter of animal produce, and the government invests in agricultural funding to ensure steady supplies of animal produce. Rain fed agriculture though, is at a lesser scale due to unreliable weather patterns (Hillbom, 2012). The profile of smallholder farmers is varied and mostly producing milk, root vegetables, maize, sorghum, watermelons, and meat (CIA.Gov, 2024). The economy also benefits from natural resource mining in diamonds, copper, nickel, coal, silver, and iron ore (CIA.Gov, 2024) of which some of these are nonrenewable sources.

Indigenous populations from the ethnic groups as well as vulnerable groups like women, youth and people living with disabilities, partake in the economy through farming activities. Farming has been a key practice historically (Chhetri et al., 2012). Consequently, farming communities become affected by climate change, with water becoming more difficult to source and weather patterns causing uncertainty, and low rainfall. Adaptation for these marginalized communities has been found to be lacking as marginalization in the contexts of gender, age, education levels, location continued to present major transformation issues (Bose, 2017).

In a similar study, social innovation was used to analyze climate adaptation for the Kuria people of Northwest Tanzania and vast networks were found to shape adaptation practices through communication, negotiation, and resource management (Rodima-Taylor, 2012a). In Nepal, networks of farming communities have used climate sensitive technologies and created new networks with funding institutions to foster innovation in farming (Chhetri, 2012). The study by Chhetri et al (2012) demonstrates some strengths in the power of networks in creating social changes and encouraging innovation, as the adoption of climate smart technology was a community effort driven by farmers collectively. However, the study is old and requires some enhancements, particularly in underrepresented areas such as Botswana.

Collaboration and solidarity in group and network behavior is not new to Africa. Social networks are the fabric of the culture of Africa, with helping one another being a norm from the birth to the death of African people (Moyo, 2011). It is quite normal, and a "way of life" for Africans to group and create networks to face challenges common to the society. This was demonstrated during pre-colonial times where solidarity was at the core of pro-social behaviour (Fowler & Mati, 2019).

In navigating a complex issue such as climate action, it is then a natural progression to analyze the social networks at play as these, formal or informal, would shape the climate action initiatives. Understanding how philanthropy interacts in the social networks in Botswana would add immense value, as the center of "influence" and financing potential of philanthropic actors is less documented

(Nisbet, 2019).

3.2 Social support and philanthropy

There have been previous reports of philanthropic funding and its effect on providing social support for various causes. This has been observed pre and post the COVID19 pandemic. For instance, Mushita and Thompson (2019) found innovative uses of philanthropic funds to support farming seed systems in Southern Africa. Smallholder farmers, through social support, were found to provide indigenous knowledge and alternatives to farming using the funding they used from philanthropic sources (Mushita et al.,, 2019). In Nepal, philanthropic support from supporting institutions fostered innovation in technology to help farmers use technologies that are responsive to changes in the climate (Chhetri et al., 2012). Local community members have therefore been found to be a source of social innovation, presenting ways to do things differently and more impactfully- to adapt to the natural surroundings (Antadze et al., 2010). However, their interactions with philanthropy are less. Philanthropy has aided the network development as philanthropic funding helps people with similar interests and beliefs to mobilise and, build capacity, thereby solidifying the network (Goldstein-Sabbah, 2020). The social support and solidarity evident in African philanthropy has seen numerous philanthropic acts bringing together groups of people, to support one another in times of distress, such as the Haiti earthquake, terrorist attacks (Mati, 2017) and, high impact pandemics and weather-related disasters.

The philanthropic influence on social support, and perhaps the foundational setup of networks, is a crucial knowledge gap because network formation drives innovation and the success of group activities (Crossley, 2022). If it is indeed true that birds of the same feather flock together, it is then crucial to understand the relationships and how birds of the same feathers "find each other" and innovate to move - in the same direction.

For this study, social innovation pertains to ways to reduce society's environmental impact (Schartinger et al., 2017) which are abundant in an African country like Botswana which has indigenous peoples still residing and operating on the land. Botswana also has several local and international philanthropic funders collaborating with farmers and vulnerable people.

3.3 Interdependency

As established, culture, relationship building and solidarity describe the features of African philanthropy (Moyo, 2011). Philanthropic funders have historically possessed power due to their wealth and colonial influences (Fowler & Mati, 2019). This has created a divide and power imbalance between funders and grant recipients (Wilkinson, 2017). To tackle climate change, however, collaboration is required with intentional actions that empower affected communities, so that initiatives can be sustained. Participatory approaches are encouraged to share power and enable affected people to help themselves (Tomascko, 2021). It is therefore essential for philanthropic funders to collaborate and work with the affected communities, for sustainability and to contribute to power sharing.

The philanthropic organizations and smallholder farming communities require ties and social relations to achieve any common goals together. Community ties shape interaction as they often involve interdependence (Crossley, 2022) and this interdependence was analyzed through the social network exhibited in the context of Botswana. The findings of the study contribute to the body of knowledge on ties, interdependency, and power sharing initiatives on the African continent.

African context is particularly important because community philanthropy has been flagged as a means to shift power and, enable funders to involve the communities they serve in decision-making (Hodgson et al., 2018). Philanthropic funders are actually encouraged to invest in efforts that empower the community, as failure to do so results in persistent power imbalances (Wilkinson, 2017).

Understanding the dependencies, behaviors and needs of communities provides important insights to guide data driven decision making and yet, the literature on this is sparse (Angelidou et al., 2017). Previous studies have found shifts in societal power relations, with interdependencies between multiple stakeholders that shape transformative social innovation and empowerment of local communities (Avelino et al., 2019). This was catered for in the study through a social network theoretical lens.

The findings of the study are crucial to reduce the knowledge gaps in philanthropic climate action and the persistent gaps in marginalized communities and underrepresented areas like Botswana. Theoretically, the study adds to the body of knowledge of social network theory in philanthropic settings.

4. Theory and Conceptual Framing

Social network theory examines how social entities are interconnected through relationships and interactions (Vonneilich, 2022). Suitably, this theory was employed to explore the dynamics of philanthropic actors and smallholder farmers as these have evolved to become a type of network pursuing climate action. People with similar attitudes, or ways of thinking, have been classified as a type of value homophily which implies that – people build relationships and interactions with those similar to them, even in scenarios where individuals may not necessarily be from the same sector or background (Gamper, 2022). This theory has been used in various industries such as healthcare where the theory helped to explain how social networks contribute to health inequality. Those with higher income and better living conditions formed networks separate from those with lower income and as a result, health access, life expectancy and quality of life were different for the groups and created inequality (Klarner et al., 2022).

Similarly, in philanthropy, social network theory can help to highlight the role of interdependence which creates a balance of power (Crossley, 2022). The social composition of communities and their participation in decision making can help to shift and share power with philanthropic actors (Hodgson et al., 2018). Philanthropic actors have been pressurized to share power as they inherently possess power and control over the financial resources that they provide to communities (Tomascko, 2021). This is particularly important in an African context like Botswana with a large indigenous population as social ties between colonial power and former colonies affects the type of giving and relations as the threat of withdrawal of desired resources motivates compliance somewhat with the wishes of the other (Fowler & Mati, 2019).

The networking and grouping nature of the philanthropic actors and communities could similarly affect priorities and outcomes. Previous studies show that social networks in Northwest Africa contributed to adaptation (Scheffran et al., 2012) and thus made the theory applicable to the context of the study. To establish the social network dynamics relevant for the study, qualitative metrics provided by Seitte et al. (2021) were employed and applied to a sample of 11 philanthropic organisations working with local communities in various parts of Botswana.

The objective of the enquiry was to use the social network theory to unpack the contextual influences, interdependencies, and social networks to report the social innovations at play that may (or may not) drive societal change. Understanding this is critical for policymaking, and for development, so that policies can support enabling environments for these social networks and philanthropic actors can make guided decisions on social factors for the climate action SDG.

The conceptual framework for the study was anchored in social network theory and provided below:

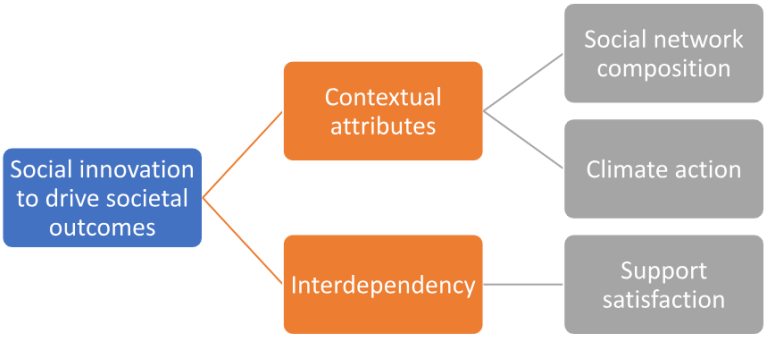

Figure 1. Social Network Theory Conceptual Framework

The contextual attributes and interdependencies guided by social network theory were used to gauge the network composition, climate action work and satisfaction with the current status quo. These were similarly used in healthcare and other social compositions (Gamper, 2022, Klarner et al., 2022, Vonneilich, 2022). The conceptual framework in figure 1 guided the methodology and analysis of the data.

5. Findings and Discussion

A total of 11 key informants participated in the in-depth interviews. Table 1 below provides an overview of the key descriptive information about the sample:

Table 1. Descriptive Summary of Sample Respondents

Respondent No.	Age group	Gender	Highest level of education	Annual Budget for climate initiatives	Thematic area
1	18-35	Male	Bachelors	<$100,000	Environment, Conservation
2	61+	Male	Bachelors	<$100,000	Water, Green Energy
3	36 - 45	Female	Bachelors	<$100,000	Advocacy
4	61+	Male	Masters	N/A	Agriculture
5	61+	Male	Postgraduate	N/A	Agriculture
6	18-35	Female	Postgraduate	>$1 Mil	Economic Development
7	36-45	Male	Postgraduate	>$1 Mil	Economic Development
8	61+	Male	Postgraduate	<$100,000	Innovative horticulture, Indigenous knowledge
9	36-45	Male	Postgraduate	<$100,000	Renewable energy, reducing land degradation
10	61+	Female	Postgraduate	<$100,000	Conservation agriculture
11	36-45	Male	Secondary schooling	<$100,000	Climate smart agriculture and technologies

The findings from the in-depth interviews are presented and discussed according to the research objectives below.

5.1 Social network composition for climate action

The climate action network investigated currently comprises of smallholder farmers and various philanthropic organisations . The philanthropic organisations were few , with only 20 found to be registered , and focusing on climate action . A key determinant of the participation in a network is the interests of individuals. According to the social network theory, like mindedness supports efforts in group cohesion and, increases the likelihood of like-minded people joining the network (Siette et al., 2021).

This view of like mindedness was echoed in the sample as respondent 1 (Male, Senior Manage - ment) stated:

> *"I look out for a database of people interested in climate action. We are generally open for recruitment as long as people are interested in climate action."*

In some cases, government authorities were supportive of these networks as respondent 4 (Male , Senior Management) highlighted:

"Farmers are hands on with climate smart initiatives. There is growing interest and support from local government."

Members of the climate action network intentionally sought out others willing to participate in the various initiatives and, quite a few initiatives were reported by the respondents. Respondent 3 (Female, Senior Management) listed climate smart agricultural initiatives, such as land management systems, development of drought resilient livestock and crop, improving farmers access to technologies and, education on climate smart soils. However, the adoption rates of some the initiatives were low (Respondent 6, Female, Middle Management). Previous studies such as the climate smart agricultural papers similarly reported low adoption rates in Southern Africa and this was attributed to climate funding deficits (Rosenstock et al., 2019).

Studies found that it was imperative for social innovation to be driven by networks and community members to increase adoption rates, especially for environmental issues (Ziegler et al., 2022). The respondents in the study alluded to high participation from the community with environmental issues, this was confirmed by respondent 2 (Male, Senior Management):

"The community members and farmers are the owners of the Trust and fully drive the initiatives and decisions in our water and clean energy work."

This was a key finding as social innovation requires social mobilization and impact to address sustainability challenges (Repo et al., 2020). Without high participation from the community members, sustainability initiatives cannot be achieved successfully. The philanthropic organisations confirmed that they support the network through regular interactions. They have WhatsApp groups and quarterly workshops directly with the farmers and, they also have a farming technical advisory committee to share best practices (Respondent 8, Male, Senior Management).

The respondents also highlighted their efforts to work with external stakeholders such as journalists and content creators, to magnify their efforts and help to educate and recruit more members to their networks (Respondent 1, Male, Senior Management). Interactions with the farming community were reported to be informal sometimes, driven by a need to collaborate and solve a problem in solidarity.

One of the respondents explained:

"We interact with the community. Mostly informally, for example, having a borehole is a very expensive venture so communities come together to share the costs to make this possible. The trust shares everything with the community." Respondent 2 (Male, Senior Management).

This behavior is typical of African philanthropy where giving and sharing are driven by solidarity and reciprocity (Moyo, 2011). Community philanthropy is necessary in African contexts as helping and collaborating, form the essence of African ways (Hodgson et al., 2018, Wilkinson, 2017). It was therefore not surprising that the Botswana context exhibited these familiar mechanisms of community philanthropy, sharing, and group support, to tackle climate initiatives and address the impacts of climate change such as lower access to water sources.

In essence, the climate action network was varied with philanthropic organisations working with a highly involved farming community. Actors within this ecosystem have influence on each other. Support from the government was slowly growing with instances of initiation, and collaboration across various sectors. The network itself was still growing with around 20 registered philanthropic organizations focusing on climate action.

5.2 Social Support and Philanthropy

Social network theory posits that integration, connectivity and social support are integral to networks (Siette et al., 2021). The climate smart agricultural papers by Rosenstock et al (2019) elaborate that

integration and social support to farmers, provides protection from external threats, such as the entry of substandard products to the farming market. The study found that social support is present in the climate action networks and sometimes this support is provided by external parties. For instance, respondent 8 (Male, Senior management) described:

> *"We receive support from international INGOs like UNDP. There are no varied grants unfortunately. We are coordinated by the ministry of agriculture. We also go on television and media for outreach."*

Similarly, respondent 1 (Male, Senior management) alluded to external support:

> *"There is some social support, there are some organizations willing to assist us in Botswana. The government has also recently launched some initiatives."*

Whilst respondent 2 (Male, Senior management) echoed, "there is some support from the department of museums and environment and the ministry of agriculture. The support is still very little." Social support, however, requires connectivity to all the affected constituencies (Siette et al., 2021). Respondent 1 (Male, Senior Management) expressed some concerns with the levels of connectivity and social support:

> *"I am 50% satisfied with social support because we still face bureaucracy and a lot of backlashes especially when you try to introduce climate initiatives to the schools. There is a gap that needs to be closed in education because there is some rigidity when it comes to adapting curriculum. Government is not doing enough."*

Interestingly, table 1 shows that most of the philanthropic organisations have budgets less than $100,000 US Dollars. With such low budgets, the rigour required for support and connectivity, faltered with some of the respondents raising concerns about scalability and lack of growth in the initiatives. Respondent 9 (Male, Senior management) reported:

> *"The farming community knows about us and our interest in promoting climate smart agriculture. Individual farmers make direct requests but due to our budget constraints we do not really go beyond these interactions which are sometimes informal."*

Once more, the informal nature of some of the support provided was raised. There are distinct differences in institutionalized philanthropy discourse to that of African philanthropy. The latter has sociopolitical and cultural influences which affect systems of governance (Fowler & Mati, 2019), so while international philanthropic organisations were found to be active in Botswana, the social support mechanisms had flavours of African philanthropy. This was supported by Rodima-Taylor's (2012) study where informal associations were found to be essential in supporting local adaptation practices. Of particular concern was the lack of consequences for violation of climate action laws. Communities work with philanthropic organizations but, there is no punitive action for lack of action or violation of efforts. Respondent 6 (Male, Senior management) explained, "there are no consequences to climate "mis-action". We are in an uphill battle because people can say one thing and do another with no consequence."

Respondent 1 (Male, Senior Management) further stated:

> *"There is no evaluation and monitoring of initiatives. The management of the initiatives needs some transparency, monitoring, and evaluation to ensure that these are indeed really working. We also need to take action against those that do not comply."*

These are key considerations for policymakers and community leaders to drive mis action and transparent monitoring and evaluation mechanisms.

Additionally, innovation was thriving in this market. Social network theory encompasses social innovation to drive outcomes as outlined in figure 1. As established, social innovation, the adoption of new social practices to solve societal issues (Schartinger et al., 2017), is a fundamental ingredient in increasing society's capacity to solve its own problems (Mulgan et al., 2007). The participants described various community driven innovations such as, revenue generating farmers markets, best practice workshops, and research and development on indigenous knowledge systems. Respondent 10 (Female, Senior Management) provided some examples:

> *"We want to create a veld product hub and production centre to fill the gap between the producers and markets and help small business development to replace lack of income from ever-failing conventional crops."*

Interestingly, the farming community were found to be more receptive to indigenous knowledge systems, such as crops that historically grew in their landscape. Community members viewed this approach as more sustainable, helping to alleviate concerns about failing crops due to changing weather patterns that resulted in less rainfall. Previous studies have highlighted that there is a slow uptake of climate smart technologies in Southern Africa (Rosenstock et al., 2019). This could be explained by the findings of the study, as respondents alluded to a preference for indigenous methods ahead of climate technologies and western ideology. Plausible explanations were provided by some of the respondents below:

> *"The impacts of climate action are visible; we go out into the field and see the drought. We thus place emphasis on indigenous crop that can withstand the drought. The drought has affected a lot of farmers, so we need to change." Respondent 9 (Male, Middle management).*

> *"Farmers do not like the commercial crops because they are expensive. They are thus welcome and open to ideas that take them back to their roots and indigenous ways as this feels more sustainable for them." Respondent 8 (Male, Senior management).*

Technological solutions alone are inadequate, as social innovation and a bottom-up approach are what previous studies called for (Bergman et al., 2010). Indigenous crop and systems are a means of social innovation, but even these require resourcing and support. The respondents raised some concerns about the capacity of some of the authorities enabling the implementation of some of the initiatives:

> *"Agriculture research department seems under resourced because each time I want to work on a crop, the department takes forever to respond. They are very friendly, but we do not seem to be getting anywhere as there is seemingly insufficient equipment for research. This affects the farming community because they need to know if crops are toxic but if there is no response, it becomes discouraging." Respondent 8 (Male, Senior Management).*

Social network theory suggests that innovation originates within the network and can be applied to various contexts. Similar to other studies, this research found that solutions were often initiated by communities, however, challenges such as lack of authority and the capacity to fully implement these initiatives were present.

5.3 Interdepedency

The social network theory, as well as the conceptual framework in figure 1, isolate contextual attributes and interdependencies as enablers for climate action initiatives success, and satisfaction.

Networks, essentially, cannot be divorced from culture as a deep appreciation of how marginalized communities think and act drives the involvement and trust of people to act within that network (Klarner et al., 2022). The study by Mushita et al (2019), found that farmers and community members themselves were offering alternatives of seed systems and, collectively tapping into indigenous knowledge.

In another study, Siette et al. (2021), in their evaluation of older social network measures, reported that older adults require suitable network measures cognizant of their lived experiences and ways of doing things.

These findings resonate with the findings from Botswana as respondent 9 (male, senior management) offered this declaration:

> *"We try to use culture as a vehicle for addressing environmental problems. You cannot isolate environmental problems and climate change from culture. We prioritise farming activities that protect the environment. We therefore support those environmentally friendly indigenous methods."*

Contextual attributes such as geographic location and culture are important to foster collaborative environments. The literature highlights factors as social networks to be essential in influencing the rate of adoption of a climate smart technology (Rosenstock et al., 2021). The farming community were mostly rural and thus responded 11 (male, middle management) confirmed:

> *"In rural areas, culture plays an important part. Sometimes it can be detrimental, but we are involved with it all the time in whatever we do so we cannot move away from it."*

Specific interdependencies were raised such as sharing costs in boreholes and, obtaining information on indigenous crops. Respondent 8 (Male, Senior management), provided specific examples of interdependencies:

> *"We always interact with farmers, and we also have quarterly formal meetings. With communal farmers we look for information on indigenous crops. We have help from botanic groups and genetic resources to learn about indigenous vegetables. We need them to confirm that these are not toxic before we teach people how to farm the items."*

Collective effort and solidarity were exhibited once more in this Botswana context as expected in African philanthropy (Moyo, 2011; Fowler & Mati, 2019). Interdependency fosters collaboration and, ensures that the needs of marginalized communities are included in the innovations for climate action. In the example provided by respondent 8 (male, senior management), suggestions of crop from indigenous knowledge required research and development to ensure the crops were safe to farm. The philanthropic organizations and the farming communities drove this display of mutual accountability. With any group settings, conflict is inevitable. There were reports of misalignments in climate action initiatives and this is not a surprise. Knowledge networks in Nepal also required intentional navigation of challenges between farmers, scientists, and institutions as was exhibited in the data (Chhetri et al., 2012). Respondent 1(male, senior management) provided some examples:

> *"Civil society and farming community had a lot of differences. The farming community wanted things a certain way and this sometimes-created conflicts. There were issues of human and wildlife conservation."*

Climate action is interdependent as the result of one action, affects others – seemingly in unrelated areas. The health impacts of climate change are often overlooked, yet the study by Maantay et al. (2012), demonstrated a strong linkage between health and climate change. The study found that, some of these health impacts affect livestock and, caused additional frustration to the farming community, as livestock gets affected by disease outbreaks.

Respondent 8 (male, senior management) explained how poor sanitation caused measles outbreak and affected livestock:

> *"One of the things that we do is encourage the farming community to realise the importance of having toilets and sanitation in their cattle posts. Right now, there is a problem of measles which affects a high percentage of the animals in our area and this results from people exposing the animals."*

An incident like this can escalate and thus requires collaborated efforts from relevant authorities and philanthropic actors. The lack of authority, once again, proved to be a challenge for the networks to control these unwanted behaviours.

"NGOs are unprotected and feel powerless, while they can reach the communities further than government as well as international philanthropy actors can ever hope to do." Respondent 10, female, senior management.

The network thus presented strong interdependencies between the farming communities and the philanthropic organisations. Notably, there was reported absence from the corporate sector in their climate action initiatives (Respondent 8, male, senior management). Essentially, interdependency leveraged the collective strength of African philanthropy and, fostered innovation and efficiency in supporting the efforts to combat climate change.

6. Conclusions

Social network theory played a crucial role in guiding the analysis of this study, helping to uncover the networks, interactions, and interdependencies between philanthropic actors and farming communities. The study addressed three research questions through qualitative enquiry. By analysing the literature and incorporating findings from primary data collection, several key conclusions related to the research objectives can be drawn as follows:

6.1 The Social network composition of philanthropy actors and smallholder farmers pursuing climate action

The data reported a high and diverse involvement of farming communities in climate action, as well as presence of grassroot and national philanthropic actors. Philanthropic organisations were presenting various social networks directly with the affected farming communities. The nature of the engagement was sometimes informal, but the networks are a source of innovation as several solutions have been drawn from these networks. The key players in the network were smallholder farming communities and grassroot philanthropic organisations. The "information nature" of the network and the "solidarity focus" of the network in Botswana resonates with the characteristics of African philanthropy.

Interestingly, the budgets for climate action were low and under resourced for the depth of interventions and plans of the networks. In some cases, communities had to mobilise resources to fund interventions themselves. The philanthropic organisations reported support in some instances from international foundations and agencies, but the funding gaps were persistent. There was low participation and low visibility of corporate organizations and corporate philanthropy in the networks.

6.2 Social support and philanthropy

Culture was integral to climate action networks. Social support was embedded in culture and way of life. Consequently, climate action initiatives were gaining success in cases where they were ingrained into the culture. Most of the farming community were working in rural and semi-rural areas, where culture could not be divorced from their day-to-day livelihoods. Philanthropic organisations had

accepted this fact and adapted the cultural contexts, from one area to another. In some instances, culturally sensitive solutions were adopted, and these were favored and understood by the local community.

Regarding how social support is rendered, the study found that these networks were informal. The networks lacked authority and monitoring and evaluation techniques in climate solutions. Coupled with the resourcing constraints, the climate action networks had limited to no authority, to police climate mis action and to fully implement some of the initiatives. The governing authorities are integral to the success of many of the initiatives. Equally, the informal nature of most of these networks meant that there were limited monitoring and evaluation mechanisms. Monitoring and evaluation are required to truly assess the impact and successes of initiatives.

6.3 Interdependencies between philanthropic actors and smallholder farmers in pursuing climate action initiatives

There was high interdependence between the philanthropic actors and the smallholder farmers, they worked closely and consulted each other on initiatives (albeit informally). The networks had preference for indigenous solutions ahead of western solutions. The Southern African region has been frequently reported to have gaps and delays in the adoption of climate smart technologies. The study findings reported a skewness towards indigenous solutions, which were perceived by the networks to be more sustainable. The losses and devastations from climate related events seemed to push preference towards resistant crops and solutions that would minimize losses.

Overall, the study found that networks and interactions are dynamic and driven by the interest in climate action, rather than in financial resources. Adaptation was more receptable for indigenous systems when compared to western solutions. Farming communities were instrumental in guiding the philanthropic activity, but some of the initiatives can only be driven by the authorities and would have higher impact if – they addressed the pains of the farming community. Bureaucracy coupled with the highly informal nature of the network, made its growth and impact difficult to evaluate. The ideas and climate initiatives from the farming community were innovative and preferred by communities, but isolated without the authority and resources to upscale.

6.4 Implications, limitations, and direction for future research

The findings of the study present several implications for policymakers, corporate organisations, and philanthropic organisations. One of the key observations was the low participation of corporate organisations in the climate action network, and the low authority for implementation. There is no shortage of innovative ideas to combat climate change, and philanthropic organisations demonstrated high interaction and interdependency with farming communities in Botswana. This behavior is typical of African philanthropy practices.

For policymakers and governing authorities, a gap has been identified in power and implementation as philanthropic organisations together with their communities, cannot solely implement and change processes. Deliberate and targeted policies to promote education, and consequence management of climate mis action can go a long way, to improve the effectiveness of some of the climate action initiatives. Furthermore, culture and contextual attributes can never be separated from effective climate action. The study found that the indigenous methods have better reception and interest for implementation, ahead of western solutions which had a slower uptake. Policymakers, thus, can benefit in supporting systems that inspire local and indigenous solutions.

For the philanthropic community, the findings intensify the importance of involving communities in philanthropic work and looking to them for solutions. Participatory approaches fostered innovation and ownership, thereby empowering the affected communities and encouraging collective action. The philanthropic work for climate action initiatives was under resourced, with most of the organizations surviving on low budgets. The continued engagement and innovative

use of social networks however, sustained meaningful climate action as climate smart agricultural initiatives have been born from these networks. It is essential for philanthropic organisations to make considerations for social networks and facilitate interactions, and co-development as networks cannot work successfully, without interaction and interdependency. Philanthropic organisations also need to cater for diverse groups globally, as what has worked in Botswana may not work in other contexts. Lastly, corporate organisations have an opportunity to play a more active role in supporting some of these networks. Their ability to connect various networks and to support homegrown solutions underscores their potential as key enablers for climate change mitigation.

The study had a few limitations in generalizability and sample size. Contextual attributes were a key factor in the analysis, however, this personalized nature of qualitative research made it difficult to replicate the study. Furthermore, the relatively small population of Botswana and active, registered philanthropic organisations working with climate action, and smallholder farmers reduce variability of the sample as the organizations are familiar with each other. Future research could employ quantitative techniques to increase the generalizability and consistency of the findings. Botswana presents some knowledge gaps and immense potential in the Indigenous knowledge solutions that the communities are bringing to the table. Philanthropic organisations have only begun to scratch the surface in uncovering the potential of Indigenous knowledge and the collaborative power of working with and, in some instances, taking ownership of climate action.

Biography notes

Keratiloe Sishoma Mogotsi, PhD is an Assistant Professor at the School of Business and Enterprise, Chatham University (USA) and adjunct faculty member at the Centre on African Philanthropy and Social Investment, Wits Business School (South Africa) and at the School of Public Policy and Management, Carleton University (Canada). Her research and teaching shares practical ideas that inspire action at the nexus of social innovation, social entrepreneurship, philanthropy and social responsibility.

Acknowledgments

The study was supported by research funding from Carnegie Corporation Emerging Scholars grant. We would like to thank all the participants of the study and the Botswana Nonprofit community.

Conflicts of interest

The authors declare no conflict of interest. Experienced research assistants were employed during data collection to eliminate any potential biases.

References

Agri-Census (2015). Botswana Agricultural Census Report 2015. Statistics Botswana, Gaborone. ISBN 978-99968-418-3-5.

Alongi, T. and Tilghman., l. (2021). Time to act: How philanthropy must address the climate crisis. Boston: FSG.

Angelidou, M. and Psaltoglou, A. (2017). An empirical investigation of social innovation initiatives for sustainable urban development. Sustainable Cities and Society, 33, pp.113-125.

Antadze, N. and Westley, F. (2010). Funding social innovation: how do we know what to grow? The Philanthropist, 23, pp.343-356.

Avelino, F., Wittmayer, J., Pel, B., Weaver, P. et al. (2019). Transformative social innovation and (dis)empowerment. Technological Forecasting & Social Change, 145, pp.195-206.

Bajwa, S. and Deepa, G. (2023). Harnessing philanthropy for climate action. India: EdelGive Foundation.

Bauer, S. and Scholtz, I. (2010). Adaptation to climate change in Southern Africa: new boundaries for sustainable development? Climate and Development, 2, pp.83-93.

Bergman, N., Markusson, N., Connor, P., Middlemiss, L. and Ricci, M. (2010). Bottom-up, social innovation for addressing climate change. Environmental Change Institute: University of Oxford.

Bose, P. (2017). Climate adaptation: marginal populations in the vulnerable regions. Climate and Development, 9, pp.575-578.

Caretta, M., and Morgan, R. (2021). Special issue on indigenous knowledge for water related climate adaptation Climate and Development, 13, pp.761-765.

Chhetri, N., Chaudrhary, P., Tiwari, P., Yadaw, R. (2012). Institutional and technological innovation: understanding agricultural adaptation to climate change in Nepal. Applied Geography, 33, pp.142-150.

Chirambo, D. (2017). Enhancing climate change resilience through Microfinance: Redfining the climate finance paradigm to promote inclusive growth in Africa Journal of Developing Societies, 33, pp.150-173.

CIA.Gov Botswana (2024). The World Factbook. Available at: https://the-world-factbook/botswana/ (Accessed 02 July 2024).

CreswelL, J. W. (2017). Research Design: Qualitative, quantitative and mixed methods approach, Thousand Oaks: Sage.

Crossley, N. (2022). Social networks and relational sociology. In: Abrutyn, S. (ed.) Handbook of Contemporary Sociological Theory. 1 ed.: Springer Cham.

Foley, G., Timonen, V., Conlon, C. and O'Dare, C. (2021). Interviewing as a vehicle for theoretical sampling in grounded theory. International Journal of Qualitative Methods, 20, pp.1-10.

Fowler, A. and Mati, J. (2019). African gifting: pluralising the concept of philanthropy. Voluntas: International Journal of Voluntary and Nonprofit Organizations, pp.1-14.

Gamper, M. (2022). Social Network Theories: An overview. In: Klarner, A.; Keim-klarner, S. et al (ed.) Social networks and health inequalities. Germany: Springer.

Goldstein-Sabbah, S. (2020). The power of philanthropy: Mena Jewry as partners in solidarity. Endowment Studies, 4.

Hillbom, E. (2012). Botswana: A development-oriented gate-keeping state. African Affairs, 111, pp.67-89.

Hodgson, J. and Pond, A. (2018). How community philanthropy shifts power. Global alliance for community philanthropy.

Klarner, A., Gamper, M., Keim-Klarner, S., Moor, I., Von Der Lippe, H. and Vonneilich, N. (2022). Social networks and health inequalities, Germany, Springer.

Kumi, E. (2019). Advancing the Sustainable Development Goals: An analysis of the potential role of philanthropy in Ghana. Journal of Asian and African Studies, 54(7), pp. 1084-1104.

Maantay, J. and Becker, S. (2012). The health impacts of global climate change: a geographical perspective. Applied Geography, 33, pp.1-3.

Mati, J. (2017). Philanthropy in contemporary Africa: A Review. Voluntaristics Review, 1(6), pp. 1-100.

Mogotsi, K., Alagidede, I. and Saruchera, F. (2022). Applying lean thinking for disaster responses: the case of philanthropic organisations. International Social Science Journal, 72, pp.287-319.

Moyo, B. (2011). Transformative innovations in African Philanthropy. Dakar, Senegal: Bellagio Initiative.

Mulgan, G., Tucker, S., Ali, R. and Sanders, B. (2007). Social Innovation: what it is, why it matters and how it can be accelerated. London: SAID Business School.

Mushita, A. and Thompson, C. (2019). Farmer's seed systems in Southern Africa: alternatives to philanthrocapitalism. Agrarian South: Journal of Political Economy, 8, 391-413.

Nisbet, M. (2019). Climate philanthropy and the four billion (dollars, that is). Issues in Science and Technology, 35, pp.34-36.

Ooro, P., Ndwiga, K. and M'Raiji, J. (2023). Will emerging technologies driven by the 4IR influence the nature of philanthropy in Africa?

Repo, P. and Matschoss, K. (2020). Social innovation for sustainability challenges. Sustainability, 12, pp.1-12.

Rodima-Taylor, D. (2012a). Social innovation and climate adaptation: local collective action in diversifying Tanzania. Applied Geography, 33, pp.128-134.

Rodima-Taylor, D., Olwig, M. and Chhetri, N. (2012b). Adaptation as innovation, innovation as adaptation: an institutional approach to climate change. Applied Geography, 33, pp.107-111.

Rosenstock, T., Nowak, A. and Girvetz, E. (2019). The Climate-Smart Agriculture Papers. Investi gating the business of a productive, reislient and low emission future, Springer Open.

Schartinger, D., Wepner, B., Andersson, T., Abbas, Q., Asenova, D., Damianova, Z., Dimova, A., Ariton, V., Hannum, C., Eker, S., Schröder, A., and Zirngiebl, M. (2017). Social innovation in environment and climate change: summary report. TUDO Technische Universitait Dortmund.

Scheffran, J., Marmer, E. and Sow, P. (2012). Migration as a contribution to resilience and innovation in climate adaptation: social networks and co-development in Northwest Africa. Applied Geog raphy, 33, pp.119-127.

Searle, R. and Al-Khafaji, K. (2013). How philanthropy can help communities advance climate change adaptation. Boston MA: Bridgespan Group.

Siette, J., Pomare, C., Dodds, L., Jorgensen, M., Harrigan, N., Georgiou, A. (2021). A comprehensive overview of social network measures for older adults: a systematic review. Archives of Gerontol ogy and Geriatrics, 97, 104525.

Tomascko, L. (2021). Power shifting as a form of impact: Increasing the transformative potential of impact investing. The Urban Institute.

Vonneilich, N. (2022). Social relations, social capital and social networks: a conceptual classification. In: Klarner, A., Gamper, M; Keim-Klarner, S; Moor, I; Von Der Lippe, H.; Vonneilich, N(ed.) Social networks and health inequalities. Germany: Springer.

Wilkinson, S. (2017). ShiftThePower: Community giving as a critical consciousness-raising tool. The Foundation Review, 9.

Ziegler, R., Balzac-Arroyo, J., Holsgens, R., Holzgreve, S., Lyon, F., Spangenberg, J. and Thapa, P. (2022). Social innovation for biodeversity: a literature review and research challenges. Ecological Economics, 193.

Appendix A: Interview Guide

QUESTIONNAIRE

Social networks, innovation, and nonprofits in climate action: evidence from Botswana

Please sign the consent form prior to beginning this interview

Answer all questions

Section A: Demographic Information

Filter Question: Are you involved in climate action initiatives through philanthropic (nonprofit) funding? If yes, proceed:

1. Please choose your sector

Philanthropy community/ civil society member (I work for a civil society organization)	Farming community member (I am a farmer)

2. Age:

18 - 35	36 - 45	46 - 60	61 and above

3. Gender

Male	Female

4. Occupation:……..

5. Highest level of education

Primary schooling (standard 7 and below)	High School Senior certificate	Bachelor's Degree	Postgraduate degree

6. Annual budget for your climate smart agriculture initiatives……..
7. Please describe the climate action initiatives that you are implementing? Who is involved? How?

Section B: Social network composition and support satisfaction

8. Do you tend to form connections with individuals who share similar demographic characteristics as you in pursuing climate action?
9. How often do you interact with individuals outside of your community i.e., people who are not similar to you and are not in this field?
10. On a scale of 1 to 5, how connected do you feel with other members of the farming community?
11. How would you describe the support offered to you for climate change initiatives
12. How satisfied are you with the support offered to climate change initiatives

Section C: Climate smart agriculture social support

13. In what ways does the farming community and civil society interact with one another
14. How frequently do you engage in collaborative activities or shared experiences with members of the farming community and civil society organisations
15. Have you ever relied on someone within the farming community and civil society for practical assistance or resources? Provide examples
16. In what other ways does the philanthropic community work with the farming community
17. Can you think of instances where climate action initiatives have directly influenced those within your network?
18. Have you personally managed to influence more people to partake in climate action? How did you do this?
19. Have you ever felt pressure to conform to the expectations of climate action? How?

Section D: Interdependence and feedback

20. How do cultural influences affect interdependence between civil society and the farming community
21. Do you believe that interdependence between farmers and civil society is beneficial or challenging? Describe

Closing Question: Is there anything else you would like to share regarding climate action and the interactions of civil society and the smallholder farmers in Botswana.