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Article

Partnership Models for Climate Compatible Development: Experiences from Zambia

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Abstract: Partnership working is necessary to allow nations to harness the evolving opportunities presented by climate finance and to progress towards climate compatible development (CCD). However, the new multi-stakeholder partnerships being formed and the factors affecting their outcomes remain poorly understood. This paper aims to identify the characteristics of partnership models that can lead to successful delivery of CCD projects by analyzing case study data from two projects in Zambia. The projects are primarily funded under the umbrella of Corporate Social Responsibility and support activities such as conservation farming which can have carbon storage (mitigation), adaptation and rural development benefits. In each of the case study projects, multiple partnerships have been established between private sector companies, government, Non-Governmental Organizations (NGOs), traditional authorities and community stakeholders to achieve project aims. A new partnership evaluation model is developed and applied to analyze the partnerships formed. Findings show that the rationale behind the partnership, partner-related factors, and process-related factors can all affect achievement of the project's aims. Good practices are identified which can inform future partnerships and projects. For example, when establishing a project, the initiating partner must identify gaps that can be addressed by establishing one or more partnership(s). Careful

consideration of which partners can best address these gaps allows for synergies in contributions across the partnership required for successful project implementation. Transparency, openness and communication over roles and responsibilities are key to successful partnerships, and power imbalances between partners will reduce the utilization of each partner's strengths. When working with communities, extra care must be taken to ensure projects are appropriate and relevant to local needs, as well as allowing goals to be met, by engaging communities from the beginning of the project.

Keywords: participation; stakeholders; climate change; best practices; communities; sustainability

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1. Introduction: Climate Compatible Development and Partnerships

Achieving development in the face of global climate change requires the successful delivery of multi-sectoral, multi-stakeholder projects. In much of sub-Saharan Africa, development efforts must increasingly account for climate change impacts, with the acknowledgement that both adaptation and mitigation are necessary [1,2]. The development challenges and opportunities presented by climate change have led to the concept of Climate Compatible Development (CCD), defined as "development that aims to minimize the harm caused by climate impacts, while maximizing human development opportunities presented by a low emissions, more resilient future" [3] (p. 1). CCD's triple goal of delivering adaptation, mitigation and development cannot be achieved through discrete working in which actors in the multi-scale climate change arena undertake separate activities, e.g., [4,5]. Successful CCD requires projects to work across sectors, scales and groups, allowing synergies to be harnessed, trade-offs to be minimized and specific gaps to be targeted [6,7]. Typical examples of CCD projects in sub-Saharan Africa include those related to agroforestry [4], conservation agriculture, joint forest management and biofuel outgrower schemes [8].

Stakeholders are increasingly entering into partnerships in order to facilitate such cross-sectoral, cross-scale projects [9]. A stakeholder is defined as anyone who affects or is affected by a decision or action [10]. A partner is an individual or group that unites with other individuals or groups [11]. Partnerships generally operate across sectors, involving actors from the public and private spheres, as well as Non-Governmental Organizations (NGOs) and civil society. They usually centre on a shared goal or purpose, targeting an issue or cause that an actor or group cannot solve by itself [12]. By forming a partnership, stakeholders can work together, harnessing each other's strengths to target regulatory, participatory, resource and learning gaps, while at the same time, cross-leveraging resources, knowledge and expertise [13,14]. In working to deliver a CCD project, a network of partnerships may be required to overcome the shortcomings associated with single-sector approaches to addressing complex social and environmental problems [15]. They can also incorporate a range of governance levels, facilitating a move away from traditional top-down models towards more decentralized governance [11], therefore facilitating the local implementation of international commitments [16].

While research into partnerships in the wider field of environmental governance is relatively well developed, e.g., [17,18], the roles of partnerships in delivering CCD projects have received very little

academic attention to date. This is especially so in developing country settings where addressing the multiple impacts of climate change is an important priority [19], and where regulatory and resource gaps can be particularly significant. The adaptive capacities of developing world nations are acknowledged to be low [20]. Taking steps towards CCD can advance the sustainable management of the natural resource base, helping to provide adaptation options, while also allowing a country to develop. In many African nations, the natural resource base underpins the livelihoods of millions, with national economies highly dependent upon agriculture—a sector highly sensitive to the impacts of climate change [21]. If synergies can be harnessed through CCD so that natural resource management can advance development, as well as deliver mitigation and/or adaptation options, it will enable benefits also for sustainable natural resource management.

The aim of this paper is to identify the characteristics of partnership models that lead to successful delivery of CCD. This is achieved through the analysis of two case study projects in Zambia. Zambia provides a useful case study country as it is experiencing many of the CCD challenges felt elsewhere in sub-Saharan Africa and is one of 16 pilot countries receiving funding support from the United Nations Reducing Emissions from Deforestation and forest Degradation (REDD+) programme. The country sits in 164th place (of 185 listed UN countries) in the Human Development Index, while 64.3% of the Zambia's people live below the poverty line [22]. Zambia is currently (in 2012) attempting to balance multiple development demands linked to the expansion of mining activities in the Copperbelt and Northwestern regions as a result of a buoyant global minerals market. While offering a development opportunity, such activities can complicate efforts to manage forests sustainably in line with REDD+, as influxes of migrants in search of jobs have led to alarming rates of deforestation and charcoal production in areas of miombo woodland [23], in areas where other livelihood activities are rather limited.

This paper first reviews the partnership literature such that key approaches for understanding and evaluating partnerships can be critiqued and used as a foundation to create an analytical framework for interrogating case study projects and the partnerships therein. The methodology then outlines how case studies were selected, and the way in which the analytical framework was applied. Results and discussion follow, outlining the evaluation of the case studies, while also considering the applicability of the framework as an approach for unpacking partnerships. The conclusion presents key lessons and good practices to inform the development of future partnerships that strive to achieve CCD, reflecting upon the challenges and opportunities associated with partnership working in sub-Saharan Africa.

2. Defining Partnerships and Related Terms

2.1. Unpacking Partnership Models

Partnerships are formed to achieve shared goals. The first stage in understanding partnerships lies in identifying the partnership function in terms of that shared goal. Pinkse and Kolk [9] (p. 176) focus on the rationale for the formation of partnerships and frame this around four groups of "gaps" which can be addressed through actors forming partnerships. The rationale of this approach is that strengths can be harnessed from different stakeholders or groups of stakeholders, leading to outcomes that are not otherwise possible when actors work alone (Figure 1). The resource gap could refer to financial,

tangible, resources or other, less tangible resources, such as knowledge and expertise [12]. For example, "private-public partnerships" (or PPPs) may form to help the private sector overcome public sector resource inadequacies associated with capital shortages, inefficient operation and poor service quality [9,24]. Indeed, in developing countries, where the private sector is strong enough, it is likely to play a strong role in partnerships to address resource gaps [12]. However, Kolk *et al.* [25] (p. 268) highlight that governments should be aware that "corporate interests will always be leading in a partnership" and that the private sector are only likely to establish partnerships in order to contribute to corporate profitability, which may be difficult to align with public sector priorities.

Figure 1. Four potential types of gap which can be addressed by partnerships (adapted from [9]).

A. Regulatory gaps • Potential to address governance failure, market failure and good intentions failure • Improved governance for complex meta problems	**B. Participatory gaps** • Promotion of inclusiveness • Prioritizing stakeholder demands • Increased diversity of knowledge and potential of synergies across sectors
C. Resource gaps • Transfer of tangible resources, e.g., finances • Transfer of intangible resources, e.g., skills, expertise, knowledge	**D. Learning gaps** • Creation of new knowledge • Creation of new rules, practices and technologies

An individual stakeholder may be involved in multiple partnerships, which may each be working towards a distinct aim or contributing to a broader aim. The same private sector actor engaged in a partnership with the public sector may also form partnerships with NGOs in order to allow access to expertise in the local context and facilitate working with local communities, as well as supporting activities such as capacity building [25], therefore addressing learning and participatory gaps. For example, Esteves and Barclay [15] (p. 192) suggest that mining companies often build partnerships with NGOs to "head off trouble, accelerate innovation, enhance their ability to predict shifts in demand, provide input into shaping legislation and to help set industry standards". In addition, there may be a plurality of gaps, whereby each individual partnership targets multiple gaps. For example, partnerships between mining companies and NGOs can help to enhance company legitimacy, providing the benefits of improved brand reputation and increased appeal to investors, customers and employees, while filling both regulatory and learning gaps [25,26]. Finally, there may be plurality in the partnerships that all target the same specific gap.

The success of partnerships in filling gaps can be assessed in a number of ways and has been the focus of considerable academic attention, e.g., [27–29]. For example, van Tulder and Kostwinder [30] suggest that success can be defined through "efficiency" and "effectiveness", that is, how efficiently an outcome is achieved, and how well the outcome matches the intended goals. Much discussion has focused on the ideal "form" of partnership for delivering success. Terms such as collaboration,

cooperation, alliance and coalition are often used synonymously in the partnership literature, e.g., [31]. However, Timothy [32] suggests there are different levels of partnership and places these along a continuum, moving from alienation to integration, through co-existence, cooperation and collaboration. Such an approach shares parallels with the literature on participation which develops similar continua [33–35], thus emphasizing the different influences and legitimacy of different approaches. Each form of relationship will be differently appropriate based on the partners themselves and their broader working context. Therefore, partnerships could be studied through a range of success factors that can be grouped into three subsets that focus on: (1) the partners; (2) the process; and (3) context related factors—centred on the broader environment in which the partnership is based (for example, governments could provide or prevent a facilitatory and regulatory function whereby the public sector establishes an "enabling environment" for partnerships [25] (p. 268)) (Table 1).

Table 1. Examples of success factors for partnerships (adapted from Laing *et al.* [27] and Lasker and Weiss [29]).

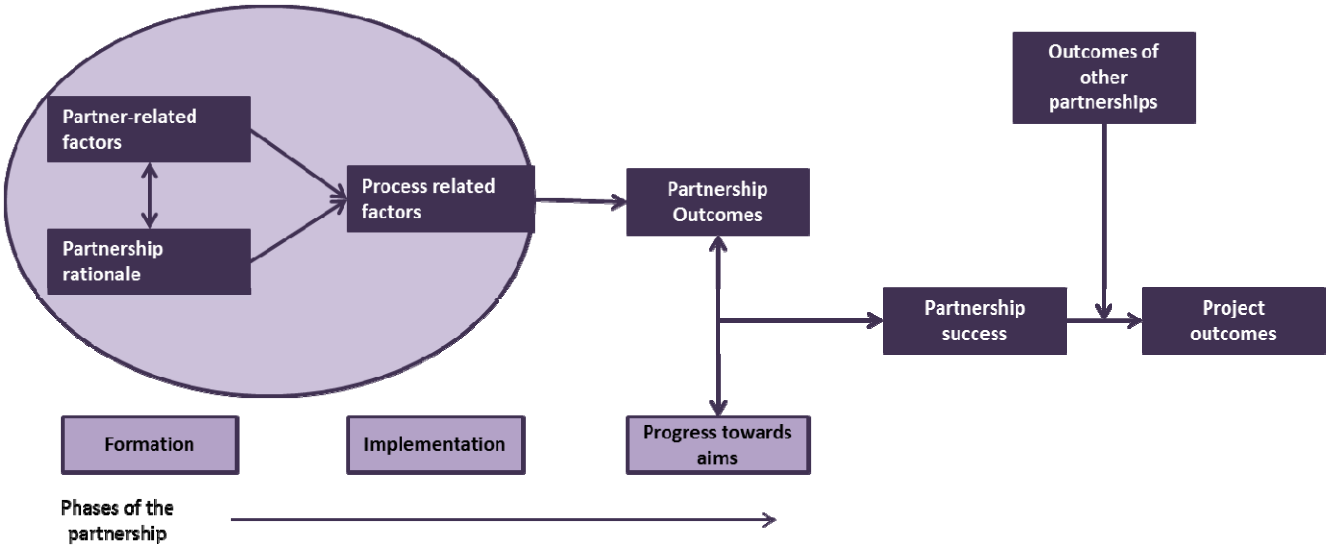
Group of factors	Indicative questions
Partner-related	What partners are involved? How many partners are involved? Are all interested parties represented? What is the power balance between partners? Are there synergies between non-financial resources?
Process-related	What is the scope of the partnership? Are values/visions shared? How interdependent are partners? Is the process transparent? Is there a high level of trust between partners? Are partners committed to the process? Does mode of involvement allow for contribution of relevant skills and expertise?
Context-related	Are the available resources and funding adequate? Will the allocated timeframe be adequate? How does the legislative framework support or constrain activities? Are benefits and/or incentives offered for fulfillment of obligations?

In order to study partnership models within the context of CCD, these framings of individual partnerships need to be seen as part of a holistic process within the boundaries of a CCD project. Partnership success and function must be understood as a process that moves from "input" to "outcome" through "throughput" and "output" [30]. The "input" dimension overlaps with Pinkse and Kolk's [9] "gaps" framework in focusing on the basis of the partnership and the motives of those involved. "Throughput" assesses dynamics and implementation by evaluating the roles each partner plays. The assessment of "outputs" considers whether the objectives of each partner and the partnership as a whole are being fulfilled, while "outcomes" comprise the changes and benefits derived from the partnership in moving towards the project goals. Because of the multi-sector, multi-actor approach necessary to deliver CCD, any project will necessarily involve multiple partnerships between partners from within the network of broader stakeholders. Thus a project can be conceptualized as a collection

of partnerships that seeks to overcome a range of gaps. The outcomes of each partnership therefore contribute to achieving the broader goals of the project.

In order to account for the multi-partnership nature of a CCD project, we develop and apply an analytical framework that focuses on formation, implementation and outcome of the partnerships within the boundaries of the project (Figure 2). While the framework is presented as a linear process to reflect the different stages and to frame subsequent sections of the paper, in reality it is necessarily iterative and cyclic. This framework shows how at the partnership formation phase, individual partnerships must be identified and understood according to Pinkse and Kolk's [9] "gaps" as the "partnership rationale". The rationale is considered alongside, and in relation to, the "partner-related" factors, which could affect the success of the individual partnership. These then influence "process-related" factors during the implementation phase. Collectively, the partnership rationale, partner-related factors and process-related factors influence the partnership outcomes and therefore the success of the partnership, which can be assessed against progress towards its aims. The success of each partnership is then considered as a component within the outcome of the overall project. Such integrated assessments spanning each stage of project development and implementation have been lacking in previous assessments of CCD projects.

Figure 2. Partnerships evaluation model (developed and adapted from Pinkse and Kolk [9], van Tulder and Kostwinder [30] and Laing *et al.* [27]).



3. Research Design and Methods

In order to examine partnership models for CCD, two case study projects from Zambia [Lumwana Agri-Food Innovation Programme (AFI) and Kansanshi Foundation Conservation Farming Project] were chosen on the basis of their CCD characteristics. Case study selection was carried out as part of a broader research project, which seeks to identify successful CCD models and partnership activities involving different combinations of stakeholders in complex and dynamic governance and political economic contexts across four countries in southern Africa [44]. A national workshop was held in order to identify national policy contexts for partnerships in CCD (see [36] for full details). From the

projects represented at the workshop, two from each country were selected for further in-depth research. This paper reports on the projects from Zambia.

Both projects include shared goals and are primarily funded by mining companies with the rationale of offsetting the social impact of the mines' activities, under the umbrella of Corporate Social Responsibility (CSR) [37]. The outcomes of the projects are to deliver community benefits in terms of offering sustainable and diverse livelihoods through a focus on agricultural development initiatives. They are both therefore working towards both development and climate change adaptation goals, with communities as the target beneficiaries. In addition, the focus on conservation agriculture in one of the projects, which aims to achieve sustainable and profitable agriculture through minimal soil disturbance, permanent soil cover and crop rotations [38], offers scope for carbon sequestration and therefore climate change mitigation. However, the projects have different approaches to achieving their goals and delivering their outcomes (see Section 4). The Kansanshi project focuses solely on conservation farming while the Lumwana project promotes a range of livelihood activities, a microfinance scheme and agricultural research. Comparing the two projects allows assessment of the formation, implementation and impact stages of the different partnership models and exploration of how these differences contribute to the project outcomes.

In order to identify partnerships within both projects, a snowball sampling approach was followed [39]. Key partnership stakeholders were identified through an initial meeting with the mining companies that had stimulated the projects. In both cases, senior representatives at the mine instigating the project discussed the project in broad terms to help the researchers to identify relevant stakeholders. A mind-map of stakeholders was constructed by both interviewees for this purpose; the interviewee was asked to write their organization in the centre of the page, and to add all other organizations that were relevant for the delivery of the project. The respondent was further asked to draw links between stakeholders where they were thought to be working in partnership to deliver outputs. Thus, a preliminary set of partnerships was identified. This was used as a starting point for contacting actors to identify further partnerships and conduct examination of the partnership formation, implementation and success.

Formation, implementation and outcomes phases of the partnership were explored and the snowball sample was continued by using an elite interview approach with each actor [36]. At least one representative from each partner within the identified partnership was contacted for an interview. The interviewee was chosen on the basis of their involvement in the partnership, and in the broader CCD project; therefore the most senior person with direct involvement in the project was approached in the first instance, with appropriate alternatives being nominated where necessary. In order to further the snowball sample, respondents were also asked to identify any other partnerships that they participated in, or were aware of, within the project in question. The total list of partners identified, and the respondents selected for interview are shown in Tables 3 and 4. The majority of each interview was semi-structured. This allowed the gathering of specific thematic information at each phase of the partnership, and allowed issues to be raised that participants felt were relevant. The phases of the partnership and the themes explored in interviews are summarized in Table 2. Respondents were also asked to identify specific beneficiary communities (which may or may not also be constituted as project partners), and to reflect on the benefits they perceived communities to have experienced. Those partnerships deemed central to the projects are examined in greater depth in the results and discussion

sections of the paper. Partnerships between the mining companies and the Ministry of Agriculture and Livestock (MAL) are given particular attention within the two case studies, as they were perceived by all partners as key relationships. In addition, both mines are partnering with MAL allowing comparison of partnership approaches and lessons to emerge.

Table 2. Summary of the themes and questions explored in interviews at each phase of the partnership.

Assessed partnership phase	Example themes of interview and questions
Formation of partnership	• Activities and aims of the partnership and project • Partnership contributions and gaps filled
Implementation of partnership	• Communication within partnerships • Strengths and challenges of working with partnerships
Outcomes of partnership	• Project aims and outcomes • Partnership contributions to the broader project aims • Barriers and opportunities of realizing aims of the project

As a final stage of data collection, the intended beneficiary communities were included, both to explore the partnerships and to verify successes (*i.e.*, the project outcomes). Where the community had been identified as a partner as well as a beneficiary, they needed to be included in the exploration of formation, process and outcomes in the same way as other partners. However, even when they were not perceived to play a partner role, the researchers recognized that the outcomes or the success of the partnership depended on delivering real benefits for the intended beneficiaries (the communities). This meant that it was vital to explore the successes of the project from the perspective of the communities as well as from the perspective of other partners. Because no single respondent could represent the whole community, a range of methods were employed to elicit community perspectives. These began with community meetings. Meetings were advertised using posters, with additional publicity being raised through the Traditional Authorities and existing fora, such as religious meetings, approximately one week in advance of the data collection. Meetings were held at times deemed locally appropriate, identified through consultation with community members and Traditional Authorities. The community meetings allowed the researchers to gain a broad overview of the case study projects from a local perspective, as well as a picture of the communities' participation within them. It highlighted disputes and differences between households, as well as obtaining a sense of the proportion and demographics of the community that were involved in any partnerships or affected by project outcomes. The meetings provided participant selection criteria for further in-depth research conducted via focus groups and semi-structured interviews with households. For example, where some members of the community perceived they had benefited from the projects where others had not, focus groups were held with representatives from each group in order to unpack the differences. Separate focus groups were held where vulnerable groups such as women and youth were involved in the projects in order to get as varied information as possible. Overall, questions centered on the same three phases as the partnership semi-structured interviews.

All data was subject to content analysis through coding. Stakeholder mind-maps were entered into Excel to highlight patterns of links between actors. Elite interviews were recorded on digital recorders after participant consent had been obtained. Community-level research was recorded through note

taking. All data collected using the various different research methods were transcribed and typed up for analysis. Data were entered into an Excel spreadsheet, arranged according to which method was used to obtain them and clearly labeled to show their origin. They were then interrogated and divided according to the formation, implementation and outcome phases of partnerships. Because the interview was structured around questions asked about rationale, strengths and challenges at each partnership phase, answers were interrogated for content. Within each partnership phase, patterns were identified between respondents and their responses, and codes were assigned to these patterns. Relevant pieces of data were then placed under these codes and assimilated to gain a full picture of partnerships within each of the case study projects, and to compare the projects at each partnership phase. Where conflicts arose in the data, these were noted and treated as data in themselves. Each conflict was considered in terms of its origin and the phase of the partnership that is being discussed when it arises. Conflicts were used to highlight issues such as breakdowns between partners or differences in opinions, and understand their role in partnership success.

4. Results and Discussion

4.1. Case Study 1—Lumwana Agri-Food Innovation Programme

The Lumwana Agri-Food Innovation Programme (AFI) was developed by the Sustainability Department of the Barrick Lumwana Mining Company (LMC) in 2009, and spans three Chiefdoms in the North-Western Province of Zambia (field data, 2012). The project aims to mitigate the potentially adverse social and environmental impacts of the mine. These include population influx and associated social issues, road traffic, and loss of crop and farm land. The project also aims to promote economic development and diversification in communities around the mine in order to reduce dependence on the mine for employment and income. In working towards this, the project delivers training in agricultural production and has established a microfinance scheme. Activities expanded in 2011 to include research into high value crops at a government-owned research station, the promotion of dairy farming for young women, and banana production. As well as aiming to reduce any negative impacts from the mine, the project addresses CCD through its development focus, which, in diversifying livelihoods, helps to target adaptation. In addition, the banana cultivation project aligns with climate change mitigation through increased carbon sequestration in the agroforestry system used.

4.1.1. Identified Partners

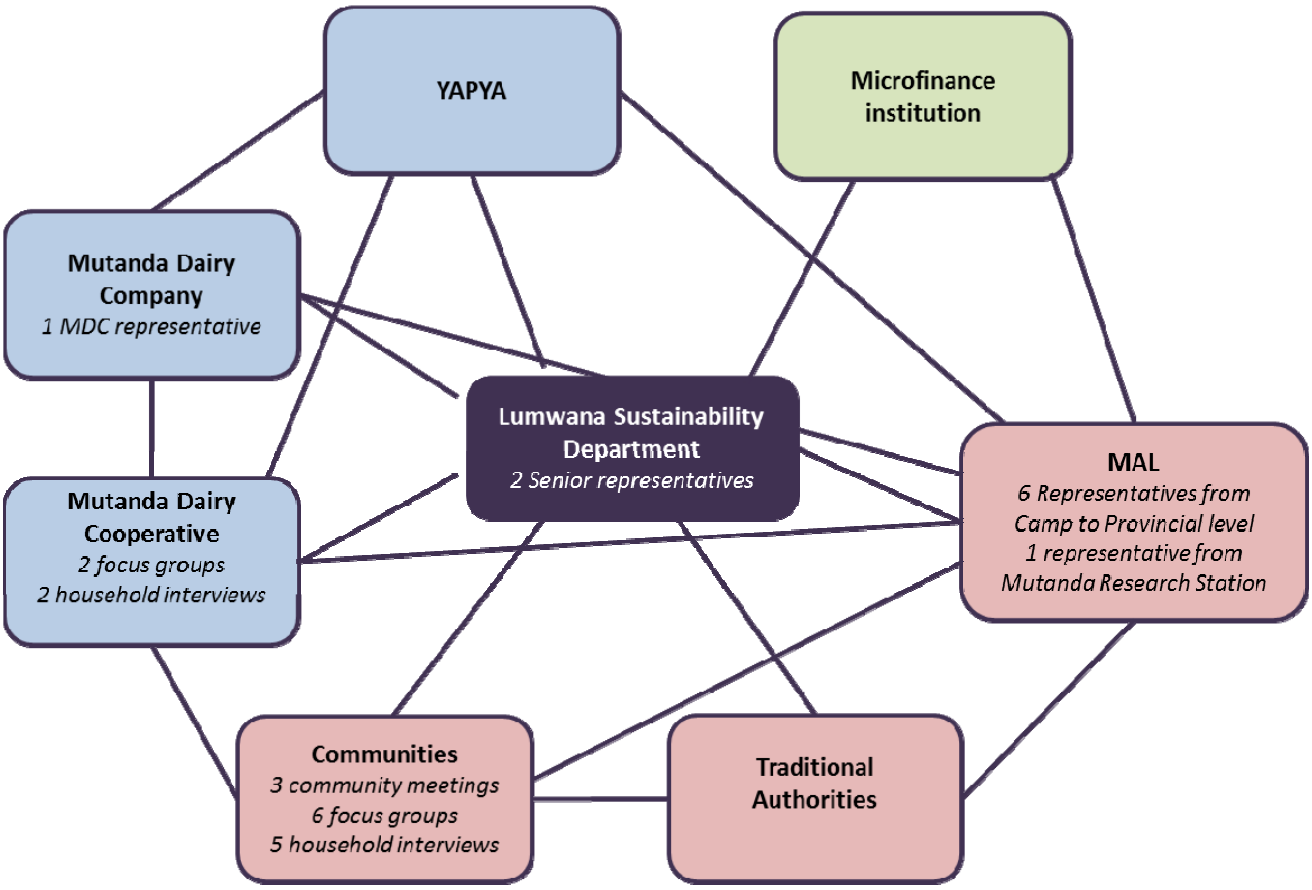
A senior LMC representative defined a partner as:

> *"Anyone or any organization who are contributing in one way or another towards our objectives for a given action"* (Lumwana Mine representative, April 2012).

This definition was used during stakeholder identification and subsequent separation of partners from stakeholders. The snowball sampling technique revealed that the Sustainability Department of the LMC have initiated a number of different partnerships in order to achieve their AFI project goals, and these partners are in partnerships of their own under the umbrella of the project. The partners, the facets of the AFI they are involved with, and details of the interviewees, where relevant, are

summarized in Figure 3. One of the greatest challenges identified by LMC during interviews was the lack of stakeholders that could be partnered with in the geographical area that possess the necessary capabilities to contribute to the aims of the AFI. Relevant NGOs are particularly scarce, resulting in a lack of partners who could help to fill implementation gaps.

Figure 3. Partnerships identified for the Lumwana Mining Company (LMC) Agri-Food Innovation (AFI) project and the interviewees representing each partner (*in italics*). The shaded boxes represent the facets of the project they are involved with. Key: Blue = dairy cattle project, green = microfinance project, red = all projects (dairy cattle, microfinance and banana cultivation).



The partnership between LMC and MAL was perceived as key by representatives from both the mining company and MAL. MAL are involved in all aspects of the AFI and, as such, are partnering with several others. The partnerships between LMC, MAL and the Youth Investment Trust of Zambia NGO (YAPYA) are explored in greater detail in the subsequent sections. These specific partnerships were chosen in order to highlight how the partnerships work individually and in concert with each other, in contributing to the broader project goals.

4.1.2. Partner Contributions

The contributions of each of the identified partners in the partnerships are summarized in Table 3.

Table 3. Summary of the partnerships between LMC, Ministry of Agriculture and Livestock (MAL) and Youth Investment Trust of Zambia NGO (YAPYA) and the contributions each partner makes (field data, 2012).

Partnership	Partner	Contributions	Gaps addressed
LMC and Ministry of Agriculture and Livestock (MAL)	LMC	Finances for MAL to expand programme of work	Resource
	MAL	Expertise, capacity building and implementation of AFI activities through MAL extension network	Resource
		Access to communities through MAL extension network	Participatory
LMC and the communities around the mine	LMC	Finances for community development programme	Resource
	Communities	Labor for the projects	Resource
		Local knowledge	Resource
		Grant mine a "social license to operate"	Regulatory
LMC and the Traditional Authorities (TAs)	LMC	Finances for the community development projects	Resource
	TAs	Facilitate access to communities	Participatory
		Give legitimacy to the projects	Regulatory
		Encourage participation in the project	Participatory
		Grant mine the license to operate on their land as custodians	Regulatory
LMC and YAPYA (Youth Investment Trust of Zambia, NGO)	LMC	Financial resources for milk collection centre and spray races	Resource
	YAPYA	Expertise in the dairy farming	Resource
		Implementation of the project	Resource
		Access to the communities	Participatory
		Financial resources for cattle and bicycles	Resource
MAL and YAPYA	MAL	Access to communities through extension network	Participatory
	YAPYA	Expertise in the dairy farming	Resource
		Implementation of the project	Resource
		Financial resources for cattle and bicycles	Resource

4.1.3. Implementation

4.1.3.1. LMC-YAPYA

The purely financial resource-based contribution of LMC to the partnerships summarized in Table 3 was seen a challenge by the LMC representatives interviewed. They felt that LMC was perceived as a bottomless source of money for which they received endless demands as illustrated by an LMC representative:

> *"One of our challenges is the expectations people have of a mine company. We are always expected to pay. We would like to be approached by people who would also like to contribute"* (Semi-structured interview with LMC representative, April 2012).

However, when YAPYA approached LMC to establish a partnership, they asked for supplementary, rather than entire, funding for their project. This, along with the scarcity of other NGOs to partner with in the area, was one of the key reasons LMC partnered with them. YAPYA proposed a scheme to support 75 young women dairy farmers through the provision of dairy cattle from South Africa and

associated equipment. LMC were asked to finance the construction of the Milk Collection Centre and Spray Races for disease control, while YAPYA financed the cattle and bicycles used for transport.

4.1.3.2. LMC-MAL

Although LMC stated they partnered with MAL due to a lack other actors with the necessary ability to implement the project, the partnership was felt by all parties to be working well. However, interviewees from LMC acknowledged that the government and private sector work at varying speeds and that this can make partnerships that span the private and public sectors very challenging. This was also the main reason why the government was not the preferred partner to fulfill the implementation gap. One of the LMC representatives stated:

> *"[LMC] is a corporate entity and grabs the bull by the horns but government move at a different pace"* (Semi-structured interview with LMC representative, April 2012).

The "*laissez-faire*" attitude of government workers was also mentioned, as was the lack of resources in government departments, in particular in MAL. Despite these challenges, the partnership between MAL and LMC was felt to be working well. MAL representatives at District and Provincial levels stated that they felt LMC recognized the skills and expertise they could bring to the partnership and allowed them freedom to use them and to propose project activities they felt were relevant and appropriate to the area. They could therefore use LMC resources to supplement existing MAL activities and introduce new ideas where feasible. This led to increased research into high value crops including an upland rice variety at the government-owned Mutanda Research Station, and the introduction of the high value and quick fruiting "William" variety of bananas into communities around the mine. In addition to the independence and flexibility encouraged by LMC, MAL representatives noted the transparency and openness of the company as positive aspects of the partnership. LMC had clearly defined the roles and responsibilities of each partner and developed a governance structure at the partnership formation phase, which enabled all partners to have a clear idea of what was involved. This perception of the LMC as a partner was augmented by the representative from the Mutanda Dairy Company who stated that their relationship with LMC is easy because the MDC know exactly who to contact and LMC knows what stage they are at with their dairy farming project.

While the promotion of dairy farming by YAPYA aligns with the aims of the AFI to promote economic development and diversification, and the aims of MAL in youth empowerment and livestock restocking [40], there was evidence that it was not perceived as entirely suitable by the communities and MAL extension officers. There were concerns raised that communities in the area were not historically involved in dairy farming and therefore expertise was lacking. In addition, many of the young female farmers who were given cattle were of school age and unable to tend to the animals during the day or attend regular meetings. Therefore, other family members had to become involved in the project. One MAL Extension Officer reported that communities felt the project was introduced to them by YAPYA, MAL and LMC without consultation to identify any locally-preferred options:

> *"Initially the farmers had no trust in the YAPYA project because they were not involved during project identification"* (Semi-structured interview with MAL Extension Officer, April 2012).

This conflicts with LMC who stated that the TAs recommended suitable community activities. However, data collected from community-level focus groups suggests that channeling communications through the TAs as gatekeepers to the communities can cause complications and may raise suspicions of issues such as elite capture even if this is not the case. In one of the communities involved in banana cultivation, concerns were raised:

> *"The mine cares more about the (other Chiefs') areas because there are succession disputes here which are having a bad effect on the project…there needs to be an independent representative apart from the Chief to represent (us) when we dealing with the mine"* (Statement recorded during a focus group discussion, May 2012).

Challenges in working with the communities were also expressed by both MAL and LMC. LMC representatives stated that lack of communication options and high illiteracy levels made working with communities very difficult. In addition, lack of government resources, in MAL and more broadly, meant there was a lack of supporting infrastructure and logistics such as transport, for LMC projects. MAL representatives at the Provincial level also referred to low adoption rates of new ideas and technologies within the communities targeted for AFI activities. This may be a reflection of the lack of community consultation when instigating the project.

4.1.4. Partnership Outcomes

The AFI was still in its early stages when the data were collected. As such, insight into whether the partnerships involved in the dairy project were meeting its aims is limited. However, community-level data highlight that some households have benefited from the programmes which MAL are involved in implementing and LMC are financing. For example, while the cattle for the YAPYA dairy-farming project were only delivered in April 2012 (shortly before data collection was carried out), many households who had received cattle stated during a focus group, that they were optimistic about the potential of extra income, improved nutrition through milk and meat products, and the learning opportunity that diversification into cattle brings. At the household-level, one farmer explained that he was optimistic about the long-term prospects of income from milk sales and the hiring of bulls for reproduction. However, he also stated many concerns. He was worried that tending to the cattle would be time-consuming and reduce time available for his crops, creating a labor trade-off within the household. He also felt he would need to provide supplementary feed as there is insufficient grazing available. The household level interview in this example was carried out with the father of the intended beneficiary, who was away at school. This reinforces the concerns of the community over the suitability of the project design.

Challenges and opportunities were also identified in relation to the banana cultivation project. Community-level research revealed that farmers were finding the programme labor intensive, particularly in terms of watering, which is a limiting factor in the size of the banana plantation. However, there was acknowledgement that future benefits will likely include increased income for school fees and housing, as well as for employing labor. It could therefore increase the area under cultivation, and provide savings which could be used as collateral for loans. Other perceived benefits that were mentioned include enhanced nutrition, prestige for the community and increased community cohesion.

While the AFI is not directly concerned with CCD-related outcomes, there is potential for it to contribute to development, adaptation (through livelihood diversification and increased income which could allow households to accrue assets that could enable them to better adapt to changing climatic conditions) and, to a limited extent, climate change mitigation (through banana cultivation). The partnerships initiated by LMC are central to these outcomes as none of the partners identified could carry out the activities without the complementary inputs of the others.

4.2. Case Study 2—Kansanshi Foundation Conservation Farming

The Kansanshi Foundation Conservation Farming initiative was established in 2010 and aims to provide alternative livelihood opportunities in communities around the mine, to generate income and reduce dependence on the mine for employment (field data, 2012). In addition, it is hoped that the project will reduce deforestation in the area (therefore aiding climate change mitigation) by providing an alternative means of income to charcoal production, reduce the negative impacts of household relocations through mining activities, reduce urban drift, increase food security and promote soil conservation through conservation techniques such as reduced tillage and mulching. In working towards this, the project provides training in conservation farming techniques and a loan scheme for fertilizer and maize seed. The Kansanshi Foundation also established a conservation farming institute in 2012 with a view to training smallholder farmers. As with the AFI, this project can be considered to address CCD goals. Development and climate change adaptation can be achieved through livelihood diversification and increased soil fertility, while reduced tillage and charcoal production can contribute to climate change mitigation goals.

4.2.1. Identified Partners

Snowball sampling revealed Kansanshi were partnering with fewer partners than Lumwana in order to achieve the aims of their conservation farming initiative. These partners were also all involved in partnerships with each other—to both achieve the aims of the conservation farming initiative, as well as other, unrelated aims. The partnerships are summarized below in Figure 4 along with the interviewees from each partner identified (*in italics*).

4.2.2. Partner Contributions

The contributions each of these partners makes to the partnership is summarized in Table 4.

Figure 4. Partnerships identified for the Kansanshi Conservation Farming initiative and the interviewees representing each partner (*in italics*).

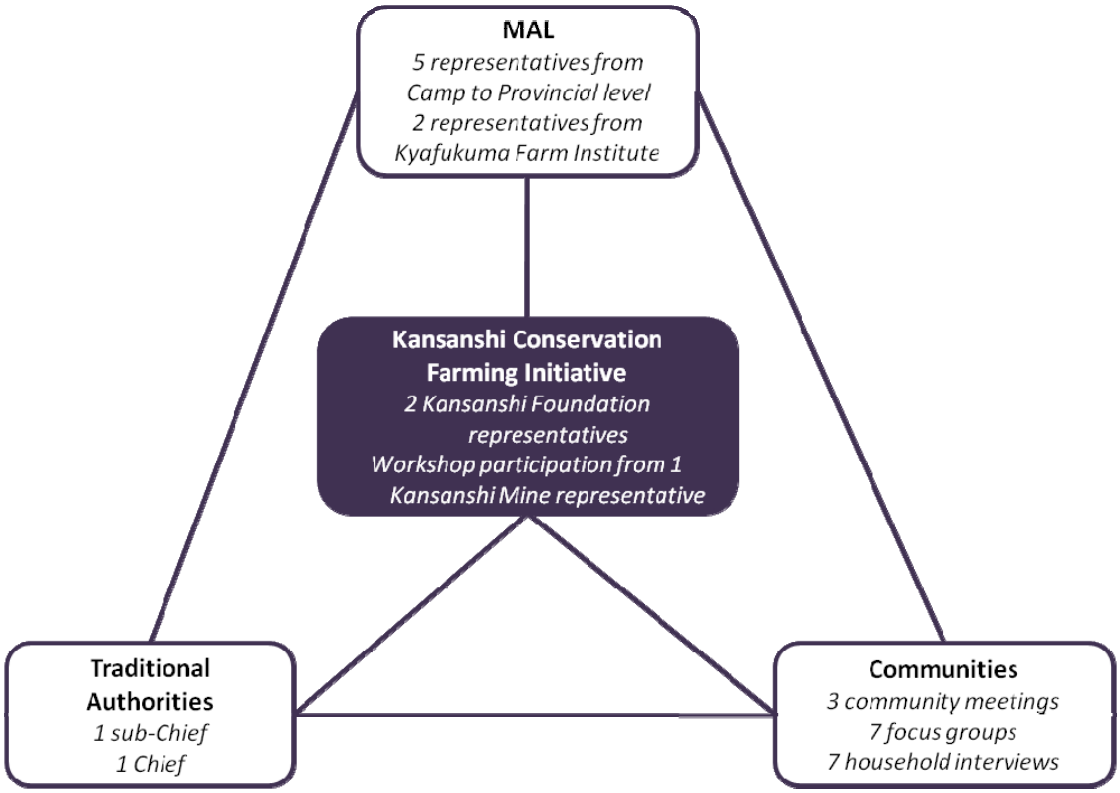


Table 4. Summary of the contributions of each partner in the partnerships (field data, 2012).

Partnership	Partner	Contribution	Gaps addressed
Kansanshi and MAL	Kansanshi	Finances for conservation farming project	Resource
		Expertise in conservation farming	Resource
	MAL	Expertise, capacity building and implementation of conservation farming project through MAL extension network	Resource
		Access to communities through MAL extension network	Participatory
Kansanshi and communities	Kansanshi	Finances for conservation farming project and to increase capital base of communities, e.g., farming equipment	Resource
	Communities	Labor for the project	Resource
		Local knowledge	Resource
		Grant mine a "social license to operate"	Regulatory
Kansanshi and TAs	Kansanshi	Finances for conservation farming project	Resource
	TAs	Facilitate access to communities	Participatory
		Give legitimacy to the projects	Regulatory
		Encourage participation in the project	Participatory
		Grant mine the license to operate on their land as custodians	Regulatory

4.2.3. Implementation

MAL representatives commented that the Kansanshi Foundation had been reluctant to engage them in their programmes, and that it still brings in external contractors, making it hard for MAL to monitor

the project activities. In addition, the Kansanshi Foundation had set the agenda from the start of the project as being focused on conservation farming. This did not allow MAL to suggest other, complementary activities. While conservation farming aligns to the aims of MAL in crop diversification and a reduction in the reliance of smallholder farmers on maize, and MAL were keen to emphasize that they were grateful to receive support from the Kansanshi Foundation, there was a recognized need to improve networking, communication and the strength of the relationship. For example, there was nothing officially written or recorded on how the partners were working together and so a MAL representative stated that they felt unsure of their roles and responsibilities within the partnership. One MAL representative stated:

> *"Improving networking is the biggest challenge for Kansanshi…everyone has seen where the weakness is and they want to improve it"* (Semi-structured interview with MAL representative, April, 2012).

There are conflicting reports about the frequency of communications between MAL and Kansanshi. At the Provincial level, the MAL representative felt that communication was frequent, as Kansanshi officers are in the communities three days a week with the MAL Extension Officers. However, Block and Camp-level officers [45] stated that they had only had three meetings with the Kansanshi representatives in the preceding seven months. Further questioning revealed that the Block and Camp officers were referring to meetings with the entire group of extension officers working with Kansanshi, which they felt were necessary for improved communication. The MAL officers also felt they did not have space to air views over the conservation farming programme, despite their obvious expertise in the area. They highlighted that one of their challenges was that their line manager was not involved in the project. Indeed, they reported that it was a year after the establishment of the project that MAL were brought into the partnership with Kansanshi, and the mine had previously been engaging with the communities through the local school. One of the Kansanshi Foundation representatives admitted that their early CSR initiatives had been "fragmented" and often as a result of requests from TAs in the area that they were eager to please. For example, Kansanshi financed the development of a health centre without consulting the Ministry of Health, who were unable to staff it when it was complete. These early lessons reportedly led the Foundation to see the benefits of partnership working. The Kansanshi Foundation representative also explained that they were in the process of developing a "Steering Committee" to include representation from various Ministries and TAs to further improve this situation.

At the Provincial level the MAL representative stated that he was concerned that Kansanshi believed that what was successful in Zimbabwe (the "home" of conservation farming) would automatically be appropriate in the North-West Zambian context. He felt that the expertise of MAL's Extension Officers could allow the conservation farming principles to be made more context relevant. These views also fed into a broader view that MAL could also provide expertise in terms of what the Kansanshi funds were spent on but that Kansanshi were only happy to release funds for extension services to promote conservation farming. A Kansanshi representative stated that one of their challenges was convincing the MAL officers to be based in the area they were working in rather than commuting from Solwezi, the nearby town. This, he believed, would set a good example to communities and contribute to the reduction in urban drift, helping to fulfill one of the aims of the project.

Both community members and MAL stated that the conservation farming project had been introduced to the communities around the mine without consultation, and, during focus group discussions, it was revealed that the attitude of the Kansanshi Foundation representatives was sometimes discouraging to those involved in the project. This provided extra challenges in moving towards the project goals.

4.2.4. Partnership Outcomes

As with the AFI, the Kansanshi Conservation Farming initiative was only in the very early stages when data was collected. However, challenges and opportunities of the partnerships involved were evident.

Representatives from the Kansanshi Foundation stated that the conservation farming project has the potential to alleviate the pressure on smallholder farmers associated with waiting for delayed payments for maize by the Food Reserve Agency, which used to arrive in January. This was after the start of the growing season and, as such, meant that farmers could not access the inputs they needed in time for the planting season. In addition, Kansanshi's conservation farming programme aligns to the aims of the government in helping farmers to diversifying crop cultivation beyond just growing maize. However, community-level research highlighted the anticipated benefits of the programme were unlikely to be realized in the first year, as had been hoped. The reluctance of the Kansanshi Foundation representatives to engage with and acknowledge the advice of the MAL officers on location-specific factors meant that both maize and bean harvests had suffered through waterlogging, by being planted on flat ground as opposed to ridges, and being planted too early, respectively. This resulted in many farmers being unable to repay the loans to the Kansanshi Foundation and, in some cases, being expelled from the project. Indeed, MAL representatives stated that they were lobbying Kansanshi for the terms of the loan to be relaxed for those farmers who worked hard on the programme but suffered poor harvests. Representatives from the Kansanshi Foundation stated that they had learnt a great deal from the first year and would use the expertise of the community and MAL in the future. The partnership is therefore overcoming a learning gap and creating new knowledge in combining the expertise in conservation farming techniques from Kansanshi, with the context specific experience of MAL.

Communities also complained of poor quality maize seed, which was subject to devastating attacks from stalk borers. Kansanshi advocated that the conservation farming fields were located close to the road in order to make access to the fields for monitoring for them easy and to promote conservation farming through easily visible fields. However, this resulted in some households having to stop keeping livestock, as previously they would keep the animals in close proximity to the house and grow their crops further away to prevent the livestock eating them. The Block and Camp Officers from MAL suggested that more capacity building and training was needed before loans were issued and that Kansanshi were too profit oriented.

There was disagreement within communities as to whether conservation farming was more or less labor-intensive than conventional methods. Some households suggested that more weeding and supplementary labor were needed in order to benefit from the initiative. However, two elderly farmers stated that conservation farming was more manageable as labor requirements were spread throughout the year, and the land preparation is far less intensive.

While the data suggests the early stages of the conservation farming project have been challenging, there is clear potential for CCD goals to be met through the initiative. For example, if the anticipated increases in crop yields are achieved, then food security within the communities could increase. In addition, improved soil fertility and livelihood diversification could have important positive impacts on households' ability to adapt to climate change. Furthermore, the conservation agriculture techniques employed could allow reduced carbon emissions through decreased tillage and fertilizer use.

5. Discussion

5.1. Partnership Rationale

In studying the Lumwana Mining Company (LMC)-initiated Agri-Food Innovation Programme (AFI), and the Kansanshi Foundation-led conservation farming project, the role of the mining companies in the various partnerships can be seen as central. Both mines, as private sector partners, provide largely financial, resource-based contributions to the projects. However, partnership working is vital for them to fill other gaps. For example, Table 2 highlights that, while LMC have the financial resources available to work towards the aims of the AFI, partnerships are needed to harness the necessary non-financial resources in the form of expertise to implement the projects and garner sufficient labor. Despite the majority of the partnerships established by LMC addressing resource gaps, there is little evidence of overlap and duplication of the resources they can provide between them. This supports assertions that a diverse range of partners is able to bring a greater variety of non-financial resources such as knowledge and skills [29]. The lack of overlap suggests the mining company has identified partners that can each contribute to their aims in a different but complementary way. LMC have initiated a wider variety of partnerships than the Kansanshi Foundation as the AFI is broader in scope than the conservation farming project.

Participation gaps frame a number of the partnerships established by LMC, suggesting that community engagement is one of the challenges faced by the private sector in partnering with communities. The communities are beneficiaries, but also key partners, as they provide the labor for, and participation in, the projects, as well as granting a social license to operate. As such, addressing participation gaps is vital to the success of the project. Partnering with Ministry of Agriculture and Livestock (MAL) allows the mining companies access to their extension services which interact with communities on a daily basis. MAL also play a central role in both case study projects as key implementers. Kansanshi established a partnership with MAL, only after attempting to implement the project without them. This highlights the crucial role of MAL in the initial stages of such projects. It further suggests the role of the extension network and of MAL more broadly, is crucial in addressing both a resource gap, through their expertise and extension network, as well as a participatory gap through their invaluable access to local communities. In addition to partnering with MAL to address the participation gap, both mining companies have formed partnerships with the Traditional Authorities (TAs) in order to legitimize the project within the communities. The TAs, as custodians of the land, also play a regulatory role in granting the mine a license to use the land for mining. Furthermore, the communities are able to address a regulatory gap in granting the mine a "social license to operate" [37].

5.2. Partner-Related Factors

Despite similar gaps being addressed by the mines, and both mines playing a central role in their respective projects, the roles they play, and the power balance, within the partnerships they have established, are very different. For example, Kansanshi have set the agenda for the focus of their project, whereas LMC have given MAL the freedom to express ideas for the use of the mine's financial resources. However, neither mine appear to have given power for decision making to the communities.

While both projects have partnerships to fill identified gaps, the partners who have been included may not be selected entirely by choice. In the case of LMC, there was a notable absence of NGOs to partner with for implementation expertise and MAL were engaged as a partner instead. However, this may have been advantageous for LMC, as MAL are able to form bridges between the other partners and perhaps fill the deficit of NGO implementers more efficiently by being involved in all aspects of the AFI. In addition, Kansanshi attempted to conduct the conservation farming project independently of MAL but were required to partner with them in order to utilize the extension services and access communities and their local expertise. Private sector companies have previously been found to be reluctant to be involved in the provision of agricultural extension services due to the high levels of variability due to weather and climate, and the difficulties associated with monitoring performance [41]. MAL, therefore, were likely to have been seen as an easier option for both of the mines, despite their initial reluctance to establish a partnership with them.

5.3. Process-Related Factors

The variable power balance between the two mines and their partners affects the extent to which vision and trust are shared in the various partnerships. For example, LMC have taken on board the values and vision of MAL and incorporated them into their project, whereas Kansanshi have imposed their values on MAL through the choice of project they are carrying out. Kansanshi's mode of partnership delivery does not easily allow for the full use of the skills and expertise available. However, MAL are granted the freedom to use their local knowledge and existing infrastructure, such as the Research Station, in the partnership with Lumwana. MAL representatives explained that they are one of the best educated Ministries in the Zambian Government and want to use the knowledge they have. One MAL representative suggests that the freedom given by LMC has resulted in a more productive partnership arrangement:

> *"Lumwana tell us (MAL) to come up with an idea that will benefit the farmers, so we prepare a budget it and present it to them…we get better results with Lumwana (than Kansanshi) and are making greater headway. Although that doesn't mean we don't want Kansanshi's support!"* (semi-structured interview with MAL representative, April, 2012).

These results suggest that concerns raised by Kolk *et al.* [25] over corporate interests leading in public-private partnerships can be moderated by the mode of the partnership. While both mining companies are undertaking their respective projects under the umbrella of CSR, which is often used to improve shareholder perceptions for investment [42] and therefore still contributing to profitability aims, LMC are allowing MAL to align the project to their aims through granting them greater decision making power.

In addition to the freedom bestowed by LMC, MAL also recognized the importance of transparency in the roles and responsibilities of the different partners, and the governance of the partnership more broadly, in creating productive working relationships, aligning to findings by Kefasi *et al.* [43] from their analysis of partnerships in smallholder farming systems in sub-Saharan Africa. Kansanshi also recognized the importance of increased transparency and are working to improve their communication and networking for the future of the project.

5.4. Project Outcomes: Towards CCD

The partnership rationale, partner and process-related factors have notable impacts on the outcomes of the partnership and the realization of the project aims. For example, the reluctance of Kansanshi to establish a partnership with MAL and utilize their expertise, has contributed to the challenges associated with the initial stages of the conservation farming project and the slow realization of anticipated benefits. A lack of community consultation and/or complications in using the TAs as access to the communities may have reduced the suitability of the projects for community development, and a lack of partners, in particular NGOs, has led to partnerships which may otherwise not have been established.

In terms of the CCD outcomes of the projects, significant development benefits, and moves towards adaptation to, and mitigation of, climate change are yet to be achieved. However, good practices can be identified which can be used to inform future CCD partnerships and projects. At the formation stage of the partnership, the initiating partner (or partners) must identify gaps that can be addressed by establishing one or more partnerships before considering which partners can best address these gaps to allow for synergies in contributions across the partnership and project.

5.5. Partnership Evaluation Model

The partnerships evaluation model presented in Figure 2 facilitates the unpacking of partnerships in order to assess which factors are directly or indirectly contributing to whether the case study project outcomes are successful. Using the model to compare the two case study projects and investigate the different stages of the partnerships, highlights that while the partnership rationale and partner-related factors can impact directly on the project outcomes, the implementation phase of the partnership is key in achieving broader project aims. Assessing each partnership individually in this way also allows identification of potential areas where synergies are being overlooked, or duplication of resources is occurring. Such integrated assessments spanning each stage of project development and implementation have been lacking in previous assessments of CCD projects. The evaluation model could be further extended to explicitly address context-related factors, which could impact on partnership outcomes but were beyond the scope of this research.

6. Conclusions

This paper analyzed case study data from Zambia in order to identify the characteristics of partnership models that can lead to the successful delivery of CCD. A partnership evaluation model was developed and applied to the data, allowing discussion of factors affecting the outcomes of

individual partnerships and projects involving multiple partnerships, at each stage of the process. Key lessons and good practices in partnership working are summarized in Box 1. For future CCD projects, partnerships offer opportunities for addressing gaps which would prevent solo actors from achieving CCD goals. At the formation stage of each partnership, careful consideration should be given to which partners can best address these gaps to allow for synergies in contributions across the partnership required for successful project implementation. Where there is a lack of suitable partners to engage, initiating partners should consider the provision of training and capacity building for stakeholders, such that they may be able to address the gap in need of filling. In the case studies presented here, private sector partners present an important opportunity for financial resource provision. However, a number of diverse resource gaps needed to be addressed before a project could be implemented.

Box 1. Key lessons and good practices in partnership working.

At the Formation Stage

- Careful consideration should be given to which partners can best address gaps to allow for synergies in contributions across the partnership required for successful project implementation;
- Private sector organizations are often able to provide financial resources but require partners to fill other gaps;
- A more diverse range of partners are able to fill a more diverse range of gaps but care should be taken to avoid duplication of resources;
- Where there is a lack of suitable partners to engage, initiating partners should consider the provision of training and capacity building for stakeholders, such that they may be able to address the gap in need of filling.

At the Implementation Stage

- Transparency, openness and regular communication over roles and responsibilities are key to aligning visions and building trust;
- In defining roles and responsibilities, partners must be given the freedom to utilize their strengths to the maximum, which power imbalances between partners may restrict.

Working with Communities

- Extra care must be taken to ensure projects are appropriate and relevant to local needs;
- Partners with the capacity to fill participatory gaps will be required in order to engage communities;
- Communities can fill resource gaps by providing labor, land and local expertise, and regulatory gaps by allowing projects to be carried out;
- Communities should be engaged from the beginning of the project.

At the implementation stage of the partnership, transparency, openness and regular communication over roles and responsibilities are key to aligning visions and building trust. In defining roles and responsibilities, partners must be given the freedom to utilize their strengths to the maximum, which

power imbalances between partners may restrict. As the financial resource providers in the case studies presented here, the private sector are very powerful partners. However, they need to be careful not to exert this power over other partners who have valuable resources to contribute.

When working with communities, who are often involved in CCD projects as both partners and beneficiaries, extra care must be taken to ensure projects are appropriate and relevant to local needs, as well as allowing CCD goals to be met. This may necessitate a trade-off between adaptation, development and mitigation benefits. For example, the addition of MAL to the case study partnerships strengthens the rural development and climate change adaptation possibilities as they are also working towards these aims. Mitigation may occur, as with the AFI, through increased carbon sequestration as a collateral benefit, but MAL's expertise does not lie in this area. Therefore, for future CCD partnerships, it may be pertinent to determine whether the partnership and project is able to deliver adaptation, development and mitigation benefits or whether benefits would be greater if just two of the three CCD goals were targeted. This may depend on the mix of partners in the partnership.

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46. The Climate and Development Knowledge Network is a project funded by the UK Department for International Development (DFID). It is managed by an alliance of organizations led by PricewaterhouseCoopers LLP (PwC), and including Fundación Futuro Latinoamericano, INTRAC, LEAD International, the Overseas Development Institute, and SouthSouthNorth.