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Scaling and Replicating Sustainable Watershed Management: A Malawi Case Study



Prepared for Catholic Relief Services
by the Keough School of Global Affairs Integration Lab
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Acronyms

| | |
|--------------|---|
| CRS | Catholic Relief Services |
| EU | European Union |
| FFA | Food for Assets |
| FFW | Food for Work |
| FGD | Focus Group Discussion |
| GDP | Gross Domestic Product |
| GIZ | The Deutsche Gesellschaft für Internationale Zusammenarbeit |
| i-Lab | University of Notre Dame Integration Lab (University of Notre Dame) |
| KII | Key informant Informant Interview |
| LACRO | Latin America and Caribbean Regional Office |
| NCCM | National Climate Change Management Policy |
| NGO | Non-Governmental Organization |
| NRM | Natural Resource Management |
| SSA | Sub-Saharan Africa |
| USAID | United States Agency for International Development |
| WALA | Wellness and Agriculture for Life Advancement |
| WMC | Watershed Management Committee |
| VSL | Village Savings and Loans |

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Preface

In 2009, Catholic Relief Services (CRS) led a consortium of NGOs to launch the Wellness and Agriculture for Life Advancement (WALA) project in Southern Malawi. The five-year USAID-funded project involved a suite of watershed, livelihoods and capacity-building interventions designed to reduce food insecurity and increase the resilience of 215,000 vulnerable households to climate shocks and stresses. Though CRS and USAID, the primary funder of WALA, have conducted evaluations of the project, these did not identify the factors driving long-term sustainability, scalability, and replicability. Thus, CRS Malawi commissioned a team of graduate students from the University of Notre Dame (henceforth referred to as “the Team”) to conduct additional qualitative research in 2021, including fieldwork in Malawi between June and July 2021.

This research culminated in the following deliverables: 14 case studies, a photo album, and this synthesis report, which summarizes the Team’s findings and key learnings from its research. It includes an overview of the Team’s research activities, an analysis of the key drivers and barriers to success in watershed interventions, and several recommendations for future scaling and replication efforts.

The CRS Malawi Leadership Team is the primary audience for this report, namely Julie Ideh, Owen Sopo, and Juma Masumba. This report will allow them to understand how communities received the WALA watershed treatments and the long-term impact of these interventions in the respective communities. They can use this information and the Team’s recommendations to inform future scaling and replication efforts. Additionally, this report can be used to aid future program design and justify funding for watershed interventions.

Other Malawi partners, including the consortium of WALA implementing NGOs, the Government of Malawi and funders (USAID, GIZ and EU) can use this report to serve as evidence of the success of watershed treatment interventions and as a tool to aid in the design of future initiatives. This secondary audience will benefit from the examples of impact provided in the learnings and recommendations section of this report.

Other stakeholders interested in watershed and NRM interventions outside the context of Malawi, such as CRS Baltimore Staff, CRS Technical Advisors in the SSA region and CRS LACRO, will also be able to draw key findings and learnings from this report that can be used to inform their own interventions.

About the Authors

This document was authored by a team of graduate students enrolled in the Integration Lab (i-Lab) in the Keough School of Global Affairs (KSGA) at the University of Notre Dame. This document assembles data, analyses, recommendations, or guidance at the request of Catholic Relief Services. As the product of an academic experience, any opinions, findings, and conclusions or recommendations expressed herein are those of the student authors and do not necessarily reflect the views of the Keough School of Global Affairs, the University of Notre Dame or Catholic Relief Services.

Executive Summary

As the frequency and severity of major weather events increases each year due to climate change, smallholder farmers around the world grow more vulnerable to food insecurity. Catholic Relief Services (CRS) sought to address this issue amongst smallholder farmers in Malawi through its *Wellness and Agriculture for Life Advancement (WALA)* project. Past evaluations of WALA, however, have presented mixed findings regarding the impact of the intervention in beneficiary communities. As a result, it is unclear if and how community watershed management interventions should be improved. *Scaling and Replicating Sustainable Watershed Management: A Malawi Case Study* addresses this knowledge gap by presenting the findings of a follow-up evaluation completed seven years after WALA's conclusion.

Data collection for this evaluation occurred during an eight-week visit to southern Malawi by the Team in June and July 2021. The Team first conducted key informant interviews with representatives from several of the NGOs responsible for WALA implementation. Then, the authors visited seven “high-performing” and seven “low-performing” WALA communities where they conducted focus groups with community members and key informant interviews with extension officers, local leaders, watershed management committee members, and district agriculture and resource officials. Interview topics covered definitions of “success” from the perspective of community members, challenges to successful resource management, and recommendations for the improvement of future projects.

An analysis of the data collected suggests that **WALA watershed interventions can and should be scaled and replicated**. Community members and leaders alike noted the impact of the watershed treatments on crop yields, water levels, soil quality, and resilience to major weather events. Drivers of this success include strong leadership, a shared sense of ownership amongst community members, and an understanding of the positive consequences of watershed management on local resources and wellbeing. Respondents also noted that further success has been constrained by several factors. These barriers to success include a lack of short-term incentives to motivate broader participation in watershed management before



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benefits are realized, a lack of coordination amongst key stakeholders, and the destruction of treatments by those who do not understand or appreciate the value of watershed treatments.

CRS could increase the likelihood of long-term sustainability of watershed management interventions by incorporating this barrier and driver analysis into future project design at the landscape level. Further, CRS should consider how future interventions can include short-term incentives in program design and better align farmer interests with watershed management objectives. Additionally, CRS can and should leverage the existing knowledge and influence of key community stakeholders, particularly local extension officers.

Background

In 2019, nearly 690 million people across the world were undernourished (FAO et al., 2020). With the population rising and the climate changing, this problem is only expected to grow (CRS, 2020). Issues of growing food insecurity under a changing climate are particularly acute in Malawi (Wangari, 1994). Agriculture forms the basis of the Malawian economy, representing over 38% of Gross Domestic Product (GDP) and employing over 85% of the labor force. High population growth, rapid deforestation and land use change have degraded the country's environment and its watersheds. In southern Malawi, where land degradation is especially severe, farmers have experienced below-average agricultural production. In this region, rates of food insecurity are high, and farmers continue to be vulnerable to climate shocks and stresses. These disasters are predicted to elevate as climate change increases air temperatures, as well as the frequency and intensity of floods and droughts (USAID, 2016).

Responses to these challenges range from the creation of new policies to the implementation of projects aimed at improving the resilience of smallholder farmers. For example, the government of Malawi formulated and implemented the National Climate Change Management Policy (NCCM) (Government of Malawi, 2016). NCCM policies are now promoting interventions at the landscape level, e.g., watershed protection and management, fire management, erosion control, pest and disease control, and degraded forest restoration (Gitz et al., 2016). Non-governmental actors, including Catholic Relief Services (CRS), also implemented various interventions to address climate change, food insecurity, and water scarcity. Notable among these was the Wellness and Agriculture for Life Advancement (WALA) project, implemented by a CRS-led consortium of NGOs in 2009.

At the invitation of CRS Malawi, the Team conducted qualitative research in 2021 to examine the long-term sustainability of WALA's watershed management interventions and their potential to be scaled and replicated to address the growing challenge of food insecurity. The Team sought to discover which watershed treatments were sustained and the factors influencing their sustainability to draw lessons that can be applied when scaling future projects.

WALA Literature Review

This report builds upon knowledge collected in several previous studies of WALA (Table 1). As these studies complement and contextualize the findings of this report, their major learnings regarding watershed interventions are synthesized herein. This synthesis is organized around three themes: (1) evidence of treatment effectiveness, (2) community uptake, and (3) expressed concerns. The review concludes with a discussion of the limitations of past studies and how these, in turn, informed the Team’s chosen research strategy.

| Study Title | Study Purpose | Year: Data Collection | Citation |
|--|---|-----------------------|-------------------------|
| Watershed Development: Experience from the WALA program | Evaluate community perceptions of watershed management and document achievements of WALA mid-implementation | 2014 | Reichert (2014) |
| Understanding the adoption of climate-smart agriculture: a typology with empirical evidence from southern Malawi | Determine which climate-smart agriculture practices (watershed and non-watershed) are most likely to be adopted by smallholder farmers | 2016 | Amadu et al. (2020a) |
| Yield effects of climate smart agriculture aid investment in southern Malawi | Determine if participation in climate-smart agriculture practices (watershed and non-watershed) results in increases in crop yields | 2016 | Amadu et al. (2020b) |
| Assessment of the Wellness and Agriculture for Life Advancement (WALA) Activity | Evaluate the impact of WALA watershed treatments in beneficiary communities and the potential for long-term sustainability of treatments | 2017 | Soroko et al. (2018) |
| Long-term Impact Evaluation of the Malawi Wellness and Agriculture for Life Advancement Program | Evaluate the impact of WALA (watershed and non-watershed) on farmer resilience (Note: study also considered the impacts of WALA nutrition and savings programs across the entire project area, not just the treated watershed area) | 2018 | BenYishay et al. (2019) |

Table 1: Summary of past WALA studies

Synthesis of Key Findings

Key findings from this literature review relevant to the Team's evaluation of the watershed treatments areas are summarized below.

1. Evidence of treatment effectiveness

WALA watershed treatments included check dams, stone bunds, absorption trenches, and in some cases, weirs and/or irrigation schemes (Amadu et al., 2020a; BenYishay et al., 2019; Reichert, 2014; Soroko et al., 2018). Farmers' crop yields and self-reported ability to cope after a climate shock were adopted as indicators of treatment effectiveness. In two qualitative studies, farmers reported increased crop yields after WALA treatments were installed, attributed to increased soil moisture, soil fertility, and, in the case of watershed communities that received irrigation treatments, additional crop production seasons (Soroko et al., 2018; Reichert, 2014). In a quantitative study, Amadu et al. (2020b) found that the adoption of all the treatments (though not exclusively the watershed treatments) increased maize yields 53% on average. The study completed by BenYishay et al. (2019) notably found that beneficiary communities did not report increased resilience to droughts and climate shocks compared to non-beneficiary communities. However, the authors attribute this outcome to the severity of climatological shocks rather than flaws in the design or construction of the treatments.

2. Early findings regarding community uptake

Community interest in adopting watershed treatments was evident in all past WALA studies. The first evaluation (completed during WALA's five-year implementation period) suggested 50-70% of farmers in most of the study communities adopted the WALA watershed treatments in the first year. Many of the remaining farmers adopted treatments after witnessing the success of these early adopters (Reichert, 2014). Amadu et al. (2020b) later found that frequent, positive interactions with extension officers increased likelihood of adoption by older, male heads of household, whereas farmers living in more mountainous areas, like Chikwawa, were more likely to start building and maintaining the treatments independent of such contact due to the mountainous terrain.

Additionally, it should be noted that many of the studies found that the distribution of food aid as part of a Food for Work or Food for Assets (FFW/FFA) program complicated community members' interest in and attitudes towards WALA. Amadu et al. (2020b) found that receiving food aid increased WALA adoption rates initially, but that this adoption was unlikely to be sustained long-term. Moreover, these programs created tension by bringing workers from neighboring villages and/or having workers construct treatments on land that did not belong to

them. However, the flow of workers did foster “treatment diffusion” when workers would return to their homes and replicate the treatments (Amadu et al., 2020b). Reichert (2014) and Soroko et al. (2018) noted, though, that overall community interest in WALA appeared to decline after FFW/FFA ended.

3. Expressed concerns regarding WALA

Some of the concerns noted by these studies included: (1) impact of labor shortages on farmers’ ability to maintain treatments, (2) lack of markets for selling surplus crop yields, (3) lack of external support for farmers after WALA ended, and (4) the failure of treatments during severe weather events (BenYishay, 2019; Amadu et al., 2020a; Reichert, 2014; Soroko et al., 2018). Some of these challenges, such as labor shortages, were noted consistently across communities, though others, such as the external support post-WALA, varied by community (many communities received follow-on interventions through CRS and/or the regional government).

Limitations

The studies in Table 1 noted several limitations, most notably the challenge of working with self-reported data that could not be externally verified. Other limitations include issues with study design, such as criteria used to select “control” communities for comparative evaluation (BenYishay et al., 2019). Finally, the timing of site visits may have played a critical role in shaping study outcomes. For example, Soroko et al. (2018) completed a “rapid assessment” of 30+ watersheds in December, which is the month in which farmer labor demand is the greatest in southern Malawi. This may explain the noted lack of treatment maintenance and farmers’ unwillingness to engage with his research team.

Scope of Present Study

Given the wealth of rigorous data collected particularly by Amadu et al. (2020a,b) on the effectiveness of the WALA watershed treatments, this study instead focuses on identifying the factors inhibiting or promoting long-term sustainability, scalability, and replicability of watershed treatments. This study examined factors such as the role of FFW/FFA programs, the role of local leadership in community uptake and treatment maintenance, and community perceptions of success regarding watershed treatments.

Research Methodology

Data was collected from June 9-July 23, 2021 through three primary methods: key informant interviews (KIIs), focus group discussions (FGDs), and direct observation of watershed treatments. KIIs with WALA-implementing NGOs, the Ministry of Agriculture and USAID took place in the first two weeks of data collection. These were conducted in English. KIIs and FGDs at the local level were conducted in Chichewa by local facilitators, Mictor Chaola and Moyenda Kaliati. Key informants interviewed during community visits included extension officers, local leaders, watershed management committee members, and district agriculture and resource officials.

During the interviews, the facilitators were responsible for taking notes and in English. Later, they debriefed with the Team and synthesized key learnings. Audio recordings of each interview were collected. Select audio recordings were transcribed from Chichewa into English by Mona Lisa Bandwe for the purpose of gathering direct quotes from key informants and community members. Tables 2 and 3 summarize the sequence of activities and subjects engaged during the in-field data collection period. See Appendix II for the question prompts used in FGDs and KIIs, as well as the synthesis worksheets used in debriefing sessions.

The Team visited 14 watersheds of the original 32 WALA beneficiary watersheds. Two factors influence the Team’s selection of sites to include in the study: prior categorization and geography. In the study conducted on WALA by Soroko et al. in 2018, the authors used a score sheet to evaluate, then rank every WALA watershed. Scores and rankings were based on community members’ ability to demonstrate that watershed management initiated by WALA was ongoing and effective. Given the Team’s interest in identifying drivers and barriers to long-term sustainability, the Team decided to visit seven of the 16 highest-performing communities and seven of the 16 lowest performing communities. The former the Team refers to as “High-Impact” communities and the latter are referred to as “Low-Impact” communities. The categorization of each type of community is included in Table 3. The second factor considered in site selection was geography. To determine which High- and Low-Impact communities would be included, the Team considered the feasibility of visiting each community and geographical representative. Ultimately, the Team a group of sites that was both geographically representative and as close as possible to its hub in Blantyre.

| Lilongwe KIIs | |
|-----------------|--|
| June 9-18, 2021 | Africare, Emmanuel International, Save the Children, Total Land Care, World Vision, Ministry of Agriculture, USAID |

Table 2: List of Implementing NGOs interviewed by the Team

| Dates | Watershed | Type | Activities |
|--------------------|----------------------|-------------|---|
| June 22-23 | Muluma, Chiradzulu | Low-Impact | KII: Combined Local Leaders/ WMC, Extension Officers FGDs: Male, Female |
| June 24-25 | Natama, Chiradzulu | Low-Impact | KII: Combined Local Leaders/ WMC, Extension Officers (2) FGD: Male, Female |
| June 28-29 | Chigwirizano, Thyolo | High-Impact | KII: Combined Local Leaders/ WMC, Extension Officers (2) FGD: Mixed Group 1, Mixed Group 2 |
| June 30- July 1 | Nang'ombe, Mulanje | High-Impact | KII: Combined Local Leaders/ WMC, Extension Officers FGD: Male, Female |
| July 2, 5 | Mitumbira, Mulanje | Low-Impact | KII: Local Leaders, WMC, Extension Officers FGD: Male, Female |
| July 6-7 | Makande, Chikwawa | High-Impact | KII: Local Leaders, WMC, Extension Officers FGD: Male, Female |
| July 8-9 | Chikololere, Balaka | High-Impact | KII: Local Leaders, WMC, Extension Officers (2) FGD: Male, Female |
| July 12-13 | Namadidi, Zomba | Low-Impact | KII: Combined Local Leaders/WMC, Extension Officers FGD: Male, Female |
| July 14-15 | Majawa, Zomba | Low-Impact | KII: Local Leaders, WMC FGD: Male, Female |
| July 16 | Kasabala, Zomba | Low-Impact | KII: Combined Local Leaders/WMC FGD: Male, Female |
| July 19 | Mbeluwa, Zomba | High-Impact | KII: Local Leaders, WMC, Extension Officers (2) FGD: Male, Female |
| July 20 | Katunga, Zomba | High-Impact | KII: Combined Local Leaders/WMC, Extension Officers FGD: Male, Female |
| July 21-22 | Lingoni, Machinga | High-Impact | KII: Local Leaders, WMC, Extension Officers (3) FGD: Male, Female |
| July 23 | Mbangu, Nsanje | High-Impact | KII: Local Leaders, WMC, Extension Officers (2) FGD: Male, Female |

Table 3: Chronology of watershed visits with activities and participants

Data Products

Table 4 summarizes the data products collected during research activities. They include: (1) audio recordings (in English/Chichewa), (2) facilitator notes (in English), and (3) photographs. At the conclusion of each site visit, the Team also held a debriefing session to identify key themes and insights using a set of predetermined questions. These debriefing notes (in English), as well as the facilitator notes, were digitized and coded into Atlas.ti for further qualitative analysis (See Appendix I for codebook). Based on this debriefing, one FGD or KII from each community was translated and transcribed to provide additional context and illustrative quotes used throughout this report.

| Activity | Primary Data Product | Secondary Data Product |
|--------------------------|----------------------|---|
| Key Informant Interviews | Audio recordings | English transcript (select communities) |
| | Facilitator notes | Coded in Atlas.ti |
| Focus Group Discussions | Audio recordings | English transcript (select communities) |
| | Facilitator notes | Coded in Atlas.ti |
| Team Debriefing Session | Debriefing Notes | Digitized, Coded in Atlas.ti |
| Direct Observations | Photographs | Compiled into Photo Album |

Table 4: Types and format of data collected by the Team

Limitations and Assumptions

The Team recognizes that there were several limitations of its research methodology. These limitations and their associated implications and mitigation strategies are described in Table 5.

| Limitation | Implication | Mitigation Strategy |
|---|--|---|
| Inability to validate KII responses | Possible inaccuracies in specifics of past interventions, WALA participation, shocks, etc. | |
| Community self-selection of FGD participants | Possible bias toward those interested in WALA, watershed treatments | Respondents questioned on successes, challenges, and attitudes of the whole community, not just their own |
| Constrained to locales within 3 hours of Blantyre | Possible bias toward more accessible, better supported/funded locales | Selected sites in every WALA implementation district, including “hard to reach” locales |

Table 5: Limitations of the present study, as determined by the Team

Data Analysis

Using Atlas.ti, the Team coded the themes that emerged in the FGDs, KIIs, and community debriefing sessions. Codes were created based on common themes emerging in the data analysis process. While a preset codebook was not used, principles from USAID’s behavior change framework (2017) and Dr. Elinor Orstrom’s collective action framework (2015) were incorporated into the process to give language to recurring themes. See Appendix I for the complete codebook.

Using these codes, key themes were identified using two methods. First, a query was run to count the number of times a theme emerged. Then, a second query was run to examine the number of communities in which that theme emerged. The Team then designated *key themes* as those mentioned more frequently and present in a greater number of communities.

After a key theme was identified using this method, all quotes tagged with its code were examined and summarized into common narratives. This process was conducted independently

for each data source to capture the unique perspective of community members, community leaders, and the facilitators themselves. The perspectives of each group were then compared to examine common narratives, as well as important differences between them.

The following section describes the Team's findings based on the process outlined above. A few caveats regarding the presentation that follows:

- All words and phrases in **bold** denote codes used to analyze the data in Atlas.ti.
- Prioritized barriers and drivers are listed in order of importance. These were identified using the counts method detailed above. However, considering the subjectivity in the coding process, it was difficult to differentiate the relative significance of closely clustered count totals. As a result, the team focused their unit of analysis on the general narrative of each community and stakeholder group. Barriers and drivers considered highly important across all three stakeholder groups and in multiple communities were prioritized over those which were not.
- In some instances, other themes were included in the analysis to help explain key themes and/or elevate the voice of community members.

Atlas.ti

What is Atlas.ti?

Atlas.ti is a data analysis software used to assist with qualitative research. This all-in-one tool is used to arrange, reassemble, and manage large bodies of textual data. The Team used Atlas.ti as the primary tool to systematically analyze its data. Terminology used in Atlas.ti are defined as follows:

- **Code:** a term used to flag the subject matter discussed in a segment of data. Coding allows data to be easily distilled and sorted, then compared across different segments.
- **Codebook:** lists and defines all codes used in the data analysis process (see Appendix I).
- **Query:** tool used to search data on Atlas.ti based on a specific criteria (i.e., word, phrase, code, combination of codes, document type, etc.)



Definition of Success

As a baseline, community members described *success* as being able to have **food security** year-round, as well as a basic **income**. Building from this baseline, community members most frequently described success as the accumulation of **assets** such as agricultural inputs, farm tools, livestock, land, fruit trees, modern housing, bicycles, motorbikes, etc. Two other markers of success (although less frequently cited) were **good health** of the family and the **ability of the farmer to send their children to school**. See Figure 1.

Community leaders and actors outside the community often cited a similar agriculturally-oriented definition of success. Both types of actors were also likely to add a secondary definition of success: **continuation/maintenance of the watershed treatments**.

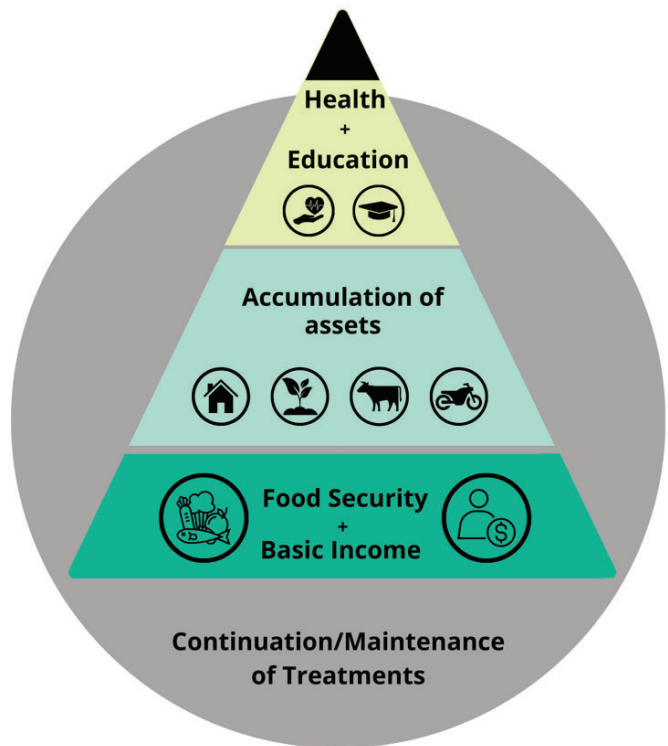


Figure 1: Definition of Success (Primary: 3-tier Pyramid, Secondary: Backing Circle)



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Perceived Impact

There was a general sense of excitement amongst community members and local leaders regarding the **impact of watershed management**, expressed through a common narrative: watershed management activities helped **reduce erosion, improved soil fertility, and improved access to water**, resulting in **increased crop yields** (see Figure 2). Community leaders also attributed **reforested** parts of their communities to successful watershed management.

Less frequently mentioned impacts of watershed management included: **increased income, increased assets, improved food security, disaster risk reduction, reduced drought and flooding, and better overall health**. In a few communities, local leaders also claimed that the impact of **increased yields** resulted in the secondary impact of farmers **being able to send their children to school**.

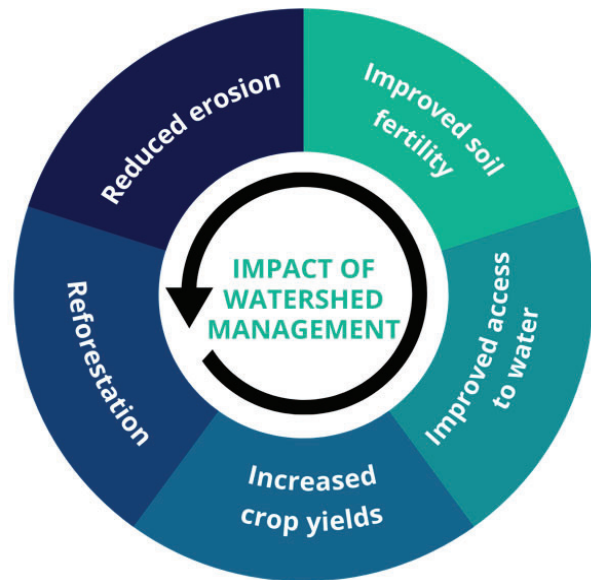


Figure 2: Impact of Watershed Management

Ownership and Sustainability

Based on the interviews and the Team's observations, most sample communities continue to manage their watersheds following the close-out of WALA seven years ago. Of the 14 sample communities visited, all had a functioning watershed management committee. Moreover, sample communities expressed a strong **sense of ownership** of communal natural resources needed to succeed as farmers (including the watershed). When asked who was responsible for managing these resources, community members consistently said that it was *their responsibility*. Furthermore, of the 14 sample communities visited, all referenced **community members** as the key actor responsible for managing these resources.

Drivers of Successful Watershed Management

These observations affirmed the presence of five key drivers to successful watershed management listed as follows in order of importance:

1. *Perceived Positive Consequences*

Community members most referenced perceived agricultural benefits as the motivating factor for the adoption and maintenance of watershed treatments. They framed these benefits in terms of **reduced erosion, improved soil fertility, improved access to water** and, ultimately, **improved crop yields** (refer back to Figure 2). In some cases, community members tied the perceived benefits of these improved agricultural conditions to second-order benefits such as **increased income, assets, and food security**. Additional perceived secondary benefits were **improved health of the family** and the **ability of the farmer to send their children to school** (refer back to Figure 1).

When discussing the reason for implementing and maintaining watershed treatments, some community members also noted the broader benefit of watershed treatments to **reduce the impact of natural disasters** such as flooding and drought.

Local leaders also referenced the agricultural benefits and the **reduction of natural disasters** as a key motivating factor in the adoption and maintenance of watershed treatments by the community. They also added that these **perceived positive benefits** motivate community members to **work in groups** on watershed treatments.

2. *Perceived Negative Consequences*

Community members most referenced the challenges of **drought, flooding and erosion** as the underlying motivation for the implementation and maintenance of watershed treatments. They referenced the **negative consequences** associated with these challenges in the context of agriculture and their **crop yields**.

Local leaders also noted these challenges. However, unlike community members, they also explicitly framed watershed management as a response to the **negative consequences of climate change**.

Both groups noted the connection between **perceived negative consequences** and the **perceived action efficacy** of watershed management activities. When community members believed taking part in watershed management activities would help them avoid these problems, they were more likely to do so.

3. Strong Community Leadership

Strong community leadership was identified as a key factor in sustainable watershed management. Strong community leaders were an important part of sensitizing, motivating, and organizing community members to take part in watershed management activities. They also facilitated effective watershed management by solving any misunderstandings between community members and encouraging community unity.

Following the establishment of watershed areas and treatments, community leaders played an important role in **monitoring these areas and enforcing rules** governing their use. Among the various community actors, **traditional leaders** (such as **village chiefs**) played one of the most important roles in mobilizing the community and providing the legitimacy/backing for watershed management by-laws.

Local-level governance and **village committees** were also referenced (although less frequently) as important actors in leading behavior changes toward more sustainable watershed management.

4. Community Unity and Social Cohesion

The **unity and cohesion** of communities was commonly referenced as a reason for successful watershed management. This characteristic of communities was referenced in relation to a community's ability to unite behind a common goal to work together as a group.

Community members cited many reasons for their decision to work together in groups. One common theme was a strong sense of responsibility for the collective care of the village's natural resources and development. A second theme was community members finding multiple benefits from working together. Examples of the perceived benefits of group work include improved relationships, reminders to work, shared labor, quicker results, the exchange of ideas/skills, the exchange of resources, and easier access to government services.

Community **unity and social cohesion** were also referenced as a supporting factor by community leaders, enabling them to unite community members behind shared goals and rules regarding watershed use.

5. Agricultural Extension Officers

Extension officers were commonly referenced as a catalyst for behavior change related to new agricultural and natural resource management practices. Community members often attributed their decision to try a new conservation agriculture practice, or continue a practice, based on the

support of an extension officer. Local leaders shared a similar perspective, the common narrative being that increased presence/monitoring by **extension agents** resulted in sustained behavior change by farmers in their community.

While not always directly referenced in relation to watershed management practices, **extension officers** also play a key role in the willingness of community members to adopt and sustain new practices.

Barriers to Successful Watershed Management

The majority of sample communities were continuing to manage their watersheds following the close-out. However, participants did reference common challenges which restricted some community members from taking part in watershed management activities. Six key barriers that slowed the progress of watershed management or stymied its positive benefits were identified as follows and are reported in order of importance:

1. Lack of Short-Term Incentives

A **lack of short-term incentives** was a key barrier to the uptake of watershed treatments. From the perspective of community members, there is a **high labor cost** associated with constructing and maintaining treatments, especially because these activities take them away from their own livelihood activities. Community members commonly argued **food for work**, or other direct compensation was therefore necessary for some community members to take part in building and maintaining watershed treatments.

In their words...

“Just like other projects we are doing here like maintaining roads, building bridges and other assets, even though we are the ones who use these things, we still get paid for doing the work. We are people. We need to eat, buy clothes, get salt for our meals, require soap for our bath, so it's just right that we get paid when we do such work.”

--Male FGD participant from Chikololere watershed (Balaka)

This is closely related to the more general sentiment that the **lack of perceived positive consequences** resulted in some community members not participating in watershed management activities.

Local leaders also recognized the **high labor costs** and need for **short-term benefits** or other **perceived positive consequences** (such as **FFW**) in sustainable watershed management.

They also highlighted the difficulty of providing these incentives themselves due to a **lack of funding and/or resources**.

2. Lack of Farm Inputs/Resources

A **lack of farm inputs/resources** was a barrier to successful watershed management in two regards. First, a **lack of farm inputs/resources** restricted the implementation of watershed management techniques such as reforestation and constructing the physical treatments.

Community members commonly referenced a lack of resources needed for nursery management such as seeds, plastic tubes, and watering cans. Another important resource deficit was a **lack of watershed tools** needed to build and maintain treatments. Examples include pangas (machetes), hoes, hammers, line-levels, shovels, pickaxes, and wheelbarrows. Community members often noted the need for these tools to address the labor-intensive nature of the work and avoid work-related injuries. The connection between **group work** and communal tools was also made. Community members and local leaders pointed to a lack of financial resources as the reason they were unable to provide these tools on their own. Local leaders noted that while some implementing partners provided tools during WALA, many of these tools have worn out over time, or were taken by the partner after project closeout.

Second, a **lack of farm inputs/resources** also limited farmers' success. Community members were unable to benefit from the improved soil and water conditions resulting from successful watershed management. Common resources referenced included a lack of access to fertilizer, pesticide, improved seed, mechanized farm tools, and irrigation equipment. In some cases, participants attributed a lack of financial resources/income as the underlying reason for this barrier. It should be noted that community members tended to emphasize the **lack of farm inputs/resources**. In contrast, local leaders emphasized the **lack of watershed-related tools**.

Protective Gear

Related to a lack of **watershed tools** was a **lack of protective gear**. In voicing the need for watershed tools to avoid work related injuries, community members and local leaders specifically voiced a need for **protective gear**. Injuries did not appear to happen frequently. However, half the communities sampled shared a common concern over workers being unprotected and voiced a need for protective gear. Local leaders noted that injuries while working on watershed treatment were not only a problem in that their community members were injured, but also in the sense that they often created conflict within the community.



3. Lack of Training/Support

A **lack of training/support** was identified as a key barrier to the implementation of watershed treatments. Local leaders and community members often expressed the need for more training to refresh their knowledge and provide them with the technical skills necessary to maintain and/or expand the community's watershed area. The common narrative was that during WALA, community members had access to ongoing training and technical expertise from WALA staff and extension services. However, following the **project closeout**, this support was reduced causing watershed management activities to slow.

In addition to providing the necessary technical skills to maintain/expand watersheds, local leaders also noted the importance of sensitizing community members to the benefits of watershed management. One narrative was that community members who aren't trained on the benefits of watershed treatments do not perceive the benefits and, consequently, will not continue them on their own. Worse yet, they will destroy them. Local leaders noted that this process of convincing people of the benefits of watershed management takes multiple training and sensitization meetings over a long period of time. This is important not only to convince the current generation, but also to convince the next generation as well.

One explanation for why more training/support was not provided was a lack of resources. Specifically, local leaders noted that they lack the resources to support local facilitators, committee members, and extension officers to travel to various communities to provide training/support.

Extension officers were noted as important actors in the success of watershed management activities. However, their ability to provide adequate training/support was limited by insufficient resources to travel to the field, inadequate training resources, and inconsistent funding.

4. Lack of Coordination

Coordination failures between different stakeholders acted as barriers to successful watershed management.

A common narrative surrounding coordination challenges between the **local community and NGO and/or government actors** articulated the specific desire for these external actors to provide resources for communities to address their needs. Both community members and local leaders often voiced the idea that NGO and government actors should take their input into project design more seriously.

A **lack of coordination** between the **Malawian government and NGOs** was also noted, the key issue being a lack of consultation: NGOs failed to consult the local government on project

design, resulting in subpar project outcomes and a reduced sense of shared responsibility. In the case of WALA, this challenge was particularly noted during **project closeout**. Community leaders voiced the need for projects to be designed to ensure the local community and local government staff (particularly **extension officers**) can support the continuation of the interventions after the close of the project.

Another **coordination challenge between NGOs and governments** relates to norms surrounding the provision of incentives to community members. For example, NGOs often provide **FFW** and stipends for attending meetings, but local government staff do not share these policies (at least without NGO funding). These kinds of differences often created confusion in the communities sampled regarding what to expect from projects. In some cases, these differences encouraged community members to prioritize working with NGO staff or only during periods of NGO funding, thus limiting the ability of government staff to support the interventions in the long-term.

In their words...

“There needs to be a better link between the government extension officers, NGOs, and the community so that the community doesn’t see them as separate entities but rather one in the same. This will help with the sustainability of interventions because if the community understands that the extension workers will keep checking in, they are more likely to sustain the interventions. Otherwise communities sometimes think that the NGO leaves so they no longer need to keep on putting forth effort.”

--Extension Officer from Machinga district

5. Destruction of Treatments

The **destruction of watershed treatments** and **forested watershed areas** were a key barrier that slowed progress toward successful watershed management. The destruction of water catchment structures, uprooting of vetiver, and bushfires were all attributed to community members hunting mice in the catchment area. The **deforestation** of catchment areas was also attributed to community members grazing their cattle there, cutting down trees for firewood and/or charcoal, and cutting down trees to increase landholdings. In some cases, **deforestation** of a community’s catchment area by neighboring communities was cited as a key barrier to the community’s success in managing their watershed.

Respondents offer two potential explanations for these destructive practices. One is that the underlying issue of poverty makes it difficult for low-income households to prioritize the preservation of natural resources over their immediate needs. A second contributing factor is



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weak leadership in communities and ultimately, the inability of community leaders to establish rules and regulations governing watersheds.

In their words...

“The big challenge is poverty which makes poor households cut down trees to make charcoal or sell firewood. While others plant trees... some poor households cut them to make an income.”

--Local leader from Mbangu watershed (Nsanje)

6. Market Failure

Market failure was identified as a barrier that farmers faced in benefiting from watershed conservation. In some cases, community members had the necessary **farm inputs/resources** to take advantage of **improved soil conditions** and **water access** resulting from successful watershed management. While this resulted in **increased yields**, community members complained that they were unable to benefit from this surplus as increased supply of produce in the market resulted in lower prices. Community members also noted challenges transporting goods to market or being able to access the market via an intermediary, resulting in a lower payout for their produce.

Scaling and Replication

Community members generally had an inward perspective on replication, focusing on **scaling up within their community** and seldom referencing **replication across communities**. Local leaders also shared this internal emphasis, referencing **scaling up within communities** more frequently than **replication across or between communities**.

1. Scaling Within Communities

The importance of **learning by demonstration** was highlighted in both the formal and informal context when discussing scaling within communities. When broadly probing community members on why they adopted a new agricultural or watershed management practice, participants most frequently referenced **government extension agents or NGO-hired extension agents** as the catalyst for change. Community members may replicate practices based on **learning from and observing** their peers (generally spurred by the **perceived**



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positive benefits). Thus, new practices may be seeded by **extension agents**, but scaled through peer-to-peer learning within the community.

2. Replication Across Communities

Replication across communities was less frequently referenced in interviews. The exception was community leaders, who again noted the importance of **learning by demonstration**. In this context, learning by demonstration was most frequently facilitated by **cross-learning visits**.

Key actors in scaling and replication

Extension agents were most frequently noted as the catalysts for change. **Village committees** (particularly the **watershed management committee**) and **traditional authorities** (to a lesser extent) were also noted as important actors for motivating and organizing community members to implement and maintain watershed treatments.

Learnings & Recommendations

1. Work at the Landscape Level

Across WALA beneficiary watersheds, community members demonstrated increased resilience to droughts and floods. This resilience is the result of community-level engagement in watershed management. Local leaders and WMCs play a key role in organizing and supervising the execution of activities, but it is the collective efforts and willingness of a critical mass of community members to build and maintain watershed treatments that allows benefits to be realized at the household level. This finding suggests a need to shift from a farm-level approach to a landscape-level one. Working at the farm level will only yield major benefits after community-level engagement in natural resource management has been achieved and the health and productivity of the landscape has been restored.

2. Include Short-Term Incentives in Program Design

A lack of short-term incentives was the most common barrier to the construction and maintenance of watershed treatments. Future projects may consider a suite of short-term incentives to incentivize participation in watershed management activities before long-term incentives, such as increased crop yields or improved resilience, are realized. Table 6 summarizes factors that project implementers should consider when selecting an effective suite of short-term incentives.

| Theme | Action |
|--|---|
| Link Markets to Incentives | Create incentives for farmers to continue successful watershed management by creating market linkages that allow them to take advantage of improved yields. |
| Align Incentives with Immediate Needs | Create incentives for low-income households that allow them to prioritize the preservation of natural resources over their immediate needs. |
| Highlight economic benefits along project life cycle | Create incentives for project sustainability by pairing short-term economic activities with benefits from long-term natural resource management. |

Table 6: Key considerations for short-term incentives

3. Align Farmer Interests with Watershed Management Objectives

Community members understand the importance of watershed management and perceive multiple benefits from taking part in these activities. Future projects should consider how to best align broader programmatic goals with farmers' perceptions and definition of success. Moreover, this alignment should be clearly communicated to farmers. Community members defined success as having food security and a basic level of income, resulting in the ability to accumulate assets. The most common driver to successful watershed management was perceived agricultural benefits such as reducing erosion, improving soil fertility, improving access to water and, ultimately, improving crop yields. Their ability to mitigate the negative impacts of drought and/or flooding was also noted. By emphasizing these perceived positive consequences and connecting them to farmers' definitions of success, the uptake and sustainability of watershed management can be improved. See Figure 3.

4. Support Extension Officers

Supporting local extension officers is key to the long-term sustainability of watershed management interventions. Extension officers are trusted, influential leaders in communities due to their expertise in agriculture (many hold advanced degrees in agriculture or natural resource management), their relationships with community members, and their understanding of the local context. CRS can leverage this knowledge and these relationships by helping extension officers overcome barriers to supporting communities with watershed management, such as a lack of training and transportation.

In their words...

“The **government agriculture extension worker** is the one who introduced this work to us because the forest, which helps to preserve our land, is being cut down; the soil is being washed away. When she explained to us the dangers of what was happening with our forest and the soil we agreed that we would do what she was advising us to do.”

--Local Leader from Mbangu watershed (Nsanje)

5. Strengthen Community Leadership

Community leaders were cited as both a driver and a barrier to success in interviews with community members and key informants. Those who argued that community leaders facilitated

the success of their communities' watershed management appreciated leaders' ability to lead by example, coordinate activities, unite the community around common goals, and enforce rules. Those who believed that community leaders hindered watershed management described leaders who lacked these abilities and did not motivate the community to participate in WALA activities. All agreed, however, that leaders play a critical role in influencing communities' mindsets and actions. Future watershed projects can leverage this influence by building specific capacities of leaders to coordinate activities and motivate their community members to engage in watershed management (see Figure 4).

6. Improve Stakeholder Coordination

Improving coordination amongst key stakeholders at every stage of project implementation will ensure that communities are interested in and able to continue watershed activities after project close-out. Recommendations for improving coordination at three critical stages of implementation are described in Table 7.

| Project Phase | Activities |
|--------------------|--|
| Pre-Implementation | <ul style="list-style-type: none"> • Gather insights from community members regarding community needs and interests • Engage community members in participatory design process • Draw from extension officers' expertise to modify proposed intervention to meet existing social and environmental conditions • Solicit advice and guidance from district officials; ensure that proposed intervention is compliant with local norms and regulations (if applicable) |
| Implementation | <ul style="list-style-type: none"> • Create feedback mechanisms between community members and implementing NGO • Provide community members with necessary tools and protective gear to carry out watershed activities |
| Close-Out | <ul style="list-style-type: none"> • Leave necessary tools for watershed management with community members • Determine how NGOs' responsibilities will be delegated to leaders and/or extension officers • Prepare local leaders and extension officers to assume responsibilities |

Table 7: Recommendations for improving coordination at every stage of project implementation

Action Points for Watershed Project Design

The following section outlines seven **Action Points**. These Action Points should be considered as suggestions for operationalizing the recommendations in the prior section to improve the design of future watershed projects implemented at the Landscape Level.

Pre-Implementation

Action Point 1: Improve Short-Term Incentives

Example: Ask the following questions when choosing the appropriate short-term incentive scheme, responding with the corresponding strategy::

- **Question:** *During which season will farmers receive food, cash, or fertilizer?*
Strategy: Provide Food for Work during hunger season
- **Question:** *Are there functioning markets nearby?*
Strategy: Use Cash for Work whenever functioning markets are present
- **Question:** *Do farmers have access to inputs?*
Strategy: Issue difficult to access inputs such as fertilizer or seeds in exchange for work

Action Point 2: Gather insights on farmer aspirations

Example: Solicit “What does success mean to you?” from farmers during first contact with the community.

Strategy: Use this to determine farmers’ indicators of success (preferably short- and long-term) and align watershed objectives with these indicators to ensure the community perceives positive consequences of watershed interventions, with short-term success being particularly critical for sustaining early adoption.

Implementation

Action Point 3: Build leaders’ capacity to implement watershed management by-laws

Example: Develop a by-law template that includes ideas for laws to govern watershed maintenance and apprehend non-compliers.

Strategy: Encourage leaders to populate this template based on shared needs and values identified through dialog with community members.

Action Point 4: Develop community feedback mechanisms

Example: Conduct mid-implementation focus groups with leaders and farmers. Ask the following questions, responding with the corresponding strategy:

- **Question:** *Are current treatments in working condition*
Strategy: If treatments are deteriorating/failing prematurely, consider modifications to materials.
- **Question:** *Are current treatments placed appropriately? (Are there concerns regarding ownership and accessibility?)*
Strategy: If treatments are spurring concerns regarding ownership and/or accessibility, consider alternate placements/locations.
- **Question:** *Do farmers understand the value of the watershed treatments? (Are farmers able to connect intervention activities to their own definitions of success?)*
Strategy: If not, identify ways to more clearly connect intervention activities to farmers' own definitions of success.

Closeout

Action Point 5: Provide farmers with tools and resources necessary to continue maintaining watersheds

Example: Leave tools from project implementation with farmers. Have local Village Savings and Loan (VSL) leaders establish a community savings program for the purchase/replacement of essential tools/parts.

Action Point 6: Tell WALA story of watershed success in Chichewa for cross-community learning and inspiration

Example: Encourage communities to scale and replicate the success of watershed management by creating a short-form documentary highlighting the impacts of treatments in Malawian context.

Action Point 7: Provide Extension officers with support to continue project activities

Example: Train extension officers in treatment maintenance and expansion, as well as strategies to maintain community participation, drawing from the lessons learned in this study.

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APPENDIX I: CODE BOOK

Free Codes

Code Name *Definition*

| | |
|--|---|
| *afforestation | References to reforestation |
| *assets | References to assets such as cash, agricultural inputs, farm tools, livestock, land, fruit trees, housing, bicycles, motorbikes, etc. |
| *can send kids to school | References to the ability to send one's children to school |
| *climate change | References to climate change |
| *community ownership | References to community responsibility and/or collective ownership |
| *coordination community-gov | References to community government coordination |
| *coordination community-ngo | References to community NGO coordination |
| *coordination gov-ngo | References to government NGO coordination |
| *crop yields | References to crop yields |
| *cross learning visit | References to cross-learning visits |
| *disaster risk reduction | References to reduction in disasters |
| *drought | References to drought, dry spells and unreliable rains |
| *erosion | References to erosion |
| *ffw | References to food for work |
| *flooding | References to flooding |
| *food security | References to food security |
| *good health | References to good general health |
| *group work | References examples of community members taking part in group work |
| *impact watershed | References examples of the perceived positive impact of watershed activities |
| *income | References to increases in income |
| *irrigation | References to irrigation |
| *project close-out/continuation | References to a lack of coordination between NGO/community/government actors being an issue during project close-out |
| *protective gear | References to protective gear |
| *soil fertility | References to improved soil fertility including improved soil moisture, increased water retention, soil restoration, etc. |
| *sustainability watershed | References to the watershed management activities continuing after project close-out |
| *water availability | References to improved water availability including a higher water table, improved river flow, increases in water in boreholes, etc. |

Code Name *Definition*

| | |
|---------------------------------|--|
| ACTOR CODES | References key actors. Co-tagged with key barriers/drivers, as well as additional analytical frameworks |
| actor: committee | Denotes general references to community committees. Also includes specific references to community committees such as VDCs, WMCs, natural resource management committees, etc. |
| actor: community members | References to community members |
| actor: extension officer | References to extension agents |
| actor: government | Denotes general references to government projects and staffs. |
| actor: lead farmer | References to lead farmers. Also includes references to community-based facilitators (one step up from lead farmers) |
| actor: ngo | References NGOs, INGOs and multilateral institutions |
| actor: ta | References traditional authorities such as chiefs, village headmen, etc. |
| actor: vdc | References village development committees |
| actor: wmc | References watershed management committees |

Code Name **Definition**

BARRIER CODES

barrier: deforestation
barrier: farm inputs/resources

References to barriers to successful watershed management
References to deforestation
References to a lack of farm inputs such as seeds, fertilizer, tubes, etc. Also references a lack of farm tools/capital such as chemical sprayers, ploughs, irrigation equipment, etc. Finally, references examples of a lack of funds needed to purchase these inputs and/or tools.

barrier: labor

References to a lack of labor and/or the labor intensive nature of watershed management activities

barrier: lack of coordination

References a lack of coordination between different stakeholders (government, NGO and community members), especially at project close-out

barrier: leadership
barrier: market failure

References a lack of strong leadership

References to market failure. Includes examples of increased supply at market resulting in reduced prices. Also includes references to challenges of market access.

barrier: need incentive

References to a lack of short term incentives needed to drive successful watershed management. Includes references to a need for FFW, cash, handouts, other short term benefits, etc.

barrier: no perceived positive consequences

References to a lack of perceived positive consequences from watershed management activities

barrier: tools watershed

References a lack of tools specific to watershed treatment construction and maintenance

barrier: training/support

References to an expressed need for more training/support to maintain and/or expand watershed treatments

barriers: destruction of treatments

References to the destruction of watershed treatments

Code Name **Definition**

DRIVER CODES

driver: extension officer

References to drivers of successful watershed management
References to extension officers driving behavior change related to watershed management and/or agricultural and natural resource management practices more broadly

driver: leadership
driver: monitoring and enforcement

References to the importance of strong leadership

References to monitoring and enforcement driving success

driver: perceived action efficacy

References to the belief that by practicing a behavior one will avoid the problem

driver: perceived negative consequences

References perceived negative consequences that drive one to change their behavior

driver: perceived positive consequences

References to the perception that by practicing a behavior one will gain positive consequences

driver: unity and social cohesion

References to community unity and social cohesion

QUOTE CODE

References participant quotes which provide unique insights. Co-tagged with other analytical frameworks.

Code Name **Definition**

SCALE CODES

scale: cm2cm

scale: community2community

scale: learning by

demonstration

References to the replication of watershed management activities

References to scaling within communities (between community members)

References to scaling across communities

References to examples of learning by demonstration

Code Name **Definition**

SUCCESS CODES

success: ability to send kids to school

success: deforestation

success: assets

success: crop yields

success: disaster risk reduction

success: food security

success: good health

success: income

success: soil conservation

success: water availability

success: watershed continuation/maintenance of

watershed treatments

success: year-round ag

References of definitions of success as they pertain to watershed management and successful farmers more broadly

Success as defined by being able to send one's children to school

Success as defined by reforestation

Success as defined by the accumulation of assets such as cash, agricultural inputs, farm tools, livestock, land, fruit trees, nice housing, bicycles, motorbikes, etc.

Success as defined by an increase in crop yields

Success as defined as being more resilient to disasters. Includes resilience to flooding and drought.

Success as defined by food security

Success as defined by good general health

Success as defined by an increase in income or access to income

Success as defined by improved soil fertility. Also includes references to reduced erosion and in the extreme case the reduction of gullies.

Success as defined by improved water availability

Success as defined as the continuation/maintenance of watershed treatments

Success as defined by the ability to conduct year-round agriculture

APPENDIX II: QUESTION PROMPTS & SYNTHESIS SHEETS

Local Extension Officers

| # | Question |
|-----------|--|
| Q1 | What is your role in this district or community? |
| | |
| 1.1 | How many years of experience do you have? |
| | |
| 1.2 | For FRONT LINE ONLY: How many sections are you responsible for? |
| | |
| | |
| Q2 | What kinds of natural resource management activities are the communities you work with currently engaged in? |
| | |
| 2.1 | Who in the community is engaged in these activities? |
| | |
| 2.2 | Who is in charge of these programs? NGOs? Government? Communities? |
| | |
| | |
| Q3 | Are communities working on projects that are specifically related to watershed management? |
| | |
| 3.1 | What kinds of activities? |
| | |
| 3.2 | What is the biggest challenge communities face in continuing to work on watershed management activities? |
| | |
| | |
| Q4 | In what areas are you seeing the most success in terms of natural resource management in your communities? |
| | |
| 4.1 | Why are they doing so well at this? |
| | |
| | |
| Q5 | What do communities struggle with in terms of natural resource management? |
| | |
| 5.1 | Why do you think this is? |
| | |
| | |

| | |
|-----|--|
| Q6 | Have you seen communities change their mindset regarding natural resource management before? |
| | |
| 6.1 | What did they changes their minds about? |
| | |
| 6.2 | What made them change their minds? |
| | |
| | |
| Q7 | We are really interested in helping organizations like (INSERT NAME OF IMPLEMENTING NGO) design and implement watershed management programs in communities. Have you worked with an NGO or seen an NGO implement watershed interventions in the communities you work in? |
| | |
| 7.1 | What did this intervention involve? (Training, buliding structures, food distribution, etc.) |
| | |
| 7.2 | Tell me about the successes and challenges related to this intervention |
| | |
| 7.3 | Based on this, what would you have done differently if you had been managing it? |

| Local Leaders | |
|---|--|
| # | Question / Mafuso |
| Q1 | What is your role in this community? |
| | Kodi muli ndi udindo wanji mudzi muno? |
| 1.1 | How long have you held this role? |
| | Kodi mwakhala pa udindowu kwa nthawi yayitali bwanji? |
| 1.2 | What has been your greatest accomplishment as a leader? |
| | Kodi ndi chiti chomwe munakwanitsa kuchita ngati mtsongoleri? |
| <p>We are hoping to learn more about how organizations like (INSERT NAME OF IMPLEMENTING NGO) can improve watershed management programs in communities like these and make them more sustainable in the long-term. Today, we are hoping to learn more about your community and their experience with and opinion of watershed management activities and your own opinions about how watershed management interventions could be improved by NGOs for communities like this one.</p> | |
| Q2 | What kinds of natural resource management activities are the community engaged in? |
| | Ndi ntchito ziti za kusamalira za chilengedwe zomwe zikuchitika mudzi mwanu muno? |
| | |
| Q3 | Are any of these activities specific to watershed management? |
| | Pantchitozi zilipo zomwe ziri za watershed? |
| 3.1 | How did they get started engaging in this activity? |
| | Kodi anthu anayamba bwanji ntchito zimenezi? |
| 3.2 | Who in the community is engaged in this activity? |
| | kodi omwe akuchita ntchitozi ndani? |
| 3.3 | As a leader in the community, are you satisfied with the level of participation in these activities? |

| | |
|-----------|--|
| | Inuyo ngati mtsongoleri wa mudzi uno, muli okhutira ndi momwe anthu akutengera mbali pa ntchitozi? |
| | |
| Q4 | In what areas are you seeing success in natural resource management and/or watershed management? |
| | Kodi ndi ntchito/ magawo ati omwe mukuona kuti kusamala za chilengedwe zikuyenda bwino? |
| 4.1 | Why are they doing so well at this? |
| | Zikuyenda bwino chifukwa chani? |
| 4.2 | What is the biggest challenge communities face in continuing to work on watershed management activities? |
| | Kodi ndi mavuto ati amapangitsa anthu mudzi muno kuti asapitirize kusamalira za chilengedwe? |
| Q5 | What does the community struggle with in terms of natural resource management? |
| | Kodi chomwe chimasautsa mudzi muno pa nkhani yosamalira za chilengedwe ndi chani? |
| 5.1 | Why do you think this is? |
| | Kodi ziri chonchi chifukwa chani? |
| 5.2 | What is preventing this community from doing more? |
| | Ndi ziti zomwe zikupangitsa mudzi uno kuti usapange kuposera pamenepa? |
| | |
| Q6 | Do you personally think watershed management is important? Why? |
| | Inuyo mukuona kwanu, watershed ndiothandiza? Chifukwa? |
| 6.1 | Does your community share these beliefs? |
| | Mudzi wanu umakhulupiriranso zimenezi? |
| 6.2 | What actions have you taken to resolve any differences in your beliefs and the community's? |

| | |
|-----------|--|
| | Mwapangapo chani pofuna kuthetsa kusiyana maganizo ndi anthu a mudzi uno pa nkhani ya watershed? |
| 6.3 | What challenges have you faced in changing the community's mindsets or behavior? |
| | kodi mavuto omwe mwakumana nawo posintha kanganizidwe ka anthu mudzi muno? |
| | |
| Q7 | Can you think of a time when this community (or even just farmers) changed their mind about something? Maybe started using a new agriculture product or technique? |
| | Ilipo nthawi imene anthu a mudzi uno kapena alimi anatsatira malimidwe amakono? |
| 7.1 | What did they change their minds about? |
| | Kodi anatsatira ulimi wake uti? |
| 7.2 | What made them change their minds? |
| | Kodi chinawapangitsa kutsatira ulimi umeneu ndi chani? |
| 7.3 | Did the new product or technique work right away? If not, why did people keep using it? |
| | Kodi ulimi umeneu unayamba kuonetsa ubwino nthawi yomweyo? Ngati ayi, chifukwa chani alimi akupitiriza ulimiwu? |
| | |
| Q8 | Can you think of a time when the community or a group of community members worked together to face a challenge or address a problem? |
| | kodi pali nthawi imene mudzi uno kapena gulu la mudzi uno linabwera pamodzi chifukwa cha vuto kapena kuti athane ndi vuto? |
| 8.1 | What made them want to work together on the project initially? |
| | Chinawapangitsa ndi chani kuti abwere pamodzi kudzangwira ntchitoyi? |

| | |
|-----------|--|
| 8.2 | What inspired them to continue working on this project together? |
| | kodi chimawalimbikitsa kupitiriza kungwira ntchito imeneyi limodzi ndi chani? |
| | |
| Q9 | We are really interested in helping organizations like (INSERT NAME OF IMPLEMENTING NGO) design and implement watershed management programs in communities like (insert name of local communities). Have you worked with an NGO or seen an NGO implement watershed interventions in the communities you work in? |
| | Tiri ndi khumbo lofuna kuthandiza mabungwe ngati amayendetsa ntchito za WALA kupanga dongosolo komaso kuyendetsa ntchito za watershed kwanu kuno. Inuyo munangwirako ndi bugwe kapena kuona bungwe likuyendetsa ntchito za watershed mudzi wanu uno? |
| 9.1 | What did this intervention involve? (Training, buliding structures, food distribution, etc.) |
| | Kodi mu ntchito imeneyi mumachitika chani? Maphunziro, kupanga zoteteza chilengedwe, kungawa/ kulandira zakudya, ndi zina |
| 9.2 | Tell me about the successes and challenges related to this intervention |
| | Tatiuzani zomwe mwakwaniritsa komaso mavuto omwe mwakumana nawo pa ntchito imeneyi? |
| 9.3 | Based on this, what would you have done differently if you had been managing it? |
| | Kodi pa zomwe mwanenazi, ndi ziti zomwe inuyo munakachita mosiyana munakakhala kuti inuyo ndi omwe mumayendetsa ntchitoyi? (kuchokera ku bungwe) |

Watershed Management Committee Members

| # | Question |
|-----------|--|
| Q1 | What is your occupation? |
| | Mumapanga chani? |
| 1.1 | How are you involved in watershed management in this community? |
| | Kodi mumatenga gawo lotani ku watershed kwanu kuno? |
| 1.2 | How long have you been involved in watershed management? |
| | Kodi mwakhala mukupanga za watershed kwa nthawi yayitali bwanji? |
| 1.3 | How did you become involved in watershed management? |
| | Kodi chinachitika ndi chani kuti mukhale nawo mu gulu la watershed ? |
| | |
| Q2 | Can you tell me more about the watershed management committee? |
| | Tatiuzani zambiri za komiti ya watershed ? |
| 2.1 | How did this committee start? |
| | Kodi komitiyi inayamba bwanji? |
| 2.2 | What has been the greatest accomplishment of the committee? |
| | Mungatiuzeko chachikulu chomwe komitiyi yakwaniritsa ? |

We are hoping to learn more about how organizations like CRS can improve watershed management programs in communities like these and make them more sustainable in the long-term. Today, we are hoping to learn more about your community and their experience with and opinion of watershed management activities and your own opinions about how watershed management interventions could be improved by NGOs for communities like this one.

Tili ndi khumbo lofuna kuphunzira momwe mabungwe ngati omwe amayendetsa WALA angapititsire patsongolo ntchito za watershed madera kuti ntchitozi zizipitirira kwa nthawi yayitari.

Lero tikukhulupirira kuti timphunzira zambiri ku dera lanu lino kutengera ukadaulo kumanso maganizo anu pankhani za watershed ndiponso maganizo anu momwe mabungwe angapititsire watershed patsongolo.

| | |
|-----------|---|
| Q3 | Tell me more about the WALA intervention. |
| | Tatiuzani ntchito zomwe WALA imachita? |
| 3.1 | What worked well about that intervention? |
| | Ndi ntchito ziti zomwe zinayenda/ kuchita bwino? |
| 3.2 | What aspects of WALA have you continued doing? |
| | Kodi ndi ntchito ziti zomwe zikupitirira? |
| 3.3 | What is something new that you've implemented? |
| | Kodi ndi ntchito ziti zomwe zili zatsopano zomwe mukungwira? |
| 3.4 | What kind of support have you received? |
| | Mwalandirako chithandizo chotani? |
| 3.5 | Based on this, what would you have done differently if you had been managing it? |
| | Kodi pa zomwe mwanenazi, ndi ziti zomwe inuyo munakachita mosiyana munakakhala kuti inuyo ndi omwe mumayendetsa ntchitoyi? (kuchokera ku bungwe) |
| 3.6 | In your role on the watershed management committee, are you satisfied with the level of participation in these activities? |

| | |
|-----------|--|
| | Pa udindo wanu ngati wakomiti ya watershed, muli okhutira ndi momwe anthu akutengera mbali mu ntchito za watershed ? |
| | |
| Q4 | In what areas are you seeing success in watershed management? |
| | Kodi ndi ntchito ziti za watershed zomwe mukuona kuti zikuyenda bwino? |
| 4.1 | Why are they doing so well at this? |
| | Mukuona ngati mukuchita bwino chifukwa chani? |
| | |
| Q5 | What does the community struggle with in terms of watershed management? |
| | kodi ndi zotsamwitsa ziti zomwe mumakumana nazo pakayendetsedwe ka watershed kwanu kuno? |
| 5.1 | Why do you think this is? |
| | Mukunganiza kuti ndi chifukwa chani ? |
| 5.2 | What is preventing this community from doing more? |
| | Kodi ndi zithu ziti zomwe zikulempheretsa kuti muchite kuposera momwe mukuchitiramu? |
| | |
| Q6 | Why do you think watershed management is important? |
| | Kodi watershed ili ndi ubwino? Chifukwa? |
| 6.1 | Does your community share these beliefs? |
| | Anthu mudzi muno amadziwa zimenezi? |

| | |
|-----|---|
| 6.2 | What actions have you taken to resolve any differences in your beliefs and the community's? |
| | Ngati pali kusiyana inuyo mwapangapo chani kuti muthetse kusiyana manganizo kumeneku? |
| 6.3 | What challenges have you faced in changing the community's mindsets or behavior? |
| | Mwakumanako ndi mavuto otani pofuna kusitha kanganizidwe/ mchitidwe wa anthu pa nkhani za watershed? |
| 6.4 | What advice you give a future watershed committee in a similar community that is just starting out? |
| | Mungapereke malangizo otani kwa komiti yomwe ikufuna kuyamba kuyendetsa nthito za watershed mtsolomuno? |

FOCUS GROUP QUESTIONS

| # | Question |
|------------|--|
| Q1 | Tell me about the most successful farmer or farmers in this community. |
| | Mlimi wopeza bwino ndiotani? |
| 1.1 | Why do you think of them as successful? |
| | Ndichifukwa chiyani mukuganiza kuti ndiochita bwino? |
| 1.2 | What kinds of things do they do that make them so successful? |
| | Achita chiyani kuti muziti ndiochita bwino |
| 1.3 | What kind of characteristics or attitudes do they have? |
| | Mlimi wochita bwino ali ndi makhalidwe wotani |
| 1.4 | Have any of you tried to do the same things? |
| | |
| | |
| Q2 | Tell me about a practice that you've tried to increase your success. |
| | Tandifotokozerani zomwe mwayesa kuchita? |
| 2.1 | How did you learn this practice? |
| | Munamphunzira mwa njira yanji? |
| 2.2 | Did it work right away? |
| | Zinatheka? |
| 2.2 | Are you still doing this practice? Why or why not? |
| | Mukupitirizabe kuchita zomwe munaphunzirazo? Chifukwa chiyani kapena kapena munalekeranji? |
| | |
| Q3 | What communal resources are most critical to your success as a farmer? |

| | |
|-----|--|
| | Mumasoweka chiyani kuti muchite bwino? |
| 3.1 | Who is responsible for managing these resources? Why? |
| | Amasamalira ndani za zinthu zimenezi? Ndipo ndichifukwa chiyani? |
| 3.2 | What is your role as community members in managing these resources? |
| | Udindo wanu ndiwotani pakusamalira zimenezi? |
| 3.3 | Tell us about the role of water and watersheds in the success of a farmer |
| | Kodi pa alimi wochita bwinowa madzi ndi mawotashedi amawathandiza bwanji? |
| 3.4 | Tell us about any challenges you face managing your resources, especially your water. |
| | Ndizovuta ziti zimene mumakumanazo pamene mukusamalira madzi kudera lino? |
| | |
| Q4 | Tell me about the last time you all worked together to improve your community. |
| | Ndiliti lomwe mudagwira ntchito tachitukuko limodzi mudera lanu lino? |
| 4.1 | What did you do? |
| | Mumagwira ntchito yanji yachitukuko nthawi imeneyo? |
| 4.2 | What motivated you to start the project? |
| | Chinakulimbikitsani ndichiyani kuti mugwire ntchito immeneyo? |
| 4.3 | Did you receive external resources to support you? |
| | Mumalandira thandizo pa ntchito yachitukuko? |
| 4.4 | In general, what makes the community or a group of community members want to work on a project together? |
| | Chimapangitsa kuti mugwirire ntchito yachitukuko limodzi ndichiyani? |

| | |
|------------|--|
| | |
| Q5 | In your opinion, what makes a community want to keep working on a project together? |
| | Chimakupangitsani kuti muzigwira ntchito limodzi ndi chiyani |
| 5.1 | Why is this? |
| | Chfukwa chiyani chimakupangitsani kuti muzigwirira ntchito limodzi? |
| 5.2 | Based on this experience, what would you do differently if you were in charge of introducing a new project in this community? |
| | Mukhoza kusintha chiyani ngati chitukuko china chantundu womwewu chitabweranso? |
| 5.3 | What do you wish NGOs knew about introducing new projects in your community? |
| | Mukhumba mabungwe tabweretsa chiyani chatsopano? |
| | |

NOTE If the following topics come up, please probe further: **labor constraints, irrigation, extension officers, bee-keeping, VSL groups, producer groups, fish farming in reservoir, marketing group,**

Ngati mitu iyi itatumphuka yesetsani kufukula mozama: kuchepekedwa kwa ogwira ntchito, ulimi wa mthirira, Alangizi, kuweta njuchi, magulu a mabanki a kumudzi, magulu olima mbeu, kuweta nsomba za madamu, magulu a za misika.

FGD SYNTHESIS SHEET

Watershed Name/District

Facilitator Name

Date

Part 1: Debrief on FGD Process and Questions

What went well?

What needs to be changed?

Do any questions need to be added or changed?

Watershed Name:

Part 2: Review of Key Themes/Determinants of Behavior Change

| KEY DETERMINANTS | | Secondary Determinants | |
|-------------------------|---------------------------------|-------------------------------|---------------------------|
| Perceived Self-Efficacy | Perceived Positive Consequences | Access | Perceived Action Efficacy |
| | | Cues for Action/Reminder | Perceived Divine Will |
| Perceived Social Norms | Perceived Negative Consequences | Perceived Susceptibility/Risk | Policy |
| | | Perceived Severity | Culture |

List which Key Determinants and Secondary Determinants of Behavior Change came up in conversation (see Behavior Change Determinants table for descriptions of each determinant

Which behavior change determinants came up? How often did they come up? How did these determinants play a role in participants' decisions to act or not to act in regards to watershed management?

Who in the community played the most important role in relation to the behavior change determinants. How did they influence participants to adopt sustainable watershed management? Indicate their influence with a (+), (-) or (mixed).

Watershed Name:

Part 3: Connection to Research Questions

How might this community define long-term sustainability (“success”) of watershed restoration projects?

What conditions might contribute to the effectiveness and long-term sustainability of watershed restoration interventions?

What conditions might or work against the effectiveness and long-term sustainability of watershed restoration interventions?

How might knowledge of these factors enable “successes” to be scaled and replicated?

Watershed Name:

Part 4: Wrap-Up

General Impressions? Other key insights? Anything new or interesting that came up that may not have come up in a focus group before?

KEOUGH SCHOOL
OF GLOBAL AFFAIRS

Integration Lab



keough.nd.edu/i-Lab

The Integration Lab (i-Lab) is part of the University of Notre Dame's new Keough School of Global Affairs. This interdisciplinary ecosystem leverages innovative approaches and deep partnerships to respond to critical global challenges. The i-Lab offers a distinctive curricular sequence, designed to build momentum over the full two-year arc of the Keough School's Master of Global Affairs, preparing students to be effective professionals capable of operating within a global landscape that requires highly integrated mindsets and wide-ranging professional skillsets. The centerpiece of this student journey is the i-Lab's **Global Partner Experience (GPE)**, a year-long engagement where students work with a partner organization both on campus and in the field, through a collaboration designed to not only enrich the student's professional development, but also deliver tangible results to the partner.



Sebastian Bascom

**SUSTAINABLE
DEVELOPMENT**

Sebastian Bascom is interested in agriculture and its intersection with rural development and natural resource management. He has multiple experiences working with farmers in East Africa and Asia. After graduating, Sebastian plans to work in the non-profit sector to empower local development solutions.

UNITED STATES



Emily Kaplan

**SUSTAINABLE
DEVELOPMENT**

Emily was an aquaculture extension agent in Zambia with the Peace Corps and is interested in food & water security, natural resource management, and corporate social responsibility. Emily plans to enter the private sector to help corporations decarbonize as she believes climate change is the world's most pressing challenge.

UNITED STATES



Lauren Oliver

**SUSTAINABLE
DEVELOPMENT**

Lauren is passionate about community-driven natural resource management. Her work in this area is informed both by her background in water resources engineering and experience working in Uganda, Benin and now, Malawi. She will soon pursue a PhD in Environmental and Political Science and study how aid agencies can improve NRM interventions.

UNITED STATES



Arthur Ssembajja

**SUSTAINABLE
DEVELOPMENT**

Arthur is an ordained Catholic priest interested in poverty alleviation through entrepreneurship and business. An MBA & MGA dual degree student, Arthur has worked with entrepreneurs and start-ups through Notre Dame's IDEA Center and hopes to use his education and pastoral skills to address poverty in Africa.

UGANDA