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COMMUNITY COHESION AND DISPUTE RESOLUTION STRATEGIES FOR FARMER-HERDER CONFLICTS: EVIDENCE FROM A RANDOMIZED CONTROL TRIAL (RCT) IN UPPER WEST, GHANA

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Community Cohesion and Dispute Resolution Strategies for Farmer-Herder Conflicts: Evidence from a Randomized Control Trial (RCT) in Upper West, Ghana

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CONTENTS

ACRONYMS

CAPI	Computer-Assisted Personal Interview
CECOTAPS	Center for Conflict Transformation and Peace Studies
CSSM	Coastal States Stability Mechanism
DID	Difference-in-Differences
FGD	Focus Group Discussion
IE	Impact Evaluation
IP	Implementation Partner
LRI	Littorals Regional Initiative
MMC	Mixed Mediation Committee
NE	No Effect
OLS	Ordinary Least Squares
OTI	Office of Transition Initiatives
PDM	Primary Decisionmaker
RCT	Randomized Control Trial
SILDEP	Social Initiative for Literacy and Development Program
TKG	The Khana Group
USAID	United States Agency for International Development
VSLA	Village Savings and Loan Association

EXECUTIVE SUMMARY

EVALUATION PURPOSE

This report presents the results of an impact evaluation (IE) of an intervention supporting conflict resolution and community resilience in Upper West, Ghana, implemented through the Littorals Regional Initiative (LRI) and sponsored by the United States Agency for International Development/Office of Transition Initiatives (USAID/OTI). The IE was conducted by NORC at the University of Chicago with grant funding from USAID through LRI. All data collection and analysis for this study had been completed in January 2025, when all project activities were halted, in compliance with the Executive Order on the Reassessment and Redirection of U.S. Foreign Assistance.

The Coastal States Stability Mechanism (CSSM) program, implemented by the International Organization for Migration (IOM) with the support of the governments of Germany, the Netherlands, and the United Kingdom, has goals that are broadly aligned with LRI. Aware of NORC's study, and with an interest in using the findings to inform its own programming in West Africa, CSSM commissioned NORC to finalize a report and disseminate its findings from the IE of LRI's programming.

As an IE, the study seeks to measure causal impact, identifying changes that can be directly attributed to the intervention. IE results are intended to show whether the intervention had an impact on outcomes measured approximately four to eight months after program implementation, provide an estimate of the size of those impacts, and to provide evidence-based learning to support the design and scale-up of similar interventions in the future.

ACTIVITY DESCRIPTION

LRI's strategy in Upper West was designed to address tensions between cattle herders from the Fulbe ethnic group (also known as Fulani or Peul) and non-Fulbe farming communities through multiple interventions, comprising a "three-pronged approach" that includes: i) facilitated dialogue sessions, ii) mixed Village Savings and Loans Associations (VSLAs), and iii) mixed mediation committees (MMCs). The approach was implemented by the Center for Conflict Transformation and Peace Studies (CECOTAPS) in 23 randomly selected communities across Ghana's Upper West region beginning in March 2024.

Facilitated dialogue sessions consisted of a two-day dialogue in each intervention community, bringing Fulbe and non-Fulbe together to express their views and share feelings about life in their communities and the region. The dialogues brought together approximately 30 participants per community, including approximately equal representation of Fulbe and non-Fulbe.

The mixed VSLA component of the three-pronged strategy aimed to establish a mixed-ethnic VSLA in each community, each with a total of 20-30 members, including Fulbe and non-Fulbe and open to both men and women. Although most communities already had VSLAs before the intervention, baseline data confirmed the existing groups were not open to Fulbe. The goal of this component was to provide an opportunity for inter-group contact and cooperation.

MMCs were conceived with the specific intention of resolving conflicts around crop destruction by

cattle, though in practice they could resolve a wide variety of conflicts. Baseline data showed communities had existing mechanisms for resolving disputes, but that Fulbe were generally not included as mediators. The goal of the MMCs was to increase the effectiveness of dispute resolution, improving satisfaction with dispute resolution outcomes, and reducing opportunities for disputes to escalate into violence, by creating a mixed group of mediators that received training on conflict resolution.

EVALUATION DESIGN AND METHODS

NORC conducted a rigorous study using a randomized control trial (RCT) in 46 communities in the Upper West region with underlying farmer-herder tensions, where half were randomly assigned to receive the intervention and half were assigned to serve as a comparison group. The team collected household survey data in each community before and after the program to compare changes in the treatment and comparison groups over time. The evaluation measures the short-term impact, four to eight months after the intervention. Impact is measured as the average effect on all community members, regardless of whether they personally participated in intervention components.

DATA

Data for the IE comes from three sources: (1) a household survey with 10 Fulbe and 10 non-Fulbe households in each community, for a final sample of 460 Fulbe and 460 non-Fulbe households; (2) a community leader survey with one Fulbe and one non-Fulbe leader in each community (for a total of 46 Fulbe and 46 non-Fulbe leaders); and (3) 14 qualitative focus group discussions (FGDs) conducted at endline only in three treatment communities, and including FGD sessions held with Fulbe men, Fulbe women, non-Fulbe men, non-Fulbe women, and MMC members. All outcomes for estimating causal effects of the intervention were measured via the household survey, while the community leader survey and FGDs were intended to validate the household survey data and provide additional context for how the intervention was able to achieve impacts on certain outcomes, and reasons why it may not have achieved impacts on others.

DESIGN AND METHODS

NORC randomly assigned each community to either a treatment or control condition using methods to ensure the final treatment and control groups would be as similar as possible in terms of their baseline characteristics. This resulted in 23 treatment and 23 control communities that were statistically similar before the intervention. To measure the intervention's causal effects, we compare the average outcomes of households in the treatment group to the average outcomes in the control group at endline. Any differences between the groups at endline can be attributed to the intervention.

We estimate the effect of the intervention across five groups of outcomes:

1. Implementation
2. Land Disputes and Dispute Resolution
3. Tenure Security
4. Security and Stability
5. Community Cohesion

Effects are measured using the responses of the (nearly all-male) primary decisionmakers who responded to the household survey; for most outcomes, results are then presented separately for women who responded to a separate survey module applied to an adult female in each household. All effects are presented separately for the Fulbe and non-Fulbe samples.

After presenting IE results in each section, we present supporting context evidence from the FGDs and community leader survey. In most cases, this evidence validated and provided depth to the IE results. Where the qualitative evidence conflicted with the IE results, it may be useful to recall that the household survey randomly sampled households in each community, providing a representative picture of community members, while the FGDs deliberately targeted those who had participated in different intervention components or who had recent involvement in disputes.

STRENGTHS AND LIMITATIONS

As an RCT using a panel survey of households, and treatment and control groups that are similar in terms of pre-intervention characteristics, our methodology uses the most rigorous design possible for the study context. The community leader survey and endline FGDs further allowed for a mixed-methods qualitative and quantitative approach that enabled triangulation of findings across multiple sources, and provided additional context for the RCT results.

However, the IE has some limitations that should be kept in mind when interpreting results:

- **Effects should be interpreted as short-term effects**, measured four to eight months after the start of the intervention, depending on the intervention component. Our results may not be indicative of effects measured over a longer time horizon.
- **Evaluation outcomes are calculated from self-reported survey questions around perceptions and opinions**, which may be vulnerable to social desirability bias. If true, this would tend to overstate the effects of the intervention. However, the lack of findings for effects on a number of socially desirable outcomes provides evidence to assuage these concerns, suggesting the effects we do observe stem from real changes.
- **Results for the Fulbe sample reflect Fulbe who are permanently settled in the community**. Our sampling strategy did not include nomadic and semi-nomadic Fulbe, and our results do not necessarily extend to that population. Considering Fulbe who were not permanently settled in the community were not included in program activities, and Fulbe permanently residing in the community likely have greater incentives to cooperate and find peaceful solutions, it is reasonable to expect impacts are larger for Fulbe settled in the community than for others.
- **Our sample is capable of detecting medium to large effects.** Sample size is a limitation that determines the size of effects that an IE can detect. Smaller effects require larger samples for an IE to detect them. A limitation of our study is that it is not powered to detect small effects.

FINDINGS

The table below summarizes the evaluation results. All RCT results are presented in percentage points, and can be interpreted to mean that the intervention has led to an X percentage point increase or decrease in respondents reporting a given outcome indicator. Only results that are significant at the 90 percent confidence level are shown, while the ones that are not statistically significant are labeled “No Effect”. The table shows results separately for the Fulbe and non-Fulbe samples, both for Primary Decisionmakers (PMDs) and women.

Table ES1. Summary of Findings, Reported in Percentage Points (pp)

Outcome Indicator	Fulbe RCT Results		Non-Fulbe RCT Results	
	PDMs[1]	Women	PDMs[1]	Women
Implementation				
Aware of Inter-Ethnic Dialogue	24.8 pp	No Effect	10.8 pp	19.7 pp
Participated in Inter-ethnic Dialogue	14.7 pp	No Effect		
Participates in any VSLA	11.2 pp	12.9 pp		
Participates in mixed VSLA	10.6 pp	15.9 pp	4.5 pp	13.8 pp
Aware of MMC	33.8 pp	24.7 pp	25.0 pp	21.8 pp

Discussion: IE findings confirm the intervention reached a significant portion of the target population. Participation among Fulbe primary decisionmakers (PDMs) in mixed-ethnic VSLA groups increased by 10.6 percentage points, and participation gains in mixed-ethnic VLSAs were especially strong among Fulbe (15.9 percentage points) and non-Fulbe women (13.8 percentage points). The intervention also led to a 24.8-point increase in Fulbe PDMs' awareness of inter-ethnic dialogues in their community, and a 14.7-point increase in participation. However, no effect was detected on Fulbe women's awareness of or participation in dialogues.

Awareness of MMCs also rose substantially, with a 33.8 percentage point increase among Fulbe and 25.0 percentage points among non-Fulbe PDMs, and similar results for women. However, qualitative evidence suggests awareness and usage varied by community. In some areas, MMCs were well-received and seen as improving dispute resolution. In others, particularly one community in Wa East, Fulbe FGD participants reported Fulbe MMC members faced exclusion. These findings suggest that while implementation was broadly successful, further efforts are needed to ensure consistent community engagement, especially among women, and to support MMCs in fully including Fulbe members.

Outcome Indicator	Fulbe RCT Results		Non-Fulbe RCT Results	
	PDMs[1]	Women	PDMs[1]	Women
Land Disputes and Dispute Resolution				
Believes dispute resolution is usually or always peaceful	7.8 pp		7.7 pp	
Believes community fairly manages shared natural resources	No Effect		No Effect	
Knows where to go if they have a dispute	No Effect		-2.7 pp	
Not involved in dispute during past season	No Effect		No Effect	

Discussion: The intervention led to modest but meaningful improvements in perceptions of peaceful dispute resolution. Both Fulbe and non-Fulbe were approximately 7.8 percentage points more likely to report disputes were usually or always resolved peacefully. Satisfaction with resolution outcomes also increased, particularly among non-Fulbe. These improvements were supported by qualitative evidence, which attributed the changes to the work of the MMCs and improved cooperation following inter-ethnic dialogues.

The intervention also shifted dispute resolution mechanisms: treatment communities saw increases in the use of conflict resolution committees to assess and mediate crop destruction disputes, though usage remained below 10 percent overall. Some confusion was noted among non-Fulbe respondents about where to report disputes, reflected in a small decline in clarity on dispute resolution channels.

FGDs confirmed disputes were beginning to be resolved more peacefully and effectively in some communities, which was attributed to the MMCs and dialogue sessions. However, one community in Wa East reported misuse of MMCs, including collective punishment of Fulbe and exclusion from decision-making. These findings highlight the importance of continued support and oversight to ensure MMCs are trusted, inclusive, and effective.

Outcome Indicator	Fulbe RCT Results		Non-Fulbe RCT Results	
	PDMs[1]	Women	PDMs[1]	Women
Tenure Security				
Not worried about losing land rights in next three years	No Effect	No Effect		
Unlikely your crops will be destroyed without compensation in next three years			13.7 pp	23.6 pp
Discussion: The results show the intervention led significant increase in the share of non-Fulbe respondents who believed their crops would not be destroyed in the next three years without adequate compensation. In FGDs, non-Fulbe respondents largely attributed the MMCs and community dialogues to reducing the incidence of crop destruction and improving Fulbe cooperation when crop destruction happens. We see no effect on the share of Fulbe worried about losing community land use rights.				

Outcome Indicator	Fulbe RCT Results		Non-Fulbe RCT Results	
	PDMs[1]	Women	PDMs[1]	Women
Security and Stability				
Report no violence in community during past rainy season	8.1 pp		No Effect	
Did not need to avoid parts of community due to insecurity in past month	No Effect		No Effect	
Discussion: The intervention led to an 8.1 percentage point increase in Fulbe respondents reporting no recent violence in their communities. This was confirmed in community leader surveys, which showed reduced reports of recent violence and cattle killings in treatment communities. However, no significant changes were observed among non-Fulbe PDM respondents or in behaviors such as avoiding parts of the community due to insecurity. Qualitative evidence from three treatment communities suggests some communities have been more effective than others at reducing violence and improving the security situation. While both Fulbe and non-Fulbe in two communities agreed the interventions had made it easier to resolve disputes without violence, Fulbe in another treatment community where FGDs were held were nearly unanimous in their security concerns, and felt recent interventions had not yet improved the situation. These findings suggest that while the intervention improved security in many areas, its effectiveness may depend on local dynamics.				

Outcome Indicator	Fulbe RCT Results		Non-Fulbe RCT Results	
	PDMs[1]	Women	PDMs[1]	Women
Community Cohesion				
Community decisions include people like me	No Effect	No Effect		
Comfortable with family marrying other ethnic group	No Effect	No Effect	No Effect	No Effect
Most members of other group contribute towards community goals	No Effect		No Effect	
Had positive social interactions with other group in past month	No Effect	No Effect	No Effect	No Effect
Had positive interaction with other group at borehole in past week		No Effect		14.8 pp

Discussion: The RCT generally failed to detect an impact on outcomes related to community cohesion. Although we cannot discard the possibility that the intervention is not producing the expected changes, it is important to recognize that social interactions and norms take time to change. While inter-ethnic marriage is important for long-term Fulbe inclusion given how community membership and access to land works in Upper West, it may be unreasonable to expect perceptions around inter-ethnic marriage to change in this timeline.

It is also important to keep in mind that the RCT measures average effects for all community members, regardless of whether they personally participated in intervention components. Qualitative evidence from FGDs, which more directly targeted intervention participants, suggests early signs of improved inter-group relations, particularly among women participating in mixed VSLAs. The finding for women is also confirmed in the RCT result showing improved interactions at the borehole, which is also confirmed by FGD results.

Notes: All results are reported in percentage points (pp), and can be interpreted to mean the intervention led to an X percentage point increase or decrease in respondents reporting a given outcome indicator.
Cells in dark grey indicate the outcome indicator was either not measured or not expected to have an effect for this sample.
[1] PDMs=Primary Decisionmakers. Over 99 percent of PDMs are male.

CONCLUSIONS

Completed just a few months after program implementation, endline analysis already finds evidence for positive impacts of the three-pronged approach across multiple key outcomes. On outcomes where no impact was detected, particularly those related to community cohesion, it is important to note that estimates reflect average effects across all community members, regardless of individual participation in intervention components. Some changes, such as shifts in social norms or inter-ethnic marriage perceptions, may require more time to emerge. The data collected on these longer-term indicators could be useful for future evaluation work measuring effects over a longer time horizon. Indeed, monitoring with community leaders and endline qualitative data collection, which purposefully targeted intervention participants, provide additional support for our RCT findings, while suggesting the intervention may have had impacts on additional outcome indicators that the RCT was unable to detect.

RECOMMENDATIONS

Our results also lead to several recommendations on how program design and implementation could be modified to address different gaps identified by the evaluation.

Issue 1: Respondents did not always know about the inter-ethnic dialogue sessions, how participants were selected for the sessions, or what was discussed during those sessions. Women in particular had lower levels of awareness of and participation in the dialogues.

Recommendations:

- Consider pre- and/or post-dialogue sessions within each group (Fulbe and non-Fulbe) to improve opportunities for community members to learn about the dialogue sessions and provide input before the dialogue to those who will be representing their group, and to learn about outcomes after the dialogue.
- Find avenues for women to engage in inter-ethnic dialogue. Since cultural norms may limit the extent to which women can substantively engage in these dialogues in the presence of men, it may be useful to hold a separate women's dialogue.

Issue 2: The qualitative evidence suggests the two-day dialogue model was sufficient to improve Fulbe inclusion in some communities, but that meaningful inclusion has not yet happened in all communities.

Recommendations:

- Consider holding follow-up dialogue sessions for the Fulbe and non-Fulbe to discuss and validate progress.
- Add an additional component to the intervention that specifically identifies existing groups and activities where Fulbe could be included in each community (e.g., school committee, health committee, borehole maintenance) and provide assistance to help integrate Fulbe into those groups.

Issue 3: RCT results do not yet detect an impact on positive social contact. Results show the majority of VSLA participants are women, and qualitative results mainly suggest social contact increased among women, likely through VSLA participation.

Recommendations:

- Find additional avenues to increase cooperation and positive social contact amongst men. This could occur through the inclusion of Fulbe on existing community groups, or through the creation of new groups or inter-ethnic recreational opportunities.

Issue 4: Quantitative and qualitative results both show that, approximately four months after MMCs were introduced in treatment communities, many respondents are not yet aware of the MMCs and usage of MMCs thus far is low. Creation of MMCs may have led to some confusion among non-Fulbe about where to go to resolve disputes. In some communities, Fulbe mediators may not be treated as full MMC members.

Recommendations:

- Improve, standardize, and verify the socialization of MMCs, so that all community members are aware of their presence, how they work, and when they should be used. If possible, engage traditional leaders to promote the MMCs so that community members do not feel they are disrespecting traditional leaders by taking disputes to the MMC.
- Additional focus may be needed during training on what MMCs can and cannot do. The implementer should participate in sessions introducing MMCs to the communities and ensure these points are clear to all.
- Invest in ongoing oversight and conduct monitoring with MMC members to verify how MMCs are working and identify needs for continued support. This should be done in one-on-one settings or in separate sessions for Fulbe and non-Fulbe MMC members so that members feel free to express their opinions without the influence of others.

INTRODUCTION

This report provides results for a mixed-methods impact evaluation (IE) of a three-pronged strategy aimed at inter-ethnic cooperation and community resilience in Upper West, Ghana. The strategy was implemented by the Center for Conflict Transformation and Peace Studies (CECOTAPS), with technical support from Save Ghana, and funding from the United States Agency for International Development's Office of Transition Initiatives (USAID/OTI) Littorals Regional Initiative (LRI) program. LRI was implemented by Creative Associates International and supported local counterparts in the Littoral States of West Africa to make communities more resilient against the possibility of extremist influence.

The IE was conducted by NORC at the University of Chicago with grant funding from USAID through LRI. All data collection and analysis for this study had been completed in January 2025, when all project activities were halted, in compliance with the Executive Order on the Reassessment and Redirection of U.S. Foreign Assistance. The Coastal States Stability Mechanism (CSSM) program, implemented by the International Organization for Migration (IOM) with the support of the governments of Germany, the Netherlands, and the United Kingdom, has goals that are broadly aligned with LRI. Aware of NORC's study, and with an interest in using the findings to inform its own programming in West Africa, CSSM commissioned NORC to produce and disseminate an IE report of the three-pronged strategy.

The evaluation aims to provide rigorous evidence on the effects of LRI's three-pronged strategy (hereafter, "the three-pronged strategy" or "the intervention") on outcomes related to land disputes and dispute resolution, tenure security, overall security and stability, and community cohesion. The study seeks to measure causal impact, isolating changes that can be directly attributed to the intervention from changes between the pre- and post-intervention periods that are not due to the intervention itself, and to provide additional descriptive and qualitative analysis to contextualize the IE results. IE results are intended to show whether the intervention had an impact on targeted outcomes measured approximately four to eight months after program implementation, provide an estimate of the size of those impacts, and to provide donors and Ghanaian stakeholders with evidence-based learning to support the design and scale-up of similar interventions in the future.

BACKGROUND

Hostile interactions between Fulbe (also known as Fulani or Peul) pastoral herders and settled farming communities in northern Ghana[1] and the wider Sahel are not new; however, conflicts between the two groups have grown more frequent and violent in recent years. While these conflicts are due in part to competition for scarce resources, exacerbated by climate change and increased migration from the Sahel, complex social forces are also at play (Davidheiser and Luna, 2008).

Fulbe in northern Ghana face numerous difficulties. Their history as nomadic cattle herders, and the fact that many have only permanently settled in Ghana in recent decades, means Fulbe are commonly denied citizenship in Ghana and not considered full members of the communities where they live (Olaniyan et al., 2015). Land tenure in northern Ghana farming communities is based on family ties and land is generally not for sale or rent; this implies Fulbe usually settle in these communities by being invited by a patron, often a landowner with cattle who invites Fulbe to the community to care for their animals (Bukari et al., 2018). This means Fulbe live in the communities at the mercy of their sponsors, which may generate significant housing insecurity if relationships with the community sour; knowing

[1] By "northern Ghana" we mean the Upper West, Upper East, North East, Savannah, and Northern regions.

this, communities may take advantage of Fulbe.

Since they are not seen as community members, Fulbe are often excluded from NGO programs that may come to a community and are excluded to varying degrees from community groups and decision making[2]. Relationships with host communities are characterized by discrimination and stereotyping, while it is also common for Fulbe to be extorted or mistreated by security officials (e.g., police, immigration, and military personnel) (Bukari and Schareika, 2015). Increasing pressure on natural resources, expansion of the agricultural frontier, and land and water scarcity also imply an increasingly difficult environment for cattle herders to graze their animals and has led to increasing conflicts with farmers over crop destruction (Kuusaana and Bukari, 2015). When crop destruction occurs, dispute resolution is often in the hands of community leaders such as the unit committee or community chief, with little or no representation of Fulbe in mediating the dispute. Farmers may resort to violence to keep cattle away from their crops, and Fulbe complain of receiving beatings from farmers when cattle wander too close. Furthermore, since it is common for Fulbe children to be involved in cattle herding, many Fulbe fear for their children's safety in the community.

Members of farming communities hosting the Fulbe also face difficulties that influence their relationships with the Fulbe. In many cases, the Fulbe are brought to the community by more powerful community members, which other community members may resent. Community members also commonly perceive the Fulbe to be responsible for security problems, leading to fears around their presence. When crop destruction by cattle occurs, it may be difficult to identify the herder responsible to obtain compensation for the loss (Bukari et al., 2018). Even if the herder can be identified, the cattle who caused the destruction may belong to powerful community members, or to family members of the farmer whose crops were destroyed; all of this can make it difficult for crop destruction disputes to be resolved satisfactorily from the farmer's perspective and obtain appropriate compensation. It is not uncommon for crop destruction disputes to escalate into violence, which occasionally results in displacement or death.

ACTIVITY DESCRIPTION

Within this context, the intervention aimed to address tensions between Fulbe herders and non-Fulbe farming communities through multiple activities, comprising a "three-pronged approach" that included: i) facilitating dialogue sessions, ii) mixed Village Savings and Loans Associations (VSLAs), and iii) mixed mediation committees (MMCs). The approach was originally implemented by CECOTAPS in 10 communities in Ghana's Savannah region between 2021 and 2022, with anecdotal evidence suggesting it significantly improved conflict resolution between farmers and herders and led to better inter-ethnic relations in targeted communities. In 2024, the approach was expanded to 23 communities in the Sissala East, Sissala West, and Wa East districts of the Upper West region, which forms the focus of this evaluation. Here we provide details on each of the three intervention components.

INTER-ETHNIC DIALOGUE

Facilitated dialogue sessions consisted of a two-day dialogue in each intervention community, bringing Fulbe and non-Fulbe together to express their views and share their feelings about life in their communities and across the region. Sessions were held in March 2024, representing the first of the three interventions. The dialogues brought together approximately 30 participants per community, including approximately equal representation of Fulbe and non-Fulbe. Each session was accompanied by

[2] Examples might include excluding Fulbe in community consultations on where to place a new borehole, or forming microfinance and community savings groups with no Fulbe members.

a facilitator, notetaker, and Fulbe translator provided by CECOTAPS. Sessions engaged participants in a discussion on prejudice and stereotyping, and allowed them to exchange ideas and experiences. During the session, participants also selected representatives to participate in the MMCs, described below.

MIXED VSLAS

Although VSLAs are common throughout Upper West, few include Fulbe members. The mixed VSLA component of the three-pronged strategy aimed to establish a mixed-ethnic VSLA in each community, each with a total of 20-30 members, including Fulbe and non-Fulbe and open to men and women.

CECOTAPS trained 10 field officers to provide technical support and mentoring to VSLAs in the 23 project communities. Two field officers visited each community to introduce the concept and establish a new, integrated VSLA. The field officers oversaw the election of VSLA leaders, conducted training on financial literacy, and continued to provide on-going technical support to each newly-established VSLA.

The mixed VSLAs were established over a six-week period between April and May 2024. The total number of members and exact ethnic and gender composition of the VSLAs varied by community. Program data provided by CECOTAPS shows that the mixed VSLAs had an average of 28.9 members, and that 33.1 percent of these members were Fulbe and 71.9 percent were women.

MMCS

CECOTAPS aimed to form an eight-member, inter-ethnic committee in each community, including four Fulbe and four non-Fulbe representatives, and including men and women. The MMCs would provide mediation on conflicts that are not criminal in nature (e.g., not involving violence or threats of violence); while this might involve a diverse set of conflicts, MMCs were conceived with the specific intention of resolving conflicts around crop destruction by cattle. MMC intervention in a conflict requires a voluntary decision by all conflicting parties to take the matter to the committee for resolution, and resolution requires agreement by the parties involved around how the dispute will be settled (e.g., amount, mode, and timeline for compensation). The role of the MMC is to help the parties reach an agreement.

At the end of the dialogue session in each community, participants selected representatives for the MMC, and the members selected for the MMC attended a three-day training. Communities were divided into cohorts and assigned to attend one of four separate training sessions held at the beginning of May. Training introduced participants to the behaviors of people in conflict, conflict analysis, principles of mediation, ethical considerations in mediation, the structure and stages of the mediation process, and the scope of conflicts to be addressed by MMCs, as well as the role of the mediator in the mediation process. It also included a day of mediation practice and discussion.

Following the training, committee members returned to their communities and held meetings to introduce the committee to their chiefs and the wider community. CECOTAPS field officers conducted regular monitoring with the MMCs and provided on-going technical support.

The total number of members and exact ethnic and gender composition of the MMCs varied by community. Program data provided by CECOTAPS shows that 21 of the MMCs had eight members, while two MMCs had seven members. Women comprised 19.2 percent of all MMC members across the treated communities, and Fulbe made up 43.4 percent.

MOTIVATION AND HYPOTHESES

EVALUATION PURPOSE

The purpose of this IE is to provide an evidence base for impacts of the three-pronged approach on different outcome categories, while examining how impacts vary across key sub-groups, and reasons why the intervention does or does not work. The IE focus reflects CSSM's interest in evaluating the validity, effectiveness, and efficiency of the three-pronged strategy, which will provide insight on how to support community-level conflict mitigation interventions and contribute to evidence-based pilot interventions that could later be taken to scale in Coastal West Africa.

Evaluation findings are intended to have learning value to CSSM and other potential contributors. IE results may inform the design of future community-level conflict mitigation interventions, and determine whether the strategy piloted by CECOTAPS could be scaled up.

HYPOTHESES AND OUTCOME MEASURES

Our hypotheses are organized across five groups of outcomes, which are addressed sequentially in the findings section of this report.

Hypothesis 1: Households in treated communities report higher awareness of, and participation in community inter-ethnic dialogue sessions, VSLAs, and MMCs.

Our primary indicators for testing Hypothesis 1 come from household survey questions asking respondents whether they are aware of any community inter-ethnic dialogue sessions during the past year, whether they personally participated in those sessions, whether the respondent participates in any VSLA, whether they participate in a VSLA that includes both Fulbe and non-Fulbe, whether they are aware of a conflict mediation committee in their community, and whether the community has a conflict mediation committee that includes Fulbe members.

We examine the effect of the intervention on these outcomes separately for Fulbe and non-Fulbe, and for primary decisionmakers and women. We expect the intervention to have a positive impact on all outcomes for all sub-groups. However, since participation slots for the community dialogues and VSLAs were limited, and since the non-Fulbe population is much larger than the Fulbe population, we expect the effect will be larger on the Fulbe for these outcomes.

Hypothesis 2: Households in treated communities report improved dispute resolution outcomes.

Primary indicators for testing Hypothesis 2 come from household survey questions asking respondents whether crop destruction disputes in the community are usually resolved peacefully, whether they agree the community manages shared natural resources fairly, whether they report knowing where to go if they have a dispute involving their land or cattle, and whether their household was not involved in any crop destruction incidents during the past rainy reason. We expect the intervention to have a positive impact for both Fulbe and non-Fulbe on all indicators.

Hypothesis 3: Households in treated communities report higher levels of tenure security.

Our primary indicators for testing this hypothesis come from household survey questions asking respondents whether they are worried they might lose the rights to the land they use in the community in the next three years, and whether they believe it is unlikely their crops might be destroyed without

appropriate compensation in the next three years.

We expect the intervention to have a positive impact for all sub-groups, but for the impact to show up on different indicators for Fulbe versus the non-Fulbe. For Fulbe, we expect to see the positive impact for the indicator related to security in their rights to continue using land in the community, but do not expect any impact on the indicator related to crop destruction without appropriate compensation. For non-Fulbe, we expect to see an impact on crop destruction without appropriate compensation, but do not expect any impact on their perceptions of land rights security in the community.

Hypothesis 4: Households in treated communities report improved security and stability.

Primary indicators for testing Hypothesis 4 come from household survey questions asking respondents whether there were any violent clashes or disputes in the community during the past rainy season, and whether there were any parts of the community the respondent avoided in the past month due to security concerns. For women, we construct indicators based on survey questions asking whether anyone in the household received physical violence or threats of violence during the past rainy season. We expect the intervention to improve security perceptions for all sub-groups on these indicators.

Hypothesis 5: Households in treated communities report higher levels of community cohesion.

Our primary indicators for testing this hypothesis come from household survey questions asking respondents whether they agree that community decisions include the opinions of "people like me", whether they would be comfortable with a close family member marrying a member of the other group, whether they agree most members of the other group contribute towards community goals, and whether they report positive social interactions with the other group during the past month.

We expect the intervention to have a positive impact for all sub-groups for most of these indicators. However, since non-Fulbe already dominate community decision making, we do not expect the intervention to have any effect on perceptions of inclusiveness in decision making for this population.

EVALUATION DESIGN AND METHODS

SAMPLING DESIGN

SELECTION OF COMMUNITIES

At the request of LRI, Save Ghana provided a list of 86 communities to NORC, distributed across five districts of Upper West. Save Ghana had identified these communities as having tensions between the Fulbe and non-Fulbe populations in their prior work in the region. LRI contracted Save Ghana to collect additional data on the 86 communities in September 2023, which was then provided to NORC. This data was collected via Save Ghana interviews with community leaders and included details about any programming similar to the planned interventions that may have already taken place in the community, the size of the local Fulbe population, and number of recent violent conflicts in the community.

In October 2023, NORC selected 46 communities for inclusion in the evaluation from the original list of 86. The decision to include 46 communities in the study was based on the capacity and budget for CECOTAPS to implement programming and NORC's data collection budget. Together with LRI and CECOTAPS, NORC established the criteria for selecting these 46 communities, using the data from Save Ghana: (1) no existing programming similar to the planned interventions; (2) at least 10 Fulbe households; (3) prioritization of communities with the highest number of recent violent incidents.

To select the 46 communities from the initial list of 86, NORC first applied selection criteria (1) and (2), which left 60 remaining communities, distributed across three districts of Upper West: Sissala East, Sissala West, and Wa East. NORC then dropped an additional 14 communities by examining the number of recent violent incidents, requiring that the final selection include an even number of communities in each of the three districts, and examining each community's distance to the nearest remaining community in the sample. The requirement for an even number of communities in each district would allow NORC to ensure treatment-control community matching could be conducted within districts, while eliminating communities located very near to each other allowed NORC to protect against "contamination", where control communities might be exposed to treatment via their proximity to treated communities. The 14 communities that were dropped were assigned to a replacement condition, where they would be activated and included in the study sample if any issues arose with collecting data from the selected 46 communities.

During data collection, enumerator teams made phone calls to community leaders prior to visiting each community to confirm community details. In total, three communities had to be replaced at this stage due to issues such as having an insufficient number of Fulbe households.

SELECTION OF HOUSEHOLDS

During baseline data collection in November 2023, enumerators randomly selected 10 households from Fulbe settlements and 10 from the main community[3] for interviews in each community. This equates to a final sample of 460 Fulbe and 460 main community households (920 total households). Main community households were selected via random walk. While it was theoretically possible Fulbe households could have been found living in the main community and could have ended up in the main community sample, in practice this did not happen and throughout the remainder of this report we refer to this as the "non-Fulbe" sample. Given the more dispersed nature of Fulbe settlements, generally located on the periphery of the community, a random walk was not possible for the Fulbe sample. Instead, the enumerator team first approached the local Fulbe chief and elders, and together made a list of Fulbe households in the area, and then randomly selected households from the list.

Once selected, households had to pass a screener to be included in the study, ensuring they were engaged in either farming or cattle herding activities and permanently settled in the community; households that did not pass the screener or did not provide consent were replaced. In each surveyed household, enumerators attempted to interview two respondents: (1) the primary person responsible for crop farming or cattle decisions[4], and (2) the primary female decision-maker.

At endline, we attempted to locate and interview the same respondents from baseline. Households that could not be located at endline were replaced with a randomly selected household of the same type (i.e., Fulbe or non-Fulbe).

SELECTION OF COMMUNITY LEADERS

During baseline data collection, enumerators interviewed one Fulbe and one non-Fulbe community leader in each community. This equates to a final sample of 46 Fulbe and 46 non-Fulbe community

[3] By "main community" we mean the cluster of dwellings and other buildings corresponding to the semi-urban footprint of the community. This is distinguished from the dispersed rural area around the community, where Fulbe settlements are commonly found.

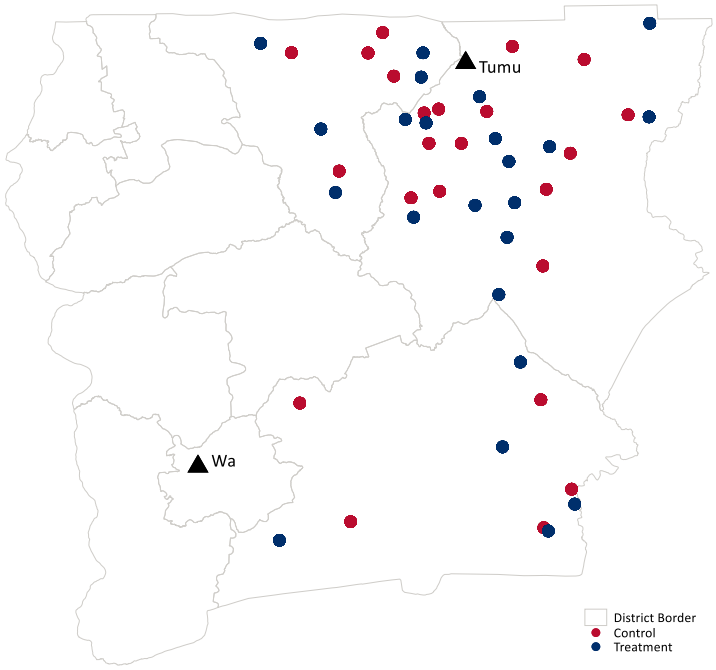
[4] Alternatively, the household head was interviewed, if this person was not available. However, in nearly all households the household head and primary crop farming or cattle decisionmaker was the same person.

leaders (92 total community leaders). Enumerators were instructed to prioritize interviewing the Fulbe chief as the Fulbe community leader, and the Unit Committee[5] Chair or Community Chief for the non-Fulbe leader.[6]

We followed up with the same community leaders by phone in April 2024 and in July 2024 to conduct monitoring surveys, and again at endline for in-person surveys.

RANDOMIZATION DESIGN

Map 1. Map of Treatment and Control Communities



NORC assigned communities to treatment after the baseline data collection using a pairwise matching, cluster randomized design (Greevy et al., 2004; Imai et al., 2009). Communities were matched to another community within the same district using the non-bipartite matching package in R, nbpMatching (Lu et al., 2011). The matching process used data from the baseline household survey, the baseline community leader survey, 2022 MODIS Land Cover Type raster data collected from NASA satellites and classified by the University of Maryland (Hansen et al., 2000), and population estimates for 2020 from WorldPop.org.

This resulted in a set of 23 matched pairs. Within each pair, NORC randomly assigned one community to treatment and one to control using a random number generator in R. NORC completed this process in December 2023 and communicated the list of treatment communities to LRI and CECOTAPS to begin preparations for implementation. Map 1 shows the distribution of treatment and control communities across Upper West. As Table 1 shows, the final sample included 13 matched community pairs in Sissala East (26 communities), five matched community pairs in Sissala West (10 communities), and five in Wa East (10 communities).

[5] The unit committee is a community decision making group, similar to a community council. It is often involved in mediating disputes between community members, such as crop destruction incidents.

[6] Between the Unit Committee Chair and Community Chief, enumerators were instructed to prioritize interviewing whoever was more knowledgeable about crop destruction conflicts, which may have varied by community. This was assessed informally by talking to leaders during community entry, though in practice the leader who was interviewed also depended on availability.

Table 1. Community-level Treatment Assignments

	Sissala East	Sissala West	Wa East	Total
Number of Treatment Communities	13	5	5	23
Number of Control Communities	13	5	5	23
Total	26	10	10	46

IDENTIFICATION OF TREATMENT EFFECTS

The primary outcomes of interests come from questions asked in both the baseline and endline household surveys. Our strategy for identifying the effect of the intervention uses households that were successfully interviewed at both baseline and endline, which form a household panel dataset. We estimate the effect by running the following ordinary least squares (OLS) regression:

$$Y_{i,c,t=1} = \beta_0 + \beta_1 T_{i,c} + \pi Y_{i,c,t=0} + \alpha' X_{i,c,t=0} + \gamma_m + u_{i,c,t=1} \qquad (1)$$

Where $Y_{i,c,t=1}$ is the outcome for household *i* in community *c* measured at endline; $Y_{i,c,t=0}$ is the outcome for the same household measured at baseline; $T_{i,c}$ is a dummy variable indicating whether the household's community was assigned to treatment; $X_{i,c,t=0}$ is a set of respondent- and household-level controls measured at baseline, which includes respondent gender, age, education, a dummy for being born in the community, household size, number of cattle the household owns, a dummy for whether the household raises cattle belonging to others, a dummy for whether the respondent holds a community leadership position, and farm plot size; and γ_m is a fixed effect for the community matched pair from the matched randomization. $u_{i,c,t=1}$ is an error term, and since randomization is at the community level we cluster standard errors at the level of community. β_1 is the main parameter of interest and provides an estimate of the average treatment effect of the intervention on all respondents in treatment communities. The identification strategy for our primary outcomes of interest estimates all regressions separately for the Fulbe and non-Fulbe sample, and uses the primary household respondent (i.e., the primary person responsible for decisions about cattle or crops).

We separately analyze data from a module in the household survey that was specifically applied to an adult female in the household. Approximately 77 percent of households at baseline and 75 percent at endline completed the women's module, and the female respondent within the household may have been different at baseline and endline. This makes it somewhat difficult to use the strategy above described for the primary survey respondent. As a result, our strategy for identifying the effect on women is somewhat different, and uses the following OLS regression:

$$Y_{i,c,t} = \beta_0 + \beta_1 T_{i,c} + \beta_2 Endline_t + \beta_3 (Endline_t * T_{i,c}) + \alpha' X_{i,c,t} + \gamma_m + u_{i,c,t} \qquad (2)$$

Equation 2 is equivalent to a difference-in-differences approach with matched pair fixed effects. $Endline_{i,c,t}$ is a dummy variable indicating whether the observation comes from the endline survey, and $Endline_{i,c,t} * T_{i,c}$ is an interaction between the endline period and the community-level treatment status. For women, $X_{i,c,t}$ is a set of controls that includes age, education, a dummy for being born in the community, and household size. Other terms are as defined for Equation 1. β_3 is the main parameter of interest and provides an estimate of the average treatment effect for all women decisionmakers.

LIMITATIONS

Several research design limitations are important to consider when interpreting findings. The primary limitation concerns the fact that most evaluation outcomes are calculated from self-reported survey questions around perceptions and opinions, which may be vulnerable to social desirability bias. Given that many respondents in treatment communities were familiar with the intervention and its goals, respondents may have been more likely to express opinions out of a belief that this is what they were expected to say. If true, this would tend to overstate the effects of the intervention. However, the lack of finding for effects on a number of socially desirable outcomes provides some evidence to assuage these concerns, suggesting the effects we do observe may stem from real changes.

A second limitation relates to the timing of data collection. Baseline and endline surveys were conducted one year apart, but just four to eight months had elapsed between the intervention and endline, depending on the intervention component and community. The VSLA and MMC intervention components may require time to increase inter-ethnic contact and build relationships between participants, and to change perceptions about how conflicts are resolved in the community. Alternatively, interventions could start strong and then break down over time, as technical support wanes and conflicts re-accumulate. Thus, it is important to recognize our results reflect short-term outcomes, which may not be indicative of effects measured over a longer time horizon.

An additional limitation concerns external validity. During qualitative data collection in the initial evaluation scoping, the evaluation team learned that some farmer-herder conflicts may involve Fulbe who are not permanently settled in the immediate area around a community. However, due to practical constraints, the sampling strategy for Fulbe specifically targeted those who identify as permanently settled in the sampled communities. As a result, Nomadic and semi-nomadic Fulbe, as well as those permanently settled in other communities but who pass through sampled communities along their herding routes, were not included. Therefore, our findings for the Fulbe sample may not be generalizable to these populations. Considering Fulbe who were not permanently settled in the community were not included in program activities, and Fulbe permanently residing in the community likely have greater incentives to cooperate and find peaceful solutions, it is reasonable to expect impacts are larger for Fulbe settled in the community than for others.

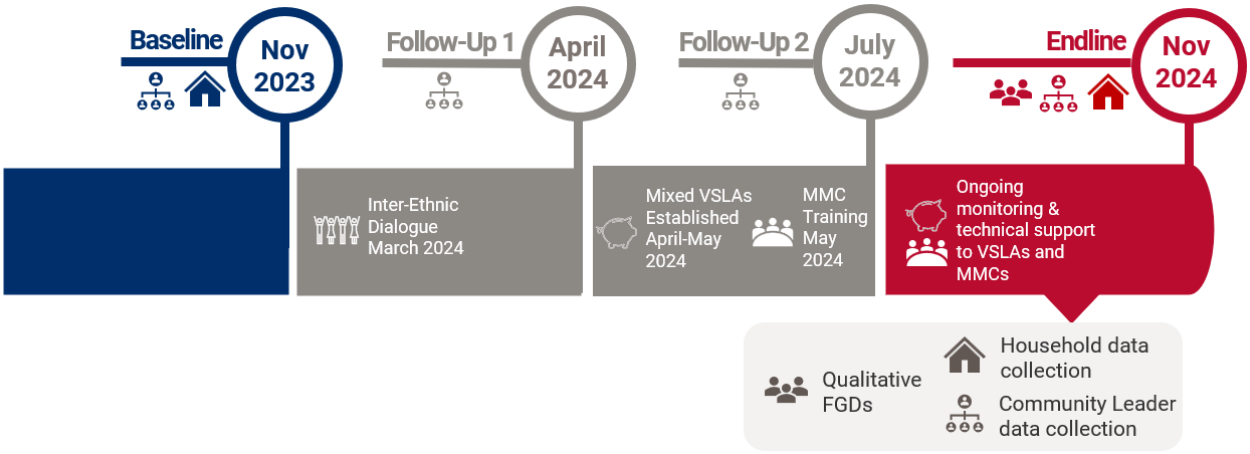
Finally, note that our sample is powered to detect medium to large effects. The evaluation team conducted power calculations for the proposed sample size and determined the effects the evaluation would be capable of detecting were comparable in size to those found in an evaluation of a similar intervention in Nigeria (Reardon et al., 2021). However, a limitation is that the study is not powered to detect small effects.

DATA COLLECTION AND SAMPLE

Our data come from three primary data sources: (1) a survey of households; (2) a survey of community leaders; and (3) focus group discussions (FGDs) with community members and MMC members. Figure 1 shows a timeline of these data collection activities and how they line up with different implementation activities. Baseline data collection occurred over three weeks between November and December 2023. Baseline data collection included only household and community leader surveys, with no qualitative data collection. Two rounds of follow-up monitoring were done with community leaders, one in April and one in July 2024; each consisted of phone-based interviews using a limited subset of questions from the baseline community leader survey.

Endline household and community leader surveys were conducted during the final three weeks of November 2024. Endline also included qualitative data collection, which ran from late October through early November 2024. All members of the qualitative data collection team, and 12 of the 15 team members for the quantitative surveys, had previously participated in baseline data collection.

Figure 1. Timeline of Data Collection and Implementation Activities



HOUSEHOLD SAMPLE

Baseline data collection achieved 99.9 percent of the target sample for the household survey, completing a total of 919 surveys across 46 communities in three districts. The sampling plan called for 920 household surveys (20 per community), evenly divided between 460 Fulbe household surveys and 460 non-Fulbe household surveys. However, 459 Fulbe household surveys were completed, one fewer than planned, because one community in Sissala West had only 11 Fulbe households; of these, one did not pass the screener and one did not have an eligible respondent available.

At endline, the enumerators attempted to relocate and interview the same respondents from baseline, using a combination of contact information and household GPS coordinates captured from the baseline survey, and assistance from community leaders. This was exceptionally successful, with 100 percent of baseline households from the non-Fulbe and 96.7 percent of Fulbe households re-interviewed at endline.

Table 2 shows basic descriptive statistics on the sample of primary respondents from households successfully interviewed at both baseline and endline. Minimal differences are seen between treatment and control, and the table largely shows the groups are well balanced. Additional variables, as well as respondent characteristics from the women's module of the household survey, are found in Annex I.

Table 2. Baseline Characteristics of Panel Respondents

Outcome or Covariate	Fulbe Settlements			Non-Fulbe		
	Treat	Control		Treat	Control	
	Mean	Mean	Diff.	Mean	Mean	Diff.
Respondent Characteristics						
Sex=Male	0.991	0.991	0.000	0.987	1.000	-0.013
Age (years)	39.55	38.824	0.726	42.243	42.665	-0.422
Education=No education - Illiterate	0.764	0.752	0.011	0.543	0.6	-0.057
Education=Non-formal education - Illiterate	0.109	0.086	0.024	0.000	0.000	0.000
Education=No education - Literate	0.005	0.018	-0.013 *	0.000	0.013	-0.013 *
Education=Non-formal education - Literate	0.091	0.113	-0.022	0.000	0.000	0.000
Education=Any formal education	0.032	0.032	0.000	0.457	0.387	0.070
Born in this district	0.159	0.162	-0.003	0.97	0.987	-0.017
Not born in this district - moved before 2015	0.523	0.468	0.054	0.03	0.013	0.017
Not born in this district - moved since 2015	0.318	0.369	-0.051	0.000	0.000	0.000
Ethnic Group=Fulbe	1.000	0.995	0.005	0.000	0.000	0.000
Ethnic Group=Sissala	0.000	0.000	0.000	0.796	0.796	0.000
Ethnic Group=Kasenna	0.000	0.000	0.000	0.087	0.117	-0.030
Ethnic Group=Other	0.000	0.005	-0.005	0.117	0.087	0.030
Household Characteristics						
Household size (total number of members)	4.909	5.068	-0.158	6.361	7.165	-0.804 *
Farm plot size, acres (cultivated in past rainy season)	4.391	3.995	0.395	10.955	13.293	-2.338
Primary Livelihood=Crop Farming	0.123	0.126	-0.003	0.935	0.97	-0.035
Primary Livelihood=Cattle Raising	0.559	0.622	-0.063	0.009	0.004	0.004
Primary Livelihood=Crops and Cattle Equally	0.314	0.252	0.061	0.052	0.026	0.026

*** p<0.01, ** p<0.05, * p<0.1

COMMUNITY LEADER SAMPLE

During baseline data collection, enumerators interviewed one Fulbe and one non-Fulbe community leader in each community. This equates to a final sample of 46 Fulbe and 46 non-Fulbe community leaders (92 total community leaders). Enumerators were instructed to prioritize interviewing the Fulbe chief as the Fulbe community leader, and the Unit Committee Chair or Community Chief (whoever was more knowledgeable, depending on the community context) for the non-Fulbe leader.

Baseline interviews captured contact information for each respondent, and we used this information to conduct short, phone-based monitoring surveys with the same respondents in April and July 2024. These same individuals were surveyed again in-person at endline. Table 3 presents the number of successful interviews during each round of data collection. During the first round of phone-based follow-up interviews, teams successfully completed interviews with Fulbe leaders in 44 of the 46 communities, and with non-Fulbe leaders for 45 communities. The three unsuccessful interviews were due to respondents who could not be reached via phone. During the second round of follow-up interviews, just one Fulbe community leader interview could not be reached, which was due to community unrest that had displaced Fulbe in the area. At endline all 46 communities completed interviews with both leaders.

We present baseline descriptive statistics on the community leaders in the sample in Annex I.

Table 3. Number of Community Leader Surveys Completed During Each Round

	Baseline Nov.-Dec. 2023	First Follow-Up Apr. 2024	Second Follow-Up July 2024	Endline Nov. 2024
Fulbe Community Leaders				
Treatment	23	22	23	23
Control	23	22	22	23
Total	**46**	**44**	**45**	**46**
Non-Fulbe Community Leaders				
Treatment	23	22	23	23
Control	23	23	23	23
Total	**46**	**45**	**46**	**46**
Total				
Treatment	46	44	46	46
Control	46	45	45	46
Total	**92**	**89**	**91**	**92**

QUALITATIVE SAMPLE

FGDs were held in three treatment communities at endline only. Communities were purposively selected to include one in each district, ensure selected communities had a sufficient Fulbe population to include participants in all FGD sessions without multiple members participating from the same household, and include communities with different levels of underlying conflict. Data collection included a total of 14 FGDs, summarized in Table 4. Each community held an FGD with Fulbe men, Fulbe women, non-Fulbe men, and members of the new MMC. FGDs with non-Fulbe women were held in two communities.[7] Each FGD included six to nine participants, selected with the help of local leaders. Inclusion criteria included meeting the gender and ethnicity requirements for the respective FGD, and a minimum age of 18 years. FGDs with men attempted to include individuals involved in crop destruction incidents during the most recent rainy season, and FGDs with women attempted to include participants in the mixed VSLAs.

Table 4. Endline Qualitative Data Collection Summary

Participant Type		Sissala East	Sissala West	Wa East	Total
Fulbe Men	**FGDs**	1	1	1	3
	Participants	8	9	7	24
Fulbe Women	**FGDs**	1	1	1	3
	Participants	8	9	9	26
Non-Fulbe Men	**FGDs**	1	1	1	3
	Participants	9	9	9	27
Non-Fulbe Women	**FGDs**	1	1	0	2
	Participants	8	9	0	17
MMC	**FGDs**	1	1	1	3
	Participants	7	7	6	20
Total	**FGDs**	5	5	4	14
	Participants	40	43	31	114

[7] The original qualitative data collection plan called for 12 FGDs (four per community). Two additional FGDs were added to ensure the perspectives of non-Fulbe women could be included.

FINDINGS

This section presents findings for the effects of the three-pronged approach on different groups of outcomes. For each outcome group, we begin by presenting estimates for the effect of the intervention on different outcome indicators using data from the main respondents in the household survey. Effects are estimated using the statistical approach outlined in the Evaluation Design and Methods section for the identification of treatment effects, and presented separately for Fulbe and non-Fulbe households. Estimates represent the causal effect of the intervention, and since all outcomes are binary, all effects are expressed in percentage points. For example, an estimated effect of 12.5 indicates that the intervention resulted in a 12.5 percentage-point increase in the proportion of respondents reporting a specific outcome.

FINDINGS 1: IMPLEMENTATION

Implementation outcomes relate to Hypothesis 1 from the Motivation and Hypothesis section. Awareness of and participation in intervention components are more than measures of program outputs—they represents the first link in a causal chain. If the IE fails to find impacts on downstream outcomes, evidence of implementation success can help explain whether the issue lies in program design or in execution.

Our main indicators for primary household survey respondents and women's module respondents are shown in Table 5, along with basic descriptive statistics from baseline. The table shows the treatment and control groups are well-balanced on most outcomes, and suggest low Fulbe participation in VSLAs and on any existing conflict mediation committees at baseline. Baseline statistics from the table are referenced throughout this section to provide context for the IE findings.

Figure 2 presents a summary of estimated treatment effects for the three-pronged approach on implementation outcomes for primary household decisionmakers, along with 90 percent confidence intervals. The results show the intervention has led to a large, statistically significant increase in the proportion of Fulbe who report their community recently held an inter-ethnic dialogue session, the proportion who report personally participating in an inter-ethnic dialogue session, the proportion who participate in VSLAs, and the proportion reporting their community has a conflict resolution committee with Fulbe members. For non-Fulbe, the results show a smaller, but still statistically significant increase in the proportion reporting their community held an inter-ethnic dialogue session, the proportion who report participating in a VSLA that includes Fulbe members, and the proportion reporting their community has a conflict resolution committee with Fulbe members. Below we explore the results in more detail.

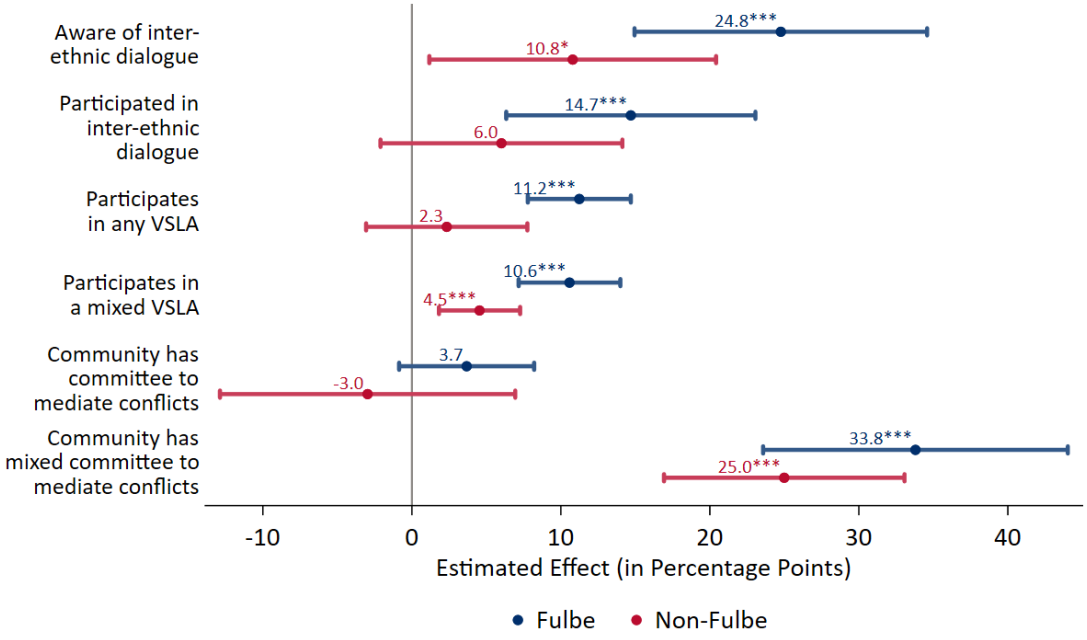
Table 5. Baseline Descriptive Statistics for Implementation Outcomes

Outcome or Covariate	Fulbe Settlements			Non-Fulbe		
	Treat	Control		Treat	Control	
	Mean	Mean	Diff.	Mean	Mean	Diff.
Primary Respondent						
Respondent participates in a VSLA	0.036	0.023	0.014	0.165	0.209	-0.043
Respondent participates in a mixed VSLA	0.032	0.009	0.023 *	0.004	0.017	-0.013
Respondent aware of dialogue with Fulbe this year	0.523	0.464	0.059	0.357	0.4	-0.043
Respondent participated in community dialogue	0.341	0.279	0.062	0.187	0.226	-0.039

Outcome or Covariate	Fulbe Settlements			Non-Fulbe		
	Treat	Control		Treat	Control	
	Mean	Mean	Diff.	Mean	Mean	Diff.
Community has committee to mediate conflicts	0.841	0.766	0.075 **	0.739	0.804	-0.065
Community has mixed committee to mediate conflicts	0.305	0.221	0.084	0.087	0.104	-0.017
Women's Module Respondent						
Respondent participates in a VSLA	0.067	0.035	0.032	0.691	0.722	-0.031
Respondent participates in a mixed VSLA	0.049	0.012	0.037	0.022	0.005	0.017
Respondent aware of dialogue with Fulbe this year	0.454	0.324	0.130	0.293	0.304	-0.011
Respondent participated in community dialogue	0.129	0.047	0.082 *	0.033	0.036	-0.003
Community has committee to mediate conflicts	0.755	0.676	0.078	0.591	0.67	-0.079
Community has mixed committee to mediate conflicts	0.307	0.247	0.060	0.066	0.031	0.035

*** p<0.01, ** p<0.05, * p<0.1

Figure 2. Effects on Implementation Outcomes for Primary Decisionmakers



Note: Plot shows the estimated effect and 90% confidence intervals for the treatment effect of the intervention from OLS regressions, controlling for individual- and household-level characteristics and the baseline value of the dependent variable, and including fixed effects for community matched pairs. Confidence intervals constructed from standard errors clustered at the community level. N=442 for Fulbe; N=460 for non-Fulbe. Sample is 99% male. *** p<0.01, ** p<0.05, * p<0.1

INTER-ETHNIC DIALOGUE SESSIONS

At baseline, 52.3 percent of Fulbe and 35.7 percent of non-Fulbe primary respondents in treatment communities reported their community had held some type of dialogue session between Fulbe and non-Fulbe ethnic groups in the past year. At endline, these figures increased to 71.8 percent of Fulbe and 52.6 percent of non-Fulbe in the treatment group. Figure 2 above shows that, after accounting for trends in control communities, our statistical model estimates the intervention led to a statistically

significant, 24.8-percentage point increase in Fulbe reporting inter-ethnic dialogue sessions in their communities, and a somewhat smaller, but still statistically significant increase of 10.8 percentage points for non-Fulbe.

Similarly, at baseline 34.1 percent of Fulbe and 18.7 percent of non-Fulbe respondents in treatment communities reported personally participating in inter-ethnic dialogue sessions in their community, which increased to 48.1 percent of Fulbe and 33.5 percent of non-Fulbe respondents by endline. However, Figure 2 shows that while the treatment effect on this outcome is statistically significant for the Fulbe, it is not significant for the non-Fulbe. The likely explanation for the null effect for the non-Fulbe is that since the dialogue sessions component of the intervention included 15 participants from each group, a much smaller proportion of non-Fulbe would have participated in these sessions, given their much larger population, which makes the effect on the non-Fulbe more difficult to detect.

During FGDs in treatment communities, most but not all FGD participants reported awareness of the dialogue sessions. Some FGD participants expressed that they were not aware of the sessions at all, while others were not directly informed or only became aware after the dialogues had occurred. In other instances, community members were informed of the dialogue sessions, but were not sure how participation was determined. However, most FGD participants who were aware of the sessions described them as a forum to discuss community challenges together, and frequently stated that they led to improved interactions between Fulbe and non-Fulbe community members.

> *"…We thank God that through dialogue group sessions, now the community members respect our opinions and consider us when taking decisions"* – Male Fulbe FGD participant, Sissala East

VSLAS

Data from treatment communities shows just 3.6 percent of Fulbe primary decision makers reported participating in any VSLA at baseline, compared to 16.5 percent for non-Fulbe. Further, less than one percent of non-Fulbe at baseline said they participated in a VSLA that included Fulbe members, confirming that VSLAs were rarely open to Fulbe prior to the intervention. By endline, 12.7 percent of Fulbe and 7 percent of non-Fulbe respondents in treatment communities reported participating in mixed VSLAs. Note that our primary decision maker sample is nearly all male, and according to qualitative interviews, and as corroborated by survey and program data, VSLAs in many communities are primarily comprised of women. Results for women decision makers are detailed separately below.

Figure 2 shows that, after accounting for trends in control communities, our statistical model estimates the intervention led to a statistically significant 11.2 percentage point increase in Fulbe primary decisionmakers participating in any VSLA. The results also show the intervention led to a 10.6 percentage point increase in Fulbe participation in mixed VSLAs, suggesting that nearly all Fulbe who participate in a VSLA indicate the group is mixed with non-Fulbe. These results are consistent with the design of the intervention, given the newly-established VSLAs were intended to be mixed and include 20-30 members (including 10-15 Fulbe), and sample communities generally had between 10 and 50 Fulbe households.

The figure shows a much smaller estimate for the effect on non-Fulbe participation in any VSLA, and the estimate is not statistically different from zero, though the results do show the intervention led to a 4.5 percentage point increase in non-Fulbe reporting they participate in a mixed VSLA. Given that some non-Fulbe primary decisionmakers were already participating in VSLAs at baseline, the limited number of participant slots in the newly established VSLAs, and the much larger population of non-Fulbe, this finding is not unexpected.

FGD participants in treated communities described a mixed VSLA that meets on a designated day every week, with members making a regular monetary contribution. Sentiments surrounding mixed VSLAs were largely positive, with participants expressing satisfaction not only with the financial benefits of the group, but also with the level of participation and interaction from both Fulbe and non-Fulbe members.

> *"Things are moving on well within the group. The Fulbe men are more than our men, if I can say, we have one Sissala man, but the Fulbe men are many. When we go for meetings and the Fulbe arrive, we all sit down together and place the [deposit] box in our midst…we all sit around with the Fulbe. Whatever decisions we take concerning the VSLA we discuss it. If there are disputes among members concerning the VSLA we resolve them."* – Female non-Fulbe FGD participant, Sissala East

> *"Yes, Fulbe people have leadership roles [on the VSLA] because one of the keys to the [deposit] box is with one of us."* – Female Fulbe FGD participant, Wa East

MMCs

While household survey respondents commonly reported their communities had existing committees to resolve disputes at baseline, relatively few reported Fulbe participation on these committees at baseline. In treatment communities, 84.1 and 73.9 percent of all Fulbe and non-Fulbe, respectively, reported the presence of any existing mediation committee at baseline, while just 30.5 percent of Fulbe and 8.7 percent of non-Fulbe reported Fulbe participation on these committees.

Those indicating their community had a dispute resolution committee at baseline (or in control communities at endline) were likely referring to the community's unit committee, which plays an important role in dispute resolution in many communities. As suggested above however, this does not mean those committees include Fulbe or have received training on dispute mediation, the main innovations of the MMC component of the intervention. Thus, because the baseline data indicate existing mediation committees, it is reasonable that there is no treatment effect on whether the community had any mediation committee at endline in Figure 2. However, at endline we see the expected significant effect on the reported presence of *mixed* mediation committees (including Fulbe committee members) for both sample types. The results indicate the intervention has led to an increase in 33.8 percentage points in the share of Fulbe reporting the presence of a mixed mediation committee in their community, and an increase of 25 percentage points for non-Fulbe reporting the same. In FGDs, not all participants had heard about the MMCs, and in one treatment community (Sissala East) none of the Fulbe participating in FGDs had heard of the MMC established there. In other cases, respondents were aware of the MMC but not aware of any disputes the committee had mediated. The primary explanation is likely how recently the MMCs had been established, though it may also speak to poor socialization of the new MMCs in some communities.

Among those familiar with the committees, comments from FGDs were generally positive. Fulbe appreciated seeing members of their own group on the committees, which they thought would lead to fairer outcomes, while non-Fulbe felt it had helped increase cooperation amongst the Fulbe in resolving disputes. Still, in many cases FGD participants expressed a continued preference for reporting conflicts to the unit committee, chief, or elders, though the stated reasons were generally out of deference to their traditional leaders.

> *"I heard from the assemblyman that they needed four Fulbe individuals to join the community members for training on how to live together peacefully. When they returned, they shared everything with us. Now, whenever there's a misunderstanding, we no longer need to go to the*

> *chief, and we've never had to go to the police station because of an issue."* – Male Fulbe FGD participant, Sissala West

Yet other evidence suggests the way MMCs operate may vary widely from community to community. Numerous comments about the MMC from FGDs in a community in Wa East were concerning and do not align with the intent of the intervention. Multiple comments from Fulbe and non-Fulbe in this community stated that shortly after the MMC's formation, the community began imposing fines on all Fulbe when herders responsible for crop destruction incidents could not be identified, and that the MMC has confiscated motorbikes when Fulbe refuse to pay. Fulbe, including Fulbe MMC members themselves, stated they carry no real weight on the MMC. Unsurprisingly, non-Fulbe in this community viewed the MMC positively, while Fulbe views were mostly negative.

> *"It seems that even after the selection of Fulbe individuals to be part of the committee, there has been little to no improvement. The Fulbe members involved in the group are not given any attention, and their opinions are disregarded by the non-Fulbe members, making it difficult for them to have any real influence or contribute to resolving the issues."* – Male Fulbe FGD participant, Wa East

> *"I'm part of the committee but if there is an issue to deliberate on, the community members don't tolerate our views...The other committee members don't allow us to express our opinions."* – Male Fulbe MMC member, Wa East

> *"In the past if they destroy your farm crops and you do not catch them to have evidence, there will be nobody to fine. Now if they destroy your farm crops and you know it was done by a Fulbe from the community and you report to the community, the committee will inspect the farm, then invite all the Fulbe from the community and fine them."* – Male non-Fulbe FGD participant, Wa East

> *"Yesterday I was present when a motorbike belonging to a Fulbe was brought to the [MMC] chairman's house because his cattle destroyed someone's farm. He was fined and he refused to pay so the motorbike was seized until payment was made."* – Male non-Fulbe FGD participant, Wa East

EFFECTS FOR WOMEN DECISIONMAKERS

Figure 3 presents a summary of the estimated treatment effects for the intervention on implementation outcomes for the respondents to the women's module of the household survey.

Unlike the effect observed for Fulbe primary survey respondents, there was no statistically significant effect for the intervention on Fulbe women's awareness of inter-ethnic dialogues occurring in their community. On the other hand, our statistical model estimated a somewhat larger effect for this outcome on non-Fulbe women (19.7 percentage points) as compared to non-Fulbe primary respondents (10.8 percentage points). During FGDs, some Fulbe and non-Fulbe women were aware of the inter-ethnic community dialogue sessions that occurred, but none reported participating in them. This is reflected in the results from our quantitative analysis that show no statistically significant effect of the intervention on surveyed women's participation in inter-ethnic dialogue sessions, whether Fulbe or non-Fulbe. Even so, some community members expressed during FGDs that the dialogue sessions impacted women in their community.

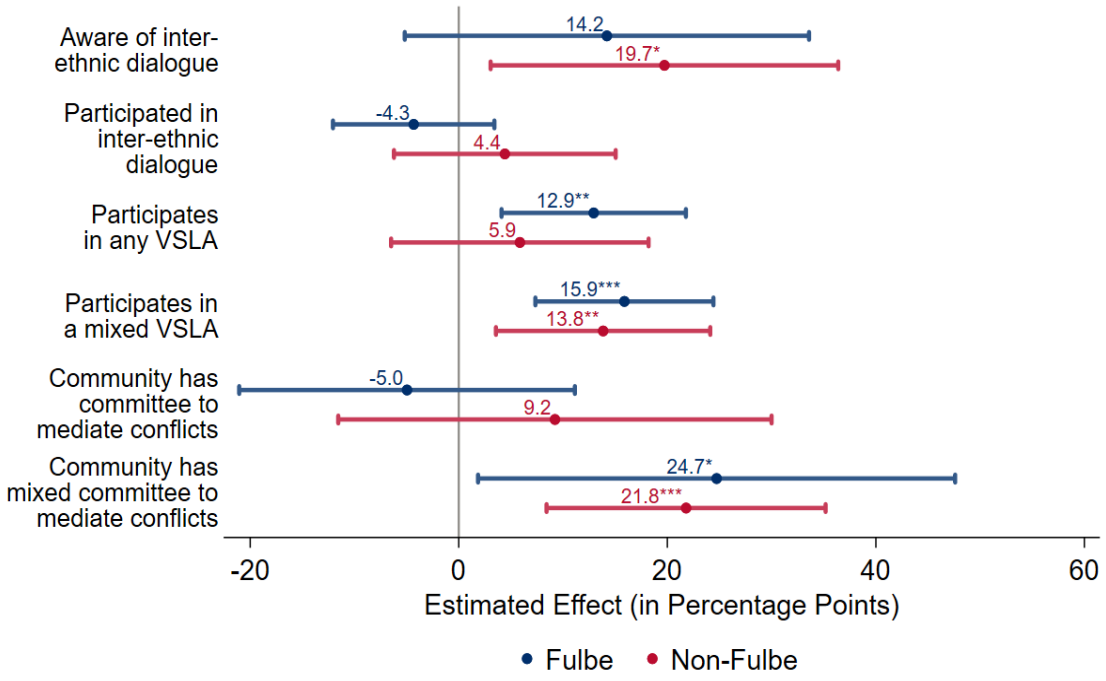
> *"One of the positive outcomes of the dialogue is that, in the past, when we invited the Fulbe to meetings, only the men would attend. But now, both Fulbe men and women participate in the*

meetings. Additionally, Fulbe women previously found it difficult to fetch water from our taps, but that issue has been resolved." – Male non-Fulbe FGD participant, Sissala West

"It has benefits, because now they [non-Fulbe] have changed, they have patience with us as compared to before…they were harsh on us but it's now better." – Female Fulbe FGD participant, Sissala East

As previously mentioned, our data suggest higher participation of women than men in VSLAs. Baseline data from treatment communities show 69.1 percent of surveyed non-Fulbe women reported participating in VSLAs, compared to just 16.5 percent for non-Fulbe men. Similar to the effects seen for the nearly all-male primary survey respondents, Figure 3 shows that our model estimates the intervention led to a statistically significant 12.9 percentage point increase in Fulbe women participating in VSLAs. As with non-Fulbe primary respondents, we observe a null effect for non-Fulbe women on this outcome, which is likely explained by the limited number of participant slots in newly established VSLAs and non-Fulbe women's participation in existing (non-mixed) VSLAs. However, the effect on participation in mixed VSLAs is somewhat larger for women than for the primary respondent, and seen for both Fulbe and non-Fulbe women: the intervention led to a statistically significant 15.9 percentage point increase in participation in mixed VSLAs for Fulbe women, and a statistically significant increase of 13.8 percentage points for non-Fulbe women.

Figure 3. Effects on Implementation Outcomes for Women



Note: Plot shows the estimated effect and 90% confidence intervals for the treatment effect of the intervention from DID regressions, controlling for individual- and household-level characteristics, and including fixed effects for community matched pairs. Confidence intervals constructed from standard errors clustered at the community level. N=663 for Fulbe; N=732 for non-Fulbe. *** p<0.01, ** p<0.05, * p<0.1

Finally, we see similar effects on outcomes related to MMCs as were observed for primary survey respondents. No treatment effect for women is observed for the reported presence of any conflict

mediation committee in the community, which is likely explained by the pre-existing, non-mixed committees involved in mediating disputes. However, consistent with results observed for primary decisionmakers, the intervention led to a statistically significant increase of 24.7 percentage points in the share of Fulbe women reporting the presence of a mixed mediation committee, and an increase of 21.8 percentage points in the share of non-Fulbe women reporting the same.

FINDINGS 2: LAND DISPUTES AND DISPUTE RESOLUTION

Land dispute and dispute resolution outcomes relate to Hypothesis 2 from the Motivation and Hypothesis section. Our main indicators for primary household survey respondents are shown in Table 6, along with descriptive statistics from baseline. The indicators in this group of outcomes include binary variables for whether the respondent believed crop destruction disputes in the community were "usually" or "always" resolved peacefully; whether the respondent agreed the community manages shared natural resources fairly; whether the respondent agreed they know where to go if they have a dispute about their land or cattle; and whether the respondent was personally involved in a crop destruction incident in the past rainy season. Given these outcomes are mostly relevant for those who are directly involved in crop farming or cattle herding, they are only measured for the primary respondent in the household survey (i.e., the main person in the household responsible for crop farming or cattle-related decisions), and not measured separately in the women's module.

Table 6. Baseline Descriptive Statistics for Land Dispute Outcomes

Outcome or Covariate	Fulbe Settlements			Non-Fulbe		
	Treat	Control		Treat	Control	
	Mean	Mean	Diff.	Mean	Mean	Diff.
Primary Respondent						
Dispute resolution is 'Usually' or 'Always' peaceful	0.759	0.658	0.101 *	0.552	0.661	-0.109
Community fairly manages shared natural resources	0.341	0.374	-0.033	0.696	0.709	-0.013
Knows where to go if they have a dispute	0.768	0.829	-0.061	0.957	0.965	-0.009
Not involved in dispute during the past season	0.777	0.761	0.016	0.63	0.652	-0.022

*** p<0.01, ** p<0.05, * p<0.1

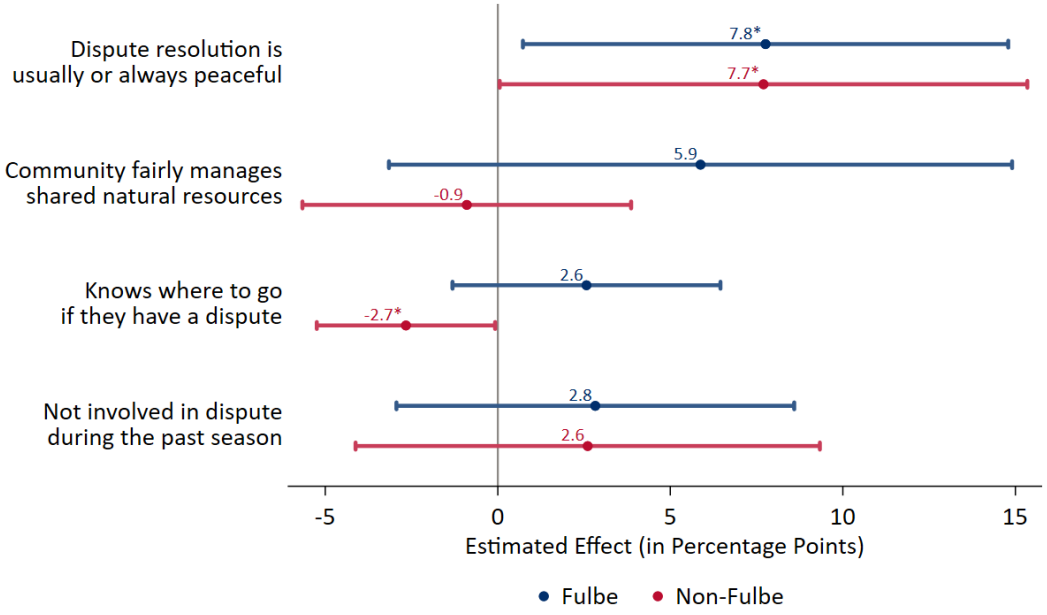
Figure 4 summarizes the estimated treatment effects for the three-pronged approach on these outcomes for primary decisionmakers. Results show the intervention led to a 7.8 percentage point increase in the share of Fulbe respondents who said that dispute resolution in the community was usually or always peaceful, and a 7.7 percentage point increase in the share of non-Fulbe respondents who said the same; both estimates are statistically significant at the 90 percent confidence level.

Estimates for the effect of the three-pronged strategy on other indicators in this group are null or go in an unexpected direction. We find no evidence that the intervention has led to any change in the share of either Fulbe or non-Fulbe respondents who say the community manages shared natural resources fairly, and no effect on whether the respondent has personally been involved in a crop destruction dispute.

On the other hand, the estimates show a 2.7 percentage point decline in the share of non-Fulbe respondents who say they know where to go if they have a dispute involving their land or cattle, statistically significant at the 90 percent confidence level. This result is unexpected, and may suggest the formation of MMCs, in addition to unit committees and other existing dispute resolution mechanisms in the communities, has led to a small amount of confusion for some non-Fulbe about where to go to

resolve disputes. In any case, the effect is small, particularly when considering that 95.7 percent of non-Fulbe respondents in treatment communities agreed they knew where to go for disputes at baseline.

Figure 4. Effects on Land Disputes and Dispute Resolution Outcomes for Primary Decisionmakers



Note: Plot shows the estimated effect and 90% confidence intervals for the treatment effect of the intervention from OLS regressions, controlling for individual- and household-level characteristics and the baseline value of the dependent variable, and including fixed effects for community matched pairs. Confidence intervals constructed from standard errors clustered at the community level. N=442 for Fulbe; N=460 for non-Fulbe. Sample is 99% male. *** p<0.01, ** p<0.05, * p<0.1

PREVALENCE OF DISPUTES

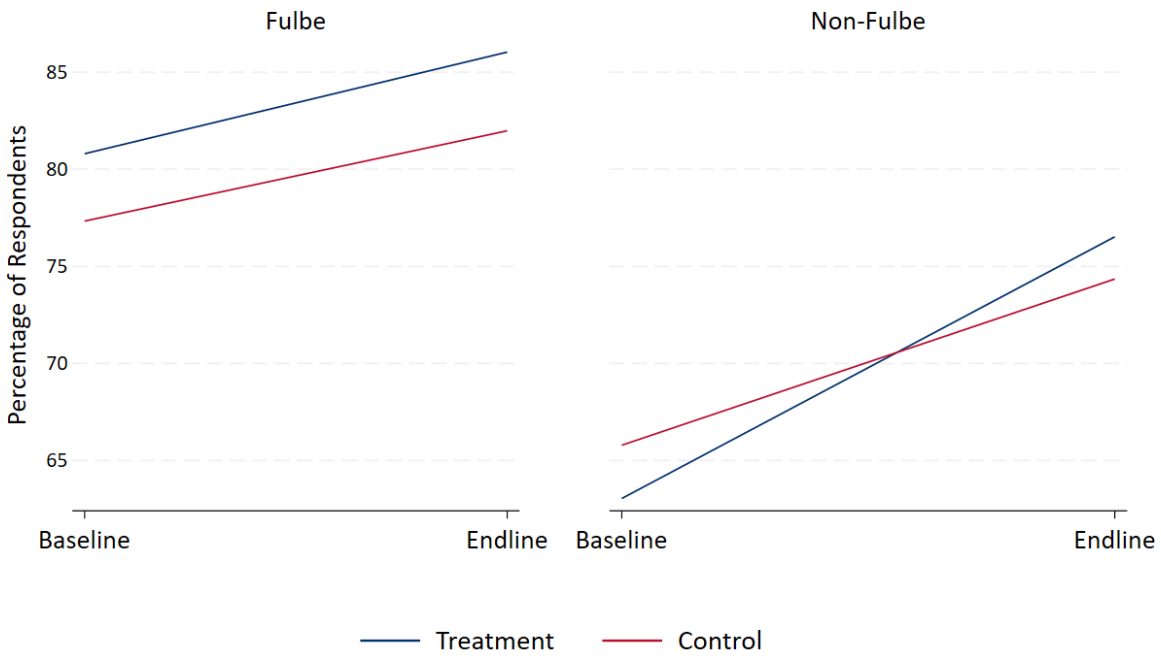
Figure 5 shows that across both treatment and control communities, both Fulbe and non-Fulbe respondents in the household survey show a notable increase in the share who report they were not personally involved in crop destruction incidents during the most recent rainy season. Given the similar trends in treatment and control communities, however, no treatment effect is detected for the intervention, as we showed above in Figure 4. On the other hand, qualitative findings suggest crop destruction incidents have become less frequent in some treatment communities, and those that do occur are less frequently escalating into disputes.

> *"Small disputes that could be easily mediated were often escalated to police cases in the past. However, since we started this [MMC] group, I haven't heard of any Fulbe being reported to the police because their cattle destroyed someone's farm crops."* – Male non-Fulbe MMC Member, Sissala West

> *"There have not been any disputes, but there are recorded cases of Fulbe cattle destroying crops in our farms. Cases recorded recently have reduced compared to past years."* – Male non-Fulbe MMC Member, Sissala East

In one community in Sissala East, FGD participants recalled an incident the prior year where a dispute led to the burning of Fulbe settlements and loss of life. In contrast, this past year Fulbe respondents in that community reported no conflicts, and felt that conditions in their community largely improved.

Figure 5. Respondents Not Involved in Crop Destruction Incidents in Past Rainy Season



Note: The figure shows the percentage of respondents from the Fulbe and non-Fulbe samples in the household survey who report they were not involved in crop destruction incidents in the past rainy season.

> *"Actually, there has not been any conflict here this year but last year there was one unfortunate situation that led to conflict. That conflict led to loss of life and six Fulbe settlements were burnt. Some of those affected individuals have moved out of this community…"* – Male Fulbe FGD participant, Sissala East

> *"Since we arrived here, the interactions have mostly been negative. But this year, we thank God that things have improved, and the situation is getting better."* – Male Fulbe FGD participant, Sissala East

However, in one treatment community in Wa East where FGDs were held, crop destruction disputes continue to be a primary source of conflict and tension. During FGDs, farmers lamented that continued farmland destruction has reduced their food crop yields.

> *"In the past there were places we were farming which gave us good crop yield, but now due to the presence of the Fulbe we cannot farm in those areas. If you instruct the Fulbe not to take their cattle to some areas of the land they will disobey your orders… their activities have reduced the quantity of food crops we produce here in [community]"* – Male non-Fulbe FGD participant, Wa East

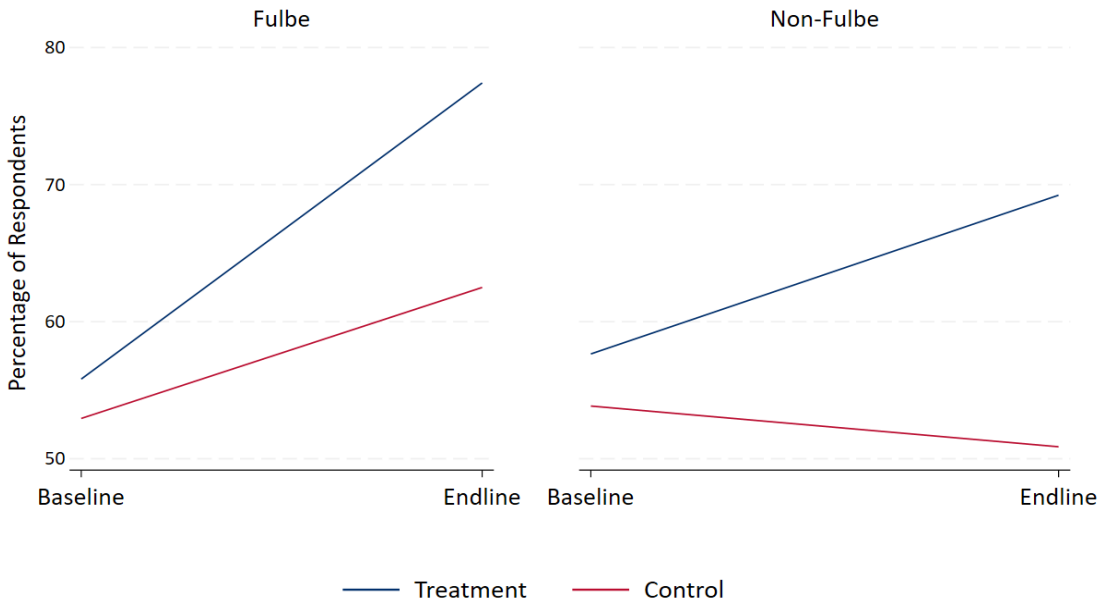
RESOLUTION OF DISPUTES

As shown previously in Figure 4, the intervention significantly improved respondents' perceptions that resolution of crop destruction disputes in the community is usually or always peaceful. One reason these perceptions improved is likely because satisfaction with dispute resolution among those involved in

disputes improved notably in treatment communities between baseline and endline.

The household survey asked the primary respondent whether the household had been involved in a crop destruction dispute during the past rainy season, and for those who had been involved in a dispute, it then asked about their level of satisfaction with how their most recent dispute had been resolved. As Figure 6 shows, 57.6 percent of non-Fulbe respondents involved in crop destruction disputes in treated communities were satisfied with the resolution of their most recent dispute at baseline, compared to a similar 53.8 percent of non-Fulbe respondents in control communities; by endline, satisfaction among dispute-involved non-Fulbe in control communities remained relatively unchanged at 50.9 percent, while satisfaction among those in treatment communities jumped to 69.2 percent. Similarly, although Fulbe involved in crop destruction incidents saw an increase in satisfaction with dispute resolution between baseline and endline in both treatment and control communities, the improvement is notably higher for those in treatment communities.

Figure 6. Resolution Satisfaction Among Respondents Involved in Crop Destruction



Note: For household survey respondents involved in crop destruction incidents during the past rainy season, the figure shows the percentage from the Fulbe and non-Fulbe samples who report they were "satisfied" or "very satisfied" with the resolution of the most recent incident. The question only asked to respondents indicating they were involved in a crop destruction dispute during the past rainy season. At baseline, N=43 and N=51 for Fulbe in treatment and control communities, respectively, and N=85 and N=78 for non-Fulbe in in treatment and control communities, respectively. At endline, N=31 and N=40 for Fulbe in treatment and control communities, respectively, and N=52 and N=57 for non-Fulbe in in treatment and control communities, respectively.

Part of this increase in satisfaction may be driven by a small but notable shift in dispute resolution mechanisms. Table 7 shows trends for several dispute resolution characteristics. The first and second columns show the mean values for respondents in treatment communities at baseline and endline, respectively, while columns four and five show the same for respondents in control communities. Columns 3 and 6 show the difference between the baseline and endline values for treatment and control, respectively, while column 7 shows an estimate of the treatment effect for the intervention using a simple difference-in-differences (DID) estimator.

The first row shows approximately half of respondents in both treatment and control communities said damage in crop destruction disputes was usually assessed by a neutral third party; however, the share is approximately equal for both treatment and control, with no statistically significant differences. On the other hand, the second row shows that at baseline, almost no household respondents said the extent of crop destruction was independently assessed by a conflict resolution committee; similarly, row three shows that almost no respondents said disputes were mediated by a dispute resolution committee at baseline. For both indicators, respondents in treatment communities saw an approximately nine percentage point increase by endline, while no change was seen in control communities. Column 7 shows the estimated treatment effect on both indicators is statistically significant. The final row in the table shows treatment communities saw a 7.9 percentage point increase between baseline and endline in the share of respondents who said resolution of disputes was rarely or never influenced by connections to powerful people in the community, while no change is seen in control communities; however, Column 7 shows the difference in trends between treatment and control communities is not statistically significant.

Table 7. Dispute Resolution Trends in Treatment and Control Communities

Indicator	Treatment			Control			
	(1) Baseline	(2) Endline	(3) Dif.	(4) Baseline	(5) Endline	(6) Dif.	(7) DID
Damage in crop destruction disputes usually or always assessed by any neutral third party	0.535	0.487	-0.048	0.489	0.475	-0.014	-0.034
Damage in crop destruction disputes assessed by conflict resolution committee	0.011	0.101	0.090 ***	0.000	0.003	0.003	0.087 ***
Crop destruction disputes usually mediated by conflict resolution committee	0.004	0.097	0.094 ***	0.006	0.003	-0.003	0.097 ***
Resolution of crop destruction disputes rarely influenced by connections to powerful people in community	0.495	0.573	0.079	0.480	0.479	-0.001	0.080

Note: Each indicator is calculated only for respondents in the household survey who say the community ever experiences crop destruction disputes. All results pool Fulbe and non-Fulbe respondents. N=540 for treatment; N=622 for control. Columns 3 and 6 show the difference between baseline and endline for respondents in treatment and control communities, respectively. Column 7 presents the estimate of the treatment effect using simple difference-in-differences (DID). Tests of statistical significance in columns 3, 6, and 7 use standard errors clustered at the community level. *** p<0.01, ** p<0.05, * p<0.1

These results are mostly backed up by the findings from FGDs in treatment communities, which suggest that respondents in treated communities, and non-Fulbe community members in particular, believe disputes are beginning to be resolved more peacefully in their communities, and are increasingly satisfied with dispute resolution outcomes. FGD participants mainly attribute this to the work of the MMCs and a more cooperative relationship between the Fulbe and the communities coming out of the dialogue sessions.

> *"Previously, when cattle belonging to a Fulbe destroyed our farms, the natives would sometimes attack the Fulbe physically or ban them from the community but now we summon them to settle disputes amicably."* – Male non-Fulbe FGD participant, Sissala West

On the other hand, the results from Table 7 show that at endline just ten percent of respondents in treatment communities say disputes are most often resolved, and that damage is most often assessed, by a conflict mediation committee. Respondents in treatment communities are still far more likely to say that the unit committee is the entity that most commonly does this work. This is confirmed in FGDs, which show MMCs in each community had begun working recently and had so far only mediated a small number of cases. Although we did not collect data on the number of disputes resolved by MMCs in each treatment community, FGDs with MMCs in three treatment communities provide some insight. The MMC in one community in Sissala East reported it had not yet mediated any disputes, while the MMC in another community in Sissala West had already mediated several minor disputes on a variety of issues, including four cases involving crop destruction by cattle, and the MMC in a community in Wa East reported mediating "a few" crop destruction disputes, without specifying an exact number.

Interestingly, FGD participants had mixed thoughts about their preferred conflict resolution mechanisms. When asked where they would go if they were involved in a crop destruction or cattle-related dispute, some non-Fulbe men participating in an FGD in a treatment community in Sissala East expressed preference for the new MMC, while others said they would prefer to take the case to the chief or community elders out of respect for their position in the community. Most Fulbe men participating in an FGD in a community in Wa East, where tensions between the Fulbe and community were still very high, uniformly preferred taking their disputes to the community chief, stating their beliefs that the MMC was ineffective or that their physical safety would be more assured with the chief.

> *"I would prefer to go to the chief, even if there's a possibility of being cheated. This is because, at the chief's palace, the community members won't be allowed to beat you."* – Male Fulbe FGD participant, Wa East

> *"I can say that the [MMC] mediates disputes well. For instance, they mediated a dispute between a farmer and a Fulbe over the destruction of the farmer's crops. The committee, along with the farmer, inspected the affected farm before mediating the dispute…in the end, both the farmer and the Fulbe were satisfied with the resolution."* – Male Non-Fulbe respondent, Sissala West

> *"The chief does not discriminate between natives and strangers. Before the formation of these groups and committees, we relied on the chief to settle all matters. [The MMC] came later. Whatever the chief decides is what we follow."* – Male Fulbe respondent, Sissala West

> *"I think the [MMC] is more beneficial because it consists of both the Fulbe and the community members, and since they are educated, they will ensure fairness…there will be no injustice."* – Male Fulbe respondent, Sissala West

FINDINGS 3: TENURE SECURITY

Tenure security outcomes relate to Hypothesis 3 from the Motivation and Hypothesis section. Our main indicators are shown in Table 8, along with descriptive statistics from baseline. The same indicators are

measured for primary and women's module respondents, and include whether the respondent expressed they were not worried about losing rights to the land they use in the community in the next three years, and whether they felt it was unlikely their crops could be destroyed without adequate compensation in the next three years. We expected that any effect on the Fulbe would show up on the indicator related to losing land rights, while any effect for the non-Fulbe would show up on the possibility that their crops could be destroyed without adequate compensation.

Table 8. Baseline Descriptive Statistics for Tenure Security Outcomes

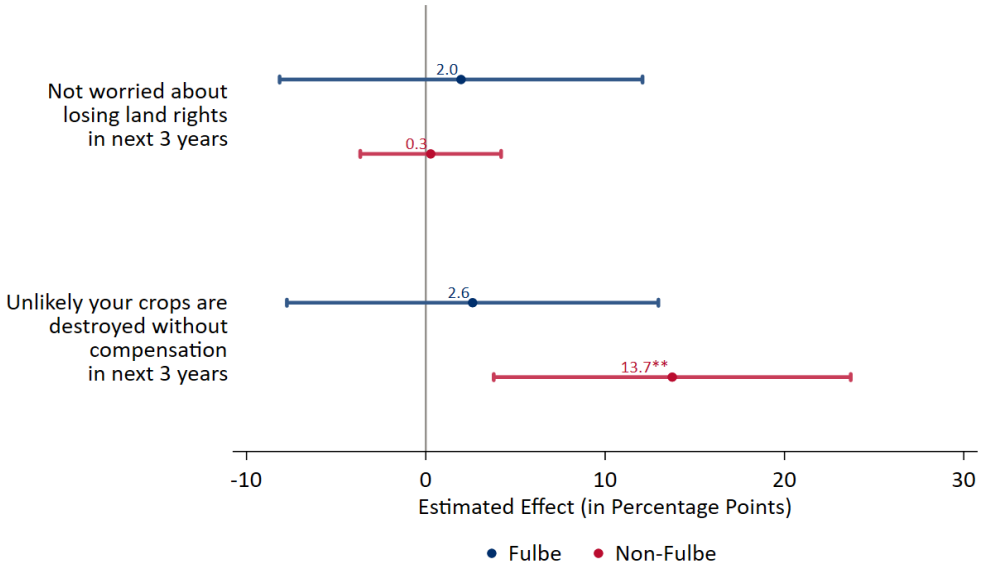
Outcome or Covariate	Fulbe Settlements			Non-Fulbe		
	Treat	Control		Treat	Control	
	Mean	Mean	Diff.	Mean	Mean	Diff.
Primary Respondent						
Not worried about losing land rights in next 3 years	0.414	0.41	0.004	0.939	0.939	0.000
Unlikely your crops are destroyed without compensation in next 3 years	0.584	0.514	0.070	0.557	0.559	-0.002
Women's Module Respondent						
Not worried about losing land rights in next 3 years	0.313	0.388	-0.075	0.928	0.959	-0.031
Unlikely your crops are destroyed without compensation in next 3 years	0.522	0.497	0.025	0.586	0.637	-0.052

*** p<0.01, ** p<0.05, * p<0.1

Figure 7 presents a summary of the estimated treatment effects for the three-pronged approach on tenure security outcomes for the primary decisionmaker. The results show no statistically significant effect for the intervention on the degree to which respondents worry about the possibility of losing the rights to the land they use in the community, either the Fulbe or non-Fulbe. On the other hand, we estimate the intervention led to a statistically significant 13.7 percentage point increase in the share of non-Fulbe who believe it is unlikely their crops could be destroyed without adequate compensation in the next three years; as expected, there is no effect on the Fulbe sample for this indicator.

Figure 8 shows that at baseline, Fulbe respondents exhibited a low level of land rights security, with just 41.4 percent of Fulbe from treated communities saying they were not worried about the possibility they could lose the right to stay on the land they are using within the next three years, as compared to 93.9 percent of non-Fulbe from treated communities. By endline, the share of respondents in treated communities who were not worried about losing the right to stay on the land they use in the community had risen to 55.3 percent for the Fulbe, while the trend for non-Fulbe remained flat. At baseline, Fulbe largely attributed this insecurity to the possibility their landlord could ask them to leave, with 50.5 percent of all Fulbe worried about this possibility. Other reasons for worrying about losing land rights among Fulbe at baseline included community agitations against them (19.8 percent) and the possibility the chief could ask them to leave the community (19 percent).

Figure 7. Effects on Tenure Security Outcomes for Primary Decisionmakers



Note: Plot shows the estimated effect and 90% confidence intervals for the treatment effect of the intervention from OLS regressions, controlling for individual- and household-level characteristics and the baseline value of the dependent variable, and including fixed effects for community matched pairs. Confidence intervals constructed from standard errors clustered at the community level. N=442 for Fulbe; N=460 for non-Fulbe. Sample is 99% male. *** p<0.01, ** p<0.05, * p<0.1

While Figure 8 shows the share of Fulbe who are not worried about losing land rights increased by approximately 15 percentage points between baseline and endline in treatment communities, this was accompanied by a similar trend in control communities. As a result, no statistically significant effect is detected for the intervention when comparing the treatment and control groups.

On the other hand, the finding that the intervention led to an increase in the share of non-Fulbe who believed their crops would not be destroyed in the next three years without adequate compensation is largely confirmed in qualitative data from FGDs. Participants in an FGD with male farmers in treated communities almost uniformly confirmed this finding, with participants attributing the change to either the dialogue or the MMC.

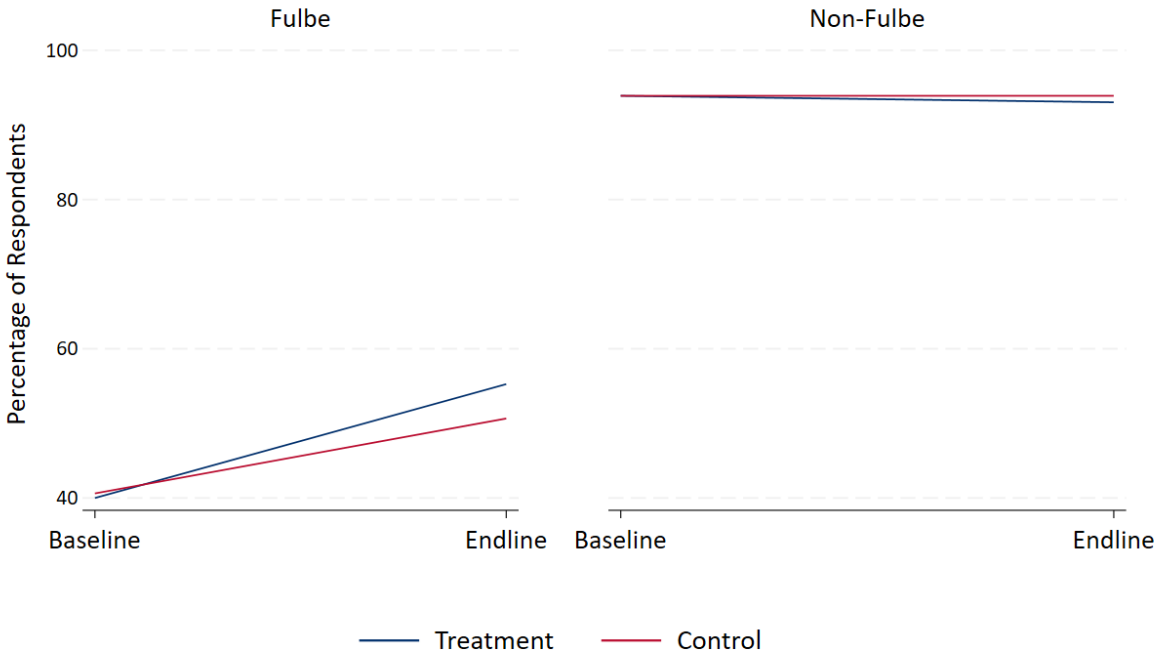
> *"We don't regularly hear of animals destroying farms and fines not being paid. We know going forward the committee is going to help us to manage our conflicts."* – Male non-Fulbe FGD participant, Wa East

> *"Since [the Fulbe's] involvement in our activities and involvement in the committee they now feel a part of us and accept when fines are given to them for the destruction of farms by their cattle."* – Male non-Fulbe FGD participant, Wa East

> *"In the past, the Fulbe were afraid of us, the natives of the land. Whenever their cattle destroyed our crops and we went to confront them, they would often deny the allegations. However, now, in the event of a dispute, the Fulbe helps identify which cattle have destroyed our crops. This is one of the positive outcomes of the dialogue."* – Male non-Fulbe FGD participant, Sissala West

Importantly, however, participants in FGDs in Wa East suggested the MMC there had achieved better compliance with crop destruction compensation via means that do not align with the intention of the MMCs, as described previously in the findings section for Implementation.

Figure 8. Respondents Not Worried About Losing Land Rights in the Community



Note: The figure shows the percentage of respondents from the Fulbe and non-Fulbe samples in the household survey who report being "not worried" or "not worried at all" that they could lose rights to the land they use in the community within the next three years.

EFFECTS FOR WOMEN DECISIONMAKERS

Figure 9 summarizes the effects of the intervention on tenure security outcomes for women. The findings confirm the effects for primary decisionmakers shown in Figure 7. No statistically significant effect is found for either Fulbe or non-Fulbe women on whether they are worried about losing rights to the land they use in the community in the next three years. However, we estimate the intervention has led to a large, statistically significant 23.6 percentage point increase in the share of non-Fulbe women who believe it is unlikely their crops could be destroyed without appropriate compensation within the next three years; the effect is similar to, but notably larger than the effect seen for non-Fulbe primary respondents above in Figure 7 on the same indicator. As expected, no statistically significant effect is detected for Fulbe women on the perceived likelihood their crops could be destroyed without compensation.

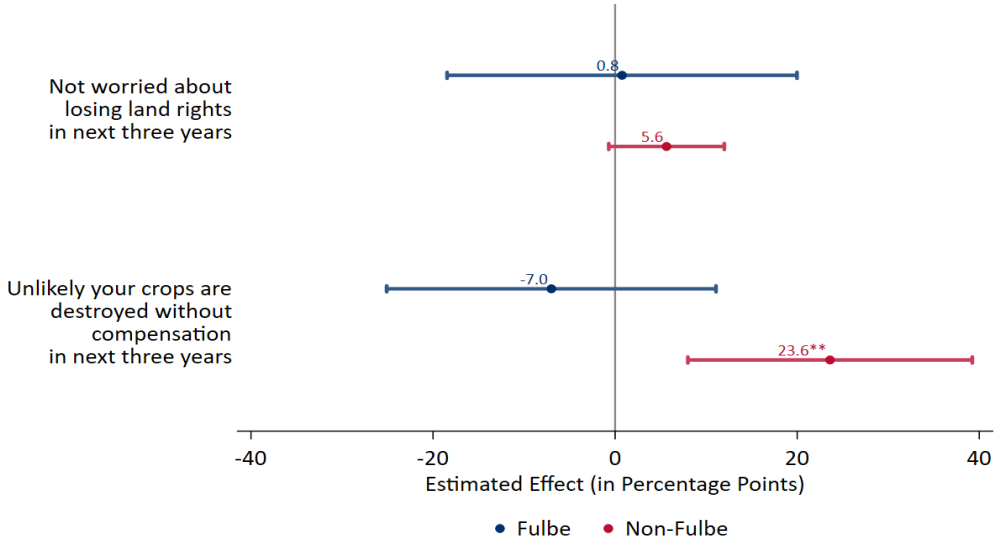
In FGDs, some non-Fulbe women attributed the reduced likelihood their crops could be destroyed without compensation to the dialogue, which had improved the cooperation of Fulbe herders when their cattle approached farms. However, Fulbe women in Sissala East largely agreed their perceptions

had not changed because, as women, any issues resolved by men in the dialogue or through the MMC would not have been communicated to them.

> *"The change is…[the Fulbe] stays to watch the cattle graze, making sure they don't enter my farm and destroy my crops."* – Female Non-Fulbe FGD participant, Sissala East

> *"Here it is…only men that goes for those kind of issues and when they come home, they will not tell you what happened."* – Female Fulbe FGD participant, Sissala East

Figure 9. Effects on Tenure Security Outcomes for Women



Note: Plot shows the estimated effect and 90% confidence intervals for the treatment effect of the intervention from DID regressions, controlling for individual- and household-level characteristics, and including fixed effects for community matched pairs. Confidence intervals constructed from standard errors clustered at the community level. N=663 for Fulbe; N=732 for non-Fulbe. *** p<0.01, ** p<0.05, * p<0.1

FINDINGS 4: SECURITY AND STABILITY

Security and stability outcomes relate to Hypothesis 4 from the Motivation and Hypothesis section. Our main indicators for primary respondents and women's module respondents are shown in Table 9, along with baseline descriptive statistics. For primary respondents, outcomes include whether the respondent reported the community experienced no violent clashes or disputes in during the past rainy season, and whether the respondent reported they did not take actions in the past month to avoid certain parts of the community due to insecurity. For women, we measure whether they report no one in the household received physical violence or was threatened with violence by others in the community during the past rainy season.

Figure 10 summarizes the estimated treatment effects for the three-pronged approach on outcomes related to security and stability for primary respondents. Results show that Fulbe in treated communities were 8.1 percentage points more likely to report no violence in the community during the past rainy season, statistically significant at the 90 percent confidence level. While the results also indicate non-Fulbe respondents in treated communities were 2.5 percentage points more likely to say

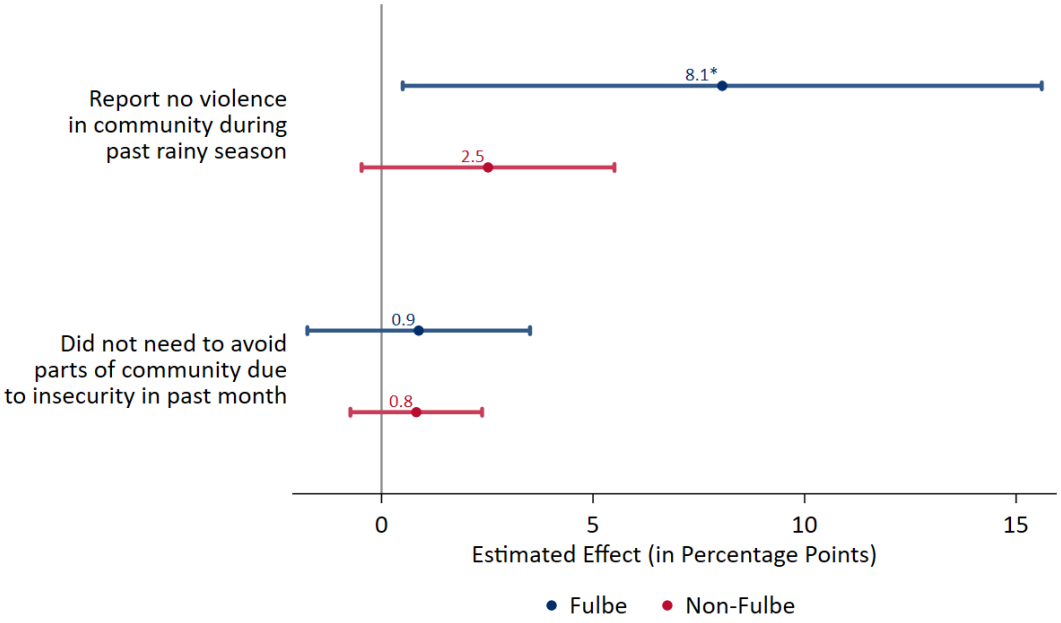
there had been no violence during the past rainy season, the result is not statistically significant. For both the Fulbe and non-Fulbe samples, the estimated effect of the intervention on whether respondents avoided parts of the community due to insecurity are small and statistically insignificant.

Table 9. Baseline Descriptive Statistics for Security and Stability Outcomes

Outcome or Covariate	Fulbe Settlements			Non-Fulbe		
	Treat	Control		Treat	Control	
	Mean	Mean	Diff.	Mean	Mean	Diff.
Primary Respondent						
Report no violence in community, past rainy season	0.841	0.788	0.053	0.974	0.991	-0.017
Did not need to avoid parts of community due to insecurity in past month	0.818	0.878	-0.060	0.93	0.957	-0.026
Women's Module Respondent						
No HH members threatened or received physical violence during past rainy season	0.865	0.876	-0.011	0.912	0.923	-0.011

*** p<0.01, ** p<0.05, * p<0.1

Figure 10. Effects on Security and Stability Outcomes for Primary Decisionmakers



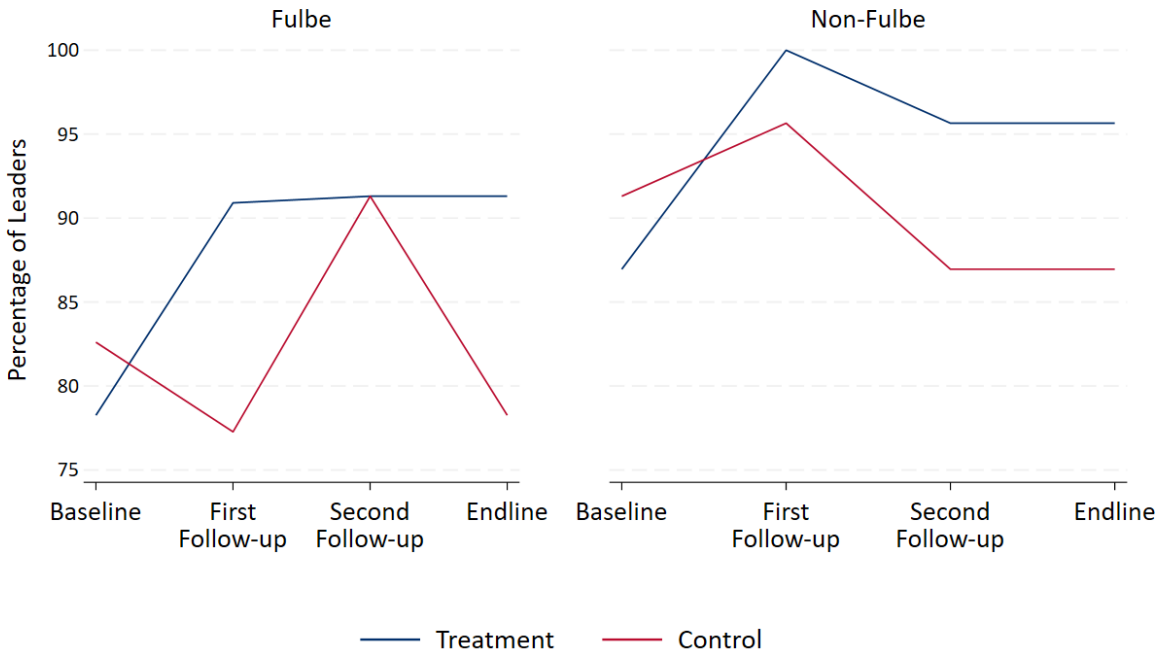
Note: Plot shows the estimated effect and 90% confidence intervals for the treatment effect of the intervention from OLS regressions, controlling for individual- and household-level characteristics and the baseline value of the dependent variable, and including fixed effects for community matched pairs. Confidence intervals constructed from standard errors clustered at the community level. N=442 for Fulbe; N=460 for non-Fulbe. Sample is 99% male. *** p<0.01, ** p<0.05, * p<0.1

Findings from the community leader survey confirm the finding that the intervention led to security improvements for treated communities. Community leaders were each asked whether the community had experienced any violence because of land or crop destruction disputes during the past three months, or whether the community had experienced any other violent clashes or confrontations during this same period. As shown in Figure 11, both Fulbe and non-Fulbe leaders from control communities

were slightly more likely to report no recent violence than those from the treatment sample at baseline. For non-Fulbe leaders, both the treatment and control samples saw an increase in the share reporting no violence at the first follow-up interview, though the improvement was higher for the treatment sample. During the second follow-up and endline interviews, non-Fulbe leaders from both treatment and control communities were somewhat less likely to report no violence, and the gap between the treatment and control samples for non-Fulbe leaders grew over time. At endline, 87 percent of non-Fulbe leaders in control communities reported no recent violence, compared to 95.7 percent of those in the treatment community sample. Trends for Fulbe community leaders are mostly similar, with 78.3 percent of Fulbe leaders from the treatment sample reporting no recent violence at baseline, which rose to 91.3 percent by endline, and compared to 82.6 percent of Fulbe leaders in the control sample at baseline, which declined to 78.3 percent by endline.

Figure 12 shows similar patterns for recent incidences of cattle killing reported by community leaders. At baseline, 82.6 percent of Fulbe community leaders in the treatment sample reported no cattle killing in the community in the past three months, compared to 87 percent in the control sample. Fulbe leaders in both treatment and control sample communities saw a jump in the share reporting no recent cattle killing after baseline, but for those in control communities the trend levels off after the first follow-up and then drops somewhat by endline; for Fulbe leaders in treated communities, the share who report no recent cattle killing continues climbing and reaches 100 percent by endline.

Figure 11. Share of Community Leaders Reporting No Violence in Past Three Months



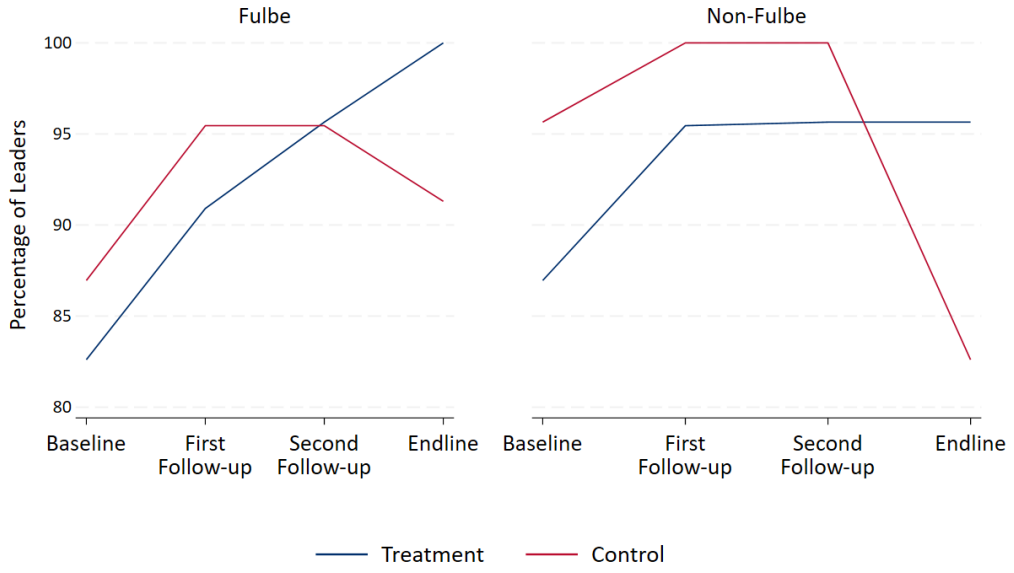
Note: The figure shows the percentage of respondents from the Fulbe and non-Fulbe samples in the community leader survey who report the community did not experience any violence resulting from crop destruction or land disputes in the past three months, and did not experience any violent confrontations or clashes during the same period.

Findings from FGDs provide further confirmation that Fulbe and non-Fulbe in treatment communities mostly feel that the intervention has reduced violence, largely by lowering tensions between the two

groups and diffusing crop destruction disputes before they get violent.

> *"Before we were selected as members of the committee, everyone handled their own issues, and sometimes, situations worsened. But now...because of our mediation group, if someone intends to worsen a situation, they know it will be addressed peacefully. This has prevented conflicts from escalating in our community." – Male non-Fulbe MMC Member, Sissala West*

Figure 12. Share of Community Leaders Reporting No Cattle Killing in Past Three Months



Note: The figure shows the percentage of respondents from the Fulbe and non-Fulbe samples in the community leader survey who report the community did not experience any incidences of cattle killing in the past three months.

However, the qualitative findings also suggest different communities may have seen very different levels of success in reducing violence. While Fulbe men in FGDs in Sissala East and Sissala West mainly talked about recent improvements in the relationship between the Fulbe and the community, Fulbe men in a treatment community in Wa East remarked about the difficult security situation. The Fulbe in this community did not believe the MMC had done much to reduce levels of violence, and alleged that one of the Fulbe on the committee had been threatened and beaten due to their MMC work. Other FGDs in this community with MMC members and non-Fulbe men confirm a tense security situation, suggesting community members there fear the Fulbe and also have normalized violence against them. Several male community members there admitted they beat the Fulbe and suggested this was justified.

> *"The problems in this community are truly overwhelming. Sometimes, you can be beaten in the bush by non-Fulbe for no reason at all. Even in your own house, they can come, tie you up, and assault you. There's absolutely no peace of mind here."* – Male Fulbe FGD participant, Wa East

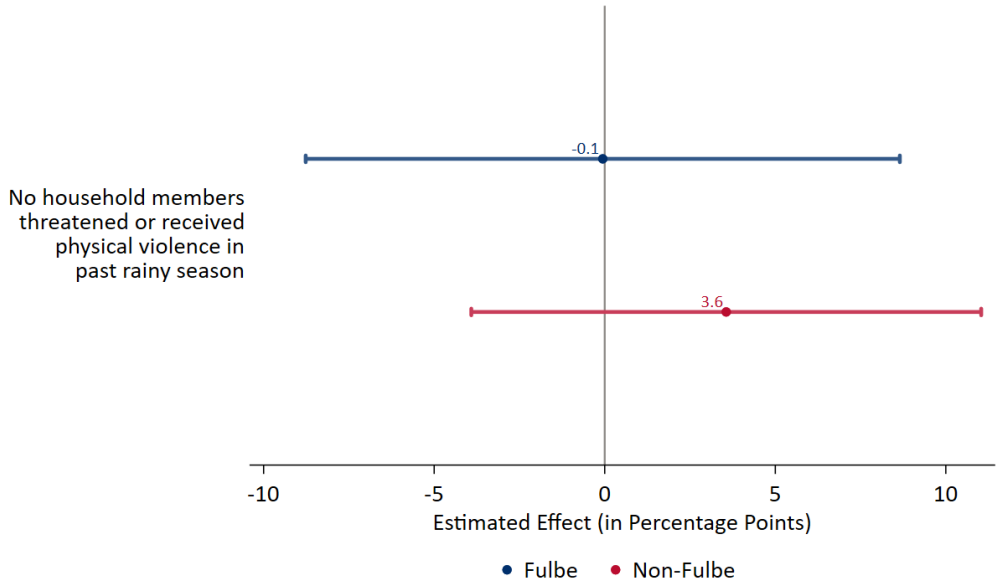
> *"This clearly demonstrates that the Fulbe in the committee are not respected. They even tried to beat the committee member without any evidence."* – Male Fulbe FGD participant, Wa East

"They accuse us of beating them always…We told them we don't beat them for no reason, we could have rejected you people when you asked to settle but we accepted you. As we are together now, we would wish that when we set rules they should please abide by the rules." – Male non-Fulbe FGD participant, Wa East

EFFECTS FOR WOMEN DECISIONMAKERS

IE estimates for security outcomes for women's module respondents are shown in Figure 13 and indicate the intervention had no statistically significant effect on either Fulbe or non-Fulbe women for our measure of violence experienced by their household.

Figure 13. Effects on Security and Stability Outcomes for Women



Note: Plot shows the estimated effect and 90% confidence intervals for the treatment effect of the intervention from DID regressions, controlling for individual- and household-level characteristics, and including fixed effects for community matched pairs. Confidence intervals constructed from standard errors clustered at the community level. N=663 for Fulbe; N=732 for non-Fulbe. *** p<0.01, ** p<0.05, * p<0.1

Women's FGD conversations surrounding the topic of security and stability reiterate that treatment communities may have experienced varying levels of success in reducing violence. For instance, in one Sissala West treatment community, women described recent reductions in violent or threatening interactions between Fulbe and non-Fulbe, even when disputes do occur.

"The change is that, in the past, if a Fulbe herder followed cattle onto my farm and I tried to caution him, he would always threaten to hit me with his stick. But now, whenever he sees me on my farm, he greets me. I often offer him water to drink." – Female non-Fulbe FGD participant, Sissala West

In contrast, in the Wa East community where the security situation continues to be tense, Fulbe women shared that conflicts between Fulbe and non-Fulbe men can extend to violence towards women and children as well.

"The challenges persist because for the men, it is about the livestock, and for the women, it is because they believe our husbands' animals destroy their crops." – Female Fulbe FGD participant, Wa East

"Sometimes, they forcibly take our cow milk when we go to sell and accuse our husbands of destroying their farms." – Female Fulbe FGD participant, Wa East

"It's not getting better because every day they beat our children. When we try to complain, they say they own the land." – Female Fulbe FGD participant, Wa East

"The children's relationship with the community members is very bad, we can't send our children to buy something. Even in the bush they always beat them." – Female Fulbe FGD participant, Wa East

FINDINGS 5: COMMUNITY COHESION

Community cohesion outcomes relate to Hypothesis 5 from the Motivation and Hypothesis section. Our main indicators for primary household survey respondents and women's module respondents are shown in Table 10, along with baseline descriptive statistics for these indicators. Three indicators are measured for both primary respondents and women's module respondents, while perceptions of the other group contributing towards community goals are only measured for primary respondents, and positive interactions at the community borehole are only measured for women.

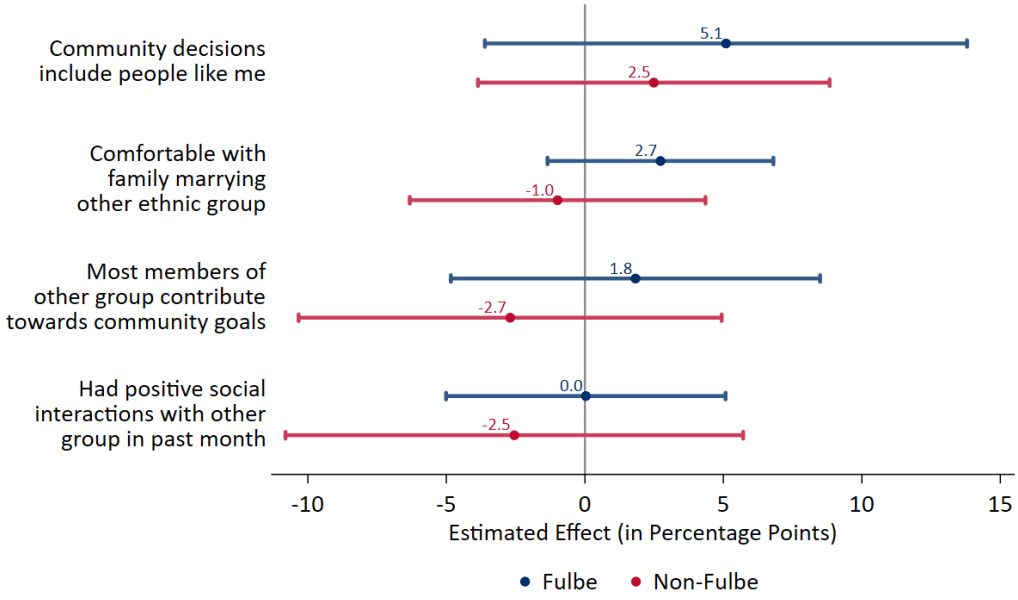
Table 10. Baseline Descriptive Statistics for Community Cohesion Outcomes

Outcome or Covariate	Fulbe Settlements			Non-Fulbe		
	Treat	Control		Treat	Control	
	Mean	Mean	Diff.	Mean	Mean	Diff.
Primary Respondent						
Community decisions include people like me	0.291	0.329	-0.038	0.809	0.839	-0.030
Comfortable with family marrying other ethnic group	0.773	0.779	-0.007	0.222	0.222	0.000
Most members of other group contribute towards community goals	0.632	0.608	0.024	0.278	0.426	-0.148
Had positive social interactions with other group in past month	0.705	0.739	-0.034	0.535	0.635	-0.100**
Women's Module Respondent						
Community decisions include people like me	0.135	0.094	0.041	0.785	0.84	-0.056
Comfortable with family marrying other ethnic group	0.73	0.718	0.012	0.177	0.119	0.058
Reports positive interactions with other group at borehole in past week	0.656	0.618	0.039	0.47	0.577	-0.108**
Had positive social interactions with other group in past month	0.564	0.576	-0.012	0.503	0.582	-0.080 *

*** p<0.01, ** p<0.05, * p<0.1

Figure 14 presents a summary of the estimated treatment effects for the three-pronged approach on community cohesion outcomes for the primary household decisionmakers, along with 90 percent confidence intervals. Based on the results, we cannot conclude that the intervention has had an effect on any of the indicators in this group of outcomes for primary decisionmakers. Below we explore the results in more detail, including the reasons that may explain why we fail to detect any significant treatment effects.

Figure 14. Effects on Community Cohesion Outcomes for Primary Decisionmakers



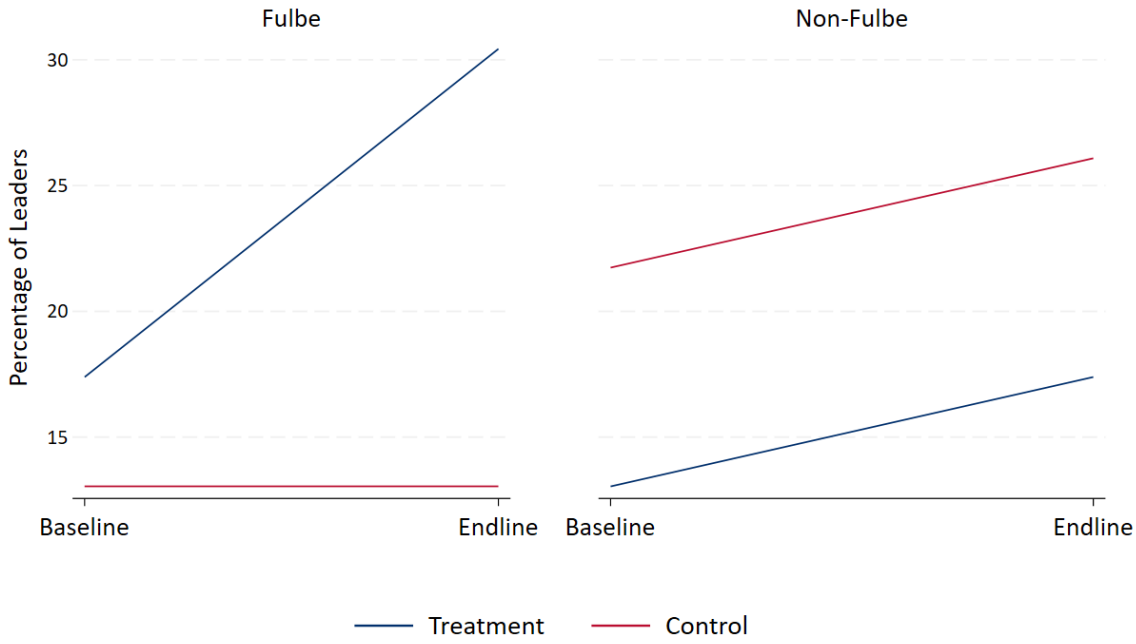
Note: Plot shows the estimated effect and 90% confidence intervals for the treatment effect of the intervention from OLS regressions, controlling for individual- and household-level characteristics and the baseline value of the dependent variable, and including fixed effects for community matched pairs. Confidence intervals constructed from standard errors clustered at the community level. N=442 for Fulbe; N=460 for non-Fulbe. Sample is 99% male. *** p<0.01, ** p<0.05, * p<0.1

INCLUSIVE DECISION MAKING

Our results show no statistically significant effect for the impact of the intervention on respondents' agreement that "The way this community makes decisions includes the opinions of people like me," both for the Fulbe and non-Fulbe sample. This is not unexpected for non-Fulbe, given individuals from this population already have strong family and social ties in the community, hold community leadership positions (or have close ties to others who do), and are more involved in community matters. At baseline, 80.9 percent of non-Fulbe in treatment communities already agreed community decisions included the opinions of people like themselves, compared to just 29.1 percent of Fulbe who felt the same. There is therefore no reason to expect programming focused on Fulbe inclusion would shift perceptions of non-Fulbe respondents on this question. However, while we expected the intervention would have shifted Fulbe perceptions on this indicator, the results fail to support this hypothesis.

The finding is surprising given that it does appear the intervention led to an important change in the share of Fulbe community leaders from treatment communities who report the community's unit committee includes Fulbe members. The first panel in Figure 15 shows that, at baseline, 17.4 percent of Fulbe leaders in treated communities reported Fulbe members were on the unit committee, compared to 30.4 percent at endline, while there was no change in control communities. On the other hand, responses of non-Fulbe leaders in the second panel of Figure 15 are notably different. Since the question is asking Fulbe and non-Fulbe leaders in each community the same question about the same unit committee, in theory their answers should align. The difference suggests Fulbe and non-Fulbe leaders may have a different understanding of or expectations for Fulbe participation on the unit committee, or perhaps that community leader respondents are confusing participation in the unit committee and MMC.

Figure 15. Share of Community Leaders Reporting Unit Committee Has Fulbe Members



Note: The figure shows the percentage of respondents from the Fulbe and non-Fulbe samples in the community leader survey who report the unit committee in their community includes Fulbe members.

While there are some signs from the community leader survey that the participation of Fulbe in community decisions has increased, two possible explanations for why the IE fails to detect an impact on household perceptions include the time horizon of the study and statistical power. Due to the recency of the changes in treatment communities, it is possible many Fulbe are not yet aware that others have been included on the unit committee or other community groups, or it may not yet have led to a change in their perceptions about how the community makes decisions. Alternatively, the change in perceptions thus far may simply be too small to detect with the statistical power from our sample size.

The qualitative data from FGDs paints a somewhat mixed picture regarding Fulbe inclusion, and suggests outcomes varied substantially by community. There was agreement among Fulbe men during an FGD in a treated community in Sissala East that the community's inclusion of Fulbe in decisions and community groups had improved since the intervention. Multiple Fulbe FGD participants in this community stated that the intervention's community dialogues had led to them being personally included in community groups.

> *"[The non-Fulbe community] used to do whatever pleased them without considering us. However, this year there has been a change, and they have started including us. Personally, I have been included in the school dialogue, and some Fulbe women have also been selected to be part of a community group."* – Male Fulbe FGD participant, Sissala East

> *"The community members now include us in their meetings. Personally, I am now part of a committee at the clinic." – Male Fulbe FGD participant, Sissala East*

> *"I think it is just only recently that [the non-Fulbe community] started adding us to their groups."* – Male Fulbe FGD participant, Sissala East

However, in a treatment community in Wa East, Fulbe men FGD participants widely agreed that intervention programming had not led to more inclusive community decisions. Regarding inclusion of Fulbe on the MMC formed by the intervention, FGD participants agreed Fulbe MMC members do not carry the same weight on the committee as non-Fulbe members. These participants also shared that the community had recently implemented new laws requiring all Fulbe in the community to pay when there is crop destruction by cattle and the offending herder cannot be identified. This has led to the perception that even if Fulbe have recently been included on decision-making groups in the community, it has not led to noticeable changes. It also introduces a third possibility for why Fulbe perceptions around the inclusiveness of community decisions have not changed, despite the inclusion of Fulbe in community groups: some may simply feel that Fulbe presence in community groups carries no real weight in how decisions are made.

> *"The situation remains the same, and the Fulbe selected for the committee are not receiving the respect or recognition they deserve from the non-Fulbe community members."* – Male Fulbe FGD participant, Wa East

> *"It seems that the formation of the [MMC] hasn't led to significant positive changes, and in some cases, the situation has even worsened. The issue of Fulbe being collectively held responsible for crop destruction by cattle appears to have intensified, but it's hard to directly link this to the committee's formation."* – Male Fulbe FGD participant, Wa East

SOCIAL INTERACTIONS

The three-pronged strategy aimed to increase interactions between Fulbe and the non-Fulbe, which was expected to occur through creating integrated VSLAs, and by hosting inter-ethnic dialogues that would lead to greater integration of the Fulbe in the community. However, the results from our quantitative analysis show no statistically significant effect for the impact of the intervention on the share of respondents who report having positive social interactions with the other group within the past month.

However, findings from the qualitative data do provide some support for the hypothesis that the intervention led to increased social interactions and improved relationships between Fulbe and the communities. Male Fulbe FGD participants from a community in Sissala East agreed the VSLA had brought unity and improved social cohesion. Participants from the FGD with non-Fulbe men from the same community largely agreed, noting that after the inter-ethnic dialogue the community held another meeting to find ways to involve the Fulbe in community activities, and that Fulbe and non-Fulbe have recently been inviting each other to marriage and naming ceremonies. In a community in Sissala West, male Fulbe FGD participants expressed that the relationship with the community was strong, but that it had already been relatively strong even before the intervention; however, non-Fulbe men in this community agreed the intervention had improved the relationship.

> *"After the [inter-ethnic dialogue session], we all go for marriage and naming ceremonies together, we attend the Fulbe marriage and naming ceremonies, and they also attend our marriage and naming ceremonies."* – Male non-Fulbe FGD participant, Sissala East

"The Fulbe who had associates from the community would often stay outside their associates' homes to resolve any issues, rather than coming inside. However, now they come into our homes whenever they have issues to report." – Male non-Fulbe FGD participant, Sissala West

On the other hand, qualitative findings from the community in Wa East were more mixed. Two participants from an FGD with non-Fulbe males in Wa East thought the VSLA had improved interactions with the Fulbe, though other responses from both Fulbe and non-Fulbe FGD participants in the community largely indicate the relationship between the Fulbe and the non-Fulbe remains strained, with limited friendly social interactions.

"Yes, [the VSLA] has improved on our relationship." – Male non-Fulbe FGD participant, Wa East

"Initially we used not to engage with each other, but now we do in almost everything." – Male non-Fulbe FGD participant, Wa East

"I have a concern, [the Fulbe] are humans just like us but I will say that as a community we were better off when we were not living with them." – Male non-Fulbe FGD participant, Wa East

"There used to be peace here some time ago, but now there is no peace anymore." – Male Fulbe FGD participant, Wa East

"Yes, it is true we are now afraid of the community members because there are misunderstandings everywhere." – Male Fulbe FGD participant, Wa East

PERCEPTIONS OF AND ATTITUDES TOWARDS THE OTHER GROUP

Our main indicators for attitudes towards and perceptions of the other group are whether the respondent says they would be at least "somewhat comfortable" with a close family member marrying a member of the other group, and whether they say that more than half of the members of the other group contribute towards community goals. Results from our quantitative analysis suggest the intervention has not yet led to a significant shift in perceptions, either for the Fulbe or the non-Fulbe.

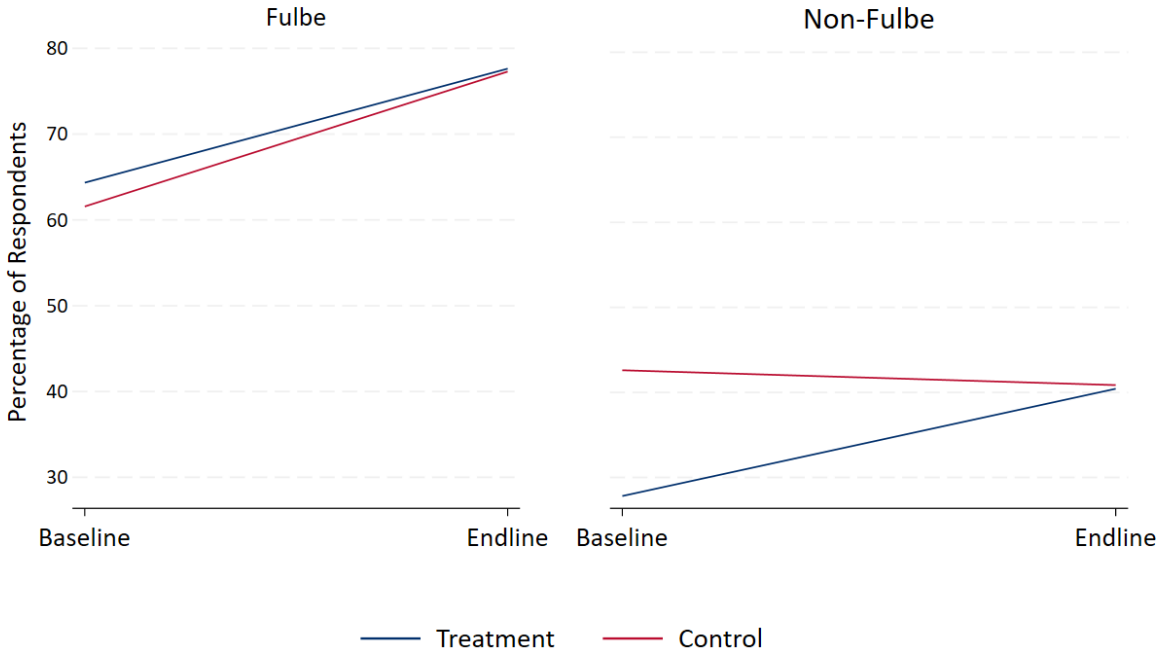
Community leader surveys confirmed there were no inter-ethnic marriages in any communities in the sample during the year-long observation period. A likely explanation is that insufficient time has passed to observe a widespread shift in perceptions on this indicator. This is echoed in an FGD with MMC members in Sissala West, where one participant suggested the MMC members should take the lead in helping to shift community perceptions.

"If we marry their daughters so that they can also marry our daughters, you will see that there will not be conflict between us, and we said it should start with us the committee members." – Male, non-Fulbe MMC member, Sissala West

In terms of perceptions of cooperation, at baseline nearly all respondents of both groups believed most members of their own group contribute towards community goals, including 81.7 percent of Fulbe and 98.3 percent of non-Fulbe respondents. However, respondents were much less generous in their perceptions of the other group. Figure 16 shows that at baseline, 63.2 percent of Fulbe and just 27.8 percent of non-Fulbe in treated communities said more than half of members from the other group

contribute to community goals. At endline, the figure jumped to 77.6 percent for Fulbe in treated communities; however, the trend for Fulbe in control communities is nearly identical and so no statistically different change is detected. For non-Fulbe, the figure jumped to 40.4 percent by endline in treated communities, while the trend among non-Fulbe in control communities was mostly flat. While the trend in perceptions of the non-Fulbe towards the Fulbe shows initial evidence that the intervention may have had an effect, the result is not robust to regression analysis controlling for other variables.

Figure 16. Respondents Who Believe Other Group Contribute Towards Community Goals



Note: The figure shows the percentage of respondents from the Fulbe and non-Fulbe samples in the household survey who report "more than half" or "everyone" from the other group contributes time or money towards community development goals.

However, several non-Fulbe participants in FGDs expressed that the intervention had led to more cooperation from the Fulbe.

> *"Previously, we would stop using the borehole whenever the Fulbe came to fetch water because they refused to contribute to its maintenance. If the borehole broke down and we asked them to assist with repairs, they wouldn't help. However, now things are different. They pay their share for maintenance, just as we do, and this shared responsibility has brought us closer together."* – Female non-Fulbe MMC member, Sissala East

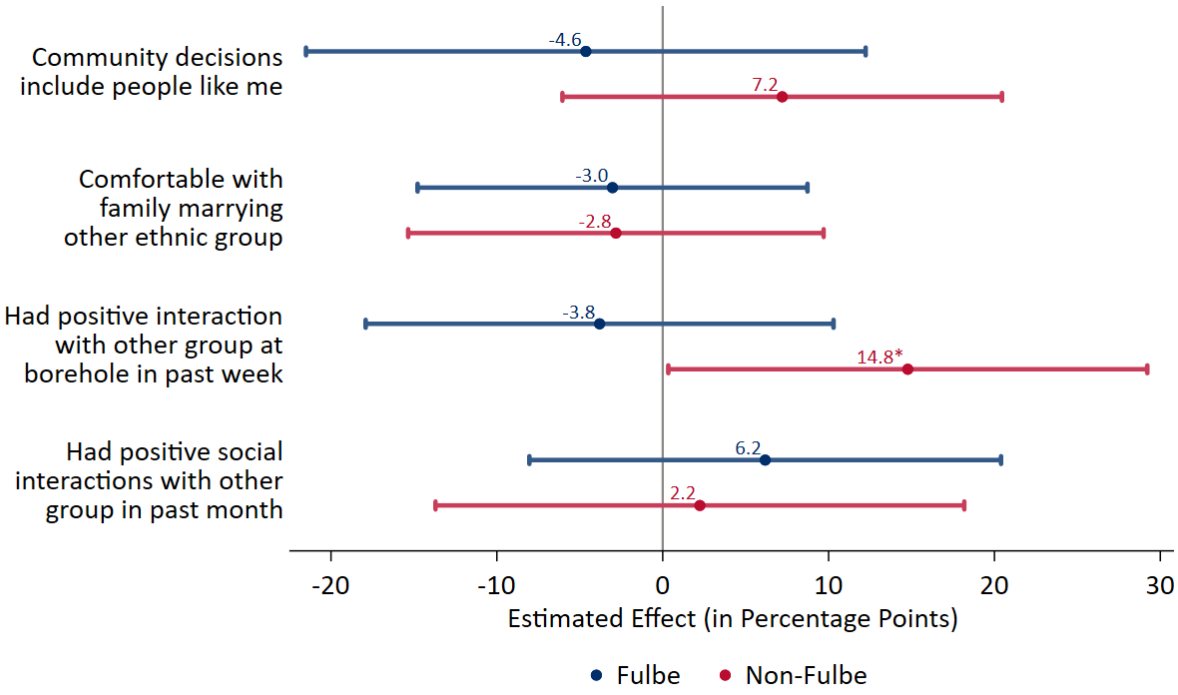
> *"Yes, [the dialogue] has helped a lot because, as Fulbe in the community, we don't have electricity where we stay. However, all our children have mobile phones, and they go [to the community] to charge them. Whether it's using the grinding mill or fetching water, we rely on them.* – Female Fulbe FGD participant, Sissala West

"Recently, the Fulbe have been honoring every invitation to meetings, where we all share ideas and present our challenges together." – Male non-Fulbe FGD participant, Sissala West

EFFECTS FOR WOMEN DECISIONMAKERS

Figure 17 summarizes the effects of the intervention on community cohesion outcomes for women. Findings largely confirm the null effects for primary decisionmakers shown in Figure 4. One exception is the finding that the intervention led to a 14.8 percentage point increase in non-Fulbe women reporting positive interactions with Fulbe at the borehole, statistically significant at the 90 percent confidence level. On the other hand, no effect is seen for positive interactions at the borehole as reported by Fulbe women.

Figure 17. Effects on Community Cohesion Outcomes for Women



Note: Plot shows the estimated effect and 90% confidence intervals for the treatment effect of the intervention from DID regressions, controlling for individual- and household-level characteristics, and including fixed effects for community matched pairs. Confidence intervals constructed from standard errors clustered at the community level. N=663 for Fulbe; N=732 for non-Fulbe. *** p<0.01, ** p<0.05, * p<0.1

Borehole access is a significant source of tension between Fulbe and non-Fulbe, which often plays out among women, who traditionally hold the task of fetching water for their household. Qualitative findings show that the intervention's effects on how communities handle borehole access for Fulbe varied by community. One reason why perceptions may have improved for non-Fulbe women but not for Fulbe women is that, at least in some communities, the intervention's dialogues have shifted norms around how Fulbe contribute to borehole maintenance and upkeep. For example, non-Fulbe women in a treatment community in Sissala East agreed borehole issues with the Fulbe had improved owing to the community dialogue, which has led to Fulbe women now contributing towards borehole maintenance. Some Fulbe women in the same community felt their access to the borehole had improved recently, but

still complained about being denied access at times.

> *"When it comes to the borehole as well, sometimes they ask all the Fulbe women to pay 20 cedi each, and even after paying, they still prevent us from fetching the water…Yes, it has reduced but not eliminated. At first, they didn't like the Fulbe coming close to them but now it is better."* – Fulbe Woman FGD participant, Sissala East

> *"Initially, when we asked them to contribute to repairing the borehole whenever it broke down, they didn't contribute. However, now they do contribute. We used to remove their containers from under the borehole and prevent them from fetching water, but now we allow them to fetch water. We also help them carry water at the borehole, and they help us in return."* – Non-Fulbe Woman FGD participant, Sissala East

In Wa East, Fulbe women participating in an FGD mostly agreed the relationship with the community had not improved, including around the borehole. In Sissala West, non-Fulbe women said that norms around the borehole had not changed: the community does not charge the Fulbe for borehole access or invite them to participate in upkeep, but still allows them to draw water. Fulbe women in this community complained about water scarcity in the area, but were grateful to the community for allowing the Fulbe to use the borehole.

> *"There has been no change because the community women still do the same things they did before, like harvesting our shea fruits, and we can't complain. It's the same with boreholes, grinding mills, and in the bush. There's been no change on our side."* – Female Fulbe FGD participant, Wa East

> *"We do not invite them if we have to clean the pipe area. We do not involve them in financial contributions to repair the pipe, but they fetch the water."* – Female non-Fulbe FGD participant, Sissala West

In terms of the qualitative evidence around other community cohesion indicators for Fulbe women, some FGD participants noted more participation of Fulbe women in community meetings, and improved social interactions among Fulbe and non-Fulbe women. Indeed, the qualitative data more frequently mentioned social interactions between Fulbe and non-Fulbe women and children than interactions amongst men.

> *"[The VSLA] has led to a friendly relationship between the Fulbe women and our wives."* – Male non-Fulbe FGD participant, Sissala East

> *"We have made friends among the Fulbe. We often meet and talk, and she frequently comes to my house to chat. She also brings her children to our house to eat, and after they finish eating, they go to school together with our children."* – Female non-Fulbe FGD participant, Sissala East

CONCLUSIONS

Completed just a few months after program implementation, endline analysis already finds evidence for positive impacts of the three-pronged approach across several outcome indicators related to

implementation, dispute resolution, tenure security, and security and stability. Monitoring with community leaders and endline qualitative findings provide additional support for our IE findings, while suggesting the intervention may have had impacts on additional outcome indicators that the IE was unable to detect.

Overall, the results show promise, particularly considering the intervention is relatively low intensity, and IE results measure the average effects across all community members, regardless of whether they personally participated in individual components of the intervention. Nonetheless, qualitative results also indicate the positive effects of the intervention may be distributed unevenly across treatment communities in the sample, and not all communities have experienced the intended benefits. Qualitative evidence points to potential explanations for this variability, including how dialogue sessions were communicated to non-participants, the degree to which communities worked to integrate Fulbe into existing community groups and activities, and variation in how MMCs introduced themselves to their community and in how they worked.

IMPLEMENTATION

IE findings confirm the three-pronged approach has been implemented as intended. The intervention has led to increases in the share of both Fulbe (24.8 percentage points) and non-Fulbe (10.8 percentage points) who report an inter-ethnic dialogue was held in their community. The results also show the intervention led to an increase in the share of Fulbe who report personally participating in these dialogues, though the effect is only seen for the nearly all-male sample of primary decision makers and not for Fulbe women. Qualitative evidence largely shows both Fulbe and non-Fulbe FGD participants who were aware of the dialogues hold positive opinions about the sessions and believe they have led to improved relations and integration of Fulbe in their communities.

Prior to the intervention, most communities had existing VSLA groups, though Fulbe participation in these groups was near zero. IE results show the intervention has led to a statistically significant 10.6 percentage point increase in the share of Fulbe who report they now participate in a VSLA with non-Fulbe, and a smaller, but still statistically significant 4.5 percentage point increase in the share of non-Fulbe reporting participation in a VSLA with Fulbe members. Larger effects on mixed VSLA participation are seen for both Fulbe and non-Fulbe women, consistent with evidence that women more commonly participate in VSLAs. Perceptions of the VSLAs in FGDs are almost uniformly positive and suggest the VSLAs are working as intended to increase social contact and cooperation between Fulbe and non-Fulbe group members.

Results also show the intervention has led to large increases in the share of both Fulbe (33.8 percentage points) and non-Fulbe (25 percentage points) reporting the presence of a mediation committee in their community that includes Fulbe members. Similar effects are seen for women. Perceptions of the new MMCs from FGDs were mostly positive, though due to how recently they had been formed, FGD participants were not always aware of any disputes the MMCs had successfully mediated.

Results also point to areas where implementation could yet be improved. Both qualitative and quantitative findings indicate some community members were not aware of the dialogues held in their communities. The participation of women in the dialogues appears limited, and while IE results show the intervention led to an increase in the share of Fulbe who report participating, the effect is only seen for the nearly all-male sample of primary decision makers and not seen for Fulbe women; this is likely due to social norms among the Fulbe, and suggests specific efforts may be needed to ensure women's

participation in the dialogues. Fulbe participating in FGDs in one treatment community in Wa East mostly believed the dialogue had not yet led to substantive changes in inter-group relations or Fulbe inclusion, suggesting that the actions communities took coming out of the dialogues have varied substantially by community.

Similarly, none of the Fulbe FGD participants in a community in Sissala East were aware of the new MMC established in their community, suggesting that communities have seen different levels of success in socializing the new committees to community members. Additionally, qualitative evidence from one community in Wa East is somewhat worrisome and suggests the MMC there is not operating as intended. This suggests additional oversight and assistance may be needed in some communities to ensure MMCs operate appropriately and are more widely recognized by all community members.

LAND DISPUTES AND DISPUTE RESOLUTION

The intervention has led to a modest increase in the share of both Fulbe (7.8 percentage points) and non-Fulbe (7.7 percentage points) respondents who report dispute resolution in their communities is usually or always peaceful. We also see evidence that the intervention has led to improved satisfaction with dispute resolution, and initial evidence of a shift in the conflict resolution mechanisms used to resolve disputes. Treatment communities saw a significant increase in the share of respondents who say damage in crop destruction disputes is usually assessed by a conflict resolution committee, and the share who say disputes are usually mediated by a conflict resolution committee, while no changes were seen on these measures in control communities. The findings are widely confirmed in FGDs in treatment communities, where participants shared that disputes were beginning to be resolved more peacefully and effectively in their communities, which was mainly attributed to the work of the MMCs and increased cooperation from the Fulbe resulting from the dialogue sessions. While IE estimates detect no effect for whether survey respondents were personally involved in a dispute during the past rainy season, some FGD participants also reported the incidence of crop destruction disputes had recently declined.

Despite these positive effects, findings also suggest room for improvement. Even with improvements in treatment communities, the share of respondents at endline who reported crop destruction was most often assessed by a conflict resolution committee was still below 10 percent, and a similar result was observed for the share reporting crop destruction disputes were most often mediated by a conflict resolution committee. A number of both Fulbe and non-Fulbe FGD participants expressed a continued preference for resolving disputes with the unit committee or the community chief. These practices and perceptions may continue evolving over time as MMCs become more established, though additional efforts may be needed to socialize the committees more widely and publicize their successes.

On the other hand, the IE detects no effect on respondents' perceptions of whether the community fairly manages shared natural resources, and unexpectedly detects a statistically significant 2.7 percentage point decline in the share of non-Fulbe respondents reporting they know where to go if they have a dispute. This effect is small, particularly considering nearly all non-Fulbe respondents at baseline reported knowing where to go for disputes, but suggests the formation of the new MMCs may have led to some confusion in treatment communities about which local bodies to go to for dispute resolution.

TENURE SECURITY

The IE results estimate the intervention led to a statistically significant 13.7 percentage point increase in

the share of non-Fulbe respondents who believed their crops would not be destroyed in the next three years without adequate compensation. Effects for non-Fulbe women are somewhat larger, and estimate a 23.6 percentage point increase. In FGDs, non-Fulbe respondents largely attributed the MMCs and community dialogues to reducing the incidence of crop destruction and improving Fulbe cooperation when crop destruction happens.

On the other hand, we see no effect on the share of Fulbe worried about losing community land use rights within the next three years. The share of Fulbe who are not worried about losing land rights increased by approximately 15 percentage points between baseline and endline in treatment communities, providing initial evidence for positive effects. However, this was accompanied by a similar trend in control communities, and as a result no statistically significant treatment effect is detected for the intervention when comparing treatment and control groups.

SECURITY AND STABILITY

The intervention led to a statistically significant 8.1 percentage point increase in the share of Fulbe respondents who report no recent violence in their communities. The findings are largely confirmed by community leader surveys, with both Fulbe and non-Fulbe leaders in treatment communities reporting less recent violence and fewer incidences of cattle killing, while similar trends are not seen in control communities. On the other hand, no effect is seen on the share of non-Fulbe household survey respondents reporting recent violence, and we do not observe any impact for either the Fulbe or non-Fulbe on reported behaviors, such as whether respondents avoided parts of the community due to security concerns. Similarly, the IE does not detect any effect on whether women report any members of their household have received threats or actual physical violence during the past rainy season.

Qualitative evidence suggests some treatment communities have been more effective than others at reducing violence and improving the security situation. While both Fulbe and non-Fulbe in a treatment community in Sissala East and another treatment community in Sissala West agreed the intervention had made it easier to resolve disputes without violence, Fulbe in a treatment community in Wa East were near unanimous in their security concerns and felt recent interventions had not improved the situation.

COMMUNITY COHESION

Statistical results from the IE are unable to detect an impact for the intervention on most outcomes related to community cohesion. Although we cannot discard the possibility that the intervention is not producing the expected changes, it is important to recognize that social interactions and norms take time to change. The fact that we do observe the expected impacts on VSLA participation, that community leaders in treatment communities report more participation of Fulbe on unit committees, and that FGD participants in treatment communities largely said the community dialogue had led to Fulbe inclusion in community groups, suggests impacts on community cohesion outcomes could be observed in the long run. Both Fulbe and non-Fulbe FGD participants in two treatment communities largely agreed that the intervention had already led to improved social interactions between the two groups, particularly among women.

One indicator related to community cohesion where the IE does detect a positive impact is on non-Fulbe women reporting positive interactions with Fulbe at the borehole, with IE results estimating the intervention led to a 14.8 percentage point improvement on this indicator. This is confirmed in FGDs in

one community in Sissala East, where several women attributed the community dialogues to improvements in how borehole access was managed, and to inclusion of Fulbe women in borehole maintenance and upkeep.

Similarly, interviews with community leaders and FGDs in some communities show the intervention has led to more communities including Fulbe in local decision-making groups. Despite this, the IE does not detect any change in perceptions that Fulbe are truly included in community decisions. This may be because the changes are too recent, or because of the perception that Fulbe included in local groups are not listened to or given the respect they deserve.

RECOMMENDATIONS

Our results identify several remaining gaps, and lead to recommendations for CSSM and implementers on how they could be addressed in future programming.

Issue 1: Respondents did not always know about the inter-ethnic dialogue sessions, how participants were selected for the sessions, or what was discussed during those sessions. Women in particular had lower levels of awareness of and participation in the dialogues.

Recommendations:

- Consider pre- and/or post-dialogue sessions within each group (Fulbe and non-Fulbe) to improve opportunities for community members to learn about the dialogue sessions, even if they are not participating directly. Sessions could allow community members to provide input before the dialogue to those who will be representing their group, and to learn about outcomes after the dialogue.
- Find avenues for women to engage in inter-ethnic dialogue. Since cultural norms may limit the extent to which women can substantively engage in these dialogues in the presence of men, it may be useful to hold a separate women's dialogue.

Issue 2: The qualitative evidence suggests the two-day dialogue model was sufficient to improve Fulbe inclusion in some communities, but that meaningful inclusion has not yet happened in all communities.

Recommendations:

- Facilitate follow-up dialogue sessions for the Fulbe and non-Fulbe to discuss and validate progress.
- Consider adding an additional component to the intervention that specifically aims to identify existing groups and activities where Fulbe could be included in each community (e.g., school committee, health committee, borehole maintenance) and provide assistance to help integrate Fulbe into those groups.

Issue 3: RCT results do not yet detect an impact on positive social contact. Results show the majority of VSLA participants are women, and qualitative results mainly suggest social contact increased among women, likely through VSLA participation.

Recommendations:

- Find additional avenues to increase cooperation and positive social contact amongst men. This could occur through the inclusion of Fulbe on existing community groups, or through inter-ethnic recreational opportunities.

Issue 4: Quantitative and qualitative results both show that, approximately four months after MMCs were introduced in treatment communities, many respondents are not yet aware of the MMCs and usage of MMCs thus far is low. Creation of MMCs may have led to some confusion among non-Fulbe about where to go to resolve disputes.

Recommendations:

- Improve, standardize, and verify the socialization of MMCs, so that all community members are aware of their presence, how they work, and when they should be used. If possible, engage traditional leaders to promote the MMCs so that community members do not feel they are disrespecting traditional leaders by taking disputes to the MMC.
- Additional focus may be needed during training on what MMCs can and cannot do. The implementer should participate in sessions introducing MMCs to the communities and ensure these points are clear to all.
- Conduct on-going monitoring with MMC members to verify how MMCs are working and identify needs for continued support. This should be done in one-on-one settings or in separate sessions for Fulbe and non-Fulbe MMC members so that members feel free to express their opinions without the influence of others listening in.

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ANNEX I: BASELINE DESCRIPTIVE STATISTICS

Outcome or Covariate	Fulbe Settlements					Non-Fulbe				
	Treatment		Control		Diff.	Treatment		Control		Diff.
	N	Mean	N	Mean		N	Mean	N	Mean	
Respondent Characteristics										
Sex=Male	220	0.991	222	0.991	0.000	230	0.987	230	1	-0.013
Age Group=18-29	220	0.245	222	0.248	-0.002	230	0.135	230	0.174	-0.039
Age Group=30-44	220	0.455	222	0.455	0.000	230	0.443	230	0.422	0.022
Age Group=45-59	220	0.214	222	0.239	-0.025	230	0.3	230	0.265	0.035
Age Group=60+	220	0.086	222	0.059	0.028	230	0.122	230	0.139	-0.017
Education=No education - Illiterate	220	0.764	222	0.752	0.011	230	0.543	230	0.6	-0.057
Education=Non-formal education - Illiterate	220	0.109	222	0.086	0.024	230	0	230	0	0.000
Education=No education - Literate	220	0.005	222	0.018	-0.013 *	230	0	230	0.013	-0.013 *
Education=Non-formal education - Literate	220	0.091	222	0.113	-0.022	230	0	230	0	0.000
Education=Any formal education	220	0.032	222	0.032	0.000	230	0.457	230	0.387	0.070
Ethnic Group=Fulbe	220	1	222	0.995	0.005	230	0	230	0	0.000
Ethnic Group=Sissala	220	0	222	0	0.000	230	0.796	230	0.796	0.000
Ethnic Group=Kasenna	220	0	222	0	0.000	230	0.087	230	0.117	-0.030
Ethnic Group=Other	220	0	222	0.005	-0.005	230	0.117	230	0.087	0.030
Born in this district	220	0.159	222	0.162	-0.003	230	0.97	230	0.987	-0.017
Not born in this district - moved before 2015	220	0.523	222	0.468	0.054	230	0.03	230	0.013	0.017
Not born in this district - moved since 2015	220	0.318	222	0.369	-0.051	230	0	230	0	0.000
Primary Livelihood=Crop Farming	220	0.123	222	0.126	-0.003	230	0.935	230	0.97	-0.035
Primary Livelihood=Cattle Raising	220	0.559	222	0.622	-0.063	230	0.009	230	0.004	0.004
Primary Livelihood=Crops and Cattle Equally	220	0.314	222	0.252	0.061	230	0.052	230	0.026	0.026
Household Characteristics										

Outcome or Covariate	Fulbe Settlements					Non-Fulbe				
	Treatment		Control		Diff.	Treatment		Control		Diff.
	N	Mean	N	Mean		N	Mean	N	Mean	
Household size (total number of members currently living in household)	220	4.909	222	5.068	-0.158	230	6.361	230	7.165	-0.804 *
Farm plot size, acres (land cultivated by household in past rainy season)	215	4.391	218	3.995	0.395	223	10.955	225	13.293	-2.338
Owns no cattle	220	0.086	222	0.086	0.001	230	0.7	230	0.691	0.009
Owns 1-10 cattle	220	0.155	222	0.185	-0.030	230	0.226	230	0.196	0.030
Owns 11 and 20 cattle	220	0.214	222	0.189	0.024	230	0.043	230	0.061	-0.017
Owns 21 and 50 cattle	220	0.295	222	0.315	-0.020	230	0.026	230	0.039	-0.013
Owns 51 and 100 cattle	220	0.168	222	0.171	-0.003	230	0	230	0.013	-0.013
Owns 100+ cattle	220	0.077	222	0.054	0.023	230	0	230	0	0.000
Household raises cattle owned by others	220	0.777	222	0.77	0.007	230	0.004	230	0.017	-0.013
Implementation										
Respondent participates in a VSLA	220	0.036	222	0.023	0.014	230	0.165	230	0.209	-0.043
Respondent participates in a mixed VSLA	220	0.032	222	0.009	0.023 *	230	0.004	230	0.017	-0.013
Respondent aware of community dialogue with Fulbe this year	220	0.523	222	0.464	0.059	230	0.357	230	0.4	-0.043
Respondent participated in community dialogue with Fulbe this year	220	0.341	222	0.279	0.062	230	0.187	230	0.226	-0.039
Community has committee to mediate conflicts	220	0.841	222	0.766	0.075 **	230	0.739	230	0.804	-0.065
Community has mixed committee to mediate conflicts	220	0.305	222	0.221	0.084	230	0.087	230	0.104	-0.017
Community Cohesion										
Community decisions include people like me	220	0.291	222	0.329	-0.038	230	0.809	230	0.839	-0.030
Comfortable with family marrying other ethnic group	220	0.773	222	0.779	-0.007	230	0.222	230	0.222	0.000
Most members of other group contribute towards community goals	220	0.632	222	0.608	0.024	230	0.278	230	0.426	-0.148
Had positive social interactions with other group in past month	220	0.705	222	0.739	-0.034	230	0.535	230	0.635	-0.100 **
Land Disputes and Dispute Resolution										
Dispute resolution is 'Usually' or 'Always' peaceful	220	0.759	222	0.658	0.101 *	230	0.552	230	0.661	-0.109

Outcome or Covariate	Fulbe Settlements					Non-Fulbe				
	Treatment		Control		Diff.	Treatment		Control		Diff.
	N	Mean	N	Mean		N	Mean	N	Mean	
Community fairly manages shared natural resources	220	0.341	222	0.374	-0.033	230	0.696	230	0.709	-0.013
Knows where to go if they have a dispute	220	0.768	222	0.829	-0.061	230	0.957	230	0.965	-0.009
Not involved in dispute during the past season	220	0.777	222	0.761	0.016	230	0.63	230	0.652	-0.022
Satisfied with last dispute resolution (only asked to respondents with disputes last rainy season)	43	0.558	49	0.531	0.028	85	0.576	78	0.538	0.038
Tenure Security										
Not worried about losing land rights in next 3 years	220	0.414	222	0.41	0.004	230	0.939	230	0.939	0.000
Unlikely your crops are destroyed without compensation in next 3 years (only asked to respondents in households with any farming activities)	214	0.584	216	0.514	0.070	230	0.557	229	0.559	-0.002
Security and Stability										
Report no violence in community during past rainy season	220	0.841	222	0.788	0.053	230	0.974	230	0.991	-0.017
Did not need to avoid parts of community due to insecurity in past month	220	0.818	222	0.878	-0.060	230	0.93	230	0.957	-0.026
Women's Module Respondents										
Age Group=18-29	163	0.491	170	0.471	0.020	181	0.37	194	0.34	0.030
Age Group=30-44	163	0.368	170	0.406	-0.038	181	0.453	194	0.392	0.061
Age Group=45-59	163	0.117	170	0.1	0.017	181	0.138	194	0.201	-0.063
Age Group=60+	163	0.025	170	0.024	0.001	181	0.039	194	0.067	-0.028
Education=No education - Illiterate	163	0.908	170	0.929	-0.021	181	0.575	194	0.67	-0.096
Education=Non-formal education - Illiterate	163	0.006	170	0.012	-0.006	181	0	194	0	0.000
Education=No education - Literate	163	0.043	170	0.035	0.008	181	0.022	194	0.015	0.007
Education=Non-formal education - Literate	163	0.006	170	0.006	0.000	181	0	194	0	0.000
Education=Any formal education	163	0.037	170	0.018	0.019	181	0.403	194	0.314	0.089
Born in this district	162	0.185	170	0.165	0.020	181	0.917	194	0.923	-0.006
Not born in this district - moved before 2015	162	0.346	170	0.376	-0.031	181	0.039	194	0.041	-0.003

Outcome or Covariate	Fulbe Settlements					Non-Fulbe				
	Treatment		Control		Diff.	Treatment		Control		Diff.
	N	Mean	N	Mean		N	Mean	N	Mean	
Not born in this district - moved since 2015	162	0.469	170	0.459	0.010	181	0.044	194	0.036	0.008
Woman participates in a VSLA	163	0.067	170	0.035	0.032	181	0.691	194	0.722	-0.031
Woman participates in a mixed VSLA	163	0.049	170	0.012	0.037	181	0.022	194	0.005	0.017
Respondent aware of community dialogue with Fulbe this year	163	0.454	170	0.324	0.130	181	0.293	194	0.304	-0.011
Respondent participated in community dialogue with Fulbe this year	163	0.129	170	0.047	0.082 *	181	0.033	194	0.036	-0.003
Community has committee to mediate conflicts	163	0.755	170	0.676	0.078	181	0.591	194	0.67	-0.079
Community has mixed committee to mediate conflicts	163	0.307	170	0.247	0.060	181	0.066	194	0.031	0.035
Community decisions include people like me	163	0.135	170	0.094	0.041	181	0.785	194	0.84	-0.056
Comfortable with family marrying other ethnic group	163	0.73	170	0.718	0.012	181	0.177	194	0.119	0.058
Reports positive interactions with other group at borehole in past week	163	0.656	170	0.618	0.039	181	0.47	194	0.577	-0.108 **
Had positive social interactions with other group in past month	163	0.564	170	0.576	-0.012	181	0.503	194	0.582	-0.080 *
Not worried about losing land rights in next 3 years	163	0.313	170	0.388	-0.075	181	0.928	194	0.959	-0.031
Unlikely your crops are destroyed without compensation in next 3 years	161	0.522	167	0.497	0.025	181	0.586	193	0.637	-0.052
No HH members threatened or received physical violence during past rainy season	163	0.865	170	0.876	-0.011	181	0.912	194	0.923	-0.011
Community Leaders										
Sex=Male	23	1	23	1	0.000	23	1	23	1.043	-0.043
Age (years)	22	52.636	23	49.478	3.158	23	47.739	23	50	-2.261
Leadership role=Assemblyman/woman	23	0	23	0	0.000	23	0.13	23	0.043	0.087
Leadership role=Unit Committee Chair	23	0	23	0	0.000	23	0.435	23	0.435	0.000
Leadership role=Community Chief	23	0	23	0	0.000	23	0.261	23	0.435	-0.174
Leadership role=Fulbe chief	23	0.957	23	0.913	0.043	23	0	23	0	0.000
Leadership role=Unit Committee Member	23	0	23	0	0.000	23	0.13	23	0	0.130 *
Leadership role=Other	23	0.043	23	0.087	-0.043	23	0.043	23	0.087	-0.043

*** p < 0.01, ** p < 0.05, * p < 0.1. Statistical significance test of the difference accounts for clustered standard errors at the matched community pair level.