

**EQUITABLE FIRE MANAGEMENT IN NORTHERN GHANA: CO-DEVELOPING AN
ADAPTABLE FRAMEWORK WITH LOCAL COMMUNITIES**

OCTOBER 16-17TH 2024 CATHOLIC CONFERENCE ROOM, DAMONGO

WORKSHOP REPORT



LEVERHULME
Centre for Wildfires,
Environment and Society



Prepared by

Rahina S. Alare and Godwin E. Dzekoto

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1.0 Background

In recent years, the prevalence of wildfires has become a major concern for societies across the globe. Research shows that climate change is poised to increase the frequency of wildfire risk, particularly in areas where fuel remains abundant. While actions towards managing wildfires in West African savannah landscapes have focused on fire suppression policies and restoration projects, the extensive burning of landscapes highlights a discrepancy between fire policies and burning practices. This has resulted in biodiversity loss, land degradation, and detrimental impacts on local livelihoods.

Therefore, the project aims to bridge this gap by integrating traditional fire knowledge with Western knowledge, fostering culturally sensitive and holistic approaches to wildfire management. Considering the urgent need to mitigate escalating wildfire risk amidst climate change and to do so within the context of sustainable development, equity, and poverty eradication (IPCC, 2022), this project's intervention is timely. It aims to promote equitable and environmental sustainability in Northern Ghana savannah landscapes.

The project was designed to accelerate the impact of the existing research of a PhD student at King's College London, Rahina Sidiki Alare. Her research is focused on contested fire governance in Northern Ghana's savannah landscapes, aiming to understand the complexities of fire management in the region. This has shown that different ways of describing fire (e.g. wildfire, bushfire, traditional

burning) and various sources of data about fires (e.g. remote sensing, local knowledge) can lead to misunderstandings between stakeholders which can unfairly penalise traditional burning practices (by farmers, herders, hunters) in the name of national aims to reduce carbon emissions. Thus, the [Leverhulme Centre of Wildfires, Environment and Society at King's College London](#), collaborated with a Ghanaian civil society organisation, [A Rocha Ghana Northern Sector](#) to organise a workshop aimed to build upon and accelerate the impact of this research, by discussing these findings with stakeholders and exploring implications for potential policy changes and practice.

1.1 Introduction

A two-day participatory workshop was held at the Catholic Conference Room, Damongo in Ghana's Savannah Region to promote inclusive fire management in Northern Ghana. The workshop began on the 16th and ended on the 17th of October 2024. It brought together diverse participants from government institutions, NGOs, the private sector, traditional authorities and local communities including farmers, hunters and herders spread across the five regions of Northern Ghana (see list of participants in the appendix). The workshop facilitators were Rahina Sidiki Alare and Godwin Evenyo Dzekoto, with Daniel Kwaku Anetang and Gideon Akilu Adam as co-facilitators.

1.2 Workshop objectives

The workshop aimed to develop an adaptable framework centred on pathways necessary for equitable fire management in Northern Ghana,

particularly where fire-prone landscapes intersect with exclusionary land management systems. Specifically, the workshop achieved the following core objectives:

- To build a common understanding of the types of fire and associated management strategies in Northern Ghana's savannah landscapes.
- To establish the drivers of shifting fire regimes in Northern Ghana.
- To establish drivers that hinder or foster inclusive fire management at the local level and
- To establish criteria for evaluating inclusive fire governance in Northern Ghana's fire management strategy.

This report provides an overview of a two-day stakeholder workshop in Damongo in the Savannah region of Ghana (see Appendix for workshop agenda) and a summary of discussions.

2.0 Day one

2.1 Welcome and introduction to the workshop

Mr. Denis Osei, the Deputy Coordinating Director of the West Gonja Municipal Assembly, Savannah Region, welcomed participants to the workshop. In his opening remarks, he highlighted that bushfires significantly threatened food security and contributed to environmental degradation in Northern Ghana. He hoped the workshop would help resolve these pressing issues as Northern Ghana approaches the dry season, where burning becomes more common. Miss

Rahina Sidiki Alare, a PhD student at the Department of Geography, King's College London, provided the background information for the workshop. Miss Alare noted that the workshop aimed to explore innovative ways of promoting inclusive fire management in Northern Ghana since current fire management policies and practices tend to marginalise some fire users, which had the potential of escalating destructive fires in the region.

To promote team building and break down hierarchical barriers and stereotypes that may hinder the workshop's participatory nature, Miss Alare facilitated an introduction among participants. She then engaged them in an activity designed to help everyone recognise their similarities and diversities, emphasising that these diversities contribute to developing rich ideas and strengthening the group. Moreover, Miss Alare encouraged participants to be open-minded, respect other people's opinions and experiences, engage in active listening, collaborate and co-own the project, and engage and enjoy the workshop.

2.2 Pre-work-shop survey

The pre-survey took place just before the introduction to rich pictures. Questions were read and translated into the various local languages (Gonja, Hanga, and Fulbe). Participants who could not read or write were assisted by other participants who shared a common language. As such, most of the questions were quantitative to reduce the time required to complete them, but offered multiple opportunities for qualitative comments should the participants have time or wish to expand. To assist participants who did not have

formal education in quickly identifying and selecting responses, the Likert scale responses were integrated with emojis (see the pre-survey question in the appendix).

The questions focused on their expectation from the workshop, understanding of landscape fires, and the problems associated with current landscape fire management.

2.2.1 Key results

A word cloud of the workshop expectations revealed that participants were interested in ways of managing bushfires. Thus, words such as ‘learn’, ‘understand’, ‘prevent’, ‘manage’, and ‘fight’ were used to describe their interest (see figure 2.1). Some participants also focused on the detrimental impacts of bushfires and hoped that through this workshop, there could be opportunities for collaboration, training, and funding for bushfire sensitisation and management.



Figure 2.1: Word cloud of participants' expectations from the workshop

Regarding the various landscape fires in Northern Ghana, a larger number (85%) of participants reported clearly understanding these fires (Figure 2.2a).

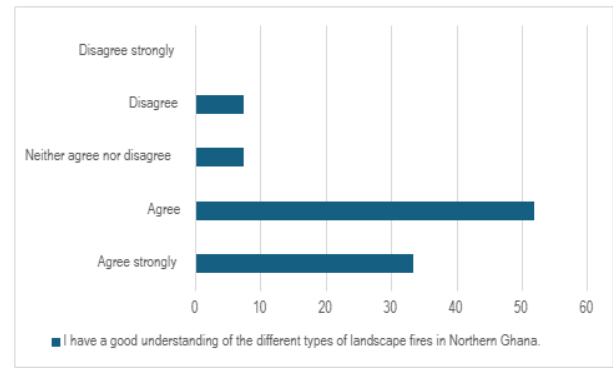


Figure 2.2a: Understanding of the different types of landscape fires in Northern Ghana

Additionally, more participants (85%) indicated they understood the benefits and costs of fires for various people in Northern Ghana (Figure 2.2b).

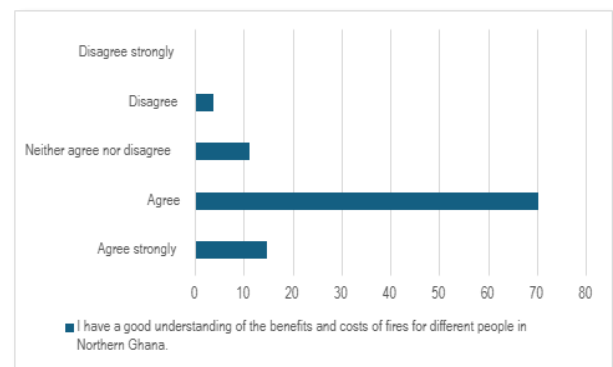


Figure 2.2b: Understanding the benefits and costs of fires for different people in Northern Ghana

While about 67% reported a clear understanding of the rules regarding fire management in Northern Ghana, 15% remained indifferent, and 22% did not understand the rules (see Figure 2.2c).

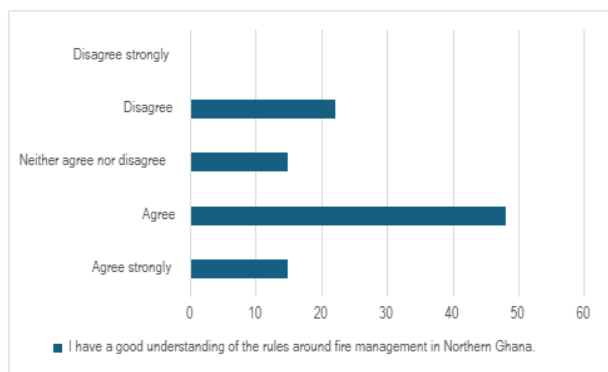


Figure 2.2c: Understanding of the rules around fire management in Northern Ghana

Participants also reported varied responses regarding the appropriateness of current landscape fire management for their needs. For instance, about 30% of participants agreed that current fire management was appropriate, 26% neither agreed nor disagreed, and 44% disagreed (Figure 2.2d).

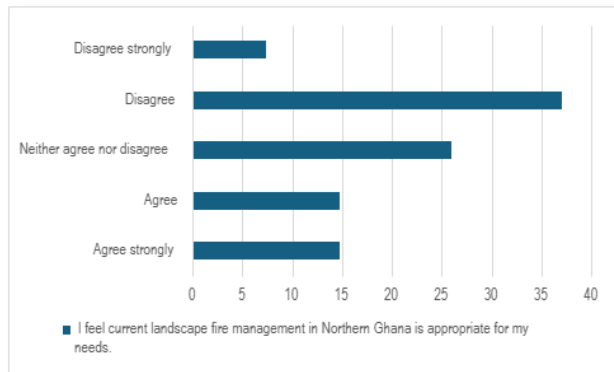


Figure 2.2d: Appropriateness of current landscape fire management in Northern Ghana to people's needs

Regarding the fairness of current landscape fire management in Northern Ghana for everyone's needs, 55% of the participants indicated they found it unfair, 19% were neutral, and 26% agreed it was fair.

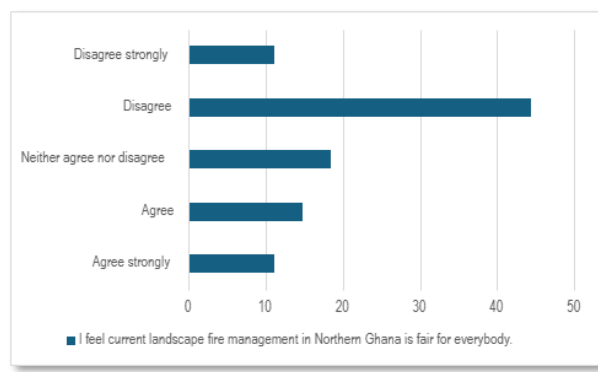


Figure 2.2e: Fairness in current landscape fire management to everyone's need in Northern Ghana

2.3 Introduction to Rich Pictures

Following the pre-workshop survey, Miss Alare gave an overview of rich pictures and how they can be used to build a common understanding of fire types in Northern Ghana. She highlighted that rich pictures are drawings of a shared system or situation, usually done in a group setting. Miss Alare also emphasised that one principle of using rich pictures requires flexibility and openness. Daniel Kweku Anetang, an international artist invited to the workshop to help develop the ideas drawn by participants into a professional mural painting also shared his work in Germany where the concept was used to create more awareness for the sustainable development goals.

To engage participants more practically, participants were asked to create a rich picture of what fire meant to them by grouping them based on similar perspectives of fire use and relationships. For example, hunters and herders were grouped because their livelihoods depended on fire use and were mostly practised in communal areas. Government institutions such as the Ghana National Fire Service (GNFS),

Municipal Assembly (MA), Regional Coordinating Council (RCC), National Disaster Management Organisation (NADMO), Mole National Park (MNP), and the Department of Agriculture (DoA), formed group 2 due to their institutional interest in environmental conservation. In group 3, representatives from academia, including C. K. Tedam University of Technology and Applied Science (CKT-UTAS), and University for Development Studies (UDS), along with NGOs like World Vision, and private entities such as Savannah Fruit Company (SFC) and Charcoal Buyers Association (CBA) were included. Finally, traditional authorities and local communities, mainly farmers involved in community resource and management areas (CREMA) were placed in group 4.

Group 1, comprised of herders and hunters, began their presentation by describing fires in three colours. The grey colour depicts the start of the fire. The yellow colour represents intense fire, which can be destructive or beneficial depending on the purpose and extent of the burned area. The colour black describes the colour of the post-fire. Additionally, they had images to explain the benefits of fire. For instance, they had a drawing describing the use of fire to warm the cattle during the cold dry season, to guard cattle at night in the bushes and for cooking. The hunters also had a drawing of setting fires in the bushes to drive out small ruminants for hunting (see Figure 2.3a).



Figure 2.3a: Group 1 presenting what fire meant to them

Feedback from the plenary focused on discouraging hunters and herders from burning. For example, some participants noted that the herders did not indicate that they burn to regenerate grasses for their cattle. In response, the herder emphasised that, in the 21st Century, when rains are becoming erratic, burning no longer regenerates grass because there isn't enough soil moisture to enhance that. Some participants maintained that herders were still burning, and they often practised early burning¹. To buttress the claims that herders were still burning, one participant cited an example where they saw a herder burning in the community and when he was questioned about the reason for burning, the herder noted that thick bushes hinder the cattle from moving freely and obscures his view. Therefore, he cannot see anyone who wants to attack him.

¹ Early burning is a form of landscape burning done when the grasses are not sufficiently dried to prevent the spread of fires.

Group 2 involved government institutions. Their rich picture highlighted that fire could be a good servant and a bad master. They had paintings of vegetation, animals and earthworms depicting a biodiverse savannah. However, burning the landscape destroyed all the vegetation, animals and earthworms leaving the landscape bare (see Figure 2.3b).

Feedback from the plenary focused on how to extinguish fire without a fire extinguisher. GNFS personnel emphasised the importance of calling GNFS first before attempting any other fire extinguishing methods. This is especially critical for fires in homes, as not all fires can be extinguished with water.



Figure 2.3b: Group 2 explaining their rich picture of what fire meant to them

Group 3 consisted of participants from academia, the private sector and NGOs. Their rich picture presentation of fires included two drawings—the first depicted fire used for cooking in thatched houses surrounded by trees on a warm sunny day. The second drawing illustrated large fires occurring in bushes, spreading towards

farms, plantations and homes. In this picture, there was also a drawing of a water truck approaching the fire, driven by the Ghana National Fires Service to extinguish it.



Figure 2.3c: Group 3 presenting their drawings

Group 4 comprised of traditional authorities and farmers demonstrated that fires can be destructive and beneficial. Their presentation illustrated maize farms that used fire belts to prevent fires from destroying their crops. Additionally, they included images of fire being used for cooking and burning weeds collected from their farms. They also included a drawing of arson fires near homes and farms, emphasising that not clearing weeds from farms, can allow the enemy to destroy one's crops (Figure 2.3d).



Figure 2.3d: Group 4 presenting their rich picture

Discussion on group 4's rich picture highlighted why institutions encouraged agrochemicals on farms while discouraging traditional burning practices. Representatives from the Department of Agriculture (DoA) mentioned that they are now encouraging farmers to adopt conservation agriculture, which does not rely on these chemicals. Ideally, if farmers used agrochemicals according to the recommended measurements, many of the associated problems could be avoided. However, these chemicals are often misapplied. Additionally, most agrochemical sellers start their businesses without obtaining the necessary licensure from the Environmental Protection Agency (EPA). One requirement for operating this type of business is literacy, but many individuals selling agrochemicals do not have formal education.

2.4 Drivers of Shifting Fire Regimes in Northern Ghana

Miss Alare presented aspects of her unpublished PhD work on shifting fire

regimes in Northern Ghana's savanna landscapes over the last 22 years (2000-2022) using remote sensing. Her presentation focused on active fires (AF) and burned areas (BA). She explained that monitoring active fires in remote sensing involved real-time observation of fire by analysing the thermal contrast between burned areas and the background (i.e., a background could be vegetation). In contrast, BAs are assessed through a post-fire analysis, which examines the changes in the spectral signatures of fire-affected vegetation and soil in parts of the electromagnetic spectrum. Preliminary findings using two different satellite sensors: Moderate Resolution Imaging Spectroradiometer (MODIS, MCD64A1, 500 m spatial resolution) and Landsat 8 (30 m resolution) surface reflectance showed different burned area trends for Northern Ghana. While the MODIS burned area showed a decreasing trend, Landsat burned area showed an increasing trend. However, both trends were not statistically significant ($p \geq 0.05$).

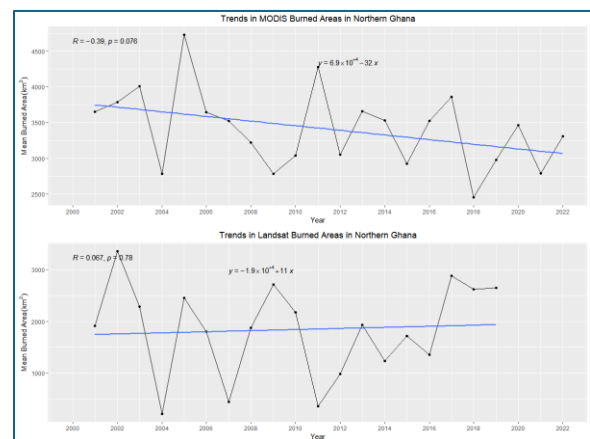


Figure 2.4a: Spatio-temporal trends of MODIS and Landsat burned area for Northern Ghana between 2001 and 2022

Similarly, MODIS active fires (MOD14A1 V6, 1 km spatial resolution) decreased in Northern Ghana, but the trend was statistically not significant ($p \geq 0.5$).

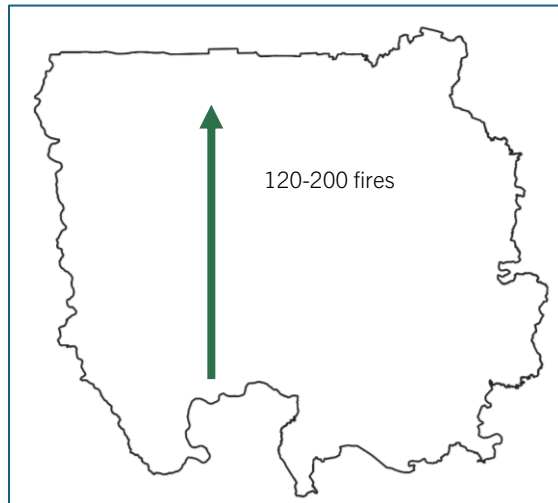
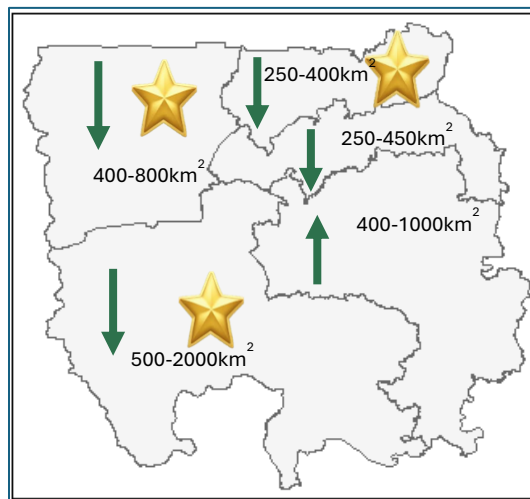


Figure 2.4b: Spatio-temporal trends of MODIS active fires for Northern Ghana between 2001-2022

Additionally, the trends in burned areas from Landsat and MODIS and MODIS active fires in Northern Ghana varied by region, with some areas showing significant trends ($p \leq 0.05$)² while others did not.



² Yellow stars represent regions with significant trends

Figure 2.4c: Region-specific trends of MODIS burned area for Northern Ghana

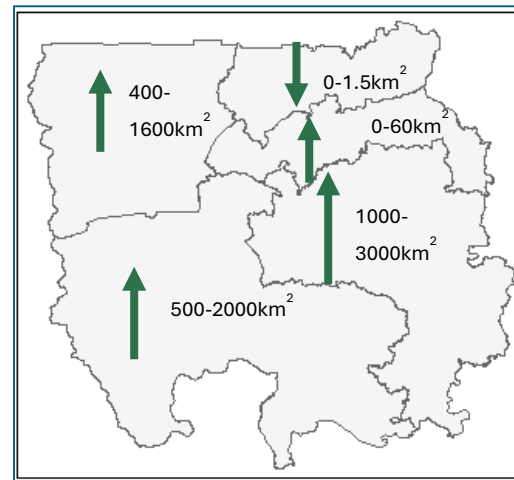


Figure 2.4d: Region-specific trends for Landsat burned area for Northern Ghana

Following the presentation was a discussion to understand the drivers contributing to the observed trends. For declining MODIS burned area trends in Northern Ghana, participants attributed the observed trends to intensified public education, flagship government projects such as planting for food and agriculture, alternative methods of clearing farmlands such as the use of tractors and agrochemicals, decline in rain and fuel load for burning, and the establishment of fire post in Metropolitan, Municipal and District Assemblies in all regions of Ghana.

Regarding region-specific MODIS burned area trends, participants attributed the increasing trend in the Northern Region to less population density, hunting activities and the lack of Community Resource Management Areas (CREMA) in the region. The absence of hunting activities in the Upper West Region was attributed to the

observed declining MODIS burned area trend. Additionally, the presence of CREMA communities in the Savannah, Upper East, Upper West and North-East Regions were perceived to have contributed to the declining burned area trends in these Regions, as the implementation comes along with fire sensitisations and introduction to alternative livelihoods that discouraged burning. Specifically, the decreasing trends in the burned area observed in both MODIS and Landsat satellite data for the Upper East Region were attributed to the area's geological characteristics and increased built-up areas. The land is rockier and has fewer farmlands, which limits the growth of grass that could serve as fuel for burning. Additionally, some of the grasses that grow in the region are used for feeding livestock and making local products such as weaved baskets, hats and mats, resulting in a lower fuel load for burning than other regions. Moreover, the region does not have enough trees for charcoal burning.

Participants linked the small fires (in terms of burned area extent) in other areas to heightened hunting activities, charcoal production, and setting fires for farmland clearance. Additionally, the impacts of climate change in Northern Ghana, manifesting as increasing temperatures, are drying up vegetation, leaving less vegetation for burning, particularly for charcoal production. However, the term 'small fires' had different interpretations among participants. For some, while fire may start small, its intensity and potential for spreading could be destructive. Thus, participants proposed that small fires should be discouraged.

3.0 Day 2

3.1 Drivers that hinder or foster inclusive fire management in Northern Ghana

The workshop began with Miss Alare recapping the previous day's activities. Mr. Dzekoto introduced participants to inclusive fire management through a brainstorming exercise. To set the scene for the group exercise on the drivers that hinder or foster inclusive fire management in Northern Ghana, participants were asked the following questions:

- Who USES fire most in our communities?
- Who is CONSULTED when making decisions about fire?
- Who MAKES the final decision related to fires in our communities?
- Who is the most AFFECTED by decisions around fire?

Following these questions, participants worked in groups to discuss the drivers that hinder and foster inclusive fire management. For barriers that hindered inclusive fire management, Group 1 emphasised the following:

1. Insufficient information on fire management techniques.
2. Slow responsiveness from fire management officials.
3. Individuals are not held accountable for starting fires.
4. There are multiple institutional roles, and there is a lack of understanding regarding these roles.

5. Top-down approach in managing fires
6. Different timing of cultural rites also affects fire management.
7. Mistrust among stakeholders.

Drivers that foster inclusive fire management

1. Good community leadership.
2. Implementation of by-laws.
3. Formation of fire management and network.
4. Building trust among stakeholders.
5. Education and training of stakeholders
6. Funding and support.

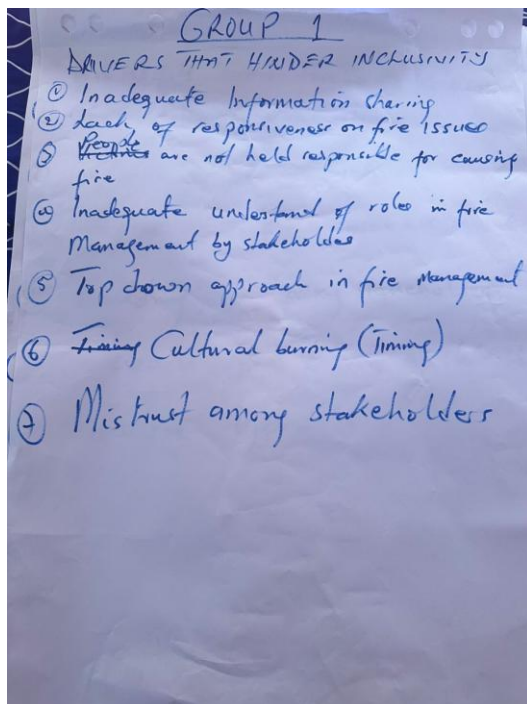


Figure 3.1a: Factors hindering inclusive fire management for Group 1

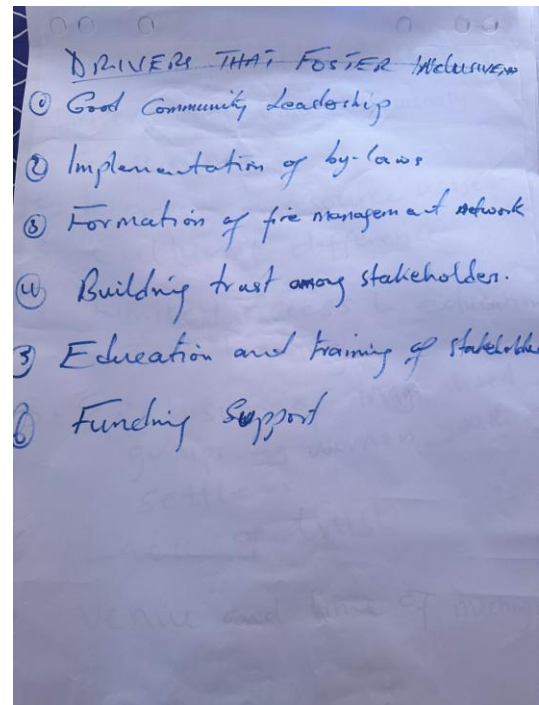


Figure 3.1b: Drivers fostering inclusive fire management for Group 1

Group 2

Drivers that hinder inclusive fire management

1. Supremacy or superiority: when people feel they are superior to others, it becomes difficult for others to collectively participate in the proposed activity.
2. Diverse interest in resource usage: communities have varied interests in fire use, promoting complexity in fire management. For instance, while fire can assist a hunter in capturing game, the hunter might be reluctant to engage in fire management choices, as these decisions typically do not favour them.
3. Cultural difference: communities are not homogenous groups; they often have varied cultural practices.

This makes it difficult to decide whose cultural norms or practices should be considered for fire management.

4. Limited access to education and fire knowledge, limits people's participation in decision-making.
5. Exclusion of marginalised groups. Organising programmes and involving certain groups of people (disabled groups, women and settlers) in Northern Ghana can be challenging. In cases where women attend such programmes, they sit far away from the bench because of patriarchal and cultural norms. Most often they have good ideas, but because of existing cultural norms, they feel they are not supposed to contribute.
6. Lack of trust: Growing and long-standing conflicts in communities in Northern Ghana have led to people's lack of trust. Therefore, involving all stakeholders in some communities in fire management decision-making is challenging.
7. Venues and timings for fire-related programmes on decision-making. This may become a hindrance when local communities must travel long distances to participate in such programmes or when it coincides with days of worship (e.g., Fridays or Sundays).

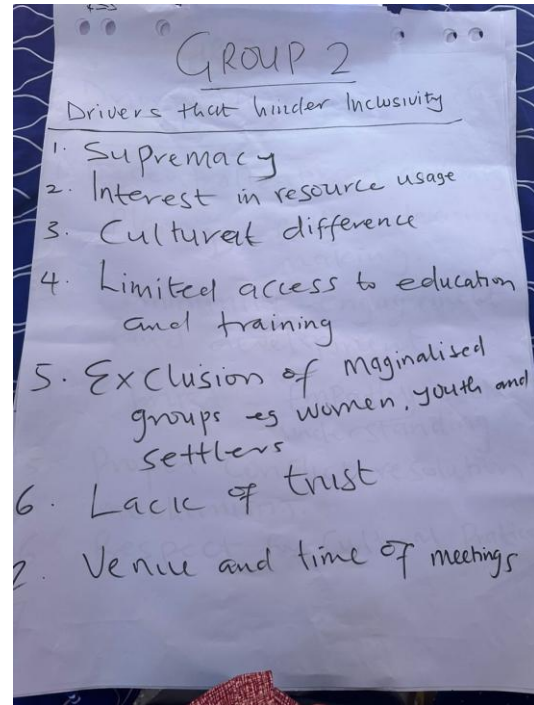


Figure 3.1c: Group 2's discussion on drivers hindering inclusivity

Drivers that foster inclusive fire management

1. Decentralisation of fire governance can promote inclusive fire management.
2. Good planning can help identify potential stakeholders for decision-making.
3. Community engagement and development. Effective engagement identifies community priorities and enhances participation in decision-making.
4. Trust and transparency. This promotes open discussion of ideas for decision-making.
5. Empathy. Understanding and empathising with communities affected by bushfires fosters trust and encourages their involvement in decision-making.

6. Proper conflict resolution mechanism. Effective conflict resolution fosters trust and enhances influence, creating inclusiveness in fire management.
7. Respect for the cultural practices of local communities.

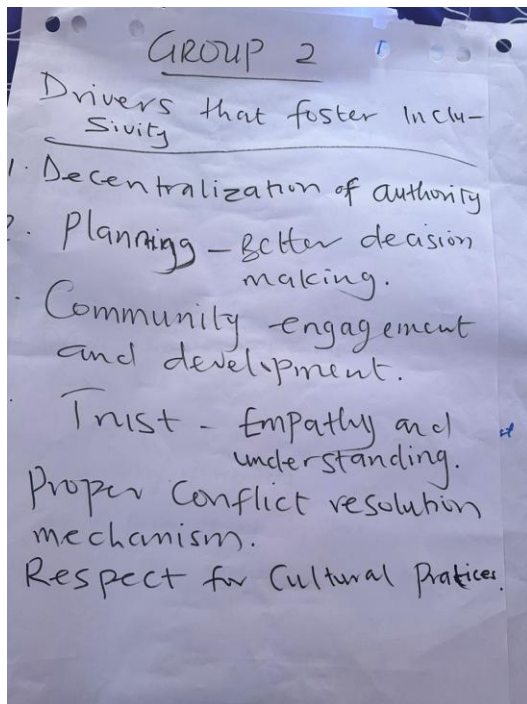


Figure 3.1d: Group 2's drivers that foster inclusivity

Group 3

Drivers that hinder inclusive fire management

1. Lack of education about the impacts of bushfires persists. Despite some awareness efforts, many communities remain unreachable for sensitisation.
2. Lack of understanding of tasks related to bushfire management.
3. Diverse interest in using fire for livelihoods, with limited opportunities for alternative livelihoods.

4. The impact of bushfires spreads beyond the initial community to others. Therefore, the insufficient translation of bushfire sensitisation into various languages hinders inclusive fire management.
5. Social marginalisation and stereotypes prevent inclusivity.
6. Low involvement of women and children in fire management.

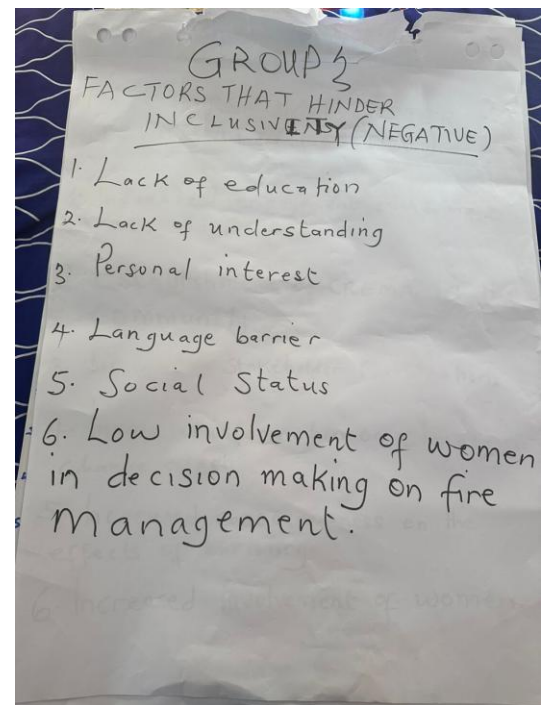


Figure 3.1e: Group 3's discussions on factors that hinder inclusivity

Factors that foster inclusive fire management

1. Increase engagement platforms by NGOs and researchers at various levels.
2. Establishing CREMA in communities promotes inclusive fire management.

3. Increase stakeholder consultation and consider various social groups in fire management discussions.
4. Increase climate change information in the community.
5. Increased consciousness of the effects of burning.
6. Increased involvement of women and children in bushfire management.

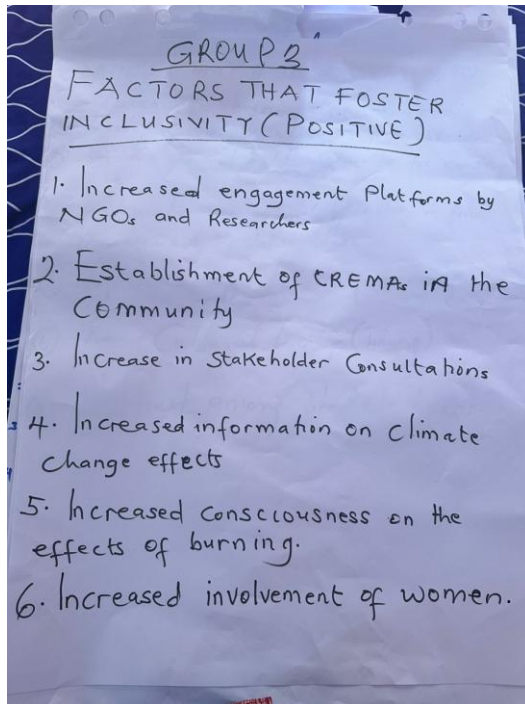


Figure 3.1f: Group 3's presentation of the drivers that foster inclusivity

Group 4

Factors that hinder inclusive fire management

1. Diverse actors with different fire use (e.g., hunters, herders, charcoal burning)
2. Different cultural and traditional beliefs.
3. Different farming practices (e.g., some will use fire to prepare their

land and raise yam mounds, while others will prefer to weed, collect the grass and burn).

4. Gender barriers, status, equity and discrimination. Prevailing stereotypes and marginalisation prevent inclusive fire management.
5. Low integrity and weak leadership structures. This includes opinion leaders, chiefs, and institutions who have very little respect for community members.

Drivers that foster inclusive fire management

1. Public sensitisation and education. When people are informed, they understand what actions to take and the reasons behind them.
2. Policy, bylaws and guidelines development for streamlining and promoting fire management activities.
3. Unity of purpose and shared interest. Coming together and identifying ourselves as one people with a common goal promotes inclusivity.
4. Accessibility of resources for fire management.
5. Enforcement of guidelines on fire management.

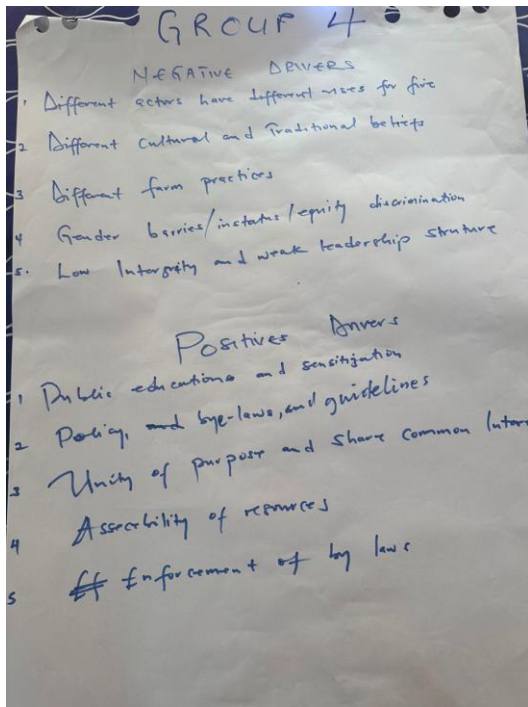


Figure 3.1g: Group 4's presentation of drivers that hinder and foster inclusivity

3.2 Establishing an inclusive network of researchers and stakeholders

Participants established an inclusive network of researchers and practitioners, including the state, NGOs, the private sector, traditional authorities and local communities to support and promote equitable fire governance across Northern Ghana. To facilitate ongoing discussions and share ideas related to fire management, participants established a WhatsApp group for communication and outlined potential activities to be implemented. The proposed activities included holding an annual workshop to discuss changes in fire regimes, intensifying bushfire sensitisation programmes at all levels across Northern

Ghana, and engaging Fulbe tribes as fire volunteers, among other initiatives (see in the word cloud).



Figure 3.2: Word cloud of proposed activities by the network of researchers and stakeholders

3.3 Post-workshop survey

This followed the same format as the pre-workshop survey, with some questions unaltered from the pre-survey and others modified to assess whether the workshop had improved understanding of landscape fire management in Northern Ghana. 31 participants completed this survey.

3.3.1 Key results

When asked whether the workshop had met participants' expectations, all (100%) participants affirmed that it had (see Figure 3.3a).



Figure 3.3a: Percentage of responses regarding whether workshop expectations were met

Concerning logistics, 87% of the participants were very satisfied while 13% were somewhat satisfied.



Figure 3.3b: Percentage of response for the level of satisfaction with workshop logistics

74% of participants strongly agreed that the workshop improved their understanding of the various types of landscape fires in Northern Ghana, while 26% agreed (Figure 3.3c). This demonstrates a shift from disagreeing (7%), neither agreeing nor disagreeing (7%), agreeing (53%), and strongly agreeing (33%) in the pre-survey (see Figure 2.2a) to more participants becoming satisfied with the workshop

enhancing their understanding of the different types of landscape fires in Northern Ghana.

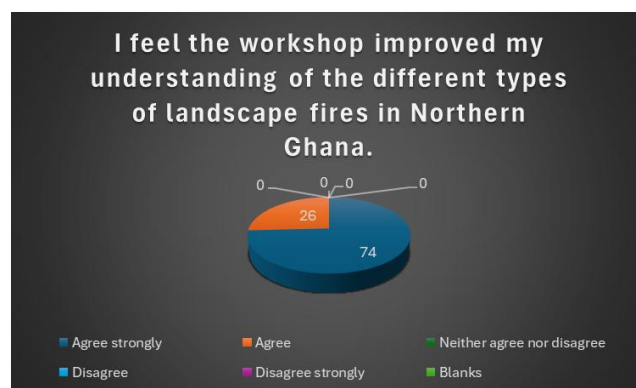


Figure 3.3c: Workshop's improvement in participants' understanding of the different types of landscape fires in Northern Ghana

Additionally, most participants strongly agreed (65%), and 35% stated that they understood the benefits and costs of fire for different people in Northern Ghana (Figure 3.3d). There was also an observed shift from responses in the pre-survey (Figure 2.2b), where 4% disagreed, 11% neither agreed nor disagreed, and 70% agreed that they understood the benefits and costs of fires for different people in Northern Ghana.

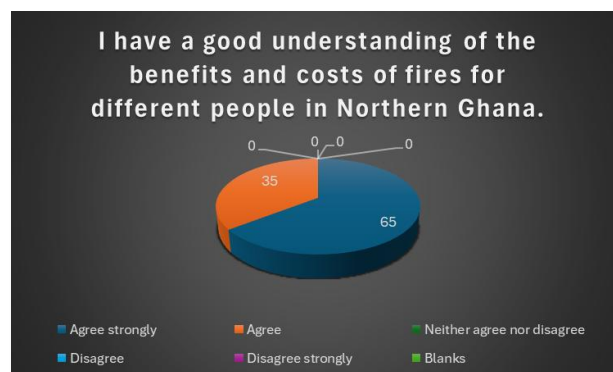


Figure 3.3d: Percentage of responses regarding the workshop's contribution to enhancing understanding of the benefits and costs of fires for different people in Northern Ghana

Regarding the understanding of fire management rules in Northern Ghana, 45% of participants agreed they understood these rules well, 42% strongly agreed, and 13% remained neutral about their understanding (see Figure 3.3f). In the pre-survey data (Figure 2.2c), 15% of the participants strongly agreed they understood the rules well, 48% agreed, 15% neither agreed nor disagreed, and 22% disagreed regarding their understanding. While not everyone agreed, the workshop fostered positive changes in understanding fire management rules. Additionally, the varied responses can be linked to the fact that fire regulations differ among communities in Northern Ghana due to their multi-ethnic nature and different cultural practices regarding fire use.

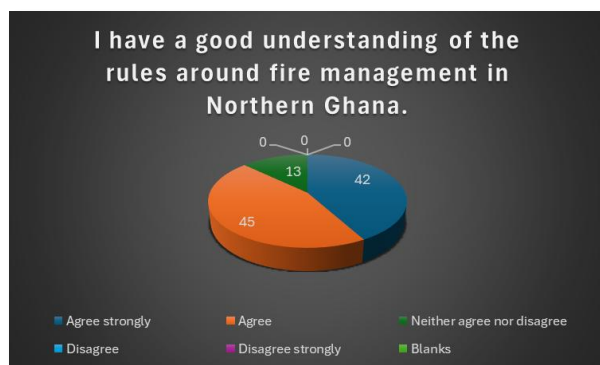


Figure 3.3f: Percentage of responses regarding having a good understanding of rules around fire management in Northern Ghana

Moreover, concerning the appropriateness of current landscape fire

management for participants' needs, 19% strongly agreed it was appropriate, 42% agreed, 26% were neutral, and 13% disagreed (Figure 3.3g).



Figure 3.3g: Percentage of responses regarding the appropriateness of current landscape fire management in Northern Ghana for participants' needs.

Responses varied regarding the fairness of current fire management in Northern Ghana. Specifically, 26% strongly agreed, 10% agreed, 32% neither agreed nor disagreed, 26% disagreed and 26% strongly disagreed. This highlights the differing interests and perceptions surrounding fire use and management in the region. Notably, post-survey data showed a decrease in the percentages of those who strongly disagreed and disagreed, accompanied by an increase in those neither agreeing nor disagreeing and those strongly agreeing compared to the pre-survey data. Conversely, in the pre-workshop survey (Figure 2.2d), 15% strongly agreed, 15% agreed, 26% neither agreed nor disagreed, 37% disagreed, and 7% strongly disagreed that current landscape fire management in Northern Ghana was appropriate for their needs.

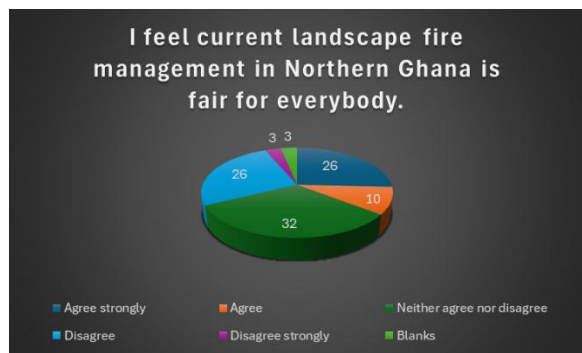


Figure 3.3h: Percentage of responses regarding the feeling that current landscape fire management in Northern Ghana is fair for everyone

Although qualitative data is lacking to justify these changes, presentations on the various fire types and conversations about the factors that promote or impede inclusive fire management may have impacted these shifts. Moreover, some participants responded to only one of the surveys, constraining inferential analysis of which institution changed their perspectives.

3.4 Way forward/closing remarks

The rich fire pictures drawn by participants were collated and modified into mural poster paintings of what fire meant to all stakeholders. Specifically, Daniel presented a painting of the ‘bad fires’ discussed by participants (Figure 3.4). The ‘good fires’ would be developed later, integrated with the ‘bad’ ones, then expanded into a mural billboard and mounted in Damongo in February 2025.

Godwin and Rahina will explore opportunities to influence equitable fire

management strategies within the West Gonja medium-term development framework. Additionally, a policy brief will be developed to influence policies at various levels.



Figure 3.4: Rahina and Daniel presenting the painting of 'bad fires' to participants

Acknowledgement

The workshop was funded by an Arts and Humanities Research Council (AHRC) Impact Accelerator Award from King's College London, and the Leverhulme Centre for Wildfires, Environment and Society.

Appendix

Workshop Agenda

Day one 16 th October 2024			
Time	Objective	Activity	Facilitators
8:00-9:00 am	Arrival +Registration+ Teas	Registration	Team from A Rocha
Morning session			
9:00-9:30 am	Welcome and introduction	Introduction through team building exercise + housekeeping rules	RCC and Rahina
9:30-10:00 am	Building a common	Introduction to rich picture.	Rahina and Daniel
10:00-12:00	understanding of the fire types and the associated management strategies.	Group artwork	Daniel & co-facilitators
12:00-13:00		Feedback presentation	
Lunch			
13:00-14:00	Lunch & refreshments		
Afternoon session			
14:00-14:30	Drivers of Shifting Fire Regimes in Northern Ghana	Presentation	Rahina & co-facilitator
14:30-15:30		Group exercise and feedback	
15: 30-16:00	Workshop ends	Reflections and evaluation of day one	Godwin & Rahina
16:00	End of workshop		

CO-DEVELOPING EQUITABLE FIRE MANAGEMENT IN NORTHERN GHANA

Pre-workshop survey

Name:

Institution:

1. What are your expectations from this workshop?

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2. Please circle how much you agree or disagree with the following statements:

a. I have a good understanding of the different types of landscape fires in Northern Ghana.

Agree strongly 😊	Agree 😄	Neither agree nor disagree 😐	Disagree 😞	Disagree strongly 😞
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b. I have a good understanding of the benefits and costs of fires for different people in Northern Ghana.

Agree strongly 😊	Agree 😄	Neither agree nor disagree 😐	Disagree 😞	Disagree strongly 😞
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c. I have a good understanding of the rules around fire management in Northern Ghana.

Agree strongly 😊	Agree 😄	Neither agree nor disagree 😐	Disagree 😞	Disagree strongly 😞
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d. I feel current landscape fire management in Northern Ghana is appropriate for my needs.

Agree strongly 😊	Agree 😄	Neither agree nor disagree 😐	Disagree 😞	Disagree strongly 😞
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e. I feel current landscape fire management in Northern Ghana is fair for everybody.

Agree strongly 	Agree 	Neither agree nor disagree 	Disagree 	Disagree strongly 
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3. What are your main concerns about landscape fire use in Northern Ghana?

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CO-DEVELOPING EQUITABLE FIRE MANAGEMENT IN NORTHERN GHANA

Post-workshop survey

Name:

Institution:

4. How satisfied are you that the workshop met your expectations?

Very satisfied 	Somewhat satisfied 	Neither satisfied nor dissatisfied 	Dissatisfied 	Very dissatisfied 
Any comments?				

5. How satisfied were you with the logistics (food, accommodation, information) of this workshop?

Very satisfied 	Somewhat satisfied 	Neither satisfied nor dissatisfied 	Dissatisfied 	Very dissatisfied 
Any comments?				

6. Please circle how much you agree or disagree with the following statements:

f. I feel the workshop improved my understanding of the different types of landscape fires in Northern Ghana.

Agree strongly 	Agree 	Neither agree nor disagree 	Disagree 	Disagree strongly 
Any comments?				

g. I have a good understanding of the benefits and costs of fires for different people in Northern Ghana.

Agree strongly 	Agree 	Neither agree nor disagree 	Disagree 	Disagree strongly 
Any comments?				

h. I have a good understanding of the rules around fire management in Northern Ghana.

Agree strongly 	Agree 	Neither agree nor disagree 	Disagree 	Disagree strongly 
Any comments				

i. I feel current landscape fire management in Northern Ghana is appropriate for my needs.

Agree strongly 	Agree 	Neither agree nor disagree 	Disagree 	Disagree strongly 
Any comments?				

j. I feel current landscape fire management in Northern Ghana is fair for everybody.

Agree strongly 	Agree 	Neither agree nor disagree 	Disagree 	Disagree strongly 
Any comments?				

7. Has the workshop revealed any additional concerns about landscape fire use in Northern Ghana?

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8. Would you be willing to participate in a network promoting equitable fire management in Northern Ghana?

a. Yes

b. No

9. Do you have any suggestions for follow-up activities to this workshop?

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List of participants

Day one

	Name	Institution/Groups	Location
1.	Jakpa Haruna	Hunter	Murugu
2.	DOIII Suonyir Kodi Alexis	Ghana National Fire Service	Upper West Region
3.	Sumaila Bukari	Fulani	Soro No 1
4.	Kofi Redeemer	Ghana Meteorological Agency	Bole
5.	Awudu Dramani	Catholic Herders Association	Tamale
6.	Sulemana Cosmos Mahama	Ghana National Fire Service	Tamale
7.	James Braimah	Chief	Damongo
8.	Mohammed Awal	Savannah Fruit Company	Tamale
9.	Mahama Abubakari	Murugu-Mognori CREMA secretary	Murugu-Mognori
10.	Braimah Afisa	Women Shea Cooperative	Yazori
11.	Festus Aaron Langkuu	SADEP	Tamale
12.	Adam Akilu Gideon	Media (Spear FM)	Damongo
13.	Braimah Memuna	Sunkpa Women Group	Murugu
14.	Iddi Obydu	Chief Representative	Kananto
15.	Mustapha S. Bawa	Charcoal Buyers Association	Damongo
16.	Loury Jimah	Environmental Protection Agency	Damongo
17.	ADOI Okumah Philip	Ghana National Fire Service	Damongo
18.	Denis Osei	West Gonja Municipal Assembly	Damongo
19.	Dr. Assah Mohammed	C.K.T University of Technology and Applied	Navrongo
20.	Attah Nyarko	CREMA	Murugu
21.	Lang Wari	Tindana (Earth Priest)	Murugu
22.	Alhaji Mohammed Amadu	Fulani (Herder)	Damongo
23.	Siita Hamidu	Fulani (Herder)	Damongo
24.	Abdulai Salifu	Fulani (Herder)	Damongo
25.	Haruna Sandow	Department of Agriculture	Damongo
26.	Bavug Adam	National Disaster Management Organisation	Damongo
27.	Desmond Harrison	World Vision	Damongo
28.	Alfred Kofi Bara	Mole National Park	Damongo
29.	Catejan Doneninger	Media	Damongo
30.	Bombowura Memunatu Gaddo	Savannah Region Queen Mother	Damongo

31.	Boyawura Iddrisu Salifu	Busunu Traditional Council	Busunu
32.	Zakaria Rashid	Gonja Traditional Council	Damongo
33.	Benjamin George	Media	Damongo
34.	George Nicodemus	Media	Damongo
35.	Daniel Kwaku Anetang	Artist	Tamale

Day 2

No	Name	Institutions/Groups	Location
1.	Kofi Redeemer	Ghana Meteorological Authority (GMET)	Bole
2.	Mahama Abubakari	Murugu-Mognori Crema	Mognori
3.	Wari Lange	Tindana	Murugu
4.	Attah Nyanko	Murugu-Mognori Crema	Murugu
5.	Mohammed Awal	Savannah Fruits Company (SFC)	Tamale
6.	Dr. Asaah Mohammed	CKT-UTAS	Navrongo
7.	Jakpa Haruna	Hunter	Murugu
8.	Braimah Memuna	Shea Women's Cooperative	Murugu
9.	Braimah Afisha	Shea Women's Cooperative	Yazori
10.	Iddi Obydu	Chief Representative	Kananto
11.	Seidu Mohammed	Chief Representative	Kananto
12.	Festus A. Langkuu	Environmental Specialist (SADEP)	Tamale
13.	DOIII Suonyir Kodi Alexis	Ghana National Fire Service (GNFS), Wa	Wa
14.	Haruna Sandow	Department Of Agriculture	Damongo
15.	ADOI Sulemana Cosmos Mahama	Ghana National Fire Service (GNFS), Tamale	Tamale
16.	ADOI Philip Okumah	Ghana National Fire Service (GNFS), Damongo	Damongo
17.	Dennis Osei	WGMA	Damongo
18.	Loury Jimah	EPA	Damongo
19.	Bombowuriche Memuna Yakubu	Queenmother	Damongo
20.	Ayuba Seidu	Ghana Shea Landscape Emission Reductions Project (GSLERP)	Tamale
21.	Braimah James	Ghana Wildlife Society	Damongo
22.	Sumaila Bukari	Herdsman	Sori 1
23.	Alhaji Mohammed Amadu	Herdsman	Damongo

24.	Bavug Adam	National Disaster Management Organization	Damongo
25.	Mustapha S. Bawa	Charcoal Buyers' Association	Damongo
26.	Dr. Esther Akua Amoako	University For Development Studies	Tamale
27.	Iddrisu Salifu Boyawura	Chief	Busunu
28.	Desmond Harrison A.	World Vision Ghana	Tamale
29.	Haruna Sidik	Gonja Traditional Council	Damongo
30.	Alfred Kofi Bawa	Mole National Park	Mole
31.	Adam Akilu Gideon	Facilitator	Damongo
32.	Cajetan Don-Ninge	Media (Spear FM)	Damongo
33.	Siita Hamidu	Herdsmen	Damongo
34.	Awudu Dramani	National Council Of Fulbe	Tamale
35.	Daniel Kwaku Anetang	Family Line Incorporated	Tamale
36.	Benjamin George	Media	Damongo
37.	Kumatey Gorden	Media (Pad FM)	Damongo