



8<sup>TH</sup>  
INTERNATIONAL  
WILDLAND FIRE  
CONFERENCE

GOVERNANCE  
PRINCIPLES:  
Towards an  
International  
Framework

# Scenarios for sustaining community-based wildland fire management structures in the savannah and transition zones of Ghana

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# Presentation Outline

- Background of the Study
- Problem Statement
- Aim and Objectives
- Methodology
- Findings
- Conclusions
- References

## Background of the Study

- Wildland fires remain a major challenge globally posing an increasing threat to ecosystems, communities and economies (Ghosh, 2021).
- In Ghana's savannah and transition zones, wildfires are recurrent and severe, with devastating effects on the country's forests, wildlife and human settlements.
- The devastating effects of wildland fires require a multifaceted approach to creating fire resilient landscapes.

# Background of the Study

In Ghana, community wildland fire management structures (Fire Volunteers), serve as the basic unit for creating fire resilient landscapes (Gyasi et al., 2021, Asante et al., 2020).



Fig. 1: Fire volunteer group in a meeting

# Problem Statement

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- For over three decades, establishment and incentivizing community fire management structures have relied heavily on external agency, leaving the structures ineffective without them.
- Sustaining community-based fire management structures is crucial to effective wildfire management (Gyasi et al., 2021).
- How to sustain community wildfire management structures is not well understood both in literature and in practice.

# Aim and Objectives

## **Aim**

To assess scenarios and conditions for sustaining community-based wildland fire management structures in the savannah and transition zones of Ghana.

## **Objectives**

1. To identify community perspectives on requirements for sustaining community fire management structures.
2. To assess scenarios for sustaining community fire volunteers in the savannah and transition zones of Ghana.
3. To examine conditions necessary for sustaining the community fire management structures.

# Methodology

## *Study Area*

The study covered three regions within the savannah and transition zones of Ghana:

- Bono
- Bono East
- Savannah

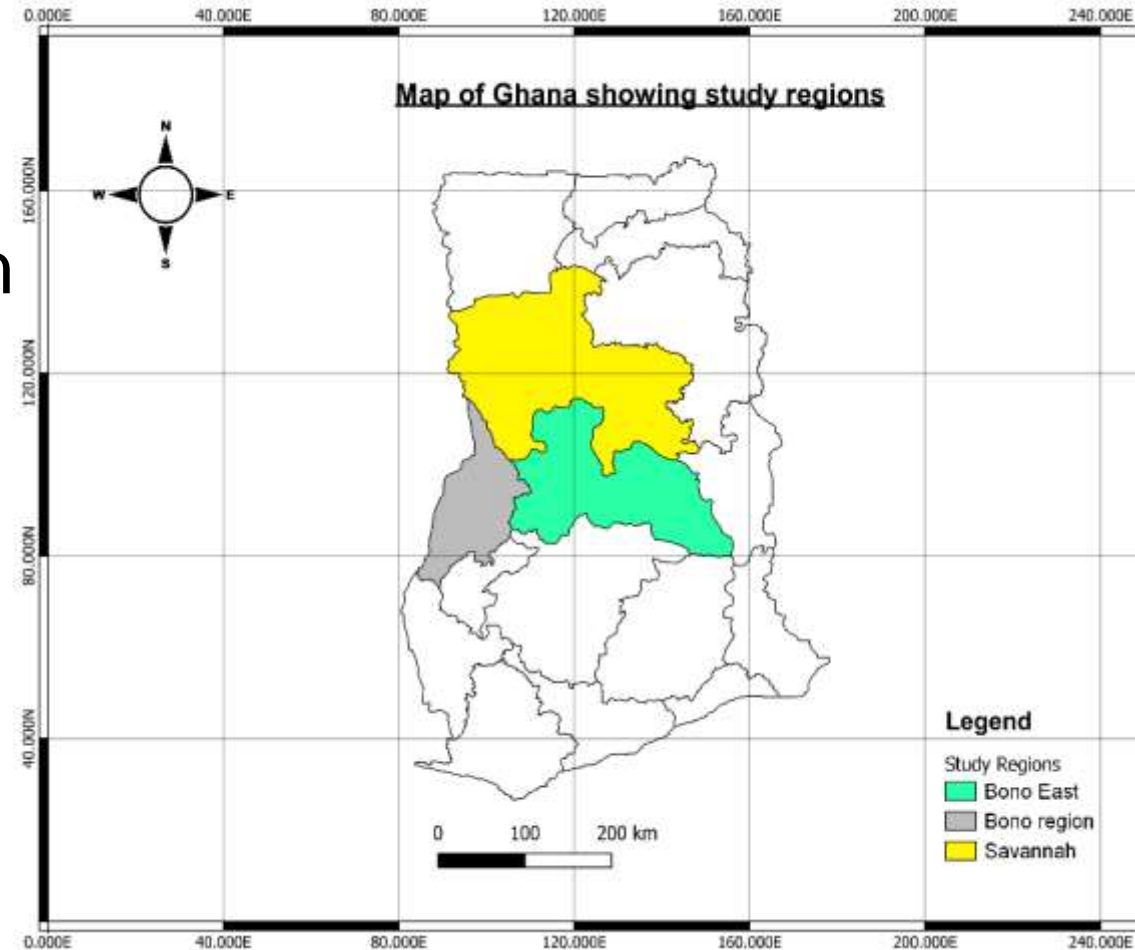


Fig. 2: Map of Ghana showing Study



# Methodology

*A total of twelve (12) communities were studied*

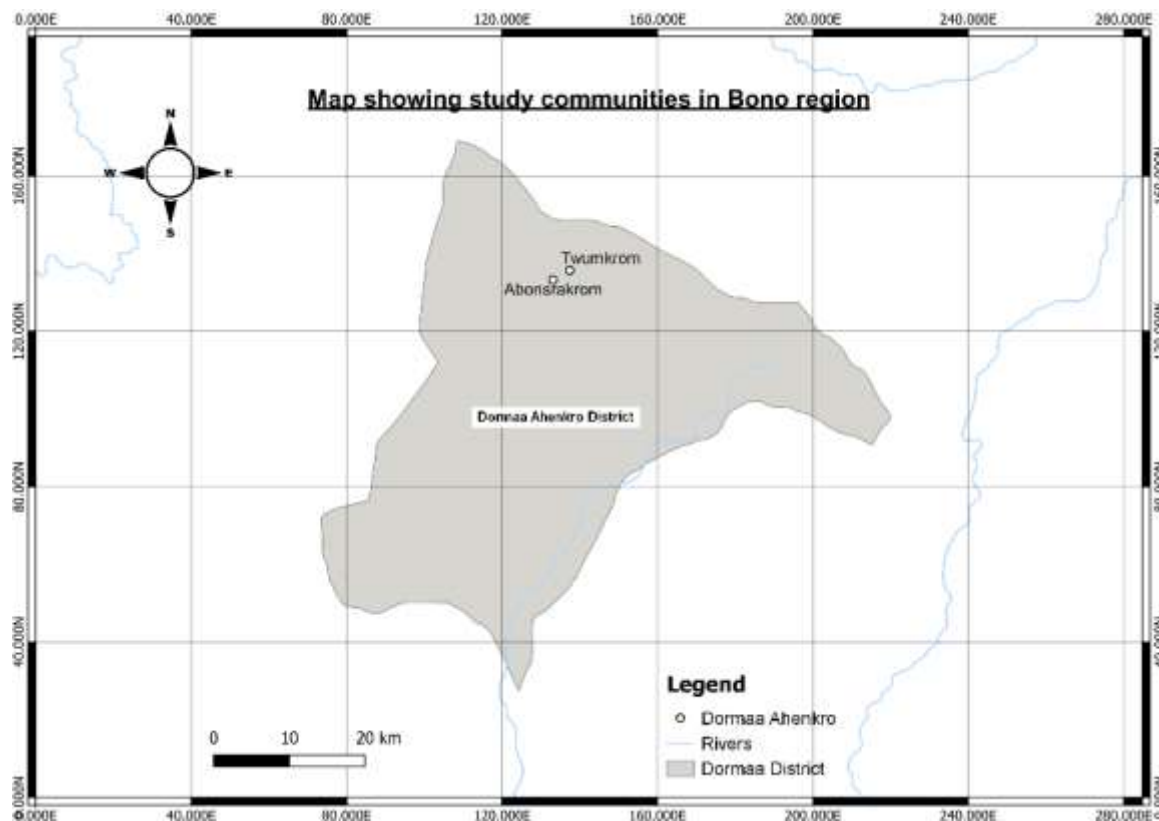


Fig. 3: Study communities in the Bono

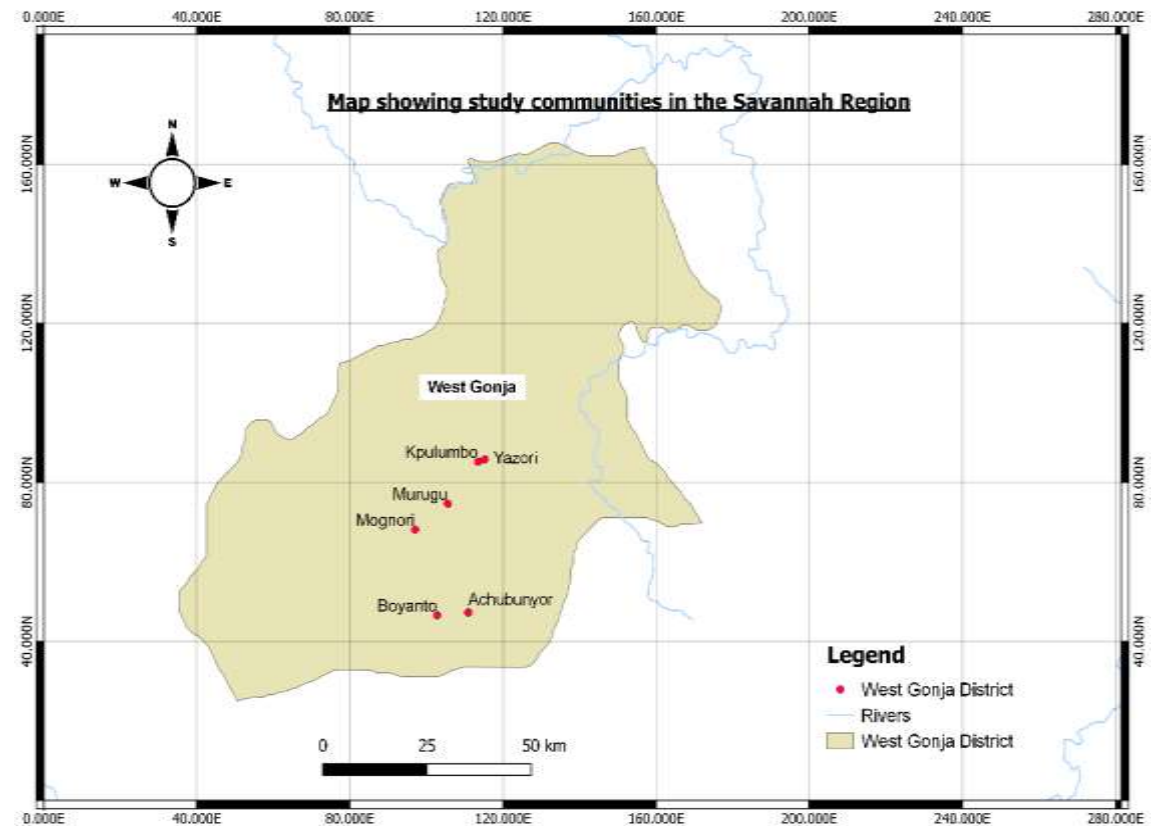


Fig. 4: Study communities in the Savannah



# Methodology

*A total of twelve (12) communities were studied*

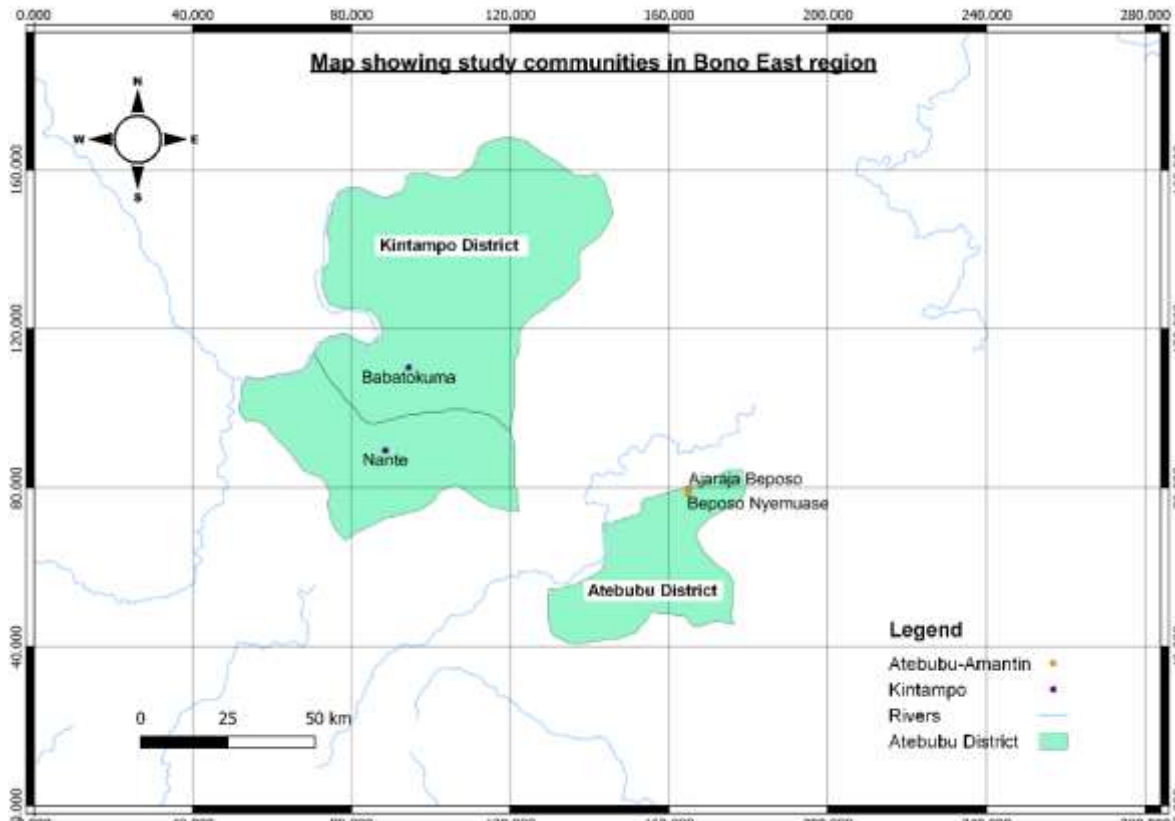


Fig. 5: Study communities in the Bono-East

## Research Approach

A mixed qualitative and quantitative approach

## Sampling Technique

Purposive sampling was employed for the study.

Table 1: Overview of number of respondents engaged per region

| Region       | Community Members | Fire Volunteer | Key Informants | State Institutions | Total      |
|--------------|-------------------|----------------|----------------|--------------------|------------|
| Bono         | 31                | 23             | 6              | 2                  | 62         |
| Bono East    | 52                | 46             | 17             | 10                 | 125        |
| Savannah     | 103               | 57             | 18             | 5                  | 183        |
| <b>Total</b> | <b>186</b>        | <b>126</b>     | <b>41</b>      | <b>17</b>          | <b>370</b> |

## Data Collection Methods

Data was collected using focused group discussions, interviews and semi-structured questionnaire administration.



Fig. 6: Focused group discussion with women



Fig. 7: Administering of questionnaire

## Community Perspectives on Requirements for Sustaining CPFM Structures

### Prevention

- Periodic Training
- Visual educational materials
- Means of identification
- Allowance

### Pre-suppression

- Periodic Training
- Work Equipment (rake, cutlass, ...)
- Personal Protective Equipment
- Food
- Allowance

### Suppression

- Periodic Training
- Work Equipment (fire beater, sprayer, transportation)
- Personal Protective Equipment
- Medical Cover
- Allowance

Skills

Resources

Legitimization

Security



## Scenario 1

Business-as-usual: reliance on external support

## Scenario 2

Community-generated financial contributions

## Scenario 3

Community in-kind contributions



Fig. 8: Equipment for fire volunteers

Table 3: Status of external support for community fire management structures in the study areas

| Regions and Communities |             | Year Established | Establishment context                       | Current Support            |
|-------------------------|-------------|------------------|---|----------------------------|
| <b>Bono region</b>      | Twumkrom    | 2000             | FORIG, ITTO, GNFS                           | N/A                        |
|                         | Abonsrakrom |                  |   |                            |
| <b>Bono East region</b> | Nante       | 2001             | GNFS  | GIZ, Tropenbos Ghana, IUCN |
|                         | Babatokuma  |                  |   |                            |
|                         | Beposo      | 2020             | GIZ, Tropenbos Ghana, IUCN                  |                            |
|                         | Nyemuase    |                  |   |                            |
| Ajaraja Beposo          |             |                  |   |                            |
| <b>Savannah region</b>  | Murugu      | 2008             | Established as CREMA by Forestry Commission | AROCHA Ghana               |
|                         | Mognori     |                  |   | GIZ, AROCHA Ghana, IUCN    |
|                         | Yazori      |                  |   |                            |
|                         | Kpulumbo    |                  |   |                            |
|                         | Achubunyor  |                  |   |                            |

## SWOT Analysis of Business-as-usual scenario

1

### STRENGTHS

- Minimal support for pre-suppression and suppression activities
- Trained members remain passionate about fire management

### WEAKNESSES

- Weakened team spirit
- Fire management limited to emergency response
- New members are not recruited
- Working equipment worn out

### OPPORTUNITY

- Only little effort required to revitalize community fire management groups

### THREAT

**Possibility of community fire management groups becoming non-functional**



## Scenario 2: Community-Generated Financial Contributions

Respondents' proposed sources of financial contributions:

- Direct contribution from community members.
- Fines from flouters of bye-laws governing fire management in the areas.



Fig. 9: Engagement with men

# Findings...

## Respondents willingness to contribute financially

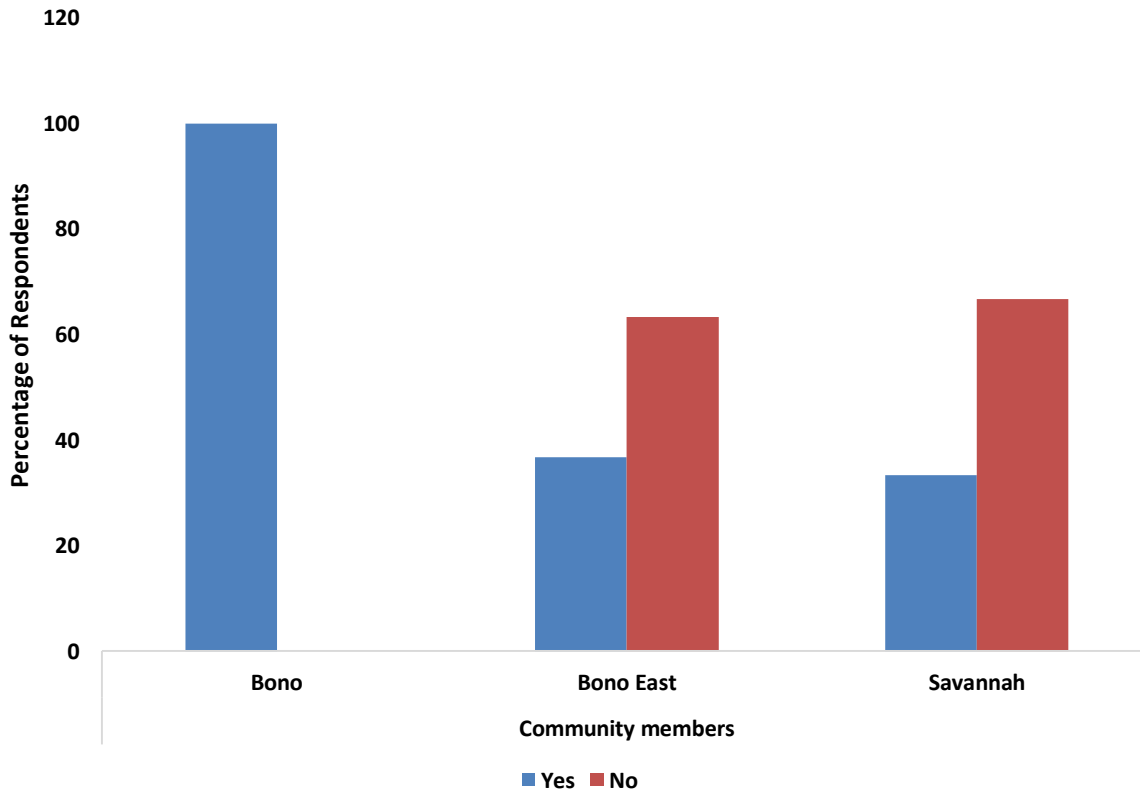


Fig. 10: Willingness of community members to contribute financially

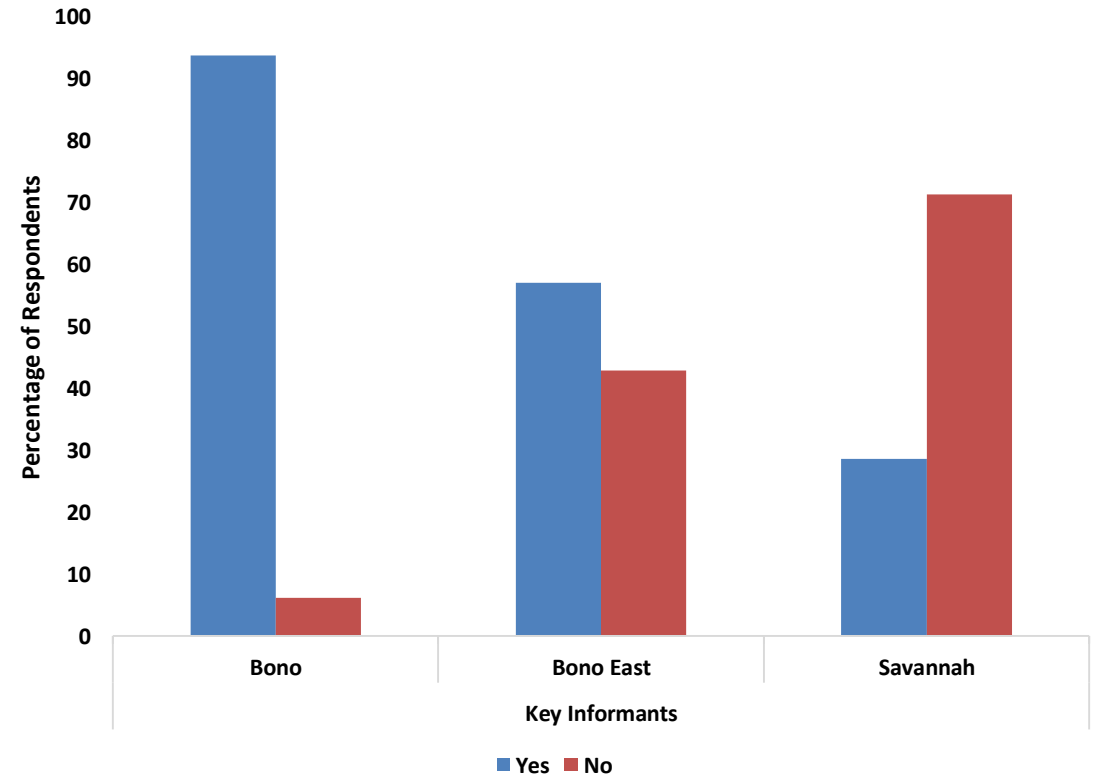


Fig. 11: Key informants perspectives on communities willingness to contribute financially

Table 4: Amount community members are willing to contribute per month during dry season

| Variable |           | Community Members (%) |           |          |
|----------|-----------|-----------------------|-----------|----------|
|          |           | Bono                  | Bono East | Savannah |
| Amount   | US\$ 0.31 | 19.4                  | 0.0       | 33.3     |
|          | US\$ 0.78 | 25.8                  | 35.7      | 53.5     |
|          | US\$ 1.56 | 35.4                  | 43.7      | 13.2     |
|          | US\$ 3.12 | 19.4                  | 13.6      | 0.0      |
|          | US\$ 7.81 | 0.0                   | 7.0       | 0.0      |
|          | Total     | 100                   | 100       | 100      |

## Scenario 3: Community in-kind contributions

Respondents' proposed in-kind contributions for sustaining community fire management structures:

- Provision of food items to support fire volunteer activities
- Allocation of land for communal farming to support fire volunteer activities with proceeds from harvest.

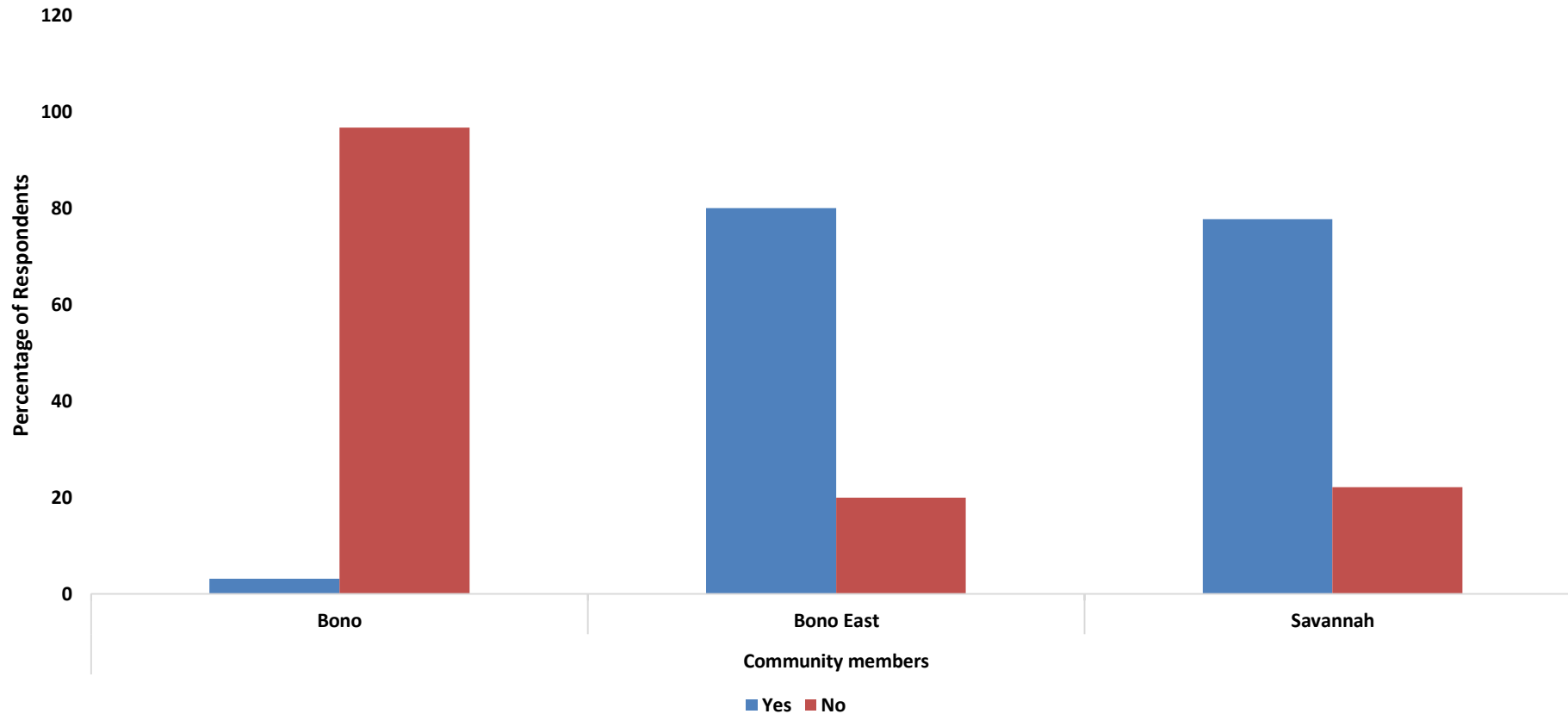


Fig. 12: Willingness of community members to contribute in-kind

Communities willing to contribute to communal farms are mainly in savannah region and Atebubu area in the Bono East region.

## Conditions for Sustaining community-based fire management structure

### Enabling Conditions

- Investment of funds in banks or community savings
- Investment in livestock (Savannah region)
- Management of funds by multistakeholder committee

### Constraining Conditions

- Lack of accountability and transparency
- Internal frictions and quarrels between Fire Volunteers and/or Community members
- Underperformance of Fire Volunteers
- Lack of confidence in committee structures to manage funds
- Poor education that may construe Fire Volunteer Structure as extortion
- External factors such as drought, pest and diseases can affect the income of people and affect ability to pay
- Poor inflow of contributions from community members

# Conclusions

- The business-as-usual scenario is unsustainable in the long term.
- Locals are willing to contribute to support their fire management structures.
- A scenario where communities make financial contributions to support wildland fire management would achieve limited impacts if implemented wholesale.
- In-kind contributions, defined by community-specific opportunities, and managed by a robust and transparent leadership structure would promote effective wildland fire management in the long term.



# References

- Asante, E. A., Fosu-Mensah, B. Y., Appiah, D. O., & Owusu, A. A. (2020). Community-based forest management in Ghana: a review of literature. *International Journal of Biodiversity and Conservation*, 12(1), 1-12.
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- Gyasi, E. A., Owusu, A., Asante, E. A., Fosu-Mensah, B. Y., & Sarpong, E. Y. (2021). Assessing the effectiveness of community-based fire management in preventing wildfires in Ghana. *Journal of Environmental Management*, 280, 1-9

**THANK YOU**