Managing Community Forest Fires in Ghana: Lessons Learned and Strategies for Sustainable Solutions

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8th International Wildland Fire Conference (IWFC)
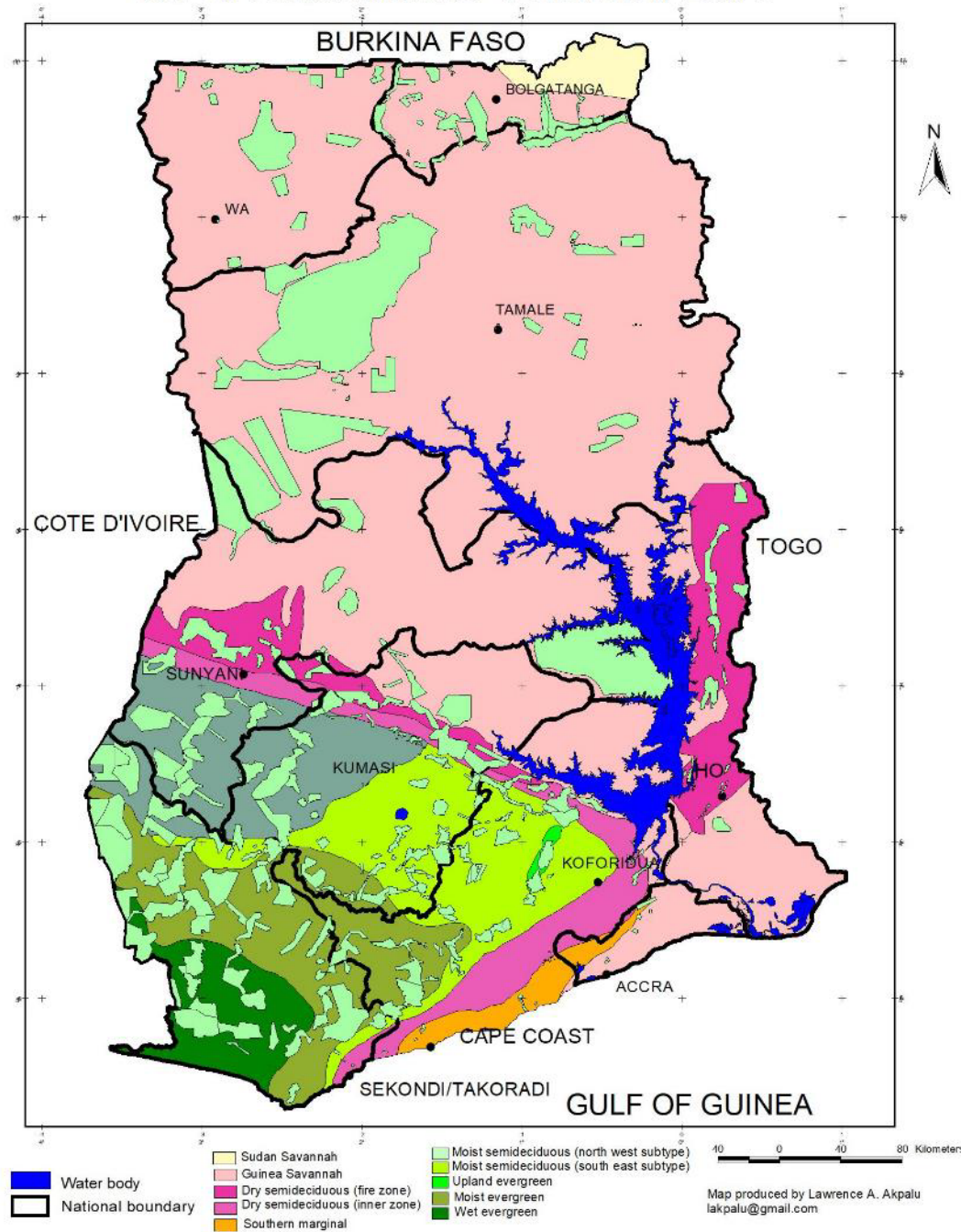16- 19 May 2023, Porto, Portugal

ITTO Workshop 16th May 2023

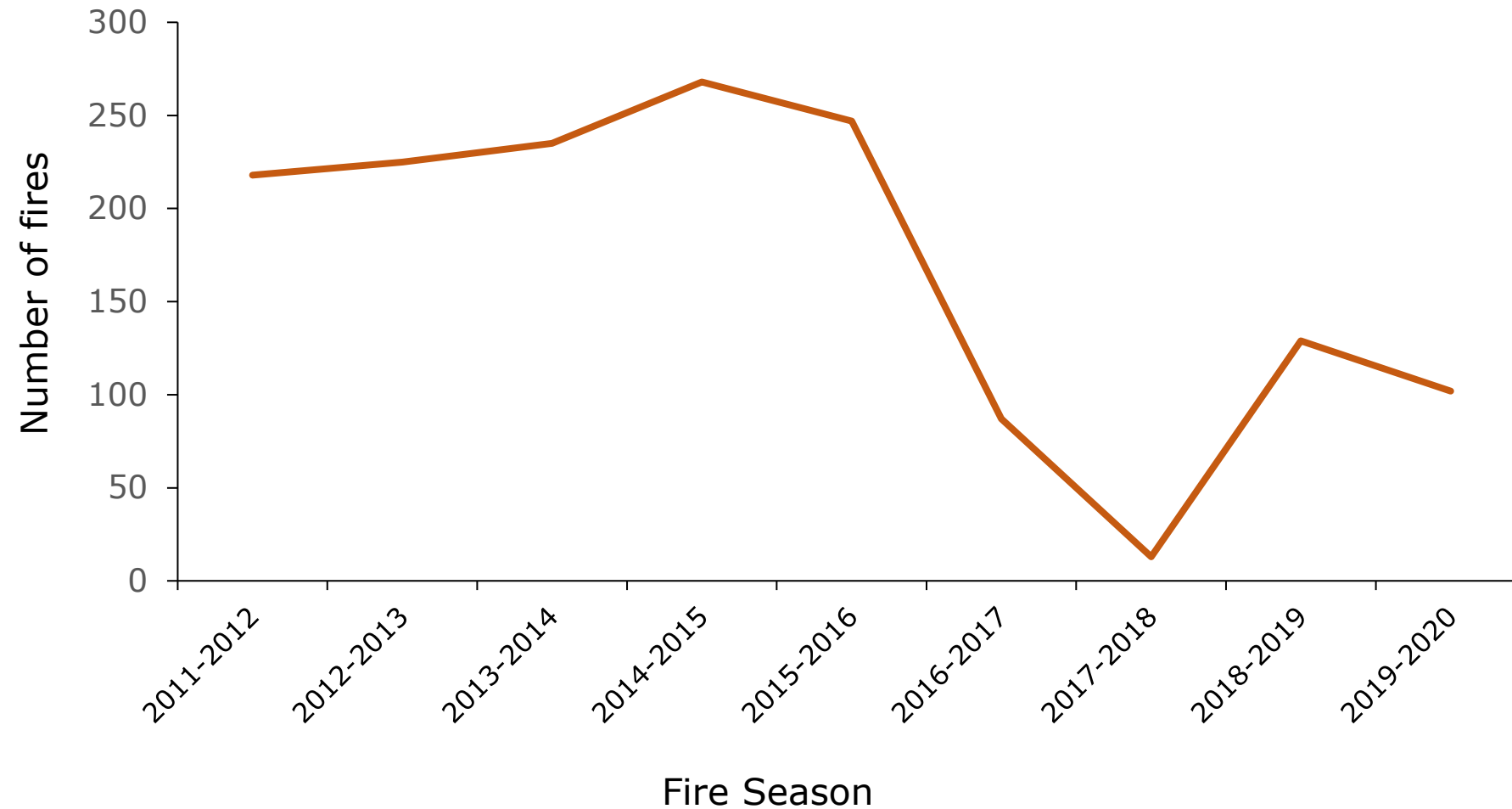**Forestry Research Institute of Ghana**
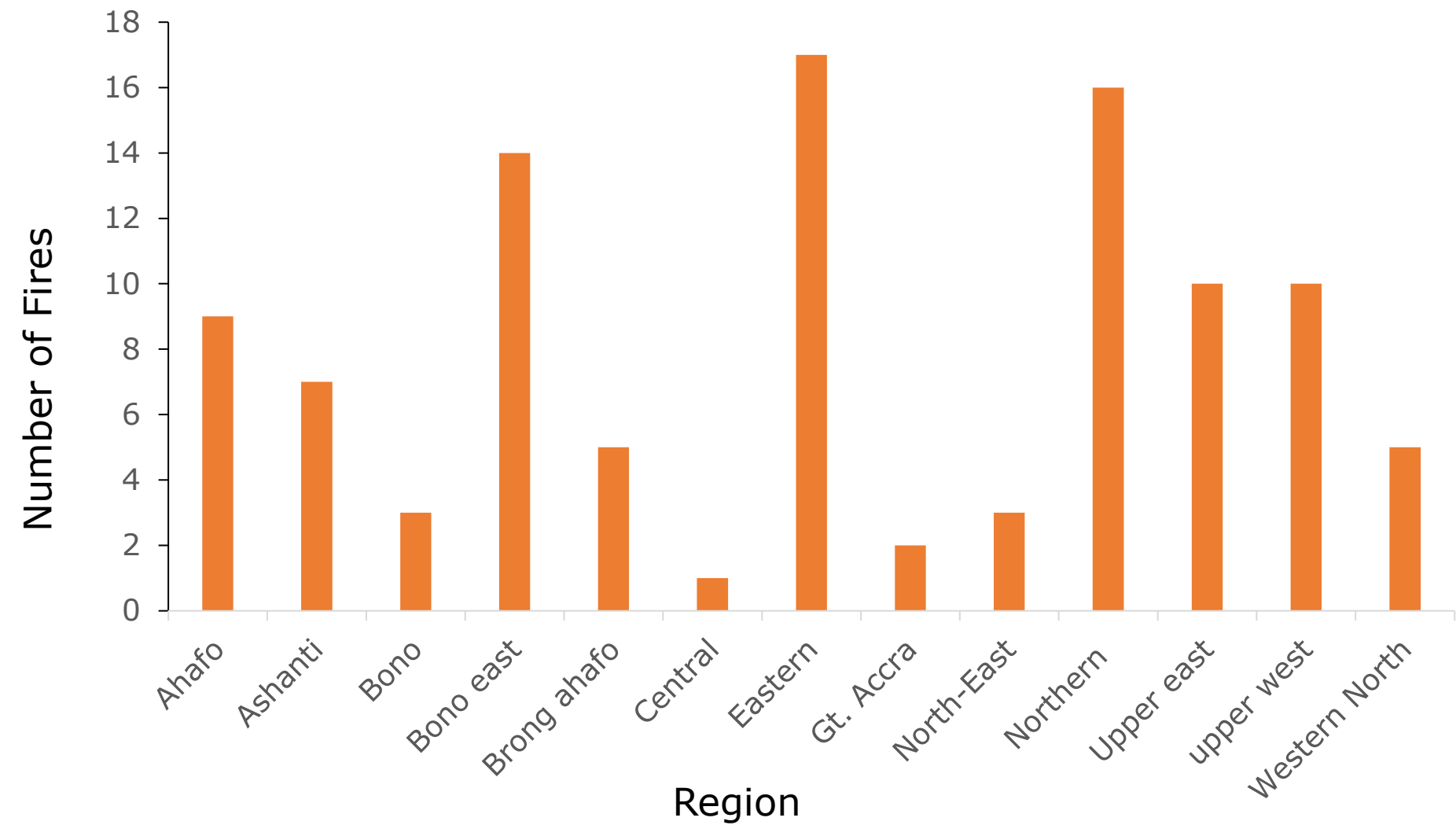
MAP OF GHANA SHOWING VEGETATION ZONES

- ❖ Two-thirds of land area of Ghana is savannah vegetation.

- ❖ The rest is tropical forest classified into five main forest types.

- ❖ Thirty percent (30%) of high forest zone and 90% of transitional and Northern savannah zones are exposed to wildfires (MLNR, 2005).

Trends in fire occurrence

Number of fires (y-axis, scale 0 to 300)

Fire Season (x-axis): 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, 2017-2018, 2018-2019, 2019-2020

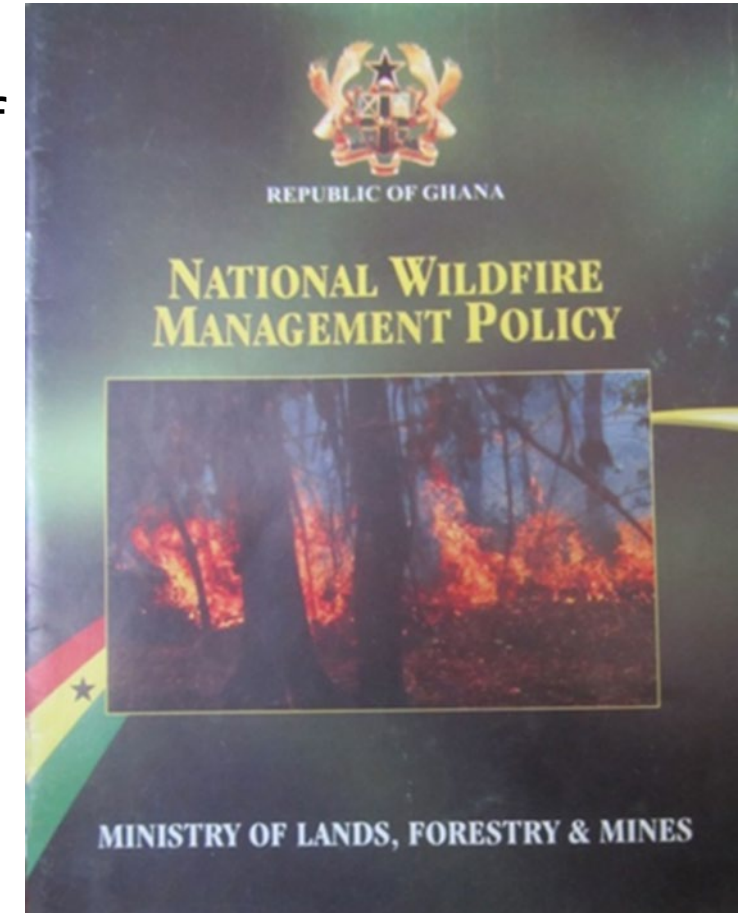Source: Annual report on wildfire incidences, Forestry Commission 2020

Fire occurrence in regions of Ghana: 2019-2020 fire season

Source: Annual Report on Wildfire Incidences, Forestry Commission 2020

Policy Framework for fire management

❑ Fire management in Ghana works within the framework of National Wildfire Management Policy of 2006.

❑ The PNDC law 229 (the control and prevention of bush fire Act, 1990).

❑ The policy and law recognize fire as a useful tool.

❑ The policy also recognizes the detrimental effects of fire.

Stakeholder analysis

Assessment of relative importance and influence of stakeholders using a matrix

- Fire prevention education

- Fire management law enforcement

- Fire detection and communication

- Fire suppression

- Provision of resources for fire management

Stakeholder analysis

- Ranking of stakeholder importance and influence in fire management with women in a community.

ITTO project PD 284/04 Rev. 2 (F): Fire management and post-fire restoration with local community collaboration

Stakeholder analysis
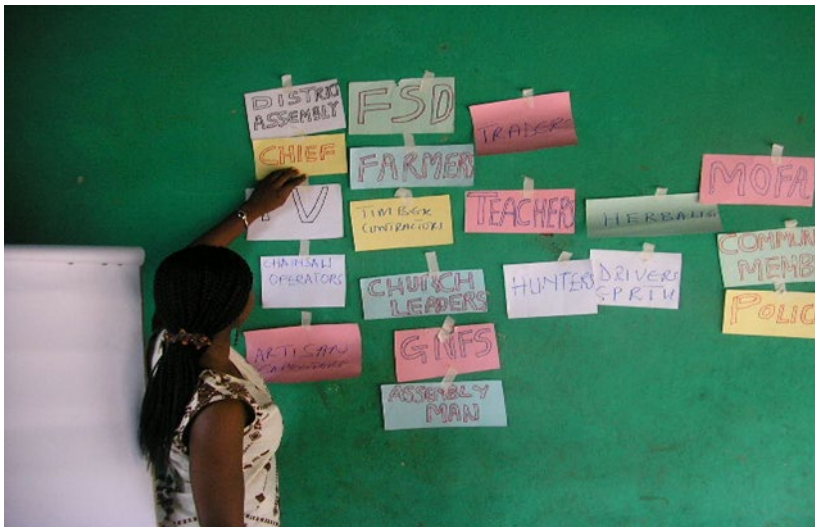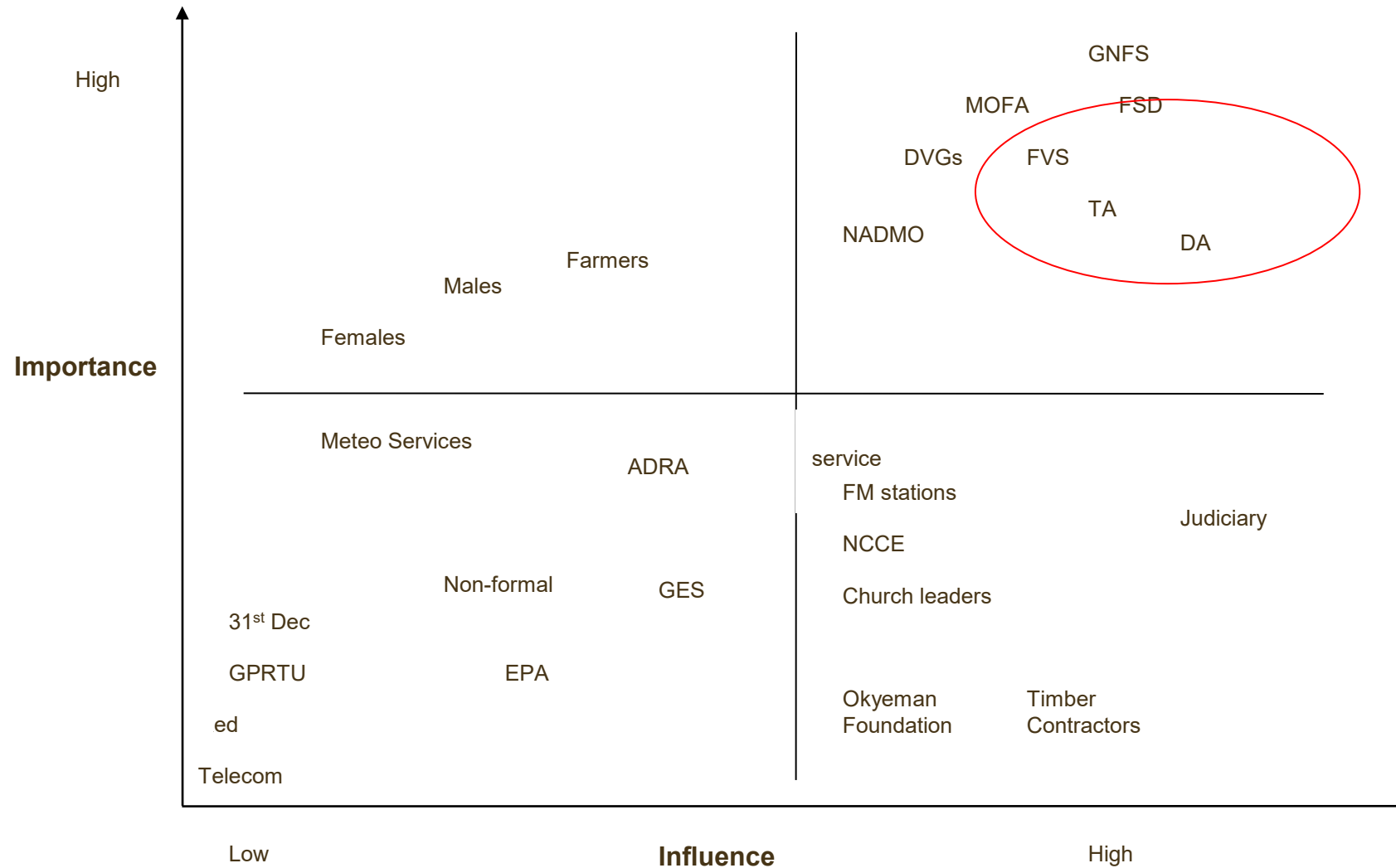
- Ranking of stakeholder importance and influence in fire management with men in a community.

ITTO project PD 284/04 Rev. 2 (F): Fire management and post-fire restoration with local community collaboration.

Importance influence matrix - role of community organisations

High

MOFA   GNFS   FSD

DVGs   FVS

NADMO   TA   DA

Farmers

Males

Females

Importance

Meteo Services

ADRA

service

FM stations

Judiciary

NCCE

Non-formal   GES

Church leaders

31st Dec

GPRTU   EPA

ed

Okyeman Foundation   Timber Contractors

Telecom

Low   **Influence**   High

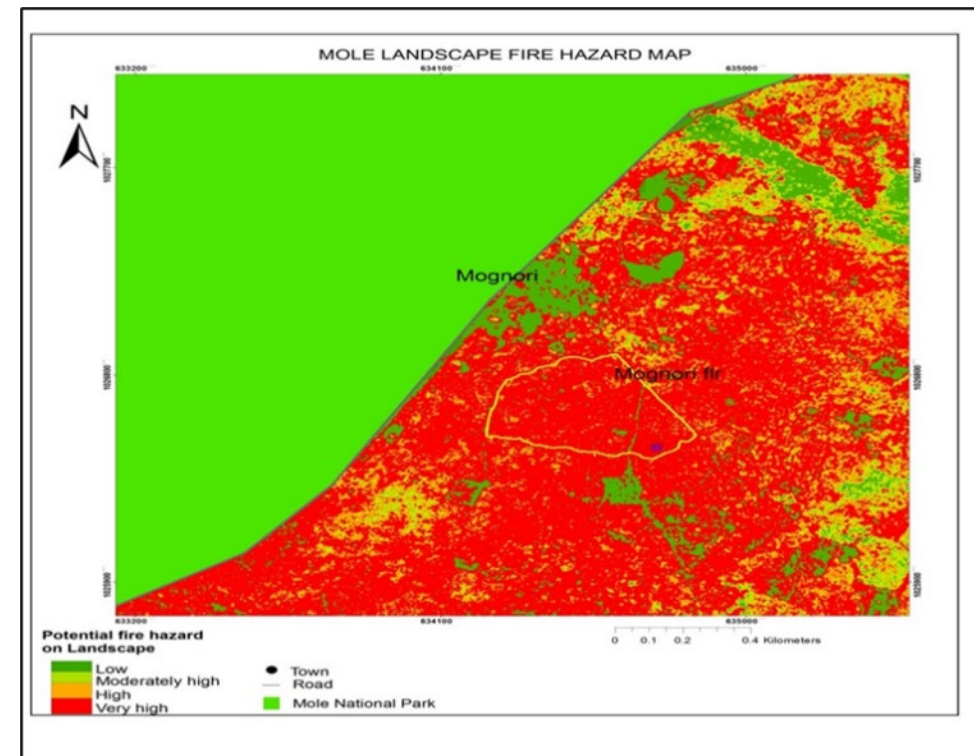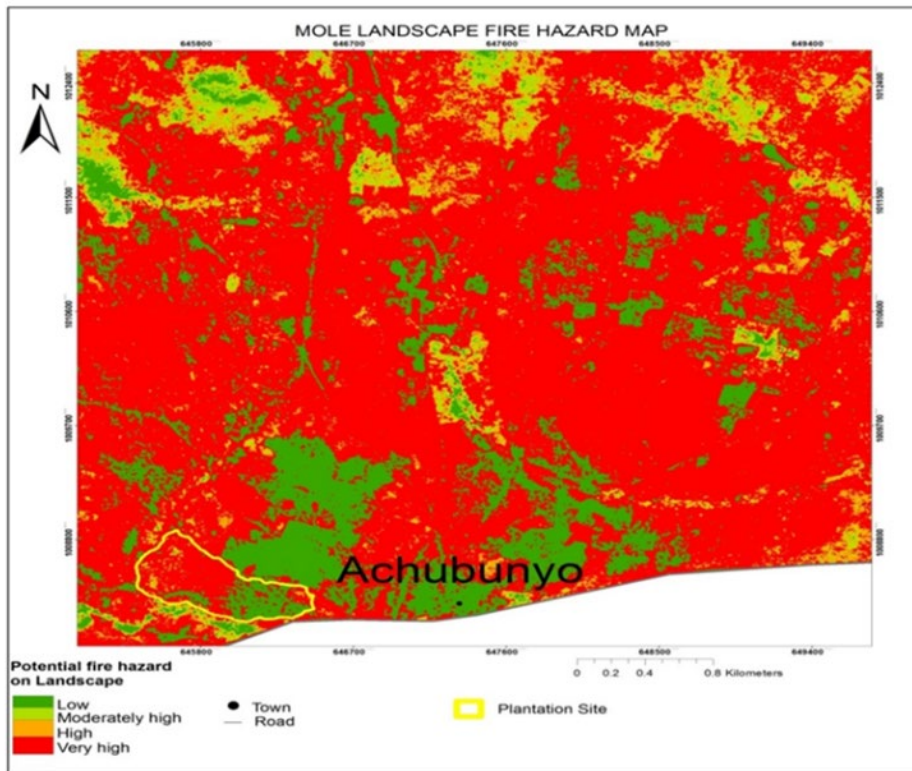*Ameyaw & Amissah2007*
Through ITTO project PD

Fire risk assessment and training needs

- Community consultations are done to assess fire risk and socio-economic context of fire use and the negative impacts of fire.

- Preferred means for fire prevention awareness campaigns is assessed.

- Training needs assessment for fire management is also done.

Key processes- Fire risk assessment

- Fire risk assessment to determine vulnerable areas are carried out.

- The model for developing fire risk/ hazard maps was developed during the ITTO project (ITTO project PD 32/98 Rev.1 (F)).

- Credit for maps: GIZ forest Landscape Restoration project through sustainable value chain Project
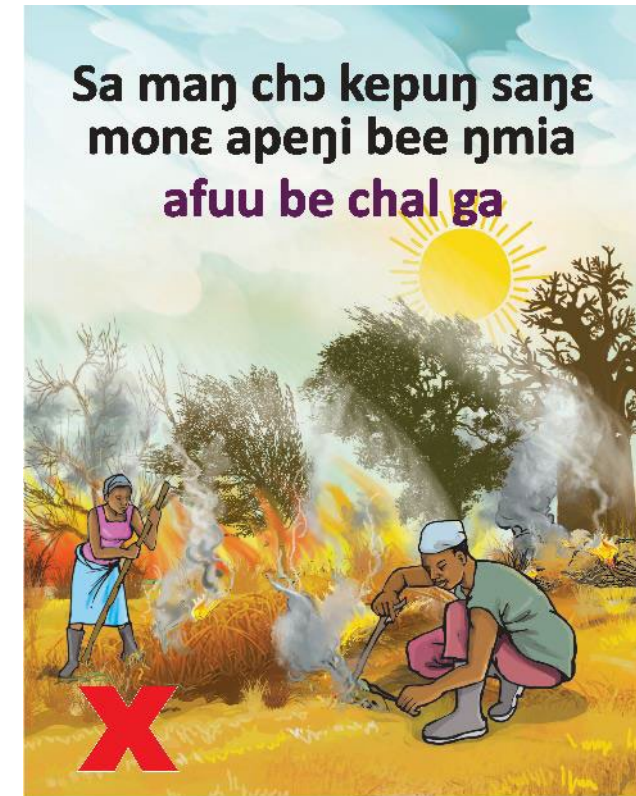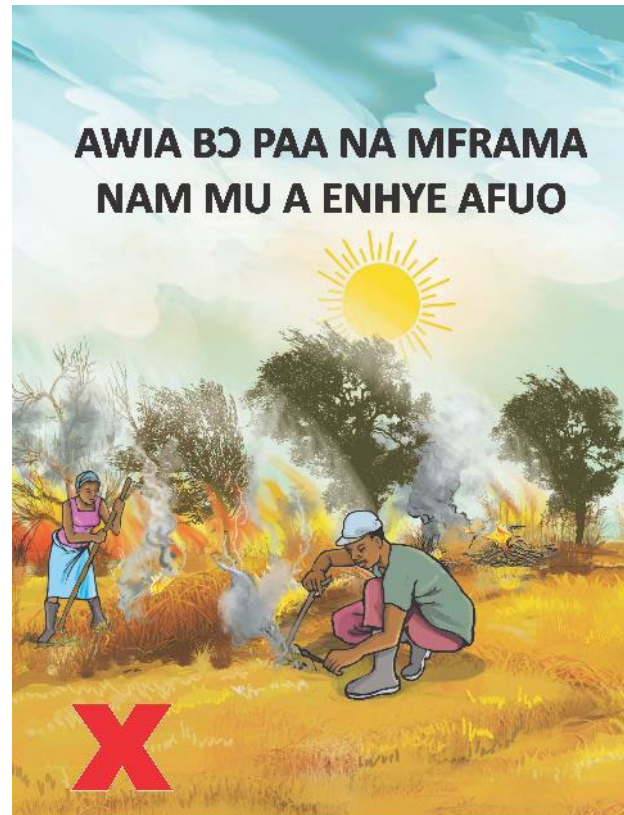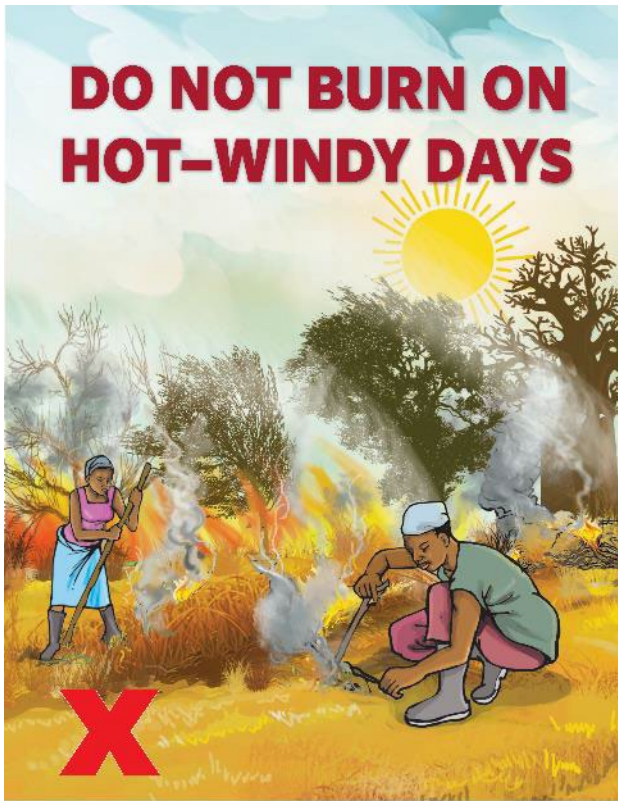
Implementing community fire management

- Community fire management in Ghana is built around three main aspects of fire management.

- Fire prevention

- Pre-suppression

- Suppression

Fire prevention

- Development of fire prevention communication plan.

- Formulation of bye laws at the community level.

- In communities where such byelaws exist one can only burn cleared vegetation with the assistance of a members of the fire volunteer group.

- Enforcement of byelaws on no-burn during the dry season by community leaders and fire volunteers.

- Production of materials for prevention awareness campaigns.

Fire prevention awareness campaign

- Fire volunteers lead fire prevention awareness campaign in communities using materials produced and funded by international, government and NGOs.

Credit: GIZ forest Landscape Restoration project through sustainable value chain Project

Fire prevention-Fire Danger Rating Index

❑ The Fire Danger Rating Index indicates how dangerous a fire would be if one starts.

❑ Volunteers move the pointer on the sign board to indicate the fire danger for the day.

Pre-suppression strategies-fuel modification

- Early burning by communities mostly around farms.

- Ploughing in the weeds on farms (especially on cashew crops).

Pre-suppression planning– resource mobilization

- Resource mobilization (logistics and basic tools).

Credit ITTO projects-2007

Credit GIZ project-2021

Credit GIZ project-2021

Pre-suppression planning- resource mobilization

- Mobilization and training of fire volunteers.

Group formed in the year 2000 and trained and resourced in 2007 through 2 ITTO-funded projects(ITTO projects: PD 32/98 Rev.1 (F), and PD 284/04 Rev. 2 (F)

Pre-suppression-Green fire breaks

Established through the taungya system with communities

Green fire break is a passive band of evergreen vegetation that has the potential to modify the speed and intensity of a raging wildfire.

Recommended list of species for green fire breaks include;

- *Albizia lebbeck*
- *Alstonia boonei*
- *Azadirachta indica*
- *Blighia sapida*
- *Cassia siamea*
- *Cordia millenii*
- *Funtumia elastica*
- *Milletia thonningii*

Fire suppression

❑Ground patrols for early fire detection and suppression based on a roaster

❑Communities use local structure to suppress fires that are small.

❑The chiefs of the communities authorize the beating of the "gong gong" to assemble people to support fire volunteers to suppress fires.

Award schemes

Award schemes have been implemented by some District Assemblies (e.g., Dormaa Ahenkro) in Ghana.

Lessons Learned

- Community fire management using local governance structures (Traditional Authorities and Unit Committees) are effective.

- Well-trained community fire volunteer groups are key agents of fire prevention and control.

- Formulation and enforcement of byelaws at the community level promote fire prevention and control.

Lessons learned

- Use of simple fire danger index (manned community fire signed board) has the potential to reduce fire occurrence.

- Deployment of well-trained fire volunteers to patrol based on a schedule during dry season in communities enhance early fire detection, communication and suppression.

- Fire management activities linked to other aspects of natural resource management such as restoration sustain community interest in fire management.

Lessons learned

Example of a post-fire restoration effort that has sustained the interest of a community fire volunteer group in fire management.

About 50 ha of restored area planted in 2000 at a community (Twumkrom in Brong Ahafo Region of Ghana through ITTO funded project (PD 284/04 Rev. 2 (F)) and others.

Strategies for Sustainable solutions

- Integrate fire management in all landscape restoration and forest management with community participation.

- Strengthen institutional cooperation at the district level for resource mobilization for each fire season.

- Create a network of fire volunteers at the district level to facilitate knowledge sharing and skill transfer.

- Future projects should take advantage of workable fire management systems, modifying them to suit the local context, without reinventing the wheel.

Thank you