

A community-led participatory process for developing practical and policy recommendations for fire management in Guyana









Authors: Kayla de Freitas, Kid James and Jayalaxshmi Mistry

Photos: Kayla de Freitas, Jayalaxshmi Mistry and Andrea Borgarello

Designed by: Jen Thornton

Published: 2024

All text (pictures, diagrams, drawings) represented in this report is attributed under the Creative Commons "Non Commercial No Derivatives" (CC BY-NC-ND 3.0) licence. Therefore, people are free to share, copy, distribute and transmit the work under the following conditions:

- Attribution the work must be attributed in the manner specified by the author or licensor (but not in any way that suggests that they endorse you or your use of the work).
- Non-commercial People may not use this work for commercial purposes.
- No Derivative Works People may not alter, transform, or build upon this work.

Report published by the South Rupununi District Council, Guyana and the Leverhulme Centre for Wildfires, Environment and Society, UK.

Supported by the Leverhulme Centre for Wildfires, Environment and Society, UK, Royal Holloway University of London and the South Rupununi District Council, Guyana.

Citation: de Freitas, K., James, K. and Mistry, J. (2024). Rupununi fire – a community-led participatory process for developing practical and policy recommendations for fire management in Guyana. Report published by the South Rupununi District Council, Guyana and the Leverhulme Centre for Wildfires, Environment and Society, UK.

Contents

1. Introduction	4
2. Fire management in Guyana – setting the context	5
2.1 Fire in Guyana	5
2.2. Legislation, strategies and research on fire	6
2.3 What do the documents say?	7
2.4 Aim of the fire workshops	8
3. Workshop activities	9
4. Outcomes from the workshops	11
4.1 Workshops 1 and 2	11
4.1.1 The state of fire in the Rupununi	11
4.1.2 Recommendations for fire management	13
4.2 Workshop 3	24
4.2.1 Ranking of the Rupununi Fire Management Recommendations	24
4.2.2 Detailed plans for priority recommendations	25
4.3.3 Research that can support local fire management	34
5. Conclusions and next steps	35
References cited	37
Appendix 1. List of workshop participants	38
Appendix 2. Communication strategy for fire	40

Introduction

In December 2021, Kayla de Freitas and Jay Mistry of the Leverhulme Centre for Wildfires, Environment and Society (UK) travelled to Aishalton Village in the South Rupununi, Guyana, to meet with the regional Indigenous authority, the South Rupununi District Council (SRDC), for a discussion on their plans for fire management at the territorial level and to explore how doctoral research by Kayla de Freitas on Indigenous fire management in the region could feed into practical impacts and future collaborations. The SRDC are a governance body representing 21 Wapichan communities (including satellites) in the South Rupununi, and Kayla had been working with two constituent villages, Shulinab and Katoonarib, looking at traditional and changing fire practices, and the implications of climate change policies on Indigenous fire management.

At that meeting, there were discussions on the groups that are more involved in using resources and fire across the landscape and the threats that come with fire use in the savanna and mountain areas. SRDC members suggested that bringing together Indigenous representatives in the Rupununi with government agencies and other relevant organisations who have a stake in fire governance could help with: 1) their concerns on changing livelihoods and how this influences fire use; 2) gaps in national policy that could help guide fire management; 3) the role of communities in pushing appropriate policy creation and moving forward with local management, and; 4) the impact of extreme weather events and how this increases vulnerability.

The workshops that form the basis of this report were the direct outcome of those discussions. Three workshops were organised: 1) the first in March 2023 in the Rupununi with Indigenous leaders and regional institutional representatives; 2) the second in March 2023 in Georgetown where results from the first workshop were used to engage national stakeholders, and; 3) the third workshop in December 2023 with Indigenous leaders to take forward the recommendations for fire management made at the previous workshops. The workshops were led by the SRDC and supported by Kayla de Freitas and Jay Mistry.



2. Fire management in Guyana Setting the context

2.1 Fire in Guyana

The focus of the fire workshops has been on the Rupununi, as most of the fires occurring in Guyana are within the Rupununi savanna region of Region 9 (Figure 1). The Rupununi is comprised of a myriad of ecosystems including savannas, forests, wetlands, swamps and bush islands, which in turn support a high biodiversity of flora and fauna. There are two main seasons; the wet season from May to September, and the dry season from September/October to April/May. It is in this dry season and in the savannas that the majority of fires occur. Indigenous peoples, predominantly the Wapichan and Makushi, use fire for multiple purposes including for farming, to protect hunting and farming grounds from later fires, to clear farm roads for access and safety, to provide pasture for game, for fishing and hunting, to protect the edges of forests and bush islands, and to improve pasture for livestock and for signalling (de Freitas, 2024). At the same time, land use and ownership is complex in the Rupununi, and amongst Indigenous titled land there are private ranches, tourism enterprises, agricultural businesses, state land and the Kanuku Mountains Protected Area.

Managing fire, therefore, is not just the responsibility of Indigenous peoples, but involves a diverse range of stakeholders with differing knowledge, experiences and perspectives.



Figure 1: Location of Guyana and the Rupununi in South America (de Freitas, 2024)



2.2. Legislation, strategies and research on fire

Most research, projects, and interventions in the Rupununi recognise fire as a key part of Indigenous livelihoods. This recognition includes an understanding that traditional strategies have been used as part of key activities and have directly and indirectly contributed to biodiversity protection through important strategies such as patch mosaic burning (in the savannas) and forest/savanna edge burning to create fire breaks. The SRDC has been working to promote traditional fire management practices in the region and to raise awareness about the importance of these practices.

On the other hand, there is also a recognition of the destructive capability of fire when it becomes uncontrolled – something we often refer to as 'wildfires'. It can impact health, property, agriculture, the environment – like destroying certain species or areas making it hard for some plants or trees to grow back – especially those in forests that can be more at risk from the effects of fire.

At the national level, there is no current policy that guides fire management. But there are some legislation/acts that make prescriptions for carrying out fire management plans, for example in the Guyana Forestry Act (2009). The Amerindian Act (2006) also mentions fire, but within the context of sustainable management of the landscape and the rights of the village council.

These legislative pieces aside, the only comprehensive document at the national level that exists is the National Wildfire Management Strategy that was created in 2008 as part of a collaboration between Guyana Forestry Commission (GFC), United States Forest Service, and the International Tropical Timber Organisation. Some aspects of this plan seem to have been implemented as one part of a project or the other – for example fire monitoring in the Monitoring, Reporting and Verification process for carbon reporting – but other than that, these recommendations have not been implemented as a single policy or plan for the country in a consistent way. This document may now also be outdated and in need of updating, but still contains potentially useful recommendations.

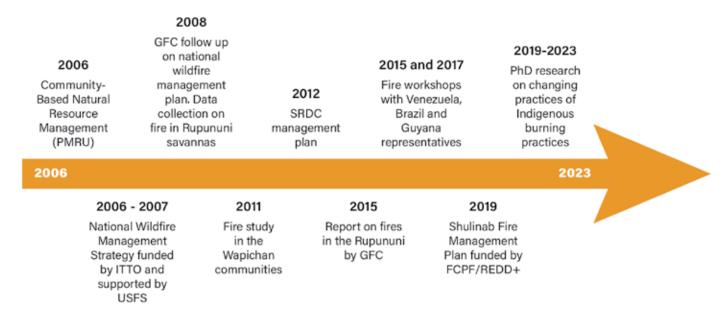


Figure 2: Studies and documents on fire management in Guyana

Figure 2 shows the documents that deal with fire relevant for the Rupununi region. Starting in 2006, there is the Community-based Resource Management Plan (PMRU) that recommends stricter controls on fire including seeking permission for every intended burn. The National Wildfire Management Strategy (2008) recommends community-based action for priority or high-risk communities, which led to some data collection by the GFC. The fire study on the Wapichan use of fire (Rodrigues et al., 2011) was comprehensive and identified customary and local practices which informed the creation of a fire calendar. Parts of this study fed into the SRDC's (2012) territorial management plan which has a section on fire. In 2015 and 2017, fire workshops in Venezuela and Brazil respectively led by Jay Mistry and Bibiana Bilbao had some North and South Rupununi representatives (Bilbao et al., 2019), and there were some good recommendations coming out of these meetings. Then in 2019 there was a REDD+ Integrated fire management project in Shulinab that focused on prescribed burning and creation of a fire committee who received training from Brazilian fire fighters (FCG, 2019). Lastly, from 2019 to 2023 Kayla da Freitas undertook doctoral research on the changing practices of land use and fire governance in the South Rupununi (de Freitas, 2024).

2.3 What do the documents say?

At the community level, approaches to burning recognise fire management as part of everyday life. These strategies may be used directly for the protection of resources, habitats, or biodiversity (for conservation purposes for example), but are more often used indirectly as a multi-faceted part of livelihood. For example, burning on the way to the farm can clear a path, reduce risk from snakes, create a grazing area, and form a fire break before the forest (and farm).

At the national and regional levels there have been no plans for fire management, although fire management plans have been stated within the forest regulations of 2018 for example. Much of the dealing with fire has been responsive rather than pre-emptive – meaning that any action is only taken when there is threat (so to fight fire), rather than plan on how to manage or prevent it. There have been some risk and vulnerability assessments, but the threat from fire has ranked relatively low.

Local recommendations include the continuing of certain good practices like savanna patch burning, forest edge burns, or doing double breaks around farming areas. It also includes further recommendations on awareness and education, revisiting and understanding local knowledge and what is relevant for fire, as well as the creation of fire management plans by each community for their specific context with support from GFC and others, setting of clear agreements between different communities and land owners, and appointing fire managers/or some sort of direct management to liaise between the council and people – this could include a councillor solely in charge of fire management as well. This can also include finding ways in which existing traditional fire governance systems can be recognised within the more formal village council administration and structure.

There was also a recommendation for a local policy guideline to be developed and shared with regional and national stakeholders, as well as looking at how REDD+ and other carbon programmes could support Indigenous burning to help reduce carbon emissions (piloted in Shulinab in 2019).

Regional recommendations arising from a Hazard and Vulnerability Assessment in 2017 include training at regional and community level in basic fire prevention strategies, equipment and resources provided to be able to respond to regional threats/risks, basic firefighting equipment at community level, and improved infrastructure and transport.

At the national level, recommendations included incorporating selected and relevant local recommendations into national policy administered at the GFC and to create/appoint someone to be in charge of fire nationally, develop a national fire prevention campaign, enforcement of unauthorised use of fire, a wildfire statistics and database monitoring fire danger, a national risk assessment, a national emergency response plan, and the identification of priority communities that are more 'high risk' and help them develop fire plans.

2.4 Aim of the fire workshops

Taking into account the lack of a national or regional fire management policy, and the growing interest and concerns of Indigenous communities and other stakeholders in the Rupununi region about landscape fires, the aim of the fire workshops was to create spaces for reflections, discussions and developing actions for fire management. The South Rupununi District Council (SRDC) has been particularly proactive in recognising and developing plans for fire in South Central and Deep South Rupununi. The idea of the workshops was to build on SRDC initiatives by involving other Rupununi communities, including those represented by the North Rupununi District Development Board (North Rupununi and Central Rupununi), the Kanuku Mountains Community Representative Group (Central and South Rupununi), and the South Pakaraima District Council (South Pakaraimas). Bringing people together from across the region would allow the sharing of knowledge and experiences, build alliances and networks around fire and develop practical and policy recommendations on fire management led by Indigenous communities themselves.

3. Workshop activities

Three workshops were organised, all workshop participant lists are provided in Appendix 1:

- 1. in the Rupununi with local and regional representatives;
- 2. in Georgetown with national stakeholders, and;
- 3. in the Rupununi with Indigenous leaders.

The first Rupununi workshop took place over three days (21st to 23rd March 2023), with days one and two closed to Indigenous participants only. The 24 attendees included representation from the North Rupununi, Central Rupununi, South Central Rupununi, South Pakaraimas and Deep South sub-districts.

Through a series of participatory exercises, group work and plenary discussions, the Indigenous participants worked on the following: What do people understand by 'fire management'? What are the similarities and difference in issues with fire management in the different sub-districts? How can fire be managed across land tenure boundaries? Who should manage fire and how? How should the costs and benefits of fire management be shared? What are the key points and messages we want to get across to regional and national authorities?

Rich pictures were used as the introductory activity to facilitate an open, unstructured discussion to identify common/unique challenges regarding fire faced by communities in the sub-districts and across the Rupununi. Using drawings, symbols, and text, rich pictures allow people to surface and express their own understandings of a specific issue from previous experiences and background knowledge (Bell et al., 2016). The rich pictures were then used as the basis to assess what is currently happening with regards to local fire governance in terms of current customary practices and local management techniques, and if it is working.

Onion diagrams and influence diagrams (Lelea et al., 2014) were then used to illustrate the stakeholders involved in land and fire management from the local to regional to national levels, and their relationships, in order to identify challenges and opportunities for multi-stakeholder fire use and management.

Lastly, a draft list of recommendations for fire management, drawn from the documents and studies outlined in Sections 2.2 and 2.3, were discussed to create the Rupununi Fire Management Recommendations to present to regional organisations.









At the end of day two, workshop participants discussed together and agreed on the format of day three where other regional stakeholders had been invited (see Appendix 1 for list of regional attendees). The Rupununi Fire Management Recommendations were divided into the themes of traditional knowledge, governance I (practical rules), governance II (legislation), fire control and education and awareness. Using the world café format (MacFarlane et al., 2016; Kitzie et al., 2020), the Indigenous participants were grouped onto tables with a theme, and regional representatives moved from table to table to discuss the recommendations and provide their feedback. In a following closed session, Indigenous participants revised the recommendations based on that feedback. They also agreed on the next steps and workshop outputs.

At the end of the workshop, the participants decided on three representatives who would take the Rupununi Fire Management Recommendations to national stakeholders in Georgetown. At this one-day Georgetown workshop (27th March 2023), the world café format was once again used to engage and get feedback from national stakeholders, where each Indigenous representative had a separate table to explain a set of recommendations and receive feedback from the stakeholders. A final set of Rupununi Fire Management Recommendations were then produced.

At the third workshop run over three days in the Rupununi (8th – 10th December 2023), Indigenous leaders used the Rupununi Fire Management Recommendations to discuss and identify priority next steps and start planning on actions to be taken for the recommendations. In addition, participants looked at what kinds of research would need to be done in order to support their priority next steps.





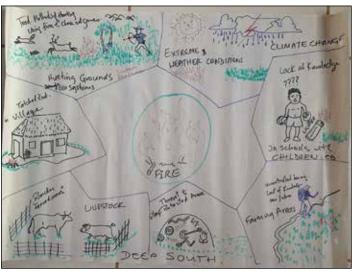
4. Outcomes from the workshops

4.1 Workshops 1 and 2

4.1.1 The state of fire in the Rupununi

The rich pictures, onion diagrams and influence diagrams (Figure 3) showed that there are many common issues and concerns across the Rupununi with regards to fire. These include the loss of traditional knowledge on how and when to burn, the almost complete absence of the management of fire at village level, and the increased incidences of uncontrolled wildfires entering forests, mountains, wetlands and sacred sites. The impact of these wildfires for tourism and conservation was also noted. At the same time, people were aware of the changing climate and how fire use was being affected, for example in the farm, by changes in rainfall and temperature. Importantly for many participants were the lack of rules at the village level about how fire should be used and the non-existence of penalties when people set uncontrollable fires. Fire should also be included in the Village Sustainability Plans (VSP) currently being developed by villages across the region.





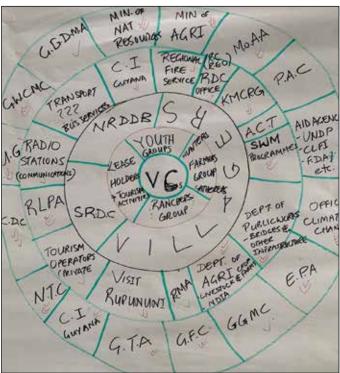


Figure 3. Examples of rich pictures and onion diagrams created by the participants

There were some differences between the sub-districts, particularly the North and South. One key point made by workshop participants was how the Georgetown to Lethem road crossing the North and Central Rupununi communities meant that outsiders had easy entry and access to land and to areas for fishing and hunting where fire would be used. Additionally, the diverse forms of land tenure in this part of the Rupununi means that there are various private landholders as well as the protected area (Kanuku Mountains) who all have differing (and sometimes conflictual) perspectives on fire use. This is in a context where there are still outstanding land claims by villages within private and protected areas and private leases are being granted to outside businesses for activities such as pasture and agricultural development.

In the Deep South, participants noted that fire knowledge was still strong, and its uses within farming practices and hunting were still working effectively. This aligned with other sub-districts needs to identify key villagers who practice traditional methods of fire management, and to share and exchange knowledge, especially with the youth.

The theme of fire control came up a number of times, with one participant highlighting that traditional fire management practices were a form of fire control, as these traditional burns not only protected certain areas / species, but also created a patchy landscape to prevent later larger, uncontrolled fires. Nevertheless, participants also acknowledged the need for fire control methods including fire fighting training and equipment.

In many cases, participants talked about education and raising awareness about fire, both its benefits and importance in Indigenous livelihoods as well as the dangers of wildfires such as for properties and health through smoke inhalation. There was discussion on more public awareness sessions in villages, and using radio, whatsapp and other social media platforms to broadcast good fire management practices and regional activities and programmes.

Although there was acknowledgment on the role of national stakeholders and agencies in activities such as providing funds, training and policy development (e.g. inserting fire management into the Amerindian Act), participants highlighted that the regional government was critical in the everyday management of fire. The regional government could play a better role in coordinating fire management activities, particularly in a landscape with multiple actors.



4.1.2 Recommendations for fire management

The participatory exercises discussed above identified four key themes: traditional knowledge, governance, education and fire control. From these themes and the conversations around them and using the findings from previous studies and documents outlined in Sections 2.2 and 2.3, participants developed the first set of Rupununi Fire Management Recommendations. These were presented to regional stakeholders and then national stakeholders in a world café format for feedback and suggestions.

Some of the points coming out of these multi-stakeholder discussions included:

- The limited knowledge about fire management within government and non-governmental organisations and the need for training and capacity building for staff working in these organisations.
- Importance to place fire within Protected Areas Act as well as within protected areas management plans.
- Rupununi Livestock Producers Association (RLPA) could be informed on correct burning methods such as forest edge and savanna burning, to then disseminate this information more widely to ranchers.
- The need to learn from existing agreements made between boundaries / land owners, and to get support from ministries such as Ministry of Amerindian Affairs or CI-Guyana to help negotiation and conflict resolution in inter-community discussions and agreements.
- The need for different agencies to help support fire management and monitoring, for example the Guyana Forestry Commission with GIS, mapping and fire strategy review, Hydromet with climate data, EPA with fire and air quality monitoring, the Fire Service with technical / firefighting advice.
- Visits to support knowledge exchange and skill transfer such as between villages, but also cross-border exchanges with Brazil and Venezuela.
- The need for a regional fire committee that works under the Regional Development Committee, with its own budget, and linked to existing units of planning and disaster risk reduction.
- Importance of including fire management within the Village Sustainability Plans.
- Importance of maintaining any village fire committees throughout the year, clear terms of reference and communication structures, and payment for committee members in selfsustaining way e.g. through LCDS and/or Small Grants Programme funds.
- Inclusion of fire within the Community Monitoring, Reporting and Verification (CMRV) that forms part of REDD+ in Guyana.
- Consideration of waste disposal and waste burning, and its impacts on landscape fires.
- Need to ensure that women are involved in all kinds of fire training, committees and as first responders.
- Need for village level training in fire monitoring, including mapping, drone use, GIS and data analysis.
- Importance of regular monitoring of the impacts of fire on vegetation and wildlife e.g. continuation of transect monitoring around Shulinab developed by Kayla de Freitas.
- Education and awareness raising about different types of fire, 'good' and 'bad', at all levels through for example radio, social media, influencers, within schools, by tourism enterprises.
- Need a new bill or legislation to deal with landscape fires.

These suggestions and comments, and further discussion amongst the Indigenous participants then led to the final set of Rupununi Fire Management Recommendations shown in Table 1.

Table 1. Draft Rupununi Fire Management Recommendations

Recommendation	Details	Who should be involved from the community?	Is external support required? If yes: What support? From who?
Savanna patch- burning	Beginning at the start of dry season (and throughout the dry period – but more carefully into later dry season) to create mosaic landscape and fire breaks to control spread of fire through the savanna. The patch burning to be done after the first rain for a few weeks. Where: Open savanna and around swamps/ ité swamps Interior savannas (or open patches within forested areas) Creating village rules needed to support the practice (can be supported by KMCRG and MoAA) Monitoring of patch burning within titled lands and state lands	Village council Villagers Fire management committee Resource users Local managers (living in certain areas) Knowledgeable elders/knowledge holders	No
Forest edge burns	Burning beginning in the early dry season and as the place dries and becomes accessible Where: Mountain foot/swamps and areas around mountain foot Forest edges Bush island edges River forest areas	Fisher men Hunters Trappers Ranchers Farmers Fire management committee Village Council	Technical support: GFC and PAC (because of fires to the Kanukus), EPA, GLSC, RLPA Have a discussion with the Lethem fire department. Transportation
Identify communities with traditional fire management to be used an example and replicated	Use these communities as examples or point of reference for other communities Identify best practices: discuss past and present fire use with elders and knowledge holders Most of the Bush Island communities are taking this lead (Sawariwau and Katoonarib) Review and adapt the fire calendar	SRDC and other conservation bodies Communities	Financial resources for exchange visits and demonstrations to other communities

Recommendation	Details	Who should be involved from the community?	Is external support required? If yes: What support? From who?
Understand if, how, when, and why burning swamps and interior savannas should occur	Swamps and interior savannas identified as critical areas in fire management and greater clarity on burning methods needed. UG – students can work on doing more research on burning swamps and interior savannas	Village Council Resource users Traditional knowledge holders Local mapper(s)	Technical support: GLSC, EPA, UG Equipment: GPS to map out these areas, computers
Include fire management under the responsibility of the Environmental Councillor	Aware of environmental policies and legislations - Undergo training with fire committee on this Liaise with fire committee (be the go-between the fire committee and the village council). Can also liaise with relevant NGOs and government agencies. Help make decisions about when to burn and promote early dry season burning of savannas with the fire committee, village council, and the village Help reinforce community and inter community agreements	Village Council	Technical support: Lawyer - for legislation and policy training
Add fire management into the village plans	When considering planning or reviewing of existing village sustainability plans (VSP) – fire management should be included as a topic. Update the VSP manual and process, make sure it takes into consideration fire as part of land management.	Village councils Villagers Fire committee Knowledgeable elders	Technical support: VSP facilitators, CI-Guyana, MoAA, NTC, District Reps, EPA KMCRG and PAC (specifically for the KMCRG communities)

Recommendation	Details	Who should be involved from the community?	Is external support required? If yes: What support? From who?
Create fire committees in each community	Clear discussion on who is responsible for what areas – how they are selected/rewarded for looking after certain areas. Fire management committee to be established at a village general meeting – also roles and responsibilities and terms of reference for the fire committee. Shulinab can be used as an example for training and setting up committees. Local managers – natural to be looking after the areas that they live/use Allocation of LCDS/other funds coming for fire management Villages can discuss internally and have an agreement on appropriate payments and so on (if needed) These community fire committees can be part of a collaborative process in developing a regional fire management plan with a regional body (see regional fire committee recommendation) Link fire committees to district level plan for fire management.	Village Council Traditional knowledge holders Local managers Resource and land users	Support needed: Insurance for fire committee members who are in the line of duty with managing fire Seek advice on details for how insurance is done for this type of work (maybe if NIS covers) Financial support: Payments for fire committee (to be discussed internally) Training support from: Guyana Fire Service (risk reduction)

Recommendation	Details	Who should be involved from the community?	Is external support required? If yes: What support? From who?
Set clear management agreements between communities and other land owners (private land and protected areas)	Have a clear understanding between communities and other land owners (private lands and protected areas) about critical and common areas: - Times - Seasons - Areas to be burnt - Identify appropriate users - Develop rules and regulations around this Agreements to be mandated by government (for example EPA or another relevant agency can request private leases to have fire management plans and agreements with neighbouring communities and other land owners) Agencies can help with agreements: - Mediation - Legal support - Agreements with clear roles and responsibilities - Map and understand land tenure use across sectors RLPA can inform and share forest edge and savanna burning techniques to ranches	Inter-village council and other land owners meetings Knowledge holders (in more than one villages) SRDC facilitators Private lease holders Neighbouring villages Fire committee NRDDB	From who: CDC, RDC, EPA, PAC, GFC, GLSC, KMCRG, RLPA, NTC, CI- Guyana, NAREI Tourism agencies Financial support for travel
Fire management plans created by communities and shared	Train facilitators to create fire management plans in villages All communities should have a fire management plan and consider the following: - Identify critical and vulnerable areas (what has to be burnt and what must not be) - Mapping of wildlife corridors – understand breeding season of wildlife - Create a general guideline for open and closed seasons for burning and using fire - Times and seasons when to burn (times of day, year, and which places) - Carry out discussions with different fire users (hunters, farmers, cattle grazers, fishermen, craft makers) genders and generations to clarify possible different interest about fire Consider waste disposal and burning od rubbish and garbage and impacts on fire GFC can provide technical support in creating the fire management plans	Village Council Villagers Farmers Hunters Fishermen Crafters Livestock owners	From who: Ministry of Natural Resources and Environment, GFC, GWCMC, WWF, MoAA Ministry of Education Technical support: Training for facilitators Financial Resources: Stipend for the facilitators in creating management plan, computers, cameras, drones

Recommendation	Details	Who should be involved from the community?	Is external support required? If yes: What support? From who?
Create a Regional Fire committee	Regional Fire Committee can act as a coordinating body working with village fire committees. Regional Fire Committee can take recommendations to the national level and facilitate national to local level support Help implement exchange visits between communities in Guyana to share fire knowledge and plans (NTC), and set up visits between Brazil and Venezuela and Guyana - Brazil and Venezuela have established regional and national agencies overseeing wildland fire management - Indigenous fire fighters Consider fire management plans for the constituencies of Lethem Develop ToR for Regional Councillor who can take the lead in the Regional Fire Body Include fire management in RDC budget & link to planning unit & disaster reduction unit	Village Councils	From who: Relevant agencies (RDC, GFC, PAC etc), Lethem fire service, NGOs (CI-G), Ministry of Home Affairs, police, CDC, GLSC, NTC
Evaluate the progress of implementation of community fire management plans	Set up a monitoring and evaluation system for the fire management plan that is to be implemented by the Regional Fire Committee and Village Councils - Hold annual follow up meetings to discuss challenges, best practices, changes in policies etc Brazil with experience with Indigenous/ state partnerships in burning can do first evaluation and train regional body to do evaluations of fire management plans	Village Council Village Fire Committees	Regional Fire Committee
Review the National Wildfire Management Strategy	This document already exists - but needs reviewing and updating. Can form the basis of a national, regional, and local strategy for management. - Bring relevant agencies, regional bodies, indigenous and local communities (including private lease holders) to discuss and review the strategy GFC to assist with review of the National Wildfire Management Strategy	Fire Committees Village council	From who: Regional Fire Committee and other relevant government agencies and NGO bodies GFC

Recommendation	Details	Who should be involved from the community?	Is external support required? If yes: What support? From who?
Fire management into the Protected Areas Act	Begin by including fire management into current Kanuku Mountains Protected Area (KMPA) plans review and update (2023) and all other PAC management plans Try to place fire into PA Act	Village Council District councils	From who: PAC
New legislation to include landscape fires in Guyana Fire service remit	Guyana Fire service is trained in urban fires. Their legislation does not govern landscape and other interior fires. Local level experts can advise on what goes into this legislation.	Village councils District councils	From who: MNRE, GFC, MoHA, MoLG
Inter village agreements to deal with overlapping areas (common use areas) between title and extension areas to manage fire	Strengthening the community common boundary agreements to include fire related issues - District level agreements - Cluster community agreements for common areas Training in negotiation and learning from existing boundary agreements made between land owners	Village Council Resource users District Council (NRDDB, KMCRG, SRDC, KDC)	From who: MoAA Financial support to cover costs of meetings and discussions: flipcharts, markers, transportation
Decentralisation of decision making and fire management from central government to communities	Instead of appointing people from external agencies, financial resources should be directed to village councils Can be at individual community level, or a cluster of communities that can come together to manage a certain landscape Local managers will report to fire committee – fire committee reports to village council – village council makes reports at a district level. District to RDC (regional fire committee with different sub district representatives) – from the Region to the national level (different agencies/an agency for fire)	Village Council Fire Committee	From who: RDC, CDC, risk and disaster reduction committee Financial support Allocate funding Other actions: Meetings with GFC, PAC, MNRE, and other agencies – so experiences and management are not isolated Establishment of a process or mechanism to manage the decentralisation process

Recommendation	Details	Who should be involved from the community?	Is external support required? If yes: What support? From who?
Community meetings and awareness	Include youth in public meetings and involve them in innovative activities on fire use and management Engage youth and wildlife clubs on fire use and fire management Fire should be a regular topic on the agenda for Village General Meetings In high risk times a meeting focussed on fire by itself should happen Make farmers aware of alternative methods of fire breaks such as tractor ploughing to safeguard savanna farms	Village Council Villagers Resource persons, youths, teachers Fire committee District Councils/ representatives	Financial support for: Materials and meals Printed documents, projectors, computers, power source Technical support: Videos for demonstration / awareness
Disseminating fire knowledge to wider audience	Each radio station must have special local content programmes for fire management Billboards advising on fire use in private and public places Use existing events to discuss and promote wise fire use and management (for example rodeo, mashramani) Create new events focussed on fire – such as a fire festival Use social media to promote fire management awareness	Village Councils Village Fire Committee Local radio broadcasters Youth clubs Wildlife clubs	From who: CDC, RDC, Town Council of Lethem, Rodeo committee, other committees for other events
Schools and fire education	Use the school systems to hand down traditional fire knowledge (integrate at a national level) Develop educational materials Revise the fire calendar and produce material to be shared and used by other communities	Students Teachers Parents PTFA DDO CDO Village Council	From who: Ministry of Education (regional education department), NCERD, Ministry of health, CI- G, Ministry of Agriculture, Ministry of Natural Resources and Environment, PAC

Recommendation	Details	Who should be involved from the community?	Is external support required? If yes: What support? From who?
Revive local knowledge	Rekindle traditional knowledge system of fire management Not just talking but by doing – take the younger generation out to learn about time to burn, areas that should or should not be burnt, and seasons when to burn Document fire TK through video and other participatory methods Find young 'champions' who engage in traditional knowledge and practices with fire. These persons can be a role model for other youth.	Village Council Fire committee Knowledgeable elders/knowledge holders Knowledgeable women/Women's groups Youth groups SRDC youth conference (agenda item) SRCS education programme at youth level Wapichan Wadauniinao Ati'o – programmes to be included on fire management Macushi Research Unit (MRU) can raise awareness and share local knowledge	From who: Cobra Collective Support: Transportation and equipment for demonstrating fire management Financial support for: Payments for facilitators, printing of materials, outreaches/ education and awareness raising meetings
Double fire breaks	Farming: one fire break burnt on the outside of the bush island/forest. Second burn inside the forest around the farm edge. Sweeping into the farm before setting fire is another strategy. Consider burning from edges into the centre. Consider collaborative burning with other farmers when burning the farm Distinction: No double breaks in the deeper forest. This is needed in bush islands and bush mouth farms For savanna farming plough inside and outside the fence line	Village Council (governance role) Farmers and neighbours - Farm head men (involved in the burning/leading) - Agreements with other farmers Fire committee	From who: NAREI (ploughing in savanna farms and creating breaks)

Recommendation	Details	Who should be involved from the community?	Is external support required? If yes: What support? From who?
Training in fire prevention (traditional and other ways of fire prevention/combatting)	Recommendation that at a regional and local level training is carried out in basic fire prevention strategies (any training should be conducted by licensed/authorised trainers/authority) Building on experiences from pilot fire project in Shulinab: exchange (Shulinab's fire team can be supported to do exchanges and train other fire committees/teams) Exchange with Brazilian Indigenous fire experts (could be Roraima) - Develop working MoU Guyana Fire Service officers should be trained in landscape fires in different ecosystem context (savanna, wetlands, forest etc) Identify water sources in areas where it is prone to drought All agencies need capacity building and training on fire – ecology, role in livelihoods, fire management and control. *cross cutting recommendation/detail* women should be involved in all kinds of training, committees, and in capacity building as first responders to fire	Village Council Fire management committee Shulinab's fire team Knowledgeable elders Local Managers	Technical support: Training in use of the equipment From who: PAC, CI-Guyana, Hydromet
Basic firefighting equipment at local level	Suggested that all local communities be given basic firefighting equipment Communities can fund raise to get equipment Training to be done to use fire-fighting equipment	Village Council Fire committee	From who: GFS, RDC, CDC, risk and disaster reduction committee, Lethem Town Council. Equipment: Flappers, long boots, masks, spray cans, water bag, blowers, hard hats (helmets) Request for ATVs for each district From who: NGOs & other donors (inc. government)

Recommendation	Details	Who should be involved from the community?	Is external support required? If yes: What support? From who?
Monitoring and collecting of fire data	Use of modern technologies to monitor the impacts of fire management e.g. drones Training in GPS and other mapping - Every community should have a GPS unit Research on past and present fires Revise community monitoring processes (CMRV) - Link creation, implementation, evaluation of the fire plans to CMRV, VSP, and other ongoing planning processes - Ensure community monitoring is for community needs not just national reporting requirements Seek support for fire through EPA flaring monitoring, data and technology. Share this data with relevant regional, district, and local level committees. UG can help provide training and support in data analysis and management Continue fire transects data collection in Shulinab and other areas to monitor effect of fire on savannas Hydromet to assist in establishing more weather stations Monitoring of air quality impacts from fire (EPA)	Village Council Monitors (South) Local Managers Fire Committee Youths	From who: Hydromet, EPA, PICSA (Participatory Integrated Climate Services for Agriculture), University of Guyana Support in awareness sessions: GFC - help develop monitoring templates and other information sharing - building capacity of the monitors to collect, analyse, and report the data Financial support: For stipends, computers, hard drives (storage of information), development of an app for fire monitoring Training: Local licensed drone operator trained

4.2 Workshop 3

4.2.1 Ranking of the Rupununi Fire Management Recommendations

Participants worked in groups to identify their top three priorities in the Governance recommendations (the longest list with 12 recommendations) and their top two priorities for the Traditional Knowledge, Fire Control, and Education and Awareness recommendations (see Figure 4). The highest ranked recommendations were then discussed and agreed upon as a whole group (see Figure 5).



Figure 4. Example of ranking of recommendations

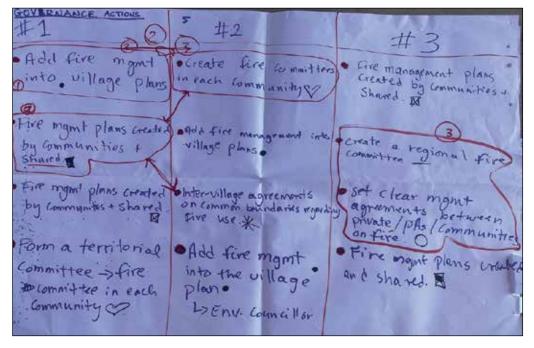


Figure 5. Example of whole group discussion and agreement of recommendations

For Governance, the top recommendations were:

- 1. Add fire management into Village Sustainability Plans (VIP);
- Communities to create fire management plans and share with other villages > Create fire
 management committees in each community to help implement the plan > Create inter-village
 agreements on common use areas/boundaries with regards to fire use;
- 3. Create a regional fire committee > facilitate discussions and fire management agreements between private/protected areas/community/state land tenure types.

For Education and Awareness, the top recommendations were:

- 1. Use community meetings to raise awareness about fire management and fire management plans;
- 2. Disseminate fire management knowledge to a wider audience.

For Traditional Knowledge, the top recommendations were:

- 1. Identify communities with traditional fire knowledge and use as an example;
- 2. Understand swamp fire use (if, why, and when swamps should burn).

For Fire Control, the top recommendations were:

- 1. Training in fire prevention (traditional and combative);
- 2. Monitoring and collecting of fire data.

4.2.2 Detailed plans for priority recommendations

The next step after agreeing on priorities for governance, education and awareness, traditional knowledge, and fire control was to plan out actions for each priority recommendation. For this, participants were asked to assess:

- What what needs to be done for this recommendation to work?
- Who who is responsible for this recommendation? Are we relying on someone else to be involved? Or is this an action we can take care of ourselves?
- How once we know what needs to be done and who is responsible / involved, think through some ways in which this can be implemented.
- When give each action a timeline when will different stages be completed?
- Barriers what are the barriers to this action being implemented?
- Mitigation how can we work around this barrier or what can we put in place to make sure that this is not a barrier?
- Monitoring how can we keep track of the actions to know what has been done? How will we report or communicate our progress and to who?

The following Table 2 shows the suggested plans for each of the priority recommendations.

Table 2. Plans for priority recommendations

Governance

Recommendation 1: Add fire management to Village Sustainability Plans (VSPs)

What	Who
Have an agreement at the Village General Meeting (VGM) to include fire management into the VSPs Update the VSPs	Village Council Villagers Elders
How	When
Village meetings	2024
Village clusters	
Resource users	
Other groups	
Headmen	
Barriers	Mitigation
Internal difference among fire users Lack of communication No interest Inter-village issues on fire	Free Prior Informed Consent (FPIC) consultation at all levels Village rules Create a Terms of Reference for fire committee Fines (community service) Inter-community agreements
Lack of communication No interest Inter-village issues on fire	levels Village rules Create a Terms of Reference for fire committee Fines (community service)
Lack of communication No interest Inter-village issues on fire	levels Village rules Create a Terms of Reference for fire committee Fines (community service) Inter-community agreements
Lack of communication No interest Inter-village issues on fire	levels Village rules Create a Terms of Reference for fire committee Fines (community service) Inter-community agreements

What	Who
Create fire management plans and committees in each community to help implement the plan	Kayla de Freitas to train community fire facilitators
	Village Councils
	District Councils
	Villagers
	User groups
	Elders
	Women, youths, shamans
How	When
1) Identify pilot communities to develop fire management plans. These communities will be models for the rest	2024 - 2026
2) Conduct FPIC, interviews, and build the plan and committee with the pilot communities	
3) Get support for implementation and sharing of plan and lessons	
4) Disseminate plan to other interested communities	
4) Disseminate plan to other interested communities Barriers	Mitigation
	Refer to the Wapichan management plan to extract
Barriers	Refer to the Wapichan management plan to extract common interests
Barriers Communities unwilling to share information	Refer to the Wapichan management plan to extract
Barriers Communities unwilling to share information Funding for creating and disseminating of plans	Refer to the Wapichan management plan to extract common interests Create inter-village agreements on common use areas/
Barriers Communities unwilling to share information Funding for creating and disseminating of plans Clash of village time and activities	Refer to the Wapichan management plan to extract common interests Create inter-village agreements on common use areas/boundaries with regards to fire use.
Barriers Communities unwilling to share information Funding for creating and disseminating of plans Clash of village time and activities Change of village councils	Refer to the Wapichan management plan to extract common interests Create inter-village agreements on common use areas/boundaries with regards to fire use. Proposal writing for funding
Barriers Communities unwilling to share information Funding for creating and disseminating of plans Clash of village time and activities Change of village councils	Refer to the Wapichan management plan to extract common interests Create inter-village agreements on common use areas/boundaries with regards to fire use. Proposal writing for funding Clear plan of work for Fire Committee
Barriers Communities unwilling to share information Funding for creating and disseminating of plans Clash of village time and activities Change of village councils	Refer to the Wapichan management plan to extract common interests Create inter-village agreements on common use areas/boundaries with regards to fire use. Proposal writing for funding Clear plan of work for Fire Committee Develop a communication strategy
Barriers Communities unwilling to share information Funding for creating and disseminating of plans Clash of village time and activities Change of village councils	Refer to the Wapichan management plan to extract common interests Create inter-village agreements on common use areas/boundaries with regards to fire use. Proposal writing for funding Clear plan of work for Fire Committee Develop a communication strategy Prompt follow-up
Communities unwilling to share information Funding for creating and disseminating of plans Clash of village time and activities Change of village councils Villagers' non-adherence to fire management plan	Refer to the Wapichan management plan to extract common interests Create inter-village agreements on common use areas/boundaries with regards to fire use. Proposal writing for funding Clear plan of work for Fire Committee Develop a communication strategy Prompt follow-up Meetings to deal with reports
Communities unwilling to share information Funding for creating and disseminating of plans Clash of village time and activities Change of village councils Villagers' non-adherence to fire management plan	Refer to the Wapichan management plan to extract common interests Create inter-village agreements on common use areas/boundaries with regards to fire use. Proposal writing for funding Clear plan of work for Fire Committee Develop a communication strategy Prompt follow-up Meetings to deal with reports Have clear objectives/benefits for villages

What	Who
Facilitate discussions and fire management agreements between private/Protected Areas/Communities/State land tenure types.	Village Council Fire Committee
	District Councils
	Regional Democratic Council, other interest groups (Kanuku Mountains Community Representative Group, Conservation International-Guyana, Protected Areas Commission, Environmental Protection Agency, Guyana Lands and Survey Commission, Guyana Police Force, Guyana Defence Force, Ministry of Amerindian Affairs, Community Development Officers, Rupununi Livestock Producers' Association, South Rupununi Conservation Society and others
How	When
First regional meeting to introduce the programme	2025 - 2026
Have village management plans and inter-village agreements to show as example to facilitate discussions with regional and other stakeholders	
Groups meet with their respective offices	
Second regional meeting to discuss ways to have a decision and agreement on ways forward.	
Composition of Regional Fire Committee and a ToR for Regional Fire Committee to manage fire at a Rupununi landscape level	
Barriers	Mitigation
Differences in stakeholder interests	Using the current planning process of the village
Lack of political will	Contact and discuss with RDC, MoAA, other Ministries, and agencies that could lend support to the process
Lack of funding	Villages work with RDC to draft letters to relevant stakeholders at regional level on the development of fire management plans.
	Look for opportunities that exist with the Regional multi- stakeholder Conservation and Environmental working group at RDC
Мог	nitor
RDC and District Councils to take lead Registers and minutes of each meeting Signed agreements to be followed ToR for all stakeholders Regional agreement on landscape level fire management strategy	Reports from all stakeholders on fire activities Evaluation, review, and recommendations for improvements

Education and Awareness Group

Recommendation 1: Community meetings to raise awareness on fire management and fire management plan

What	Who
Hold village general meetings and awareness on fire management	Monitors
a.iagaa.i	Village Council
	Villagers
	Fire Committee
How	When
Village council, Villagers, fire management committee, and all resource persons create rules and regulations for fire management	Encourage all communities to do this before the next Toshao elections in 2024
Make fire management a set topic for village meetings	
Barriers	Mitigation
Access to materials - printed documents on fire management. Lack of financial support	Work along with the Regional Democratic Council, District Councils, other villages who have fire management plans (e.g. Shulinab) because of their experience
Village council unable to influence their villagers on importance of fire management	
Мо	nitor
Employ monitors or rangers that report to the fire management committee who also report to the village council	

What	Who	
Create local content for radio programme in English and local languages, for e.g (specific to North – Eye on the	Village Councils	
Environment)	Villagers	
	Fire Management Committees	
	Broad casters	
How	When	
Printed documents on fire management	Share and present these documents at the next general meeting and include in handover to the next council	
Source fire management documents from the South Rupununi District Council (SRDC) to share to other districts		
Barriers	Mitigation	
Financial support to access documents on fire management	Village Council and SRDC to share what they have	
Shulinab failure to share their fire management document	Radio personnel and fire management committee to share	
Monitor		
Village councils		
Villagers		
Fire management committee		

Traditional Knowledge

Recommendation 1: Identify communities with traditional fire knowledge and use as an example

What	Who
Identify knowledgeable elders	Village Councils
Share experiences with pilot villages	Villagers
Peer to peer exchange (KMCRG /SRDC /NRDDB /KDC)	District councils
Review and adapt a fire calendar to suit location per	Knowledge holders
village/district	Conservation bodies (CI, Iwokrama, SWM etc)
How	When
Village Council discussions with fire committee and community based organisations	Identify the knowledge holder now
Consult community members	Within the lifespan of a VSP
Approval at VGM	
Implement the action plan	
implement the action plan	
Barriers	Mitigation
	- Intigation
Traditional knowledge has been preferably passed onto males versus females	Both genders should have equal opportunity for traditional knowledge
	Both genders should have equal opportunity for
males versus females Change of leadership in the village council and at national	Both genders should have equal opportunity for traditional knowledge Village leaders should respect and continue to implement
males versus females Change of leadership in the village council and at national level > change in priorities	Both genders should have equal opportunity for traditional knowledge Village leaders should respect and continue to implement VSPs
males versus females Change of leadership in the village council and at national level > change in priorities Unpredictable weather patterns	Both genders should have equal opportunity for traditional knowledge Village leaders should respect and continue to implement VSPs
males versus females Change of leadership in the village council and at national level > change in priorities Unpredictable weather patterns Financial accessibility Language	Both genders should have equal opportunity for traditional knowledge Village leaders should respect and continue to implement VSPs Proposal writing and lobbying
males versus females Change of leadership in the village council and at national level > change in priorities Unpredictable weather patterns Financial accessibility Language	Both genders should have equal opportunity for traditional knowledge Village leaders should respect and continue to implement VSPs
males versus females Change of leadership in the village council and at national level > change in priorities Unpredictable weather patterns Financial accessibility Language	Both genders should have equal opportunity for traditional knowledge Village leaders should respect and continue to implement VSPs Proposal writing and lobbying

Fire Control Group

Recommendation 1: Training in fire prevention (traditional and combative techniques)

What	Who
Identify key traditional knowledge holder of the use of fire	Village councils
Practical training and videoing and video training materials	Fire management committee
Training in non-traditional methods and equipment	Fire service
Develop step-by-step manual	Local managers
Training of trainers	Monitors/rangers Technical/resource people
Exchanges on fire management	District council
Work closely with village fire plan	District council
Identify pilot villages (4)	
How	When
Compile a training document	Within the next two years
Establish a relationship with the fire service	
Training of trainers	
Training of monitors/rangers	
Barriers	Mitigation
Funding	Seek support from the government and NGOs
Uncertain of Guyana Forestry Commission relationship	Explore other technical support and exchanges
No fire management plan	Work with communities who have started the process
Monitor	
Develop and M&E plan	
Quarterly reports/activity reports	
Village councils, fire committee, district council, fire service	

What	Who	
Create maps of vulnerable areas and places that need burning	Village council/district council	
Procure monitoring equipment (GPS, drones, satellite	Fire management committee	
images etc)	Fire service	
Develop monitoring plan	Village monitors/rangers	
Compile past and present information	Technical resource persons: Environmental Protection Agency, university of Guyana, Hydromet, and other	
Survey information	institutions	
How	When	
Establish a monitoring department at a district level	Within the next two years	
Develop a data bank		
Monitoring plan		
Monitoring by rangers		
Make a report of findings		
Barriers	Mitigation	
No funding	Seek support from government and NGOs	
Lack of support/equipment		
Monitor		
Quarterly reports/activities reports		
Keep track and record meetings and activities and deadlines effectively		

4.3.3 Research that can support local fire management

Once the plans for the priority recommendations were made, participants discussed the kinds of research that could support local fire management. These were as follows:

Governance

- Impact of fire on:
 - Gallery forests
 - Forest fruit trees
 - Soil especially along savanna creeks
 - Breeding areas
 - Water sheds, lakes, kadorara
 - Medicinal plants
 - Amazada Tapiki (spirit keepers and sacred sites)
- Desk based research on experiences of this type of state/indigenous collaboration on fire management
- Research on satellite imagery/what partnerships can be formed that supports these types of work
- Research on what help is available through programmes at an international level (NGOs example CI-G)
- Research on animals migration/monitor animal movements after fire.

Traditional Knowledge

- Impacts of fire on gallery forest
- Impact of fire on wildlife
- Impact of fire management plan (negative and positive outcomes)
- Impact of human activities on the destruction of the environment
- To find out/gather traditional methods of fire burning and best practices
- Impact of fires on traditional medicinal plants

Education

- Data on functional wildlife clubs in the Rupununi
- Data on effective and functioning village councils and district councils
- Record of all resource people in the villages
- Data on how much forested areas, savannas, and swamps are on village titled lands
- What data on fire management is available at national and local levels
- Data on how to access billboards and printed materials about fire management
- Record of local data (traditional knowledge) on how to manage fire

Fire Control

- Data on land degradation caused by fire and also activities such as farming, mining, and lumbering etc
- How fires impact on our forest mountains and bush island mountains
- Research on impact of fire on bush islands and creek edge vegetation
- Research on impact of fire on fish spawning sites/wetlands and the impact of fire on these areas
- Research on how much fire is stored in the forest and the savannas. Also emissions released that can contribute to global warming
- Impact of fire on the sacred sites (rock carvings, home to spirit keepers, sensitive sites, battle field grounds, nature farms, domestic animals population
- Updates CMRV

4. Conclusions and next steps

From the December 2023 workshop, specific next steps identified were the following:

Kayla de Freitas and Jay Mistry:

- Compile report with March and December workshops
- Compile actions from December and create detailed steps
- Send copy of actions to district representatives for approval
- Write blog article that can also be used and shared by district representatives
- Write a brief update to share with the NTC on December 12th to 15th 2023

SRDC:

- Fire will be put in as part of monitoring programme from 2024
- Meeting in January fire management plan and these workshops will be on the agenda
- Identify at least one or two pilot villages to create fire management plan
- Identify critical areas to monitor from management plans
- Follow up on pilot villages (Shulinab and Sawariwau that have fire management plans) to see what is existing in terms of rules and how to monitor and share information

Karasabai:

 December 2023 at the village general meeting the district representatives will update the village about the fire workshops and the need for a fire management plan

North Rupununi:

- Present through NRDDB meeting talk about fire workshops in February 2024
- Present about fire workshops on radio

Central Rupununi

- Yupukari meeting is on December 18th and will be updates
- NTC meeting on December 12th 2023 will be updated
- Present on fire at the KMCRG Annual General meeting on 14th and 15th of December 2023

The participants also developed a short communication strategy on fire, presented in Appendix 2.

The three workshops offered unique opportunities for Indigenous leaders from the Rupununi and different stakeholders from regional and national levels to exchange multiple perspectives and experiences about fire management in Guyana. They were also important spaces to bring together Indigenous leaders from different parts of the Rupununi to recognise the common livelihood and cultural importance of fire, and to build alliances for a community-, Indigenous-led push for fire management in Guyana.

"Importantly, the participation from all representatives of the Region is key to moving forward in developing plans to safeguard our environment e.g. bringing together SRDC, NRDDB, KDC. We not only need this for fire, but for everything that matters to us as it relates to our land, water, air and largely our country" (workshop participant).



References cited

Bell, S., Berg, T. and Morse, S. (2016). Rich Pictures: Encouraging a Resilient Community. Routledge: London, UK; New York, NY, USA.

Bilbao, B., Mistry J., Millán, A. and Berardi, A. (2019). Sharing Multiple Perspectives on Burning: Towards a Participatory and Intercultural Fire Management Policy in Venezuela, Brazil, and Guyana. Fire, 2(3), 39; https://doi.org/10.3390/fire2030039

De Freitas, K. (2024). Burning Tensions: The Implications of Shifting Indigenous Burning Practices on Local Fire Governance in South Rupununi, Guyana. Unpublished PhD thesis: Royal Holloway University of London

FCG Arbonaut. (2019). Final Evaluation Report of three REDD+ Pilot Projects: Muritaro-Shulinab-Siriki, for consultancy: Design and Implement REDD+ Pilot Activities for Guyana. Ministry of Natural Resources: Inter-American Development Bank (Forest Carbon Partnership Facility Project in Guyana, Ref. No. FCPF/7.12/2018, TC No.:ATN/FP-14161-GY.

Guyana Forestry Commission. (2008). *National Wildfire Management Strategy: Technical Consultation Report*

Kitzie, V. L., Pettigrew, J., Wagner, T. L. and Vera, A. N. (2020) Using the World Café Methodology to support community-centric research and practice in library and information science. Library and Information Science Research, 42(4), 101050. https://doi.org/10.1016/j.lisr.2020.101050

Lelea, M.A., G.M. Roba, A. Christinck, B. Kaufmann. (2014). Methodologies for stakeholder analysis – for application in transdisciplinary research projects focusing on actors in food supply chains. German Institute for Tropical and Subtropical Agriculture (DITSL). Witzenhausen, Germany.

MacFarlane, A., Galvin, R., O'Sullivan, M., McInerney, C., Meagher, E., Burke, D. and LeMaster, J. W. (2016) Participatory methods for research prioritization in primary care: an analysis of the World Café approach in Ireland and the USA. Family Practice, 34(3). https://doi.org/10.1093/fampra/cmw104

PMRU. Author Unknown. (2006). Community-Based Natural Resource Management: North Rupununi

Rodríguez, I., Albert, P., La Rose, C. & Sharpe, C.J. (2011). A study of the use of fire by Amerindian communities in south Rupununi, Guyana, with recommendations for sustainable land management. Moreton-in-Marsh, UK: Forest Peoples Programme. http://wapichanao.communitylands.org/15057 80518 117- rupununi- fire-study-web.pdf

SRDC (2012). Thinking together for those coming behind us: An outline plan for the care of Wapichan territory in Guyana. Shulinab, Guyana: South Central and South Rupununi Districts Toshaos Councils. Available from: https://www.lifemosaic.net/images/uploads/Territories_of_Life/TOL_Resources/Plan_de_Vida/Thinking_Together_For_Those_Coming_Behind_Us.pdf

Appendix 1List of workshop participants

March 2023 - Indigenous representatives

Barnwell Millington - Karasabai

Paulinus Albert - Potarinau

Ralph Edwards - Tiger Pond

Michael Thomas - Aishalton

Michael Williams - Annai

Gloria Duarte - Rupertee

Orla Cabral - Surama

Indranie Joseph - Karasabai

Helita Edwards - Karasabai

Joylyn Farias - Nappi

Odelia Francis - Kumu

Nicholas Cyril - Katoonarib

Angelbert Johnny - Sarawiwau

Susan Balvadore - Quiko

Maurice Adolph - Quiko

Apollo Isaacs - Karaudaranawa

Shamir Khan - Yupukari

Micah Davies - Toka

Abraham Ignace - Shulinab

Nicholas Fredericks - Shulinab

Kid James -Aishalton

David Albert - Karasabai

Sylvester Frederick - Nappi

March 2023 - Regional representatives

Jessica David - Rupununi District Council / St. Ignatius

Anupana Puran - Protected Areas Commission

Michael McDonald - Protected Areas Commission

Leah Casmero - Conservation International Guyana (Lethem)

Marceelle Chan-A-Sue - Conservation International Guyana (Lethem)

Vercida Gomes - Protected Areas Commission

Edmund Inniss - National Agricultural Research and Extension Institute

Patricia Peters - National Agricultural Research and Extension Institute

Vitus Spencer - National Agricultural Research and Extension Institute

Stefan Hilken – Guyana Livestock Development Authority

Gillian Albert - Conservation International Guyana (Lethem)

Leyland Gomes - St. Ignatius

Michelle Kenyon - Rupununi Livestock Producers Association

Rafael Lewis - Ministry of Public Works

Oswin Davis - Sustainable Wildlife Management Project

March 2023 - National representatives

Lovell Rebeiro - Guyana Forestry Commission

Niome Monsar - Environmental Protection Agency

Ronell Lewis - Protected Areas Commission

Donnica Thornhill-Gillis - Guyana Forestry Commssion

Christine Samwaroo - WWF Guianas

René Edwards - Conservation International Guyana

Louisa Daggers - University of Guyana

Christina Edwards - Rupununi Livestock Producers Association

December 2023 - Indigenous representatives

Sylvester Fredericks - Nappi Village Council

Jacintha Realine - Aishalton / South Rupununi District Council

Helita Edwards - Karasabai Village

Michael Williams - Annai Toshao/North Rupununi District Development Board

Shamir Khan - Yupukari Toshao

Gregroy Rodrigues - Karasabai Village

Bernadina Pio - Karasabai Village

Angelbert Johnny - Sawariwau / South Rupununi District Council / South Rupununi

Conservation Society

David Albert - Karasabai Village

Joylyn Farias - Nappi Village Council

Nicholas Fredericks - Shulinab Village Council

Jay Misty - Royal Holloway/Leverhulme Wildfires Centre

Kayla de Freitas - Royal Holloway/Leverhulme Wildfires Centre

Kid James - Aishalton/South Rupununi District Council

Frank Johnny - Sawariwau/South Rupununi Conservation Society

Denisio Joseph - Sawariwau Village

Akeem Williams - Annai

Gavin Winter - Aishalton / South Rupununi District Council

Appendix 2Communication strategy for fire

Strategy 1

Who is the audience? Who are the different people we need to communicate with about fire management?

Youth

What messages do we give to the different audiences?

- Don't scratch a match (North Rupununi radio programme)
- Don't play with fire
- The importance of fire management

How are we sharing this information? What formats?

- Use local language
- Use videos on good and bad fire practices
- Media: general information about fire shared on the social media platform (Facebook, Instagram, blogs)

Where do we share these messages? On what platforms?

- Schools: nursery, primary, secondary, wildlife club meetings
- Village meetings, self-help, church groups, youth parliaments.

Strategy 2

Who is the audience? Who are the different people we need to communicate with about fire management?

Villagers, District councils, Regional Democratic Council, District councils

What messages do we give to the different audiences?

The dangers (risks), and importance of using fire

How are we sharing this information? What formats?

- Local language, fire calendar
- Billboards
- Videos, audio, radios
- Hands on activities, reading materials, power point presentations, public meetings, environmental club activities, stories, V.G.M, fire talk at the schools' general assembly, workshops, videos (animated fire story videos), local translators, T/shirt with fire logo, caps, water bottles, pens, books etc.

Where do we share these messages? On what platforms?

- Villages, Regional Democratic Council, District councils
- Fire festivals, reading rodeo, career day, camp fires, WhatsApp groups, Facebook page, radio programmes, local meetings

Strategy 3

Who is the audience? Who are the different people we need to communicate with about fire management?

- Government officials/agencies
- Cabinet

What messages do we give to the different audiences?

Region # 9 have started creating a fire management plan

How are we sharing this information? What formats?

 Videos on best and bad practices and other videos about the plan arranged by the regional fire committee

Where do we share these messages? On what platforms?

- Office of the President
- National Toshaos' Council, Regional Toshaos' Council, Regional Democratic Council, workshops/seminars.

