

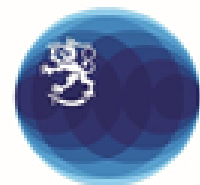


PARTICIPATORY PLANTATION FORESTRY PROGRAMME

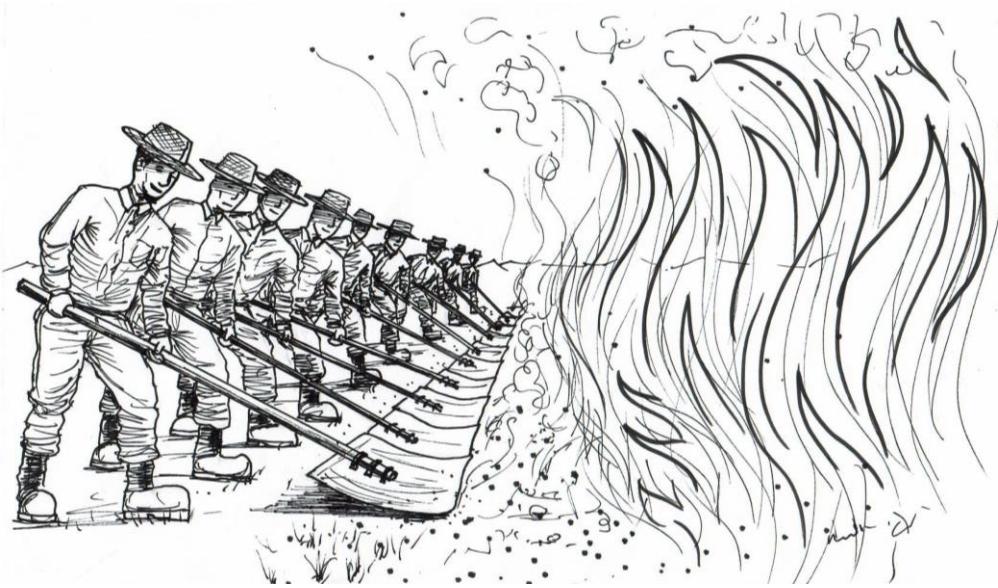
.....VILLAGE FIRE MANAGEMENT PLAN.....WARD,
..... DIVISION, DISTRICT, IRINGA REGION
(2023-2027)



United Republic of Tanzania
**MINISTRY OF NATURAL RESOURCES
AND TOURISM**
Forestry and Beekeeping Division



Embassy of Finland
Dar es Salaam



..... **VILLAGE FIRE MANAGEMENT PLAN**
..... **WARD, DIVISION, DISTRICT, IRINGA REGION**
(2023-2027)

FACILITATED BY



MINISTRY OF NATURAL RESOURCES
AND TOURISM – FOREST AND
BEEKEEPING DIVISION

PANDA MITI KIBIASHARA

S.L.P 2244 IRINGA

Simu: +255-262702011

Baruapepe: info@privateforestry.or.tz

Tovuti: www.privateforestry.or.tz



MUFINDI DISTRICT COUNCIL

S.L.P 223

MAFINGA

Simu: 026-2772614

Nukshi: 026-2772070

Barua pepe: ded@mufindi.go.tz

Prepared by:

..... Village Fire Management Committee

S.L.P

Mafinga

February, 2023

Note: This template does not include documents (as annex) for the approval of the plan by the village council and assembly meeting.

TABLE OF CONTENT

1.	INTRODUCTION	4
2.	VILLAGE INFORMATION	5
2.1	Geographic Information	5
2.2	Climate	5
2.3	Fire season	5
3.	PLAN	6
3.1	Protection.....	6
3.1.1	Firebreaks	6
3.1.2	Fire danger index (FDI)	6
3.1.3	Fire Permit system	7
3.1.4	Fuel management	7
3.1.5	Communication	7
3.1.6	Tools and equipment.....	8
3.1.7	Training and awareness	8
3.1.8	Lookout system	8
3.1.9	Bylaws for fire prevention and management of village council	8
3.1.10	IFM audit	8
3.2	Prevention.....	9
3.2.1	Training and awareness	9
3.2.2	Engineering (such as fire breaks, roads, water points, etc.)	9
3.2.3	Law enforcement.....	9
3.3	Suppression.....	9
3.3.1	Preparation.....	9
3.3.2	Actions during a fire incident.....	9
3.3.3	Basic Suppression Tactics	10
3.3.4	Investigating and reporting on fire.....	11
3.3.5	Fire Action Plan	11
4.	FINANCE.....	12
4.1	Budget	12
4.2	Income.....	12

ANNEXES

Annexe 1	General fire management activities plan (Adapted from Ministry of Natural Resources and Tourism Forestry and Beekeeping Division, Tanzania, 2019)	13
Annexe 2	Fire action plan	14
Annexe 3	Fire break register of Kidete village	15
Annexe 4	Fire breaks prioritised for preparation.....	25
Annexe 5	List of role players involved with fire management.....	26
Annexe 6	List of tools and equipment.....	27
Annexe 7	Training and awareness schedule	28
Annexe 8	Investor list in Kidete village	29
Annexe 9	Integrated Fire Management Audit	30
Annexe 10	Fire registers and documentation	33

FIGURES

Figure 1.1	Fire history map of Kidete village for the past 5 years (2018-2022)	4
Figure 3.1	Fire management map of Kidete including planned lookout vantage points, and internal and external fire breaks	6

TABLES

Table 4.1	Estimated recurrent and capital expenditure	12
-----------	---	----

ABBREVIATION

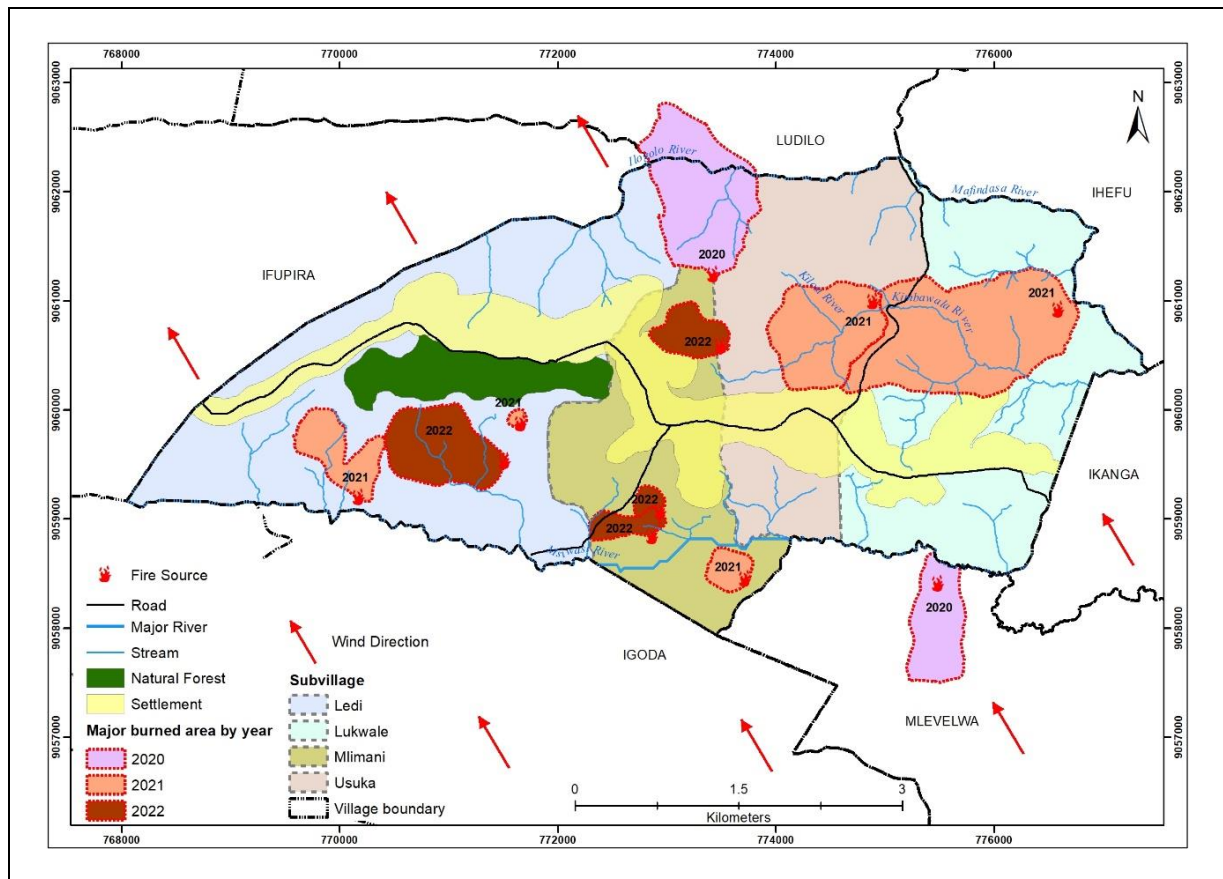
VFMP	Village Fire management plan
VFMC	Village Fire Management Committee
VFC	Village Fire Crew

1. INTRODUCTION

Kidete village has made substantial investments in forest plantations, which are becoming increasingly vulnerable to fire damage. Wildfires have destroyed about 570 ha of landcover in Kidete during the last five years (2018-2022). Fire has become the primary risk for tree growers, discouraging new investments.

Figure 1.1 depicts all unwanted fires that have occurred in the last five years. This information was mapped by using high resolution satellite image guided participatory mapping techniques after villagers indicated the proximity, dates, and sizes of fires. The majority of the burned areas were found to be forest plantations with a relatively high fuel load. Furthermore, fires tended to spread uphill and in the direction of the prevailing wind. One transboundary fire occurred in 2020, spreading from Kidete into Ludilo village.

Figure 1.1 Fire history map of Kidete village for the past 5 years (2018-2022)



Villagers prioritized tree plantation as the most important assets to be protected, other assets to be protected included crops, buildings, timber and related machinery, and natural forest. To overcome the above problem, the Kidete villagers developed this renewable five years fire management plan (VFMP). This VFMP which has been approved by the village council and village assembly provides the Village Fire Management Committee (VFMC) with a working document that will guide all activities necessary to protect the village from wildfire losses, prevent unwanted fires from starting, and effectively suppress unwanted fires. This document should be considered together with the “Bylaws for Fire Prevention and Management of Village Council” template.

This document should be kept up to date, and an annual revision will be required to keep it current. The VFMC will ensure good planning and timely execution of all integrated fire management (IFM) activities within the village by adhering to this plan.

2. VILLAGE INFORMATION

2.1 Geographic Information

Kidete village is one of the five villages in Mdabulo ward. It covers an area of 2,427 hectares. Kidete has four hamlets: Usuka, Ledi, Lukwale, and Mlimani. Kidete has a total population of 3,026 people, with 1,450 males and 1,576 females. The village contains 632 household, with an average of 5 people per household. There are 1,345 people aged 18 to 60. These are the people who are able to participate in firefighting.

The village borders Ludilo village to the north, Mlevelwa village to the south, Ikanga village to the east, and Ifupira village to the west. Kidete village is located 42 kilometers from Mufindi's headquarters and 71 kilometres from the Iringa region's headquarters. Ludilo, Ihefu, Ikanga, and Mlevelwa are other villages in Mdabulo ward. Mdabulo ward is in Ifwagi division, Mufindi district, Iringa region. Mufindi district is made up of 121 villages.

The Kidete village geography is a mixture of undulating hills, flats, and valleys, with an elevation ranging from 1,640m to 1,920m above sea level. Most of the village's territory is comprised of high hills and valleys. Mlimani, Ledi and Usuka hamlets have the most elevated ground, while the Lukwale hamlet includes most of the settlement and serves as the village's centre. Forest plantations typically occur on moderately to steeply sloping land.

Villagers are mostly small farmers who plant several agricultural crops and woodlots. Most social economic activities, such as crop farming and commercial tree planting, take place on elevated terrain and valleys. Maize, tea, beans, peas, millet, potatoes, fruit, and sweet potatoes are among the crops grown. The commercial plantations consist of eucalyptus and pine species, with pine being the most common in Kidete Village. Villagers are also active in the processing of tree logs into timber (Ding-dong sawmillers), the production of charcoal, and the harvesting of honey. In addition, domestic animals are raised using the zero-grazing method. It is estimated that woodlots cover 50-60% of the land area. The remaining village land is mostly grassland, and some natural forest occurs in Ledi hamlet.

2.2 Climate

Kidete has an annual precipitation mean of 1,295 mm and an annual temperature mean of 18°C.

The rainy season lasts from December to May. The wettest months are January to March, which have an average total precipitation of 662 mm, an average temperature of 17.8 °C, and an average wind speed of 6.84 km/hr.

The dry season lasts from September to November. This season is characterized by low rainfall (an average of total precipitation of 30mm), high temperature (ranging from 19 to 25°C), and higher wind speed which averages 10.8 km/hr.

2.3 Fire season

The fire season usually starts in June and lasts until the first summer rains (December/January), with most fires occurring between October and November. Rains may come early and shorten the fire season, but they can also arrive late, extending the fire season and making it more dangerous.

3. PLAN

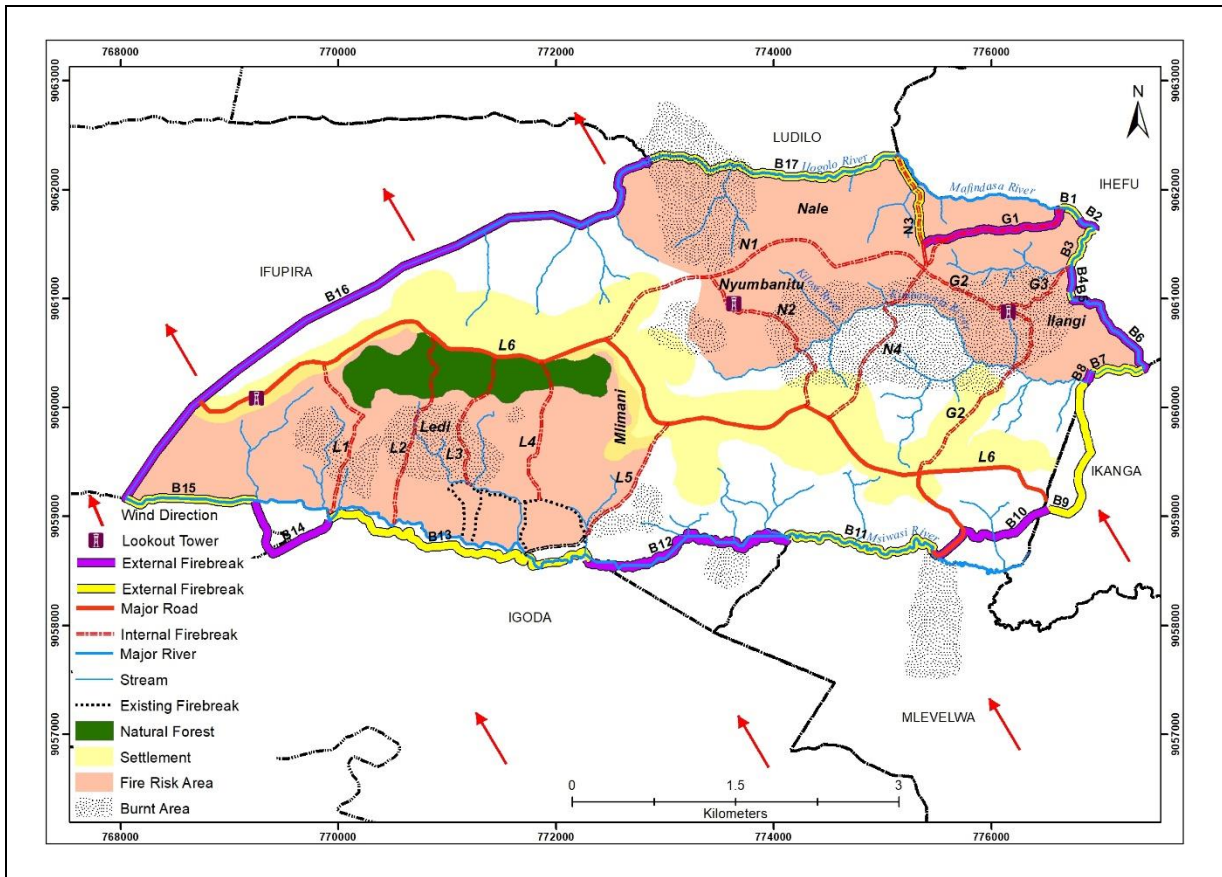
This VFMP considers protection, prevention and suppression as described in the subsections below.

3.1 Protection

“Infrastructure and systems put in place to protect lives, the environment, and assets from anticipated wildfires.”

High risk areas were identified by villagers after considering the value of the plantations concentrated in specific areas, as well as fire occurrences. Dominant wind directions were also mapped by the villagers. Considering these factors lookout vantage points and firebreaks were mapped (Figure 3.1).

Figure 3.1 Fire management map of Kidete including planned lookout vantage points, and internal and external fire breaks



3.1.1 Firebreaks

All firebreaks are listed and described in Annexe 3.

As preparation of fire breaks may continue into the dry season, it will be necessary to prioritise those breaks that need to be prepared first. Villagers identified external firebreaks bordering Ihefu and Ikanga villages as priorities for stopping transboundary fires entering the village (N3, G1, B1- B10). In addition, all the internal fire break were identified as priority fire breaks (Annexe 4).

3.1.2 Fire danger index (FDI)

During the fire season, the FDI system will be utilized to direct all fire management activities within the village, and to ensure that planned burning occurs under safe weather conditions. Land use activities, as well as the state of readiness of firefighting teams and villages, shall be governed by the FDI.

The VFMC chairperson and another VFMC member should be capacitated to secure current and prospective local FDI and distribute it to communities. Daily FDI and two day forecast data should be collected using the AFIS App on a smart phone or computer. The VFMC should establish an FDI register to keep track of everyday FDI. The usage of a Fire Danger Rating board, which is updated daily by the VFMC chairperson, is one method of communicating FDI.

3.1.3 Fire Permit system

Landowners, brick makers, charcoal operations, Mobile sawmillers or any other person within the boundaries of the village who will be using open fires, should acquire permits from the Village Executive Officer (VEO) or other authorized officer in accordance with the village fire bylaws. The purpose of a fire permit is to legalise and regulate the use of fire.

When considering fire permit applications, the VEO should take cognizance of the current and forecasted FDI.

All permits issued should be recorded in a fire permit register by the Village Executive Officer (VEO) or other authorized officer after it have been approved.

3.1.4 Fuel management

Areas within the village boundaries with a high concentration of vegetation should be managed to reduce the amount of burnable material before the fire season. Each year, before the fire season, these risky sites must be identified and documented.

In some regions, vegetation can be burned, slashed, removed, or isolated by clearing a break around it. A burning permit should be obtained from the Village Executive Officer (VEO) or other authorized officer if fire is used to reduce fuel. Slashing grasses to a height of 10cm and applying silvicultural activities to forest plantations within the firebreak. Implementation of silviculture procedures (thinning and pruning) should be prioritized as per MNRT technical order number one (2021) to reduce fuel load.

Mobile sawmillers create high concentrations of sawdust and off-cuts which are flammable. Sawdust heaps should be spread out and off-cuts should be removed from the plantation.

3.1.5 Communication

Exchanging Information, giving instructions and filing reports are very important communication activities needed for effective fire management. Communication methods used to transfer information should be simple and effective. Communication can be done through meetings, cell phone communication, an alarm system, personal communication, and signboards.

Meetings

The VFMC should meet monthly during fire season to discuss and report back on all fire management issues in the village. Dates for the meeting to be agreed between the VFMC members.

Joint meeting(s) between VFMC chairs of neighbouring villages must be held in the beginning and during the fire season to discuss mutual fire interests and preparation of external firebreak.

Reports

Keeping records is a very effective way to measure the success of fire management activities. This will keep the fire management committee, district fire coordinator, village assembly and other stakeholders such as external investors informed about progress with fire management activities such as fire break preparation, fire incidents and progress with land preparation. The VFMC are required to compile various information into a progress report comprising of below list of contents.

- Cumulative and monthly progress in relation to village FMP
- VFF income and expenditure report in relation to VFMP
- Summary of training/awareness events in relation to VFMP

- Number of burning permits issued
- Summary of fire incidents
- Copy of fire investigation forms (as attachment)
- Minutes of fire Meetings (as attachment)

Alarm system

In case of a fire incident the firefighting crew and other villagers need to be alerted and activated to suppress the fire. Whistle or any other form alarm system should be used to alert villagers on fire occurrence.

Role players and contact details.

The list of role players in Annexe 5 will enable communication to the correct people in case of a fire emergency or general communication.

3.1.6 Tools and equipment

Annexe 6 provides a register of tools that should be maintained to keep track of tools available for firefighting. In addition, it provides information regarding the fire fighting resources of neighbouring villages that can be possibly called upon in emergencies).

3.1.7 Training and awareness

Annexe 7 provides a schedule of trainings to be delivered. It should be updated annually as the FMP is updated. Regular training of VFMC and VFC members should contribute to ensuring that they can perform their duties effectively and safely.

3.1.8 Lookout system

Three lookout vantage points were identified within Kidete village including at: 1) Ledi subvillage, 2) Nyumbanitu hill, and 3) Ilangi (Figure 3.1). On days when the FDI is orange or red, lookout guards must be posted at vantage points to locate and report any fire incidents.

Lookout guards must be identified and trained before the fire season. It is the responsibility of the VFMC chairperson to alert and activate these guards.

3.1.9 Bylaws for fire prevention and management of village council

The villagers will customize the proposed bylaws template for fire prevention and management of village council to meet their specific needs and ensure compliance in order to minimize fire damage. These bylaws will be approved by both the village council and assembly before forwarding to the district council.

Refer to accompanying proposed bylaws template for fire prevention and management of kidete village council.

3.1.10 IFM audit

Annexe 9 provides the standardised fire audit template.

The audit will be executed by the district fire officer. The purpose of the audit will be to identify shortcomings in the execution of the VFMP and aims to guide the VFMC to improve on their performance of the previous fire season.

3.2 Prevention

“Identification of the reasons/causes of unwanted fires and measures to reduce/eliminate them through training and awareness, engineering, and law enforcement”.

The details of unwanted fires will be investigated and documented in a fire incident register (Annexe 10) This will assist in identifying opportunities for improvement.

In addition, the performance of the VFC and villagers will be assessed to identify any opportunities for improvement.

3.2.1 Training and awareness

The village-based extension officers should facilitate training and awareness through FDI display boards, school events, meetings, media outlets, and official training.

Leaders, youth, the public, and the media are among the groups that potentially needs to be trained and sensitized about IFM. Furthermore, VFCs should undergo annual training in fundamental firefighting tactics, and VFMCs should be prepared with fire knowledge and administrative skills to give IFM leadership within villages.

3.2.2 Engineering (such as fire breaks, roads, water points, etc.)

Engineering solutions such as firebreaks, roads and water points will be prescribed for the identified high-risk areas to prevent fire ignitions and aid fire suppression. This could include building firebreaks, upgrading infrastructure such as roads and water points, or simply reconsidering the operating practices of those who start unwanted fires. For example, dangerous activities such as charcoal production could be isolated from valuable assets with firebreak.

3.2.3 Law enforcement

In cases of gross negligence or repeated transgression of bylaws for fire prevention and management of village council, legal action should be taken. This implies that transgressors should be fined in accordance with bylaws or referred to higher authorities.

3.3 Suppression

“All preparations and actions taken to suppress unwanted fire.”

3.3.1 Preparation

VFC must be ready to suppress fire during the fire season. Preparations will include the following:

- Confirm VFC members
- Complete VFC training by the end of June
- Maintain firefighting tools and confirm transportation arrangement
- Organize VFC standby arrangements for the period of high FDI (above 55).
- A member of the VFMC should be always available to organise VFC and villagers in case of a fire
- Organize for vantage points to be manned during periods of high FDI (above 55) and equipped with adequate communication system.

3.3.2 Actions during a fire incident

- All fires must be reported to the VFMC person on standby. Reporting must be fast and accurate. It is advisable that the VFMC acquire one cell phone that can be carried by the VFMC on standby.

- The fire alarm must be sounded as soon as a fire is reported. Any member of the VFMC or VFC can sound the alarm.
- The VFC should mobilize to the fire incident with adequate equipment and PPE.
- Once the VFC arrives at the fire, the VFC leader must assess the situation and initiate fire suppression activities if this can be achieved safely.
- Suppression actions at the fire: - VFC must proceed with an initial attack on the fire using a combination of fire beaters, knapsack sprayers and blowers. As parts of the fire are effectively smothered and flames are extinguished mop-up operation should start in order to prevent the fire in this area from re-igniting A control line (small belt cleared to mineral soil) should be constructed around the perimeter of the burned area, to prevent any smouldering material inside the burned-out area to cross into the adjacent unburnt fuels. The control line and should be at least 1½ m in width. The width of this control line is however dependent on the adjacent vegetation and the current and future weather expected.
- Inside the burned area burning vegetation must be mopped-up in a manner that the fire will not restart. As soon as the control line has been constructed, all burning/smouldering fuels ± 30m from the control line inwards, into the burnt area, should be mopped-up. During this operation, all smouldering material on top of the soil and under the soil (ground fires) should be extinguished completely.
- After mop-up has been completed to the satisfaction of the VFC leader people at the fire can be released to go home, but there must be some fire guards identified that will stay behind to patrol and guard the area. Patrolling should commence immediately after the fire has been controlled. In grasslands the area should be guarded for 24 hours. In woodlot areas the area should be guarded for 24 hours a day for at least 7 days after mopping-up has been completed. The 7-day guarding period can be extended or resumed if the Crew leader has any suspicion that the fire might reignite.
- Safety of firefighters and villagers should be the highest priority at the fire and it is the responsibility of the VFMC and VFC to ensure that all people present at the fire adhere to safety rules.

3.3.3 Basic Suppression Tactics

Firefighting should not be attempted where it is not safe such as when the fire is beyond the capacity of fire crew and their equipment. These fires can be identified by very fast fire spread rate, tall flames and when burning material is being spread by the wind (spotting).

If the fire behaviour allows, a direct attack should be attempted by the VFC. This usually implies that the fire is attacked from the rear and when possible, firefighters move up the flanks towards the head of the fire, while patrolling the extinguished perimeter. While the VFC is suppressing the fire on the active fire perimeter, villagers should start with a control line and mop-up activities.

As an alternative, if fire behaviour is too dangerous for a direct attack, a defensive approach can be followed by burning out unburned vegetation next to the flank of the fire starting from an internal firebreak. The burnout tactic is usually practiced if an approaching fire is closing in on populated areas where there are houses. Fighting fire with fire is however very dangerous and should only be used as a last resort. **Unexperienced persons should not attempt this.**

As a final tactic, fire fighters simply wait for fire at firebreaks and prevent it from crossing these barriers. This is usually done when there are very few fire fighters. This might also create a potentially dangerous situation if the fire behaviour is very dangerous, and escape routes with safety zones should be identified and kept open.

3.3.4 Investigating and reporting on fire.

An investigation into the fire should be done as soon as possible while all the evidence is still fresh, and people remember the circumstances leading up to the fire. The investigation should be done by an objective fire investigating team appointed by the VFMC. Refer to (Annexe 10) for the fire investigating report document to be used when the investigation is done. Once the investigation is completed, the fire incident register must be completed, and the report filed with the district fire coordinator. After the investigation has been concluded, a debriefing of the event should be held by the VFMC where all relevant parties are involved.

3.3.5 Fire Action Plan

Annexe 1 schedules fire management activities that takes place throughout the year.

During the fire season use of fire, and the state of readiness to fight fire is dictated by the FDI (Annexe 2).

In addition, all villagers should be made aware of their responsibilities under specific FDI conditions.

4. FINANCE

4.1 Budget

Initial expenditure to finance IFM activities within the village amounts between 9.5 and 10.5 million TZS for the first year where capital expenditure will be incurred (Table 4.1). From the remaining years (2-5) expenditure will be reduced to an estimated 3 million TZS per year.

Table 4.1 Estimated recurrent and capital expenditure.

Item	TZS 6 000 per/man-day	TZS 10 00 per/man-day
Preparing breaks	780,000	1,300,000
Firefighting by fire crew	450,000	750,000
Standby by Fire crew	480,000	480,000
Transport to fires	195,000	195,000
Transport Inspection of permits	105,000	105,000
Lookout guards x 2 (20 days each)	240,000	400,000
VFMC duties	100,000	100,000
Subtotal recurrent cost	2,350,000	3,330,000
Firefighting tools	7,155,500	7,155,500
Subtotal capital expenditure	7,155,500	7,155,500
TOTAL Expenditure	9 502 978.49	10 481 297.48

4.2 Income

Various scenarios for financing IFM have been tested but mostly they will rely on the finance from the outside sources which not reliable. The Kidete village has 24 external investors and it is reasonable for them to contribute financially whilst the villagers contribute their time. The external investors have a total plantation of 202 hectares. If external investor contributes 40,000 per ha this will amount to 8,100,000 million TZS which together with additional sources could finance the first year with all the capital expenditure requirements. For the remaining years investor fees of 15,000 per ha per year will be sufficient to cover the recurrent cost.






Annexe 1 General fire management activities plan (Adapted from Ministry of Natural Resources and Tourism Forestry and Beekeeping Division, Tanzania, 2019)

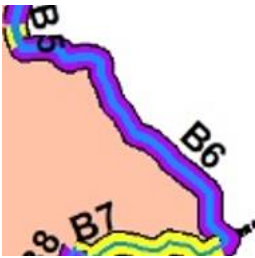


Activities	J	F	M	A	M	J	J	A	S	O	N	D
Planning												
Update FMP												
Education and awareness												
Complete training analysis												
Confirm firefighting crews for next fire season												
Establishment/Maintenance of Firebreaks												
Fuel load management												
Fire detection (lookouts activated)												
Communication												
Training												
Land preparation prior to fire season												
Records and reports												
Audit report												


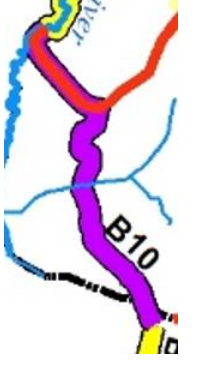
Annexe 2 Fire action plan




Fire Danger Rating	Blue	Green	Yellow	Orange	Red
FDI	0 - 20	21 - 45	46 - 60	61 - 75	75 – 100
Fire Behaviour	SAFE	MODERATE	DANGEROUS	VERY DANGEROUS	EXTREMELY DANGEROUS
Flame Length	0 - 1m	1 – 1.2m	1.2 – 1.8m	1.8 – 2.4m	2.4m or more
Fire Committee	No action required	No action required	Communicate FDI to villagers. Activate lookout guard if FDI exceeds 50.	Issue fire ban on all open fires. Alert Fire crew, villagers, and schools	Issue fire ban on all open fires. Activate fire crew. Alert villagers and schools
Fire Crew	No action required	No action required	Crew Leader must be in contact with crew members to make sure they are all available in case of a fire	Crew must be ready (fully dressed and fire tools at hand) to fight fires and must report to the crew leader 10 minutes	Crew must be on standby at the assembly point (fully dressed and fire tools at hand) and be ready to react immediately if a fire is reported
Lookout Fire Guards	No action required	No action required	If the FDI reached 50 guard must resume lookout duties	Guard must resume lookout duties	Guard must resume lookout duties. Duties can be extended to 24 hours under extreme conditions.
Villagers	Resume normal activities	Resume normal activities	If the FDI reached 50 no open fires are allowed	No open fires are allowed unless protected	No open fires or dangerous activities that can start fire allowed.


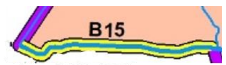
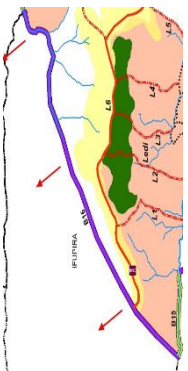
Annexe 3 Fire break register of Kidete village

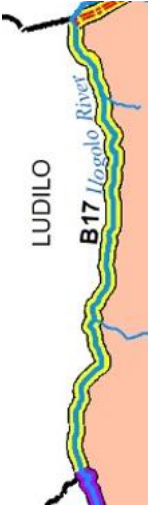


External breaks	Local name	Description	Specifications	When to prepare	Preparation method	Notes
B1 	Used to be area for Ignas (1)	Starts where road G1 (Kidete - Ihefu) crosses the Mafindasa river and is situated under woodlot trees in the Kidete village (Ilangi area). It follows the river for 200m in a south easterly direction.	5m wide prepared to mineral soil		A live belt on the edge of the pine woodlot. Silvicultural BOPs are in place within the woodlot. Raking/cleaning litter layer under pine trees.	Grass/vegetation must be slashed to link to the B2 break across the river
B2 	Used to be area for Ignas	Starts against B1 and follows the Mafindasa river up to where it turns south. It is situated under woodlot trees in the Ihefu village ± 170m long.	5m wide prepared to mineral soil		A live belt on the edge of the pine woodlot. Silvicultural BOPs are in place within the woodlot. Raking/cleaning litter layer under pine trees.	Grass/vegetation must be slashed to link to the B1 break across the river. This break is the responsibility of Ihefu village and should be negotiated with their Fire Committee.
B3 	Used to be area for Ignas	Starts against B2 and follows Mafindasa river in a southerly direction for ± 500m until it reaches a village/stream coming from Ilangi	2.5m cleaned until mineral soil		Raking/cleaning litter layer in agricultural area next to the Mafindasa river.	Ihefu village must prepare a similar 2.5 m break on their side of the Mafindasa river
B4 	Area farmed by Manyunyu	Starts against B3 follows the Mafindata river south until it stops against an indigenous forest. ± 370m long	2.5m cleaned until mineral soil		Raking/cleaning litter layer in agricultural area next to the Mafindasa river.	Ihefu village must prepare a similar 2.5 m break on their side of the Mafindasa river
B5 	Natural forest	Natural forest along the Mafindata river between B4 and B6. ± 100m long	As the indigenous forest is not very flammable, no		Nothing	



			fire break needs to be prepared			
B6 	Area farmed by Muhesi	Starts against the indigenous forest B5 and follows the Mafindisa river until it ends on the boundary of Ikanga village. ± 1550m long	2.5m cleaned until mineral soil		Raking/cleaning litter layer in agricultural area next to the Mafindasa river.	lhefu village must prepare a similar 2.5 m break on their side of the Mafindasa river
B7 	Area planted trees belonged to Muhesi and Goel	Starts against B6 and follows a valley (boundary between Kidete and Ikanga villages) in a westerly direction until it ends on a footpath (± 60m).	5m wide prepared to mineral soil		A live belt on the edge of the pine woodlots. Silvicultural BOPs are in place within the woodlots. Raking/cleaning litter layer under pine trees.	On the Kidete side
B8 	Area planted trees belonged to Muhesi and Goel	Starts against B7 and follows a footpath between Kidete and Ikanga villages) in a south-south westerly direction until it ends on road (± 150m long)	5m wide prepared to mineral soil under trees in woodlot(100M). Along the remainder of the footpath (50m) a 2.5m strip must be prepared on either side of the footpath.		Raking/cleaning litter layer under pine trees and Slashing to 10cm along the shoulders of the footpath.	This should be a joined effort between Kidete and Ikanga villages.
B9	Road from RDO to Muhesi and Goel woodlots	This Break starts against B8 and follows the road to Mdbulo Parish. It ends in the main road linking Kidete and Ikanga (± 1500m long)	2,5m on both sides of road		Both sides of the road should be slashed to a 10cm high	This should be a joined effort between Kidete and Ikanga village.



						
<p>B10</p> 	<p>Way to Mlaburo secondary school to the road to Mlevelwa village</p>	<p>Starts against the main road linking Kidete and Ikanga in and runs in a south westerly direction. It follows a footpath past the playgrounds of Mlaburo secondary school until it joins the main road linking Kidete and Wlevelwa villages. It follows the main road in a south westerly direction until it ends at the bridge at the Msiwasi river (± 1.3 km long).</p>	<p>2.5m on both sides of footpath as well as the road</p>		<p>Raking/cleaning litter layer under pine trees and agricultural land. Both sides of the footpath and road should be slashed to 10cm high where there is grass.</p>	<p>Break is in Kidete only</p>
<p>B11</p>	<p>Secondary school farms</p>	<p>Starts against the main road linking Kidete and Mlevelwa villages and follows the Msiwasi river in a westerly direction. It ends at a valley that forms the boundary between Kidete and Wlevelwa villages (± 2.8km long).</p>	<p>2.5m cleaned until mineral soil</p>		<p>Raking/cleaning litter layer under pine trees and in agricultural area next to the Msiwasi river.</p>	<p>Mlevelwa village should prepare a similar belt on their side of the Msiwasi river.</p>


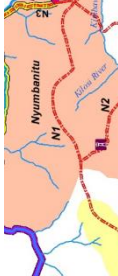

 <p>B11 Msiwasi River</p>						
<p>B12</p> 		<p>Starts against B11 and follows the Msiwasi river in a westerly direction until it ends in the fire break of Fox farm (± 3.7km)</p>	<p>2.5m cleaned until mineral soil</p>		<p>Raking/cleaning litter layer under pine trees and in agricultural land next to the Msiwasi river.</p>	<p>Mlevelwa village should prepare a similar belt on their side of the Msiwasi river.</p>
<p>B13</p> 		<p>Starts against B12 and follows the existing Fox farm fire break. It continues to follow the existing fire break on the boundary of Igoda village in a westerly direction and ends approximately where Break L1 joins the Igoda boundary (± 2.8km long).</p>	<p>5m wide until mineral soil.</p>		<p>Break is maintained by Fox farm as well as Igoda Village</p>	<p>Should communicate with Fox farm and Igoda villages about maintenance of the break. There is a small section in the existing belt system that needs to be linked.</p>

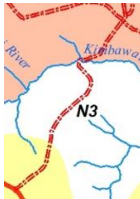


<p>B14</p> 		<p>Follows existing fire break in the Igoda village until it links with the natural forest ($\pm 800\text{m}$ long).</p>	<p>5m wide until mineral soil.</p>		<p>Break is maintained by investor in Igoda Village</p>	<p>Should communicate with Igoda village about maintenance of the break.</p>
<p>B15</p> 		<p>Starts against B14. Includes the natural forest south of Kidete boundary all along the Msiwazi river. It ends in the south westerly corner of Kidete village. ($\pm 1.8\text{km}$)</p>	<p>No belt needed</p>		<p>No belt needed</p>	<p>Natural forest form fire break</p>
<p>B16</p> 		<p>Starts against B 15 and follows the edge of the natural forest east of the Kidete village boundary ($\pm 6.2\text{km}$ long)</p>	<p>No belt needed</p>		<p>No belt needed</p>	<p>Natural forest form fire break</p>
<p>B17</p>		<p>Starts against B16 and runs in an easterly direction following the boundary between Kidete and Lodilo villages along the Ilogolo river. It ends against the main road linking Lodilo and Kidete villages ($\pm 3.2\text{km}$ long).</p>	<p>2.5m cleaned until mineral soil</p>		<p>Raking/cleaning litter layer under pine trees and in agricultural area next to the Ilogolo river.</p>	<p>Lodilo village should prepare a similar belt on their side of the Ilogolo river.</p>

 <p>LUDILO B17 Logolo River</p>						
 <p>N3</p>		<p>Starts against B 17 and follows the main road linking Lodilo and Kidete villages. It ends where road G1 starts (\pm 900m long).</p>	<p>2,5m on both sides of the road.</p>	<p>By the end of August</p>	<p>Vegetation on both sides of the road should be slashed to 10cm high but where it passes through agricultural fields and woodlots, it should be raked clean.</p>	<p>Break in in Kidete village</p>
 <p>B1 B3 G1 Ilanai N3</p>		<p>Secondary road and footpath starting against the main road linking Lodilo and Kidete villages and ends against B1 (\pm 1.4km long).</p>	<p>2,5m on both sides of road/footpath.</p>	<p>By the end of August</p>	<p>Vegetation on both sides of the road should be slashed to 10cm high but where it passes through agricultural fields and woodlots, it should be raked clean.</p>	<p>Break is in Kidete village</p>

Internal breaks	Description	Specifications	When to prepare	Preparation method	Notes
<p>L 1</p> 	<p>Starts against the main road linking Ifupira - Kidete - Ikanga villages. Follows the road in a southerly direction until it meets the border of Igoda village. (± 1.63km long)</p>	<p>2,5m on both sides of road</p>	<p>By the end of August</p>	<p>Vegetation on both sides of the road should be slashed to 10cm high but where it passes through agricultural fields and woodlots, it should be raked clean.</p>	
<p>L 2</p> 	<p>Starts against the main road linking Ifupira - Kidete - Ikanga villages. Follows the road in a southerly direction until it meets the border of Igoda village. First 500m pass through indigenous forest followed by a 1.42km section through agricultural fields. (± 1.92m long)</p>	<p>2,5m on both sides of road</p>	<p>By the end of August</p>	<p>Vegetation on both sides of the road should be slashed to 10cm high but where it passes through agricultural fields and woodlots, it should be raked clean. No preparation needed in the natural forest portion</p>	

<p>L 3</p> 	<p>Starts against the main road linking Ifupira - Kidete - Ikanga villages. Follows the road in a southerly direction until it meets the border of Igoda village. First 380m runs through indigenous forest followed by a 1. km section through agricultural fields. It ends in the investor woodlot firebreak. (± 1.38km long)</p>	<p>2,5m on both sides of road</p>	<p>By the end of August</p>	<p>Vegetation on both sides of the road should be slashed to 10cm high but where it passes through agricultural fields and woodlots, it should be raked clean. No preparation needed in the natural forest portion</p>	
<p>L 4</p> 	<p>Starts against the main road linking Ifupira - Kidete - Ikanga villages. Follows the road in a southerly direction until it meets the border of Igoda village. First 400m pass through indigenous forest followed by a 1km section through agricultural fields. It ends in the Fox farm woodlot firebreak. (± 1.4km long)</p>	<p>2,5m on both sides of road</p>	<p>By the end of August</p>	<p>Vegetation on both sides of the road should be slashed to 10cm high but where it passes through agricultural fields and woodlots, it should be raked clean. No preparation needed in the natural forest portion</p>	
<p>L 5</p>	<p>Starts against the main road linking Ifupira - Kidete - Ikanga villages. Follows the road in a southerly direction until it meets the Fox farm woodlot firebreak. This is an important road that links Kidete to Igoda village. (± 1.25km long)</p>	<p>2,5m on both sides of road</p>	<p>By the end of August</p>	<p>Vegetation on both sides of the road should be slashed to 10cm high but where it passes through agricultural fields and woodlots, it should be raked clean.</p>	

<p>L 6</p> 	<p>Main road (Tarura road) linking Ifupira - Kidete - Ikanga villages. Follows the road in a westerly direction from the Ifupira border to the border of Ikanga village. As this road passes through Kidete village with buildings along its shoulders it forms a natural fire barrier (± 9.14km long)</p>	<p>2,5m on both sides of road</p>		<p>In isolated areas where there are flammable vegetation bordering the road, it should be managed.</p>	
<p>N 1</p> 	<p>Starts against the main road linking Ifupira - Kidete - Ikanga villages. Follows the road in a north easterly direction through the Nyumbanitu hamlet, until it meets the N3 road. (± 3.44km long)</p>	<p>2,5m on both sides of road</p>	<p>By the end of August</p>	<p>Vegetation on both sides of the road should be slashed to 10cm high but where it passes through agricultural fields and woodlots, it should be raked clean</p>	
<p>N 2</p> 	<p>Links N1 and L6 and ends in Kidete village. (± 1.86km long)</p>	<p>2,5m on both sides of road</p>	<p>By the end of August</p>	<p>Vegetation on both sides of the road should be slashed to 10cm high but where it passes through agricultural fields and woodlots, it should be raked clean.</p>	

 <p>N4</p>	<p>This break is an extension of N3 and starts where GI begins. It runs in a south westerly direction and ends in Kidete village (\pm 2km long)</p>	<p>2,5m on both sides of road</p>		<p>Vegetation on both sides of the road should be slashed to 10cm high but where it passes through agricultural fields and woodlots, it should be raked clean.</p>	
 <p>G 2</p>	<p>This break is an extension of N1 and starts against N3. Initially runs in a south easterly direction and then turns south to join L6. It passes through Ilangi hamlet. (\pm 3km long)</p>	<p>2,5m on both sides of road</p>	<p>By the end of August</p>	<p>Vegetation on both sides of the road should be slashed to 10cm high but where it passes through agricultural fields and woodlots, it should be raked clean.</p>	
 <p>G 3</p>	<p>Links G2 with the external break on the Ihefu boundary at B3/4. Passes through Ilangi hamlet. (\pm 880m long)</p>	<p>2,5m on both sides of road</p>	<p>By the end of August</p>	<p>Vegetation on both sides of the road should be slashed to 10cm high but where it passes through agricultural fields and woodlots, it should be raked clean.</p>	

Annexe 4 Fire breaks prioritised for preparation.

Priority	Break no
1	N3
2	G1
3	B1
4	B2
5	B3
6	B4
7	B5
8	B6
9	B7
10	B8
11	B9
12	B10
13	L5
14	L4
15	L3

Priority	Break no
16	L2
17	L1B17
18	N1
19	N2
20	N3
21	G2
22	G3
23	B11
24	B12
25	B13
26	B14
27	B15
28	B16
29	B17
30	L6

Annexe 5 List of role players involved with fire management

	Name	Position/function	Phone number
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
Other key Role players			
1			
2			
3			
4			
5			

Annexe 6 List of tools and equipment

ITEM	Kidete	Ludilo	Ihefu	Ikanga	Fox Farm	Igoda	Ifupira
Fire beaters	10	10	10	0		0	0
Knapsacks	4	4	4	0		0	0
Rakehoes							
Drag forks							
Fire tender vehicle							
Fire crew members	15	15	15				

Annexe 7 Training and awareness schedule

Group	Activity	Date	Facilitator
Firefighting crew	Fire tool use and maintenance		FWITC
	Basic fire fighting		Extension officer
Lookout guard	Detecting and reporting fires		Extension officer
Fire management committee	Permit issuing		Extension officer
	Reports		Extension officer
	Fire investigation		Extension officer
	Fire fund		Extension officer
	Fire danger rating		Extension officer
	VFMP revision		Extension officer & District fire officer
Villagers	Village awareness meeting	09-Jun-23	VFMC chairperson
Mdabulo secondary school	Awareness talk		VFMC chairperson
Primary school	Awareness talk		VFMC chairperson

Annexe 8 Investor list in Kidete village

SN	Name	Owners' Contact	Contact of Supervisor	Area (Acres)	Area (Hectares)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Annexe 9 Integrated Fire Management Audit

Date: _____

Village: _____

Audit team: _____

Notes to audit team

- After an audit of the village, the Audit team must provide a feedback report to the VFMC.
- The report must be filed within one week of the audit.
- For any negative assessment, a reason must be given, and a recommendation made to the VFMC to correct the issue.
- Before an assessment is made, physical evidence must be presented by the VFMC to the Audit team to prove compliance.
- The district fire coordinator (DFC) must lead the team. Other team members should include members neighbouring VFMC's
- The purpose of this audit is to facilitate improved fire management in villages and not to criticise.

A. Protection	Assessment Mark		
1. Fire Management structures			
A. Village Fire Management Committee	Yes/	No	(3)
I. Are all members trained?	Yes/	No	(2)
II. Is there a standby roster?	Yes/	No	(2)
B. Village Fire Crew	Yes/	No	(3)
I. Are all members trained?	Yes/	No	(2)
II. Do all members have safety clothing?	Yes/	No	(2)
III. Is there a standby roster?	Yes/	No	(2)
IV. How fast do crewmembers respond to a fire alarm?	5-10 min	<input type="checkbox"/>	(5)
	10-20 min	<input type="checkbox"/>	(4)
	20-30 min	<input type="checkbox"/>	(2)
	> 30 min	<input type="checkbox"/>	(1)
C. Lookout guard(s)	Yes/	No	(2)
I. Are guards trained?	Yes/	No	(2)
II. Cell phone	Yes/	No	(2)
-			
2. Updated village Fire Management Plan	Yes/	No	(5)
3. Fire Management Fund	Yes/	No	(5)
I. Investor list	Yes/	No	(2)
II. Contributions from investors	<10%	<input type="checkbox"/>	(1)

- 10-20% (2)
 - 20-40% (3)
 - 40-60% (4)
 - 60-80% (5)
 - 80-100% (6)
- III. Is there a record and proof of money received? Yes/ No (3)
- IV. Is there a record and proof of money spent? Yes/ No (3)

4. FDI system implemented Yes/ No (3)
- I. FDI register Yes/ No (2)
 - II. FDI signboard Yes/ No (2)
5. Are fire permits issued? Yes/ No (3)
- I. Are permit criteria in line with bylaws? Yes/ No (2)
 - II. Fire permit register Yes/ No (2)
 - III. Are all permit applications inspected? Yes/ No (3)
6. Is there a fire tool register? Yes/ No (2)
- I. Are tools well maintained? Yes/ No (2)
 - II. Tool availability (see list below)

Items/Tools	Recommended	Available
Fire beaters	12	
Firefighting knapsack sprayers	4	
Rake hoes	4	
Machete/slasher	2	
Drip torch/Fire stick	4	
Drag forks	4	
First aid kit (with provision for treating burns)	1	
Other tools		

Mark out of 10 to the discretion of the Audit team.

(10)

7. Fire reports to DFC

Report	Interval	
Number of burning permits issued	Monthly	
Number of fire incidents	Weekly	
Copy of fire investigation forms	Monthly	
Fire fines issued	Monthly	
Minutes of fire Meetings	Monthly	
Training/awareness events	Monthly	

Mark out of 5 to the discretion of the Audit team.

(5)

B. Prevention

- 1. Is there an up-to-date Fire incident register? Yes/ No (3)
- 2. Is there a training and awareness schedule? Yes/ No (5)
 - I. Village fire crew training scheduled Yes/ No (2)
 - II. VFMC training scheduled Yes/ No (2)
 - III. Village fire awareness meeting scheduled Yes/ No (2)
 - IV. School awareness education scheduled Yes/ No (1)
 - V. Charcoal and Brick manufacturers scheduled Yes/ No (1)
- 3. Are there updated fire bylaws? Yes/ No (3)
 - I. Are the bylaws applied? Yes/ No (3)

C. Suppression

1. System in place where fires can be reported.	Yes/	No	(3)
2. Alarm system in place to alert the VFC and village of fire incidents.	Yes/	No	(2)
3. Fire crew on standby during weekdays and weekends	Yes/	No	(3)
4. Transport available take fire crew to fire (Boda-Boda)	Yes/	No	(2)
5. Village action plan available	Yes/	No	(2)
6. Action plan known to different groups in the village	Yes/	No	(3)
7. Suppression actions/responsibilities known to VFC and villagers	Yes/	No	(3)
8. Proof of fire investigation and reporting after unwanted fires	Yes/	No	(3)

TOTAL

Annexe 10 Fire registers and documentation

Fire Danger Index Register for Kidete

Date (Tarehe)	FDI 10h00	Colour (Rangi)	FDI 14h00	Colour (Rangi)	FDI Tomorrow (Kesho)	Colour (Rangi)	FDI after Tomorrow (Baada ya kesho)	Colour (Rangi)	Reporter (Mwandishi)	Signature (Saini)

Fire Incident Register for Kidete

Incident no. (Namba ya tukio)	Date (Tarehe)	Person investigated. (Mtu aliyechunguzwa)	Area of fire (Eneo la moto)	Date reported (Tarehe iliyoripotiwa)	Reported to district (Taarifa kwa wilaya) (NDIYO/HAPANA)	Investigator (Mpelelezi)	Signature (Saini)
1							
2							
3							
4							

-

8. What actions were taken against the landowner?

-

-

9. What can be done to prevent a repetition of this incident?

-

Investigator(s): _____

Signature: _____

Planned burning permit for Kidete Village

Permit Number: _____

Issued to: _____

Date Issued: _____

Purpose of Burning: _____

Inspection of area

YES/NO

- | | |
|--|-------|
| 10. FDI below 55 for 3 days. | _____ |
| 11. Fire belts/breaks answer to requirements. | _____ |
| 12. Neighbours and authorities have been informed. | _____ |
| 13. The fuel in the area is suitable for burning. | _____ |
| 14. Equipment available: | |
| I. _____ | |
| II. _____ | |
| III. _____ | |
| IV. _____ | |

15. Names of people to assist:

- I. _____
- II. _____
- III. _____
- IV. _____
- V. _____
- VI. _____

- The following conditions must be adhered to:

- Time for burning will be after 18h00.
- The area must be guarded and checked for _____ days.
- Under unexpected weather conditions guarding and patrolling of the area should be extended and possibly a full-time person should be posted at the scene (with a cell phone).
- If the fire escapes, the VFC Chairperson must be informed immediately.
- Ignoring any of the conditions stipulated in this permit may lead to legal action.

Issued by: _____

Signature: _____

Fire Committee Chairperson



Indufor ...forest intelligence

NIRAS