

Forest Fire Management Plan For Trashigang Dzongkhag (2018-2023)



Trashigang Forest Division

Department of Forests and Park Services

Ministry of Agriculture and Forests

Royal Government of Bhutan



Approval Sheet

Dzongkhag Forest Fire Management Plan.

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A. Acronyms & definitions

	DEFINITION
Blacked out	The fire has been completely extinguished and there is no possibility of re-ignition.
CFO	Chief Forestry Officer
Dry firefighting	Suppressing the fire without the aid of water. This is normally done by smothering the fire, ie beater, cover with soil.
Forest Fire	A fire that involves trees, grass or any combustible matter in the wild that threatens people, property or the environment that is required to be contained and extinguished.
Fire Hazard	The physical conditions that create the potential for forest fire, fuels/material that is combustible.
Fire Break	A defined strip or area of land where combustible material has been removed.
Fire Risk	The likelihood of fires occurring. May be natural or human processes, occurrences or actions that cause likelihood.
Fire Threat	The impact a fire may have on a community or the environment.
Mop Up	The procedure of working around the perimeter of a fire to ensure that it is blacked out.
Prescribed Burn	The planned burning of vegetation within predetermined boundaries to reduce the hazard of fire.
CFO	Chief Forestry Officer
CFFMG	Community Forest Fire Management Group

1. Introduction

The forests of Bhutan are one of our most important natural resources and an important asset to Bhutanese people. The value of our forests is not only environmental but of great value for the economy, the culture and spirituality of our people. The rich diversity of flora and fauna, the health of our natural environment, our soil and water, many livelihoods, and our spiritual wellbeing depend upon our forests. Our constitution enshrines that Bhutan should maintain 60% of forest cover for all time.

The most significant threat to Bhutan's forests is the occurrence of Forest Fires. Each year many thousands of acres of forest are destroyed, the loss to the country and society is immense with the impact often irreversible and many species such as Blue Pine being fire intolerant. The harmful effect on biodiversity, endangered and threatened wild flora and fauna, wildlife habitats, loss of infrastructure and assets, risk to human life and livelihoods is of great concern.

The causes of forest fire in Bhutan are almost exclusively a result of human error or carelessness. Fire is used widely throughout all of Bhutan. Rural communities use of fire as a tool in agriculture such as for promoting new growth and burning agricultural debris, campfires, cooking fires while collecting mushrooms or harvesting timber, cooking for animal feed, religious uses such as burning incense, road workers for melting bitumen, as well as children playing with matches and households burning rubbish creates many opportunities for fire escape.

The Department of Forests and Parks Services (DoFPS) have primary responsibility for the management of fire including prevention, preparedness, response and recovery activities from fire on public land. It is however essential to take a participatory and inter-organizational approach to planning for fire management to effectively achieve and improve on the current situation of forest fires in Bhutan.

Dzongkhag Fire Management Planning is a range of agencies and organizations coming together to discuss, share responsibility, plan and manage fire in the community. The resulting strategies and plans will address fire prevention, preparedness, response and recovery.

This Dzongkhag Fire Management Plan is a five year plan and is the result of collaboration between organizations and community and documents the actions to be undertaken in Trashigang Dzongkhag.



2. Policy & Legislation

Many legislative documents and policies govern or make reference to forest fire management. This Fire Management Plan is consistent with, operates under and supports current existing policies and legislation.

These include the following key documents:

ITEM	LINK
Constitution of Bhutan (year)	Requires 60% coverage of forest for all time. The responsibility of every citizen to prevent forest fire.
Forest & Nature Conservation Act 1995	Prevention of fire
Disaster Management Act 2013	Response to forest fires
Environment Act (year)	Management of waste and debris
Local Government Act (year)	Community responsibility for fire
National Forest Policy 2011	Emphasizes protection of forest and sustainable management of natural resources.
Forest and Nature Conservation rules of Bhutan,2017	Every individual to help prevent and take part in control of forest fire management. Prescribed burning in SRF land for research, forest management and fire hazard reduction shall be allowed based on technical burn plan approved by the Department.
5 Year plans	Reduce risks on communities, infrastructure and natural environment and occurrence of forest fire

7. Goals and Objectives of Forest Fire Management Plan

Overall Goal:

“To reduce risk and occurrence of forest fire through participatory approach to safeguard communities, infrastructure, biodiversity by providing coordinated direction to contribute towards sustainable management of forest that will ensure 60% forest cover for all times to come”

Objectives

1. To strengthen prevention, preparedness, response and recovery mechanism to avert and control forest fire
2. To identify capacity need and provide training on forest fire management.
3. To develop comprehensive plan incorporating all gewogs issues and provide direction, along with resource (manpower and budget) planning
4. To develop Information, Education, Communication (IEC) materials and conduct advocacy and awareness campaign.
5. To establish a Dzongkhag/Gewog/Chiwog Forest Fire Management Committee to ensure coordinated approach in effective and efficient forest fire management
6. Formulation of Resource mobilization approach for forest fire management.

4. The Planning Process

The planning process is a continuous cyclical process that identifies and assesses the fire risk in the Dzongkhag. This assessment is based upon a thorough environmental scan of the communities, economy, natural landscape and topography, environments including forest types, fire history and natural and built values.

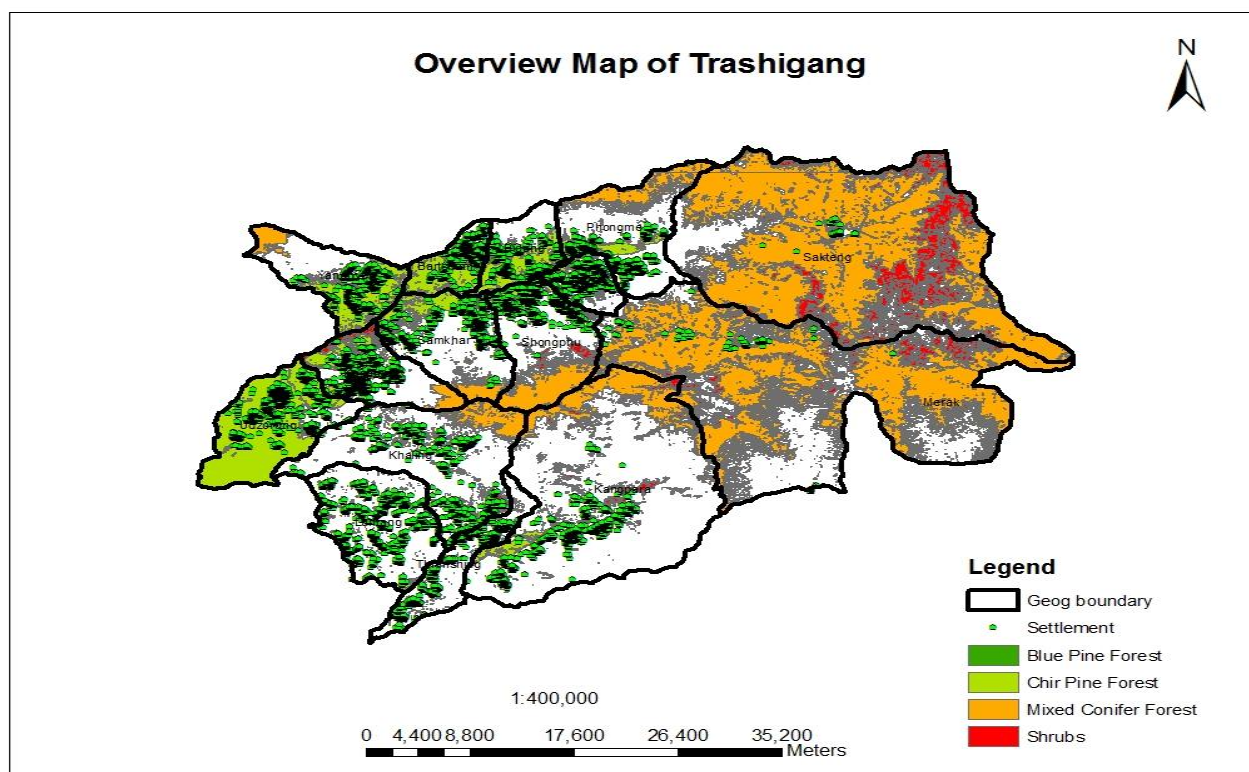


The planning process and responsibility for ensuring the development of a Fire Management Plan will be led by the Chief Forestry Officer of Divisional Forest Office.

As Forest Fires are also dealt with under Disaster Management Plans collaboration with Dzongkhag Disaster Management Committees is essential to ensure there is consistency of objectives in relation to forest fire management. This Dzongkhag Forest Fire Management Plan upon approval will be an appendix to the Dzongkhag Disaster Management Plan.

5. Background Information on the Dzongkhag

Trashigang Dzongkhag is one of the largest Dzongkhags with an area of about 3,066.90 Km² and forest cover is approximately 79% against its geographical area. The Dzongkhag lies at an elevational range of 600- 4500 meters above sea level. The climatic conditions are subtropical in the southern part and predominantly temperate in northern belts with an annual rainfall in the range of 1000-2000 mm.



The Dzongkhag comprises of 3 Dungkhags, 15 Geogs and 163 Chiwogs. The total population of the Dzongkhag is 74,441 comprising 8,890 households.

Farming is the primary livelihood of the people and the principle crops grown are potatoes, maize, chilies and rice. Cash crops like potato, chillies and other organic green vegetables are sold in local market as well

as exported through open auction in SamdrupJongkhar. Besides plant husbandry, livestock also supplements the income of the people.

Trashigang Forest Division was established on September 01, 1997 with a fundamental objective to improve and enhance forest related services. The Division covers two Dzongkhags -Trashigang and Trashiyangtse encompassing a total geographical area of 3,653.01 Km².The detail land cover classes

Land cover class	Land use type/forest type	Area (hectare)	% of area
Alpine scrub		9355.03	4.29
Built up		623.76	0.29
Cultivated Agriculture	Chuzhing	1676.50	0.77
	Kamzhings	8156.65	3.74
	Orchards	4.12	0.00
Forests	Broadleaf	98767.26	45.25
	Chirpine	12473.81	5.72
	Fir	21487.82	9.85
	Mixed conifer	40028.78	18.34
Shrubs		17356.12	7.95
Snow and Glacier		199.02	0.09
Water bodies	Lake	72.21	0.03
	Rivers	660.82	0.30

Source: Land use & Land cover of Bhutan 2016





6. Fire History

Approximately 5% of area under Trashigang Dzongkhag is comprised of chirpine forests. Profuse lemon grass undergrowth is found which is highly flammable during fire seasons accompanied by steep terrain, making it difficult to contain forest fire. The majority of the forest fires are anthropogenic in nature that are either intentional or accidental like lemon grass harvesting, agriculture debris burning, smokers, children playing with matchsticks and picnickers, etc. The remaining cases are induced by transmission line short circuits and natural agents like lightning.

Trashigang Dzongkhag has recorded over 66 forest fire cases over the last nine years burning over 29,009.44 acres of forest area. Out of these many forest fire incidences, the causes of 39 incidences remained unknown and culprits were never apprehended. The year 2014 alone recorded 12 fire incidences burning over 17,609.5 acres of forest area.

The fire incident that occurred at Bartsham Geog in the year 2014 brought devastating consequences and lasted for a week. Some of the notable impacts are as below:

Structure damaged

-  House
 - completely damaged=21
 - Partially damaged=4
-  Cowshed=7 h/h with loss of property=2(34 nos)
-  Irrigation facilities: 7 nos.
-  Drinking water facilities:6 nos

Livestock lost:

- 3 cattle

Damaged to fruits trees and crop:

- 3844 fruits trees (Hazel nut, Orange, Walnut, Pear, Peach, Mango, Apple, Persimmon and Plum),
- 1030.43 Ac including potato field

Damages to forest resources:

- GRF=10262.39 Ac
- The fire history of Trashigang Dzongkhag is tabulated below. The reports were compiled from different Range and Beat Offices under this Division.

Table 1: Forest Fire records under Trashigang Dzongkhag

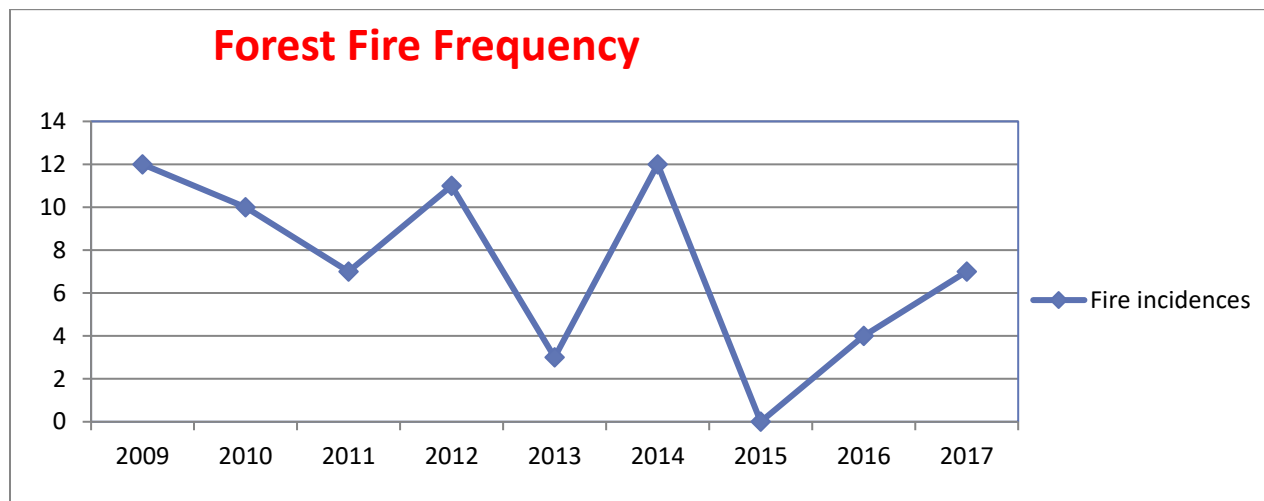
Sl. No	Year	Place	Gewog	Dzongkhag	Forest type	Causes of fire	Extent of Area affected (acre)
1	2009	Lenchi	Udzorong	Trashigang	Chirpine	Accidental	7
2	2009	Khanangzor	Udzorong	Trashigang	Chirpine	Unknown	17.5
3	2009	Mankhar & Drangrong	Udzorong	Trashigang	Mixed broadleaved	Unknown	95
4	2009	Buna	Samkhar	Trashigang	Chirpine	Unknown	1
5	2009	Pam	Samkhar	Trashigang	Chirpine	Unknown	142
6	2009	Godi	Samkhar	Trashigang	Chirpine	Unknown	30
7	2009	Gongthung	Yangneer	Trashigang	Chirpine	Debri burning	14.8
8	2009	Dangrong & Denchung	Udzorong	Trashigang	Chirpine	Accidental	875
9	2009	Changshigzor	Bidung	Trashigang	Chirpine	Lightning	80
10	2009	Retshangpek	Bidung	Trashigang	Chirpine	Debri burning	5
11	2009	Labla	Khaling	Trashigang	Broadleaved & Chirpine	Accidental	10

	9			g			
12	200 9	Leza	Khaling	Trashigan g	Broadleaved & Chirpine	Unknown	117.7
13	200 9	Bepam	Udzorong	Trashigan g	Chirpine	Unknown	15
14	200 9	Thulshing Pam	Udzorong	Trashigan g	Chirpine	Unknown	30
15	200 9	Monka	Udzorong	Trashigan g	Chirpine	Unknown	55
16	200 9	Gunchekhar	Udzorong	Trashigan g	Chirpine	Intentional	34.59
17	200 9	Nimkhay	Kanglung	Trashigan g	Broad leaved	Unknown	1320
18	200 9	Meelung	Kanglung	Trashigan g	Chirpine	Intentional	1610
19	200 9	Wangphu/Yabrang	Phongme y	Trashigan g	Mixed Conifer	Unknown	5
20	200 9	Chenary/Pam	Samkhar	Trashigan g	Chirpine	Accidental	10
21	200 9	Dungkhar	Bidung	Trashigan g	Chirpine	Accidental	5
22	200 9	Khangborang	Lumang	Trashigan g	Chirpine	Intentional	25
23	200 9	Khazor	Udzorong	Trashigan g	Chirpine	Unknown	35
24	200 9	Pengtse	Phongme y	Trashigan g	Chirpine	Debri burning	7
25	200 9	Bamridrang	Samkhar	Trashigan g	Chirpine	Accidental	12.5
26	200 9	Phomshing	Samkhar	Trashigan g	Chirpine	Accidental	8.6
27	200 9	Riju	Samkhar	Trashigan g	Chirpine	Unknown	300
28	200 9	Pam	Samkhar	Trashigan g	Chirpine	Accidental	32.9
29	200 9	Mukhar & Ngalung	Bartsham	Trashigan g	Chirpine	Unknown	824.4
30	200 9	Bepam	Udzorong	Trashigan g	Chirpine	Unknown	15
31	200 9	Udzorong	Udzorong	Trashigan g	Chirpine	Unknown	991
32	200 9	Khazor	Udzorong	Trashigan g	Chirpine	Unknown	20
33	200 9	Jomri, Tagtagpa, Cheya	Udzorong	Trashigan g	Broad leaved	Unknown	30
35	200 9	Jomtshang	Udzorong	Trashigan g	Chirpine	Unknown	345
36	200 9	Retshangpeg	Kanglung	Trashigan g	Chirpine	Intentional	35
37	200 9	Khapay/Yonphupam	Kanglung	Trashigan g	Chirpine	Spread from Udzorong	18

38	2009	Durung, Kheri, Bainang, Lephu & Shokang	Yangneer	Trashigan g	Chirpine and Broad leaved	Smoking & Picnicking	2500
39	2009	Lungbatang	Thrimshin g	Trashigan g	Broad leaved	Accidental	3.4
40	2009	Saling	Bidung	Trashigan g	Chirpine and Broad leaved	Debri burning	100
41	2009	Tagtagpa	Udzorong	Trashigan g	Broad leaved	Unknown	30
42	2009	Sethang	Lumang	Trashigan g	Broad leaved	Unknown	50
43	2009	Moshi	Wormron g	Trashigan g	Broad leaved	Unknown	13.75
44	2009	Gengkhar	Udzorong	Trashigan g	Chirpine	Unknown	300
45	2009	Dongshing block	Udzorong	Trashigan g	Chirpine	Unknown	500
46	2009	Dutang, Batsham & Passanglung	Bartsham	Trashigan g	Chirpine	Unknown	1200
47	2009	Khazor	Udzorong	Trashigan g	Chirpine	Unknown	40
48	2009	Phimsong	Phongmey	Trashigan g	Chirpine and Broad leaved	Unknown	57
49	2009	Yabrang	Phongmey	Trashigan g	Chirpine and Broad leaved	Unknown	67
50	2009	Phimsongjug	Phongmey	Trashigan g	Chirpine	Unknown	11
51	2009	Shamthungjo	Phongmey	Trashigan g	Chirpine	Unknown	50.5
52	2009	Yabrangjug	Phongmey	Trashigan g	Chirpine	Unknown	27
53	2009	Bartsham	Bartsham	Trashigan g	Chirpine and Broad leaved	Unknown	10262
54	2009	Durung & Shokang	Yangneer	Trashigan g	Chirpine and Broad leaved	Unknown	120
55	2009	Bidung	Bidung	Trashigan g	Chirpine and Broad leaved	Unknown	4995
56	2009	Jomtshang	Udzorong	Trashigan g	Chirpine	Natural (Lightening)	248
57	2009	Muktangkhar	Bartsham	Trashigan g	Chirpine	Natural (Lightening)	77
58	2009	Godhi	Samkhar	Trashigan g	Chirpine	Transmission line	0.44
59	2009	Chongmari	samkhar	Trashigan g	Chirpine	Unknown	70
60	2009	Shangsharee		Trashigan g	Mixed Conifer	Debri burning	0.73
61	2009	Pam	Samkhar	Trashigan g	Mixed Conifer	Debri burning	1.1
62	2009	Dzong area	Samkhar	Trashigan g	Chirpine	Transmission line	334

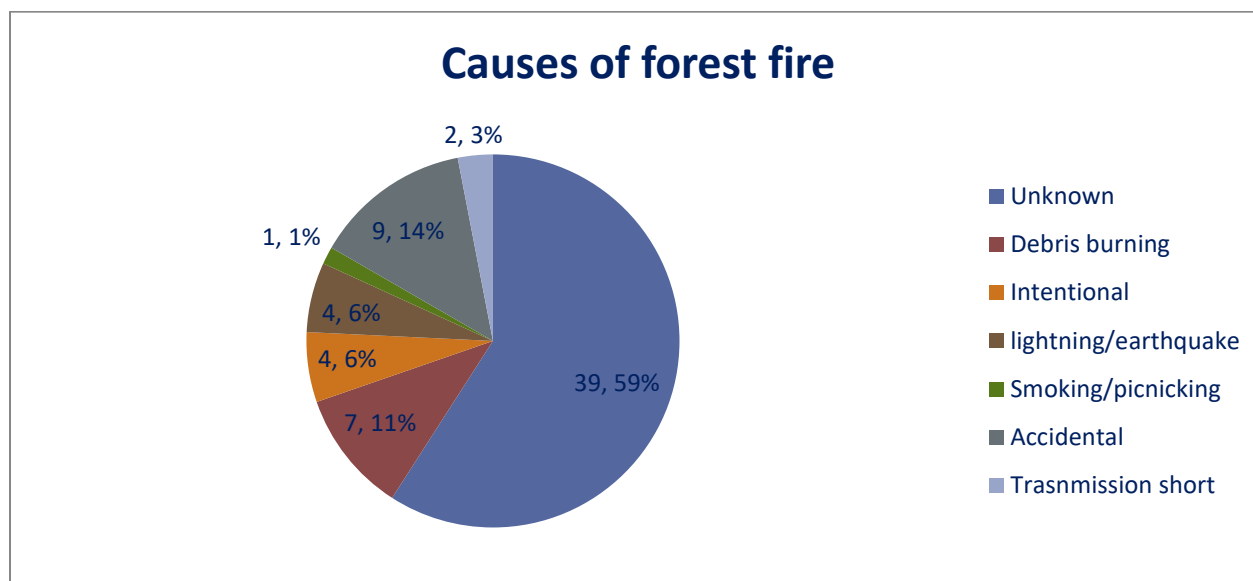
63	2009	Ritsong	Samkhar	Trashigan g	Chirpine	Unknown	4.2
64	2009	Lephu & Durung	Yangneer	Trashigan g	Chirpine	Unknown	248
65	2009	Menangchamo		Trashigan g	Chirpine	Unknown	24
66	2009	Awangjiphu		Trashigan g	Chirpine	Unknown	496.33
							29009.44

Forest Fire Frequency Graph

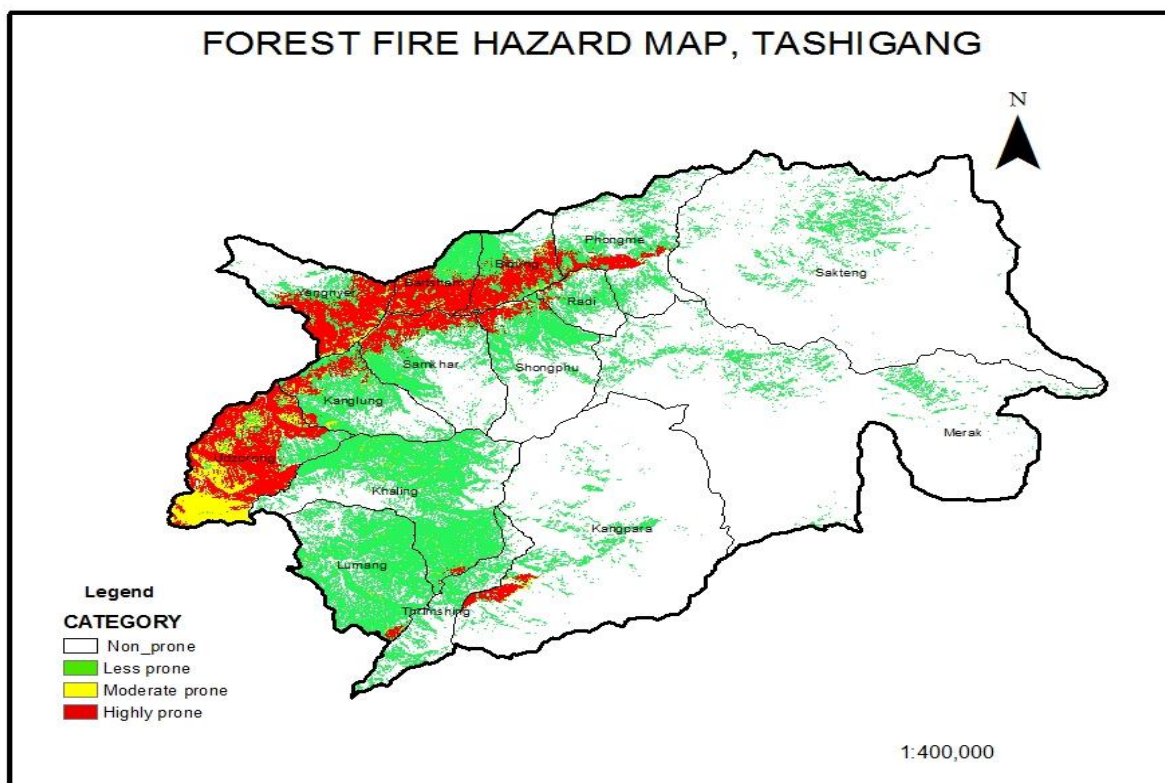


Graph 1. Frequency of forest fire from 2009 to 2017

Pie graph 1. Showing causes of forest fire



7. Fire Risk Analysis & Mapping



The majority of the forest fires under Trashigang Dzongkhag are manmade and remaining few cases are attributed to natural agents. The uses of fire are numerous which in turn increases the fire risk. The following are fire uses which are also identified as forest fire risks.

Existing fire use

- ✓ Cooking
- ✓ Lemon grass harvesting
- ✓ Prescribed burning
- ✓ Lighting
- ✓ Burning agriculture debris
- ✓ Smoking
- ✓ Wet picnicking
- ✓ Preparation of cattle feed

Risk of fire escape

- ✓ Burning of rubbish or waste
- ✓ Burning of agriculture debris
- ✓ Children playing with fire

- ✓ Children playing fire crackers
- ✓ Smoking
- ✓ Picnickers
- ✓ Electric shot circuit
- ✓ Travelers
- ✓ Road workers
- ✓ Hunters / poachers
- ✓ Lemon grass distillers
- ✓ Resin tapping
- ✓ Char coal burning
- ✓ Loggers

Fire hazard areas

Out of 15 Geogs under Trashigang Dzongkhag, five Geogs are identified as high forest fire hazard areas namely Udзорong, Yangyeer, Bartsham, Bidung and Samkhar. The vegetation in these Geogs are dominated by dry chirpine where the under growths are dry and highly flammable coupled with steep terrain which makes it ideal for forest fire.

Fire Hazard Structures/Monuments

1. Trashigang Dzong
2. Genkhar Lakhang under Udзорong
3. Trashigang Dzongkhag Court
4. BOD, Trashigang
5. Udзорong Benshingmo village
6. Trashigang town
7. Yangyeer, Udзорong, BHUs

Current Management - Prevention & Preparation

Trashigang Forest Division has currently 71 technical staff and 24 non technical staff including 20 ESPs. The Division is leading body when it comes to coordinating forest fire prevention/suppression activities. Following are some management and monitoring strategies adopted by Division to prevent forest fire incidences before the onset of fire season.

- ✓ Monitor/control agriculture debris burning (following strict timing) or through notification
- ✓ Creating Fire line before onset of fire
- ✓ Awareness/advocacy initiatives
- ✓ Notify Dzongkhag / Division / Gewog Administration before onset of fire season
- ✓ Regular patrolling
- ✓ Distribution of fire fighting equipments
- ✓ Formation of GFFMG & DFFMG

Current Forest Fire Suppression strategies

- ✓ Any person seeing any fire outbreak informs the geog administration / forestry staff
- ✓ The forestry staff / Gewog Administration then inform Tshogpas and Tshogpas mobilize the villagers for the forest fire suppression
- ✓ Use simple tools and equipment especially water bags, fire racks, spades, and sickles
- ✓ Use tree branches for beating the flames and soil to cover the fire
- ✓ If the fire is near the road, solicit help from RBP for fire brigades/tankers.
- ✓ Back firing based on the fire situation (wind direction, aspect, rescue situation)
- ✓ Use or seek the help from military personnel and volunteers RBP if the situation is intense.
- ✓ Construction of instant fire lines
- ✓ Patrolling and mopping up
- ✓ Damage assessment and mapping of the burnt area
- ✓ Report submission
- ✓ Impose fine / penalty if the culprit is apprehended

8. Stakeholder identification and Roles & Responsibilities

Stakeholder	Responsibility
CFO. Divisional Office	<ul style="list-style-type: none"> To lead the Dzongkhag Fire Management Planning Process To ensure the development of a Dzongkhag Fire Management Plan
Range / Beat Office	<ul style="list-style-type: none"> Facilitate development of Forest Fire Management Groups Provide support to DLFFMG Conduct awareness on Forest Fire prevention and control to the local communities and school going children's Act as a crew leader in forest fire suppression Coordinate local communities in fire suppression Undertake prevention works such as fire lines / fire breaks Coordinate response to forest fire outbreaks under respective ranges Implement laws Submission of forest fire reports to the DLFFG / fire section Rehabilitation of the burnt area
Forest Fire Management Section, Divisions	<ul style="list-style-type: none"> Provide technical support to the field offices Coordinate in preparing fire management group Seek financial support for procuring fire fighting equipments Advise DLFFMG on forest rules, laws and other regulations relevant to fire management. Report to HQ Coordinate the registration of Forest Fire Management Groups Maintain database of FFMG and keep records of FFMP. Circulate notification before on set of fire season Oversee/monitor fire suppression activities
DoFPS / Fire Section:	<ul style="list-style-type: none"> Development & distribution of awareness and advocacy materials to the field Provide basic fire-fighting equipment and safety gear to DFFMG/GFFMG in the field Provide financial / technical support
Dzongkhag Administration	<ul style="list-style-type: none"> Circulate fire notification before the onset of fire season Coordinate transportation and refreshment during fire out break Initiate and source fund for construction of fire line around important structures/monuments within the Dzongkhags.

Armed forces (RBP)	<ul style="list-style-type: none"> • Help in fire suppression/personnel deployment • Assist in apprehending the culprit • Provide fire vehicles/brigades during fire out break • Provide transportation to fire fighters
Fire volunteers/Desuups	<ul style="list-style-type: none"> • Help in fire suppression • Fire incidences reporting • Help in forest fire advocacy programme • Support man power in rehabilitating the burnt areas
Gewog Administration:	<ul style="list-style-type: none"> • Circulate fire notification before the onset of fire season • Coordinate transportation and refreshment during fire out break • Coordinate in fire suppression • Advocacy programme at Geog level
BPC:	<ul style="list-style-type: none"> • Support in transportation • Construct adequate buffer around transmission lines before onset of forest fires and carry out timely maintenance • Mobilize vehicles for transportation of firefighters
Business community:	<ul style="list-style-type: none"> • Support in providing refreshment during fire out break • Help in fire suppression
Health Sector	Support first Aid during medical emergencies

9. Forest Fire Management ACTION PLAN

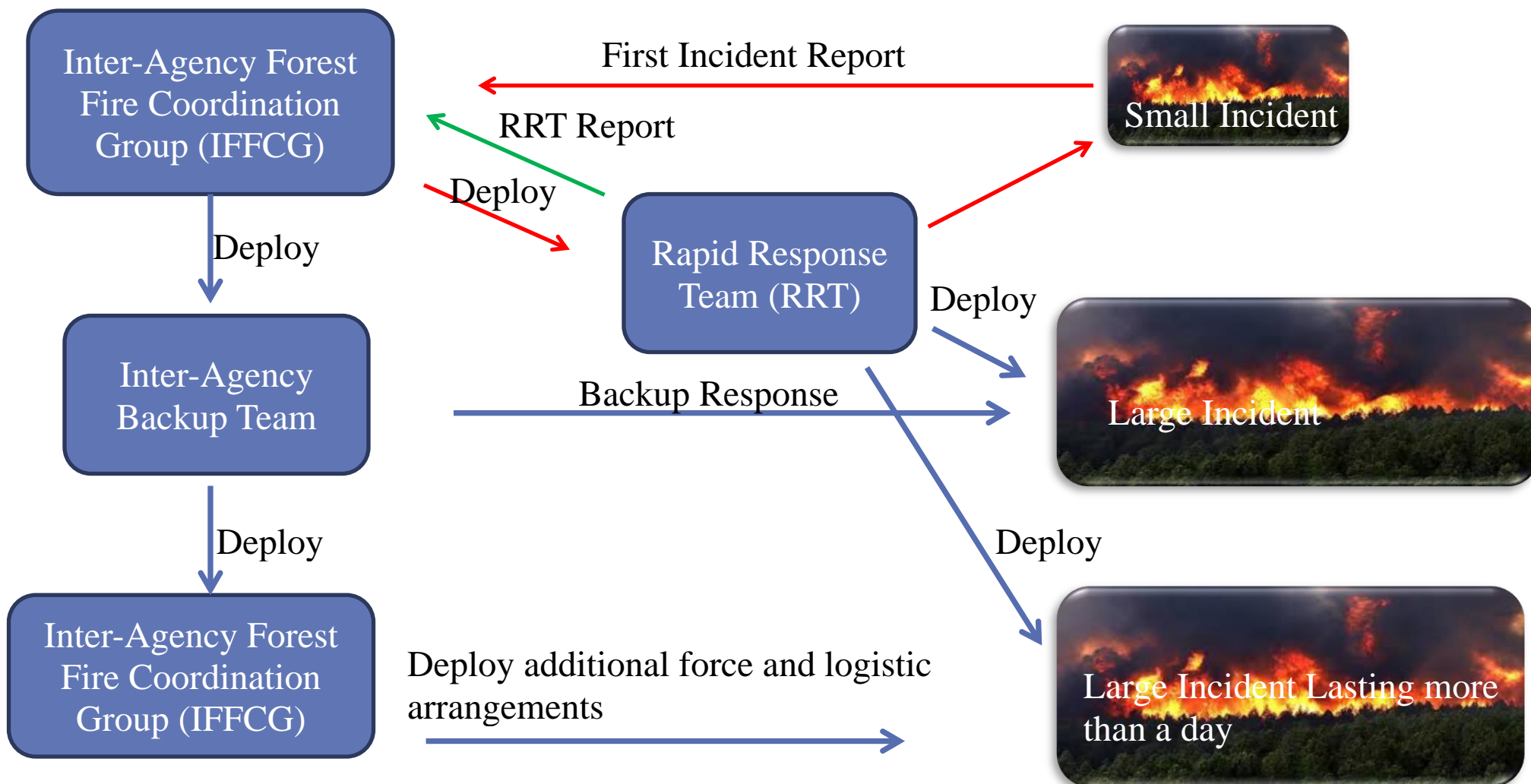
Action / Activities (include where & how action will be done)	Focal Responsibility	Other Stakeholders	Target Communities	Time frame	Budget estimate (Nu. Mil)	Indicator
PREVENTION						
Conduct awareness campaign/advocacy in fire hazard Geogs involving prominent religious figure	Fire section, Division, Respective Beat Incharges	Geog Administration,	Local Communities of fire hazard areas(five Geogs)	Once annually	0.5	5 times
Annual consultation meetings with Stakeholders(plan presentation	TFD	DDM	ALL DZongkhag Fire Management members	In the month of October	0.15	5 times
Educate School children and relevant institution in fire hazard areas	Trashigang Forest Division, Fire Section	Dzongkhag Administration, Institutionan/school/Dzongkhag Dratshang head	School children, Monks	Once annually	0.15	5 times
Distribution of awareness material	TFD	Geogs, Dzongkhag Administration	Fire hazard schools, Geogs	Before onset of fire season	0.3	200 pamphlets a year
Conduct coordination meeting with BPC	TFD,	BPC,	BPC Staff	Before onset of fire season(twice)	0.05	5 times
Creation and maintenance of fire lines around important structures/settlements	Dzongkhag Administration, Geog Administration	TFD, DoFPS	Udzorong, Trashigang Dzong, Trashigang	Before onset of fire season	0.9	5 sites

			Court, Genkhar Lhakhang			
Installation of signboards along roads	TFD, Dzongkhag Administration	DoR, Geog Administration, Institutions , Schools	Fire hazard Geogs& structures , along Trashigang-Mongar highway	Annually once(pre fire season)	0.2	10
Create awareness through local TV channel	TFD, Dzongkhag Administration	Trashigang Municipal, Cable proprietor	Whole Trashigang Communities	Annually twice	0.1	10 times
Clearing and removal of flammable undergrowth along transmission lines	BPC, Trashigang	TFD	Strategic/hazard Transmission base	Regularly	-	-
Mapping of fire hazard areas	TFD	Dzongkhag Administration, Geog Administration	Fire Hazard Areas	Once(pre fire season)	0.1	5 times
Hazard reduction (prescribed burning)	DoFPS,TFD	Dzongkhag Administration, Geog Administration, responsible stakeholders	Fire hazard areas	Once annually	0.20	5 times
Action / Activities (include where & how action will be done)	Focal Responsibility	Other Stakeholders	Target Communities	Time frame	Budget estimate (Nu. Mil)	Measurement
Preparedness						
Procurement and distribution of fire fighting tools and PPE.	DoFPS, Fire section	TFD	Fire hazard Geogs	First year of 12 th five year plan	0.4	- 40water bags -100 goggles -100 helmets -50 spades

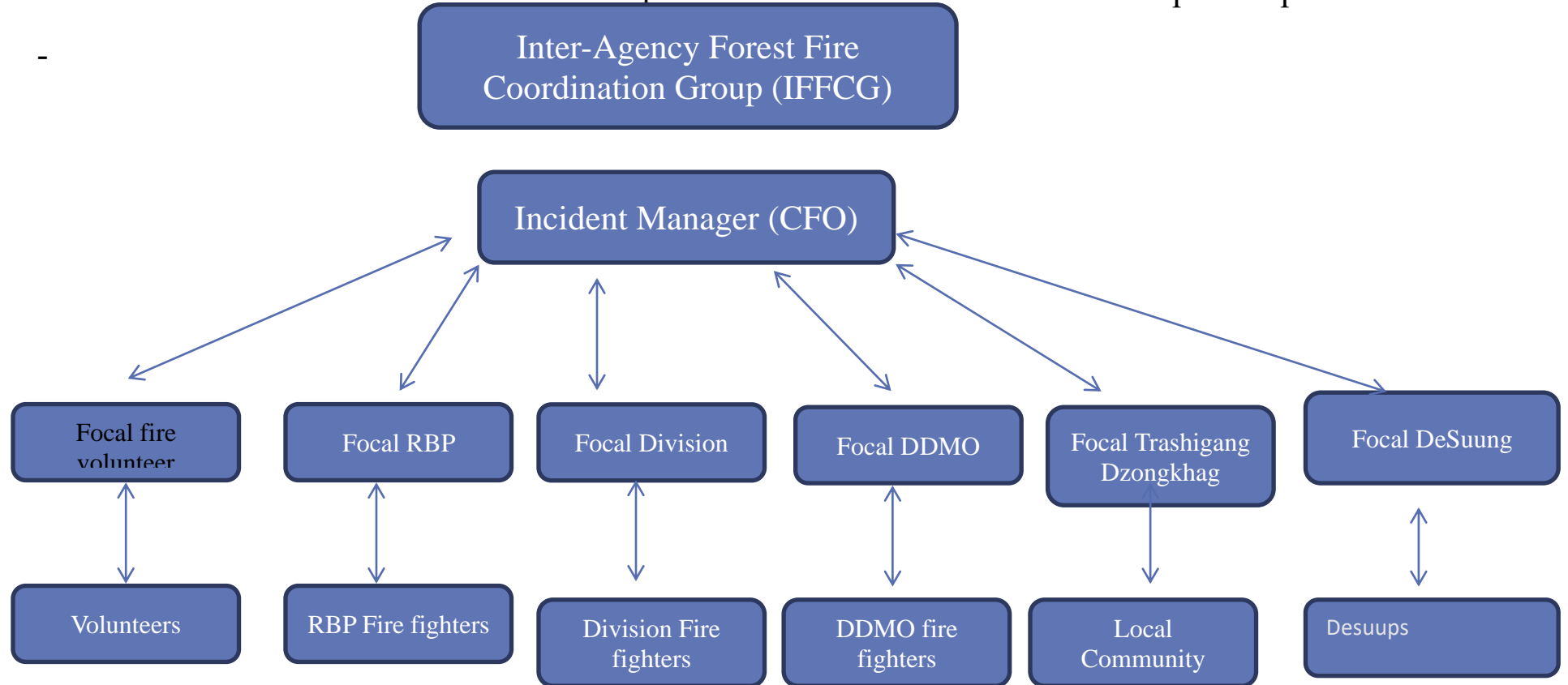
Conduct consultation/coordination workshops with responsible stakeholders (Presentation of FFMP)	TFD	Dzongkhag DDM, Geog Administration	RBP, Volunteers, Desuups, Local communities	Once before onset of fire	0.25	5
Conduct training on fire fighting tactics and handling of tools	TFD, DoFPS	Dzongkhag Administration	DFFMG members, local communities	Yearly once	0.25	5
Conduct persistent patrolling and monitoring in fire hazard areas	TFD	Concern Tshogpas of fire hazard Geogs/Chiwogs	Fire Hazard Geogs, structures/settlements	Regular during fire season	-	NA
Form Geog level fire management groups	TFD	DoFPS	Fire Hazard Geogs	1 in every year	0.2	5
Action / Activities (include where & how action will be done)	Focal Responsibility	Other Stakeholders	Target Communities	Time frame	Budget estimate (Nu. Mil)	Measurement
Response(refer SOP)						
Recovery						
Assessment and mapping of burnt area	TFD	Dzongkhag Administration, Geog Administration, Local communities	-	After two months from fire outbreaks	0.05	5 times
Rehabilitation Plantation of burnt areas	GBCL	TFD	-	-		

10 .Standard Operating Procedure for Response During Forest Fire

SOP for response during forest fire fighting



- **COMMUNICATION CHAIN OF COMMAND AS PER SOP**
As soon as the fire incident is reported the IFFCG will coordinate and plan response with other focals.



SOP

- As a first response, the IFFCG will dispatch the RRT to the forest fire incident site to investigate, suppress and contain the fire.
 - The IFFCG will start mobilizing backup teams and keep them ready for deployment depending on first incident report from the RRTs.
 - Division will coordinate medical support from Trashigang Hospital. The IFFCG should make the medical support team always available at the incident site
 - Arrangement for transportation of the fire fighters and deployment will be done by IFFCG from their respective agencies
 - The Division RRT will investigate and determine the main cause of forest fire and report back to the IFFCG.
 - On large incidents the IFFCG from Division will take the lead role in planning and coordinating the next steps for fire suppression.

3.6 Roles and Responsibilities of RRTs

- The RRT's should be fully equipped and will always be on standby for immediate deployment during the forest fire season (Oct-March).
- They will provide the first incident response and combat all forest fires at the initial stage.
- The RRT will conduct assessment of the incident and report to the IFFCG, who will then take further decisions for suppression and containment of the fire.

- The RRTs will try to suppress the fire and call for backup based on the situation and status of the incident.

3.7 Roles and Responsibilities of Backup Teams

- The backup teams will get ready as soon as the RRT is despatched to the forest fire incident site.
- The backup teams will be deployed on instruction from their respective IFFCG members, who will coordinate deployment of the backup teams based on RRT's initial incident report.
- The size of backup teams and timing of deployment will be decided by the respective IFFCG members based on the size and situation of the incident.
- The backup teams should be adequately equipped with PPE and fire fighting equipment.

4. COORDINATION AND COMMUNICATION In order to provide fast and efficient suppression response and to ensure fire fighter safety during forest fire incidents, interagency coordination and communication flow are crucial.

4.1 Coordination Protocol

- For any reported forest fire incident, one representative from each agency on the IFFCG shall immediately meet together to plan and deploy fire fighters at agreed vantage point.
- All IFFCG members should use the common call sign as per Table No 5 and frequency and also commonly used online forum (eg. Wechat, Telegram).
- All IFFCG members will be responsible for coordinating all requirements for their respective agencies.

4.2 Communication Protocol

To ensure timely and effective communication amongst IFFCG members and with the RRTs and fire fighters on the forest fire incident the following call signs will be used for communication on radio handsets by the members during forest fire incidences:

Table: Name List and Call Sign of IFFCG Members

Sl.No.	Agency	Focal (by Position)	Focal (Current)	Handset Call Sign
1.	Royal Bhutan Police (RBP)	SP, OC, Trashigang	Officer concern	Beta 1, Beta 2
2	Dept. of Forest and Park Services (DoFPS)	CFO, FPED CFO, Thimphu Forest Division	Kinley Tshering, 17113866 GyeltshenDrukpa, 17692603 Kinley Tshering 17611971	Echo 1 Echo 2 Echo 3
3.	Trashigang Forest Division	CFO, FO(Fire Focal)	CFO, Fire section Focal	Rubia 1, Rubia 2
4	DDMO, Trashigang	DDMO	Concern DDMO	Delta 1,
5	Trashigang Dzongkhag.	Dzongda, Dzongrab	Concern Dzongda, Dzongrab	Tango 1 Tango 2
6	Desuung	Dzongkhag Desuung	Dzongkhag Desuung focal	Datura 1

		coordinator		
7	BPC	BPC, Manager	Concern BPC Focal	-

- All IFFCG Members must use radio handsets and be available on the designated frequency during fire incidences.
- The Division/DoFPS will process with BICMA for availing a designated radio frequency for use of the IFFCG Members.
- IFFCG Members will use their current agency communication protocols for communication with RRTs and other firefighters.

4.3 Logistic Coordination at Incident Site:

- Overall coordination and logistic distribution will be done by Division, IFFCG Members in coordination with respective agency Members.
- Fund mobilization for food and refreshments will be done by DDMO, Dzongkhag Administration.

4.4 Suppression Coordination on Large Fires

- The IFFG will initiate incident suppression planning including: rotation of fire fighters, calling-off of fire fighters during night, additional logistic team organization, gathering weather forecast from NCHM (by DDMO), etc.
- When the use of helicopter services is deemed necessary by the IFFCG, Dasho Dzongda will coordinate with DDM for availing and approval of the helicopter service.
- The Division designated team leaders will use GPS and provide coordinates/directions to the helicopter pilot for dropping water from the incident site.

4.5 Water Tankers

- It is necessary to arrange water tankers when fire incidents occur in or around road-heads. - Water tankers will be deployed to the road-head nearest to incident site to suppress fire which is accessible from the road for water supply and to protect adjoining infrastructure. - The fire brigade will be dispatched by the RBP IFFCG Members based on decision taken by IFFG.

5. POST FIRE ASSESSMENT AND REHABILITATION

The Division will be responsible for coordination and implementation of all post-fire activities as per provisions of the Forest and Nature Conservation Rules and Regulations 2017, and other technical guidelines and practices. Such post-fire status report will be shared with stakeholders through the IFFCG.

15. Monitoring & Review

Monitoring.

This Dzongkhag Fire Management Plan will be regularly monitored to ensure that the actions detailed in the ACTION PLAN are being undertaken in a timely manner and that progress is being made towards meeting the objectives.

The DFO, together with the Dzongkhag Disaster Management Committee and Dzongkhag Fire Management Committee, is required to monitor progress towards the completion of items listed in the Action Plan and to impose any fines or penalties as per the by-laws and FNCRR,2017. The DFO shall convene a meeting of key stakeholders and those whom have responsibility for items in the Action Plan on a half yearly basis. To optimize monitoring of prevention and preparedness actions meetings will be held before forest fire season of each year.

Review

The DFO, together with the Dzongkhag Disaster Management Committee and Dzongkhag Fire Management Committee is required to lead the review of this plan on an annual basis and as necessary account for any changes in context or risk. This may be triggered by a range of circumstances such as:

- Changes to stakeholders, staff, committee members
- Changes in Legislation, new Policies
- Changes to the fire risk in the area
- Following a fire event

16. Reporting

An annual Report will be prepared by the DFO and made available to all stakeholders. A copy will be provided to the Chief Forestry Officer of the Forest Protection and Enforcement Division and the Forest Fire Management Section.

The annual report will detail the progress made towards implementing the fire risk management activities identified in the Action Plan.

This report will be reviewed by the Committee and contain information on what objectives have been achieved and why and those that remain incomplete or have not worked will be collated. Any lessons learned including recommended amendments to the plan will be recorded in this annual report.

The Annual Report will be provided to all stakeholders, including Local Government, Dzongkhag Administration, and community. A copy of the Annual Report will be provided to the Chief Forestry Officer of the Forest Protection and Enforcement Division and the Forest Fire Management Section.

17. Appendix

1. Division member list

Sl/No	Name	Designation	Place	Contact
1	Dendup Tshering	CFO	Division Office	117110154
2	Tenzin Wangdi	Sr.FO	Division Office	17777271
3	Sonam Tobgay	FO	Division Office	17355249
4	Pema Tenzin	Sr.FR II	Division Office	17892159
5	Phuntsho Wangdi	Sr.FR III	Range, Trashigang	17674462
6	Kinga	Sr. FR II	RO, Trashigang	17670656
7	Karma Tenzin	Sr.FR II	Beat, Udzorong	17615720
8	Lam Norbu	FO	RO, Yangtse	17985213
9	Pema Tshewang	FR	RO, Doksum	17435330
10	Pema Tshewang	FR	Beat, Jamkhar	17519342
11	Sonam Chopel	FR	Beat, Tongzhang	17506885

12	Ugyen Phuntsho	Sr.FR	Beat, Khamdang	17874240
13	Ugyen Lhendup	Sr.FR	Beat, Teodtsho	-
14	Tandin	FR	Beat, Yallang	17498336
15	Tshering Dorji	FR	RO, Wamrong	17719274
16	Phuntsho Wangdi	FR	Beat, Kangpara	17645269
17	Tenzin	FR	Beat, Thrimshing	16915204
18	Pema Wangda	FR	Beat Lumang	17887271
19	Karchung	FR	Beat, Kanglung	17676241
20	Sonam Dendup	FR	Beat, Yangneer	77603928
21	Khawjay Dukpa	Sr.FR II	RO, Radhi	17116383
22	Sherab Zangmo	Sr.FR	Beat, Bidung	17647489
23	Ugyen Wangchuk	FR	Beat, Phongmey	17121388
24	Kinley Rabgay	Sr.FR	Beat, Shongphu	17976783
25	Leki Dorji	FR	Beat, Bartsham	17992009
26	Kuenzang Chhoden	FR	Beat, Ramjar	17946730
27	RB Ghalay	FR	Beat, Yangneer	-

Relevant Stakeholder list

Sl. no	Name	Designation	Address	Contact
1.	Chekey Gyeltshen	Dasho Dzungda	Trashigang Dzongkhag	17646518
2.	Phuntsho Wangdi	Head, Dzongkhag DDM	Trashigang	17875705
3.	Sonam Rafel	OC, RPB	Trashigang	17638668
4.	Tshewang Dorji	DHO, Trashigang Hospital	Trashigang	17607542
5.		BPC	Trashigang	77204412
6.	Thinley Namgay	Municipal Member	Trashigang Thromde	17701315
7.	Sonam Phuntsho	Gup	Bartsham Geog	17704326
8.	Karma	Gup	Samkhar Geog	17514983
9.	Dorji Tshering	Gup	Udzorong	17700016
10.	Duptho	Gup	Yangyeer	17119370
11.	Kelzang Dawa	Gup	Bidung	17646542

Fire volunteer list

Sl/No	Name	Designation	Address	Mobile Number
1				
2.	Phuntsho Wangdi	Head, Dongkhag DDM	Trashigang Dzonkhag	17875705
	Wang Gyaltsen	Library Assistant	Gongthung MSS	17875281
	Sonam Pelki	Office Assistant	Thrimshing Dungkhag	17515050
	Ugyen Namgay	Teacher	Bartsham CS	17934050
	Dechen Tshomo	Account Assistant	Sherubtse College	17706180
	Tenzin	Dzongkhag Election Officer	Trashigang	17672759
	Needup Gyeltshen	GAO	Yangneer	17674441
	Dorji	ICT	Sherubtse College	17660750
	Phurba	HA	Rangjung BHU	17668484
	Sonam Tenzin	Admn Assistant	Thrimshing CS	17967956
	Jigme Wangmo	Lab Assistant	Sherubtse College	17777493
	Tshering Tashi	Teacher	Bartsham CS	17909590
	Chimi Dorji	Sr. ICT Officer	Sherubtse College	17114646
	Rinzin Phuntsho	Lab Assistant	Thrimshing CS	17992119
	Dorji Gyeltshen	Staff Nurse	Rangjung BHU	17647002
	Chimi Rinzin	Teacher	Bartsham CS	17551573
	Pema Dorji	Teacher	Gongthung MSS	17699231
	Sangay Wangchuk	GAO	Shongphu	17601003
	Chophel Rinzin	Teacher	Bartsham CS	17704953

	Jigme Jamysho	Sr. Architect	Trashigang	17561169
	Yangchen Tshomo	Teacher	Changmey PS	17647836
	Phuntsho Wangdi	DT Secretary	Trashigang	17875705
	Karma Tenzin	Electric Technician	Muenseling, Khaling	17500505
	Kesang Wangdi	Teacher	Dungtse CS	17693767
	Sangay Dorji	Teacher	Rangjung CS	17347870
	Ugyen Thinley	Teacher	Bidung LSS	17834573
	Priya Chetri	Dental Technician	Riserboo	17453015
	Dawa Zangmo	Store assistant	Riserboo	17956967
	Jamayang Tenzin	Teacher	Thrimshing	17856434
	Ugyen Dorji	Teacher	Rangjung CS	16914130
	Duptsho Tshewang	Business	Trashigang	17568155
	Tshering Samdrup	Business	Trashigang	17612245
	Tshering Norbu	Business	Trashigang	17623097
	Chador Tenzin	Teacher	Trashigang MSS	17679542
	Nima Dorji	Teacher	Trashigang MSS	17131384
	Sithup	Teacher	Trashigang MSS	17645258
	Pema Tshering	Teacher	Trashigang MSS	17697040
	Tenzin Dema	Agriculture Extn	Bidung	17727310
	Suk Bir Rai	AWP	Trashigang	17758341
	Rinchen Wangdi	Teacher	Wamrong MSS	
	Wangdi	Teacher	Gongthung MSS	17784822
	Tshering Dendup	Teacher	Bidung LSS	17698959

	Jigme	MoHCA	Dzongkhag Admn	16924990
	Dorji Khandu	NECS	Dzongkhag Admn	17684956
	Jampo	Private	Trashigang	17788880
	Sonam Wangchuk	Local Govt	Bidung Gewog	17655956
	Jamayang Choden	AWP	Trashigang	17661792
	Thinley Dorji	ADHO	Wamrong	17164545
	Sangay Phuntsho	Electoral RO	Trashigang	17632935
Group leaders				
1	Dorji Khandu	Environment Officer	Trashigang cluster (Udzorong, Kanglung, Samkhar & Bartsham)	
2	Nidup Gyeltshen	GAO	Yangneer Gewog	
3	Phurba	HA	Radhi cluster(Radhi, Phongmey, Bidung & Shongphu)	
4	Nima Dorji	Drungtsho	Wamrong cluster (Wamrong, Thrimshing, Khaling & Kangpara)	

List of firefighting equipment in the Gewog & Dzongkhags- where is it

Sl. no	Name of the equipment	Quantity (nos)	
1.	Water bag	3	
2.	Rake	48	
3.	Safety Helmet	95	
4.	Spade	15	
5.	Mc load	30 nos	
Tools issued to Range offices and Beat Offices			
1.	Mc load	40	
2.	Rake	60	
3.	Spade	15	
4.	Goggles	27	

BURN PERMIT FORM

Royal Government of Bhutan
Ministry of Agriculture and Forests
Department of Forests and Park Services

Burning Permit

Name:	CID:
House No:	Thram No:
Village:	Geog:
Dzongkhag:	Phone No:
BURN DETAILS	
Location:	Size of burn:(Sq meter/hectares/Ac/Dc):
Type of Land: Please circle- Orchard/Garden/Agriculture field	Plot No:
Type of fuel: Heavy/Medium/light	

Date of Issue:

Date of Expiry:

Gup/Thrompon
Gewog/Thromde

Date:

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FOREST FIRE REPORTING FORMS

Annexure XXVIII

FIRE INCIDENT FORM A
INITIAL FIRE REPORT

FIRE START	DATE: Click here to enter a date.	TIME: Click here to enter text.
DIVISION :	Choose an item.	
DZONGKHAG :	Choose an item.	
GEOG	Click here to enter text.	
VILLAGE :	Click here to enter text.	
LOCALITY:	Click here to enter text.	

Forest Type: tick the box. ✓

Broad leaf	<input type="checkbox"/>	Mixed Conifer	<input type="checkbox"/>	Chir Pine	<input type="checkbox"/>
Blue Pine	<input type="checkbox"/>	Grassland	<input type="checkbox"/>	Others	<input type="checkbox"/>

Cause of fire: Tick 1 box only ✓

Cause of fire (if known)	Arson	Agriculture-debris burning	Campfire/Picnickers	Children	Construction/Labour camp	Electric Short circuit	Natural
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Cattle herders	Prescribed burning	Smokers	Trans-boundary	Others	Unknown	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Possible risks:

Human Settlement	Click here to enter text.
Lhakhangs / Monasteries	Click here to enter text.
Schools & other institutions	Click here to enter text.

Remarks: Description/other information

Fire status (topography, distance, accessibility etc)	Click here to enter text.
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Submitted By	Name & designation: Click here to enter text.	TIME: Click here to enter text.
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Note: First hand information to be conveyed by CFO/PM.

Annexure XXIX

FIRE INCIDENT FORM B
FOREST FIRE REPORT- To be submitted within one month.

1. Fire Location

DIVISION :	Choose an item.	
DZONGKHAG :	Choose an item.	
GEOG	Click here to enter text.	
VILLAGE :	Click here to enter text.	
LOCALITY:	Click here to enter text.	
GPS Reading	E: Click here	N: Click here
ATTACH GOOGLE MAP OF FIRE AREA		

2. Fire time

FIRE START	DATE: Click to enter date.	TIME: Click here to enter text.
FIRE FIGHTING	START: Click to enter text.	FINISH:Click here to enter text.
FIRE SUPPRESSED	DATE: Click to enter a date.	TIME: Click here to enter text.

3. Cause of fire: Tick 1 box only ✓

Cause of fire (if known)	Arson	Agriculture-debris burning	Campfire/Picnickers	Children	Construction/Labour camp	Electric Short circuit	Natural
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Cattle herders <input type="checkbox"/>	Prescribed burning <input type="checkbox"/>	Smokers <input type="checkbox"/>	Trans-boundary <input type="checkbox"/>	Others <input type="checkbox"/>	Unknown <input type="checkbox"/>	

Details of offender (if known)	
Name/CID No:	Click here to enter text.
Address	Click here to enter text.
Age	Click here to enter text.
Sex	Click here to enter text.
Occupation	Click here to enter text.

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4. Fire Characteristic – tick. ✓

Ground Fire	<input type="checkbox"/>	Surface Fire	<input type="checkbox"/>	Crown Fire	<input type="checkbox"/>
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5. Personnel involved in fire fight

Personnel	Number	Personnel	Number
Forestry Officials	Click here to enter text.	Public/community	Click here to enter text.
RBA	Click here to enter text.	Labour force	Click here to enter text.
RBP	Click here to enter text.	Fire volunteers	Click here to enter text.
De-Sups	Click here to enter text.	Fire brigade	Click here to enter text.
RBG	Click here to enter text.	TOTAL NUMBER PERSONS INVOLVED IN FIRE FIGHTING	Click here to enter text.
Others	Click here to enter text.		
Fire trucks involved	Click here to enter text.	Other resources involved	Click here to enter text.

6. Forest Type: tick the box. ✓

Broad leaf	<input type="checkbox"/>	Mixed Conifer	<input type="checkbox"/>	Chir Pine	<input type="checkbox"/>
Blue Pine	<input type="checkbox"/>	Grassland	<input type="checkbox"/>	Others	<input type="checkbox"/>

7. Classification of Forest burnt

Particular	Number of Acres	Particular	Number of Acres	Particular	Number of Acres
SRF Land	Click here to enter text.	Private forest	Click here to enter text.	Others	Click here to enter text.
Community Forest	Click here to enter text.	Plantation	Click here to enter text.		
Total burnt area: Click here to enter text.					

8. Damage Report

A) TREE CROP				
Damage	Girth Class	Total	Rate (Nu)	Estimated amount
Trees		Click here to enter text.	Click here to enter text.	Click here to enter text.
Poles		Click here to enter text.	Click here to enter text.	Click here to enter text.
Saplings		Click here to enter text.	Click here to enter text.	Click here to enter text.
Any other		Click here to enter text.	Click here to enter text.	Click here to enter text.
TOTAL ESTIMATED VALUE OF DAMAGED FOREST CROPS				Click here to enter text.

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B) OTHER ECONOMIC DAMAGE			
Type	Details	Quantity	Estimated value
Understory/scrubs	(eg: species / habitat) Click here	Click here to enter text.	Click here to enter text.
Agricultural Crop	(eg: maize, lemon grass, orchard etc) Click here	Click here to enter text.	Click here to enter text.
Livestock	(eg: cows, horses etc) Click here	Click here to enter text.	Click here to enter text.
Other forest product	(eg: bees, medicinal plants) Click here	Click here to enter text.	Click here to enter text.
TOTAL ESTIMATED VALUE OTHER ECONOMIC DAMAGE			Click here to enter text.

9. Impact & Loss

A) HUMAN & LIVESTOCK		
	Yes/No	Number / Detail if known
People injured	Choose	Click here to enter text.
Loss of life	Choose	Click here to enter text.
Loss of Livestock / injured	Choose	Click here to enter text.
Loss of wildlife/ injured	Choose	Click here to enter text.

B) INFRASTRUCTURE			
Loss / damage	Number / Detail	Loss/ damage	Number / Detail
House	Click here to enter text.	Religious building. Lhakhangs, Monastery, Chorten, etc	Click here to enter text.
School buildings / other institutions	Click here to enter text.	Farm fences	Click here to enter text.
Electricity infrastructure	Click here to enter text.	Water infrastructure	Click here to enter text.

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C) ENVIRONMENTAL		
Type	Risk (H/M/L)	Remarks
Erosion	Click here to enter text.	Click here to enter text.
Landslip	Click here to enter text.	Click here to enter text.
Water Quality	Click here to enter text.	Click here to enter text.
Water Catchment area	Click here to enter text.	Click here to enter text.
Habitat	Click here to enter text.	Click here to enter text.

10. TOTAL DAMAGE & COST OF FIRE

ITEM	Amount Nu
Total loss – timber, structural, agricultural, livestock etc	Click here to enter text.
Others	Click here to enter text.
TOTAL	Click here to enter text.

11. General comments/recommendations for recovery activities

General comments:
Click here to enter text.

Assessment

Position	Date	Name / signature
FOREST OFFICER	Click here to enter a date.	Click here to enter text.

REPORT FORWARDED TO DFO / PM - Date: Click here to enter a date.

CFO/ PARK MANAGER	Click here to enter text.	Click here to enter text.
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REPORT FORWARDED TO FOREST FIRE MANAGEMENT PROGRAM - Date: Click here to enter a date.

FOREST FIRE MANAGEMENT PROGRAM - OFFICE USE ONLY.

Received Forest Fire Program – Date:

Fire Case Number: (Dzungkhag code/ 000/dd.mm.yyyy)