

Standard Operating Procedure for Forest Fire Fighting in Tsirang



Interagency Forest Fire Coordinating Group
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TABLE OF CONTENTS

BACKGROUND2

OBJECTIVES.....3

SOP: BASIC INITIAL PRIORITIES.....3

1. PRE INCIDENT PLANNING AND PREPAREDNESS.....4

1.1 Nomination of Focal Officers for Inter-Agency Forest Fire Coordinating Group (IFFCG)..... 4

1.2 Fire Fighting Training 5

1.3 Rapid Response Team (RRT)6

1.4 Fire line Construction..... ..6

1.5 Equipment:..... ..6

1.5.1. Equipment for RRT 6

1.5.2. Individual PPE and Equipment..... 7

1.5.3. Group Equipment..... ..8

1.5.4. Personal Protective Equipment (PPE)..... ..8

2. PRE-INCIDENT ROLES AND RESPONSIBILITIES OF IFFCG.....9

2.1 Collective Roles and Responsibilities of IFFCG.....9

2.2 Specific responsibilities of the IFFCG 9

3. FIRE SUPPRESSION AND OPERATIONS ON INCIDENT.....10

3.1 Fire Fighter Safety (SAFETY FIRST!)10

3.2 Operational SOP for Forest Fire Incident Management..... 10

3.3 Roles and Responsibilities of IFFCG 11

3.4 Roles and Responsibilities of RRTs..... ..12

3.5 Roles and Responsibilities of Backup Teams..... ..12

4. COORDINATION AND COMMUNICATION12

4.1 Coordination Protocol..... ..12

4.2 Communication Protocol 13

4.3 Logistic Coordination at Incident Site: 14

4.4 Suppression Coordination on Large Fires 14

4.5 Water Tankers..... 14

5. POST FIRE ASSESSMENT AND REHABILITATION14

Back Ground

Forests play an integral role in the socio-economic development and environmental health of Bhutan. Amongst other drivers of deforestation and forest degradation, forest fire is the primary cause for loss in forest cover and valuable biodiversity. Therefore, forest fire poses the single most important threat to the Constitutional requirement of maintaining 60 percent forest cover. Catastrophic forest fires also undermine national conservation and developmental efforts and are often a cause for serious concern for communities as wildland –urban fire interface increasingly gets riskier, particularly in growing urban-hubs like Thimphu, Paro, Punakha and Tsirang.

Forest fire fighting in Bhutan is a challenging task due to steep, rugged terrain, erratic and increasingly severe weather patterns. Many forest fire incidents are anthropogenic in nature, which makes the role of fire managers challenging in managing new fire incidents. While the current approach to forest fire fighting remains unchanged, firefighters continue to respond to the fire with limited management guidance, planning and coordination of roles and minimal communication between agencies.

The ability of the first responders to effectively respond to fire incidences surrounding urban areas can greatly reduce damage to forests and quickly deter risk posed by such fires to urban communities. Effective response will depend on inter-agency coordination, preparedness and how adequately response teams are equipped and trained. Currently, firefighters lack a common coordinated system for command and control for incident management planning during forest fire incidents. In the absence of a reliable incident management planning, all concerned agencies often fail to coordinate effective suppression response and also are exposed to unnecessary safety concerns.

The IFFCG and local communities will contribute to fight forest fires. The response to forest fire incidence in Tsirang requires a proper incident management system taking into consideration coordination, effective response mobilization and putting firefighter's safety first. The system should describe and define the responsibilities for all the stakeholders involved. There should be a standard operational flow from the Chairperson down through the entire IFFCG Focals.

His Majesty the King Commanded in February 2017 to strengthen inter-agency coordination and to ensure that forest firefighters are adequately and appropriately dressed and equipped while on fire firefighting duty. As a follow –up on the Command, conveyed by Hon'ble Goongloen Gongma of the Royal Bhutan Army during a meeting on 13 February 2017, a series of meetings were carried out among agencies to redress issues, strengthen coordination and to enhance effective fire response. The standard Operating Procedure (SOP) described below is being submitted for endorsement.

Objectives:

- To ensure the safety of fire firefighting personnel's during forest fire incidents
- To provide for timely, efficient and effective firefighting action on forest fire incidents
- To better coordination among the different stakeholders involved in fire fighting

- To achieve cost-efficient and optimal resources distribution for all forest fire fighters

SOP: Basic Initial Priorities

These SOPs describe the method by which various forest fires fighting actions should be carried out in a coordinated approach. While each forest fire outbreak is different, they share many common features. By working out in advance, how to react to any of those features, a fire fighter is able to focus attention on the unique features of a particular forest fire. This reduces decision-making workload and reduces the chance that something important might be missed.

By having SOPs, a fire fighter can more easily anticipate the actions of other fire fighters, lessening the risk of working at cross-purposes which can lead to accidents and ineffectiveness in firefighting. Any contradictory inefficiencies and issues in working by a SOP should be reported immediately via the fire fighter’s commanding officer or existing chain of command. If the problem directly affects the safety of those on the fire line, the commanding officer should immediately take action to reduce any such potential risk occurring from the contradiction in priorities. While some SOPs are general in nature and might be used regularly, others are applicable to specific situations and might only need to be observed in isolated situations.

1. Pre Incident Planning and Preparedness

1.1 Nomination of Focal Officers for Inter- Agency Forest Fire Coordinating Group (IFFCG)

The most important part of pre-incident planning is formation of the coordination group members (focal officers) from concerned agencies involved in firefighting. For Tsirang, the IFFCG members will be from the Department of Forests and Park Services (DoFPS), Royal Bhutan Police, Tsirang Dzongkhag Administration, 12 Geog Administrations, Bhutan Red Cross Society, Desuung, Thromde, Dzongkhag Disaster Management, Bhutan Power Cooperation and CF Networking Group (CFNG) as shown in Table 1. Dasho Dzongda, Tsirang will be the chairperson and Dasho Dzongrab will officiate in his absence. The members will coordinate in providing response to forest fire incidents. The following focal officials have been nominated from all the concerned agencies to act as the members of the Inter-Agency Forest Fire Coordinating Group (IFFCG) and to act as the primary official contact during fire incidents.

Table 1: IFFCG Members

Sl.No	Agency	Focal (by Position) and contact no
1	Dzongkhag Administration	Dasho Dzongdag, Chairperson-17989818 Dasho Dzongrab- 17699248
2	RBP	Dasho SP- 17615713
3	DoFPS	Chief Forestry Officer- 16901530
4	DDM	DT Secretary -17888883
5	De-suung	De-suung Gojay -17871277
6	Bhutan Power Corporation	Manager
7	Geog Administration	Gup Rangtahngling -17722869

		Gup Tsirang Teo -17822577 Gup Sergithang -17839392 Gup Tsholingkhar -17982979 Gup Gosarling –17900604 Gup Kikorthang –17425696 Gup Dunglagang –17643855 Gup Phuentenchhu –17921342 Gup Patshaling –17867850 Gup Barshong –17634315 Gup Mendrelgang –17115695 Gup Semjong -17618313
8	Thromdey	Thuemi -17879477
9	CF Network Group	Chairperson-17615298
10	Bhutan Red Cross Society	Coordinator-77414606

-Any change in membership of the IFFCG should be informed and updated with the IFFCG and contact of the individual members should be updated.

-The IFFCG Members shall hold an annual meeting to facilitate coordination and raise any issues related to forest fire.

-The DoFPS member shall update the other members on fire incidences and other details during the meeting.

1.2 Firefighting Training

All fire fighters should be adequately trained in various firefighting technique, fire safety, and coordination and communication protocol. The DoFPS (Territorial Division Office, Tsirang) will conduct basic firefighting training of trainers (TOTs) for all the agency focal, who in turn will train their respective RRT and fire fighters. DoFPS fire experts will train all focal officers on incident management system and coordination. Equipment handling training will also be conducted for focal officers. Selected officials will be nominated and will be trained, who will use these equipment during firefighting incidents. Effective communication is key to smooth coordination and deployment of fire fighters. All focal will be assigned a call code on a radio frequency and trained in use of handsets and a common communication protocol by RBP. The focal will then train their respective fire fighters on their own communication as per Radio Telephony producers in practice.

As guided by the Forest and Nature Conservation Rules and Regulations 2017, the TDO, Tsirang will train members from inter-agencies and communities to carryout prescribed burn techniques based on technical burn plans prepared by DoFPS for identified fire prone areas in and around Tsirang

1.3 Rapid Response Teams (RRTs)

The Rapid response teams (RRT) will be trained, equipped and kept on standby from the RBP Dzongkhag and DoFPS to coordinate quick and effective first response to forest fire incidences in Tsirang. The RRTs will consist of 20-30 member teams from IFFCG. Each RRT may be further deployed as crew of 5 members each led by a crew leader. Each RRT team will be led by an officer of adequate command and decision making authority, who will coordinate with respective focal officers during incidents. The RRT will be fully trained and equipped with personal protective equipment (PPE) and other firefighting tools and accessories.

1.4 Fire Line Construction

The interface between built up areas and forest is becoming a threat, where human lives and properties are at risk from forest fires. Fire line as specified by experts from DoFPS will be constructed around important structures and property at risk. The identification of such areas will be coordinated by DoFPS in consultation with Tsirang Dzongkhag and RBP.

The construction of fireline will be coordinated by the IFFCG and implemented with personnel from Dzongkhag, RBP, DoFPS, Desuung, BPC, Bhutan red cross society, CFNG, Thromde and Geog administrations.

Specific Responsibilities of the IFFCG

1. Agency members shall facilitate procurement of PPE and firefighting gear for their respective agencies before onset of fire season and distribute to the RRTs and other fire fighters as necessary.
2. Agency members shall ensure transportation and logistics for their members.
3. Agency members shall ensure that, their RRT readiness during the forest fire season.
4. DoFPS members shall coordinate and lead for firefighting, prescribed burning training and awareness on fire
5. The DDM shall bear overall responsibility for arrangement of logistics during fire incidents in coordination with IFFCG. DDM shall facilitate reimbursement of expenses, food, refreshment and other logistics shall be made available to IFFCG members for respective agencies for optimal distribution to fire fighter.

3. FIRE SUPPRESSION AND OPERATIONS ON INCIDENT

3.1 Fire Fighter Safety (SAFETY FIRST)

- The Officer-in charge is accountable for safety at the forest fire.
- All fire fighters are also individually responsible for their own safety.
- All fire fighters should work collectively at the incident site to ensure safety of other fire fighters and people in the area.
- On the incident site everyone should be aware of possible hazards and identify methods to eliminate, reduce or avoid them
- The first concern should be: “Is anyone in Danger? If so, what can we safely do to protect them.

- The second concern should be, “Is there anything of value in danger? If so, can we safely protect it?”
- The third concern should be, “Is there anything we can safely do to help restore normality to the affected area?”

3.2 Operational SOP for Forest Fire Incident Management

On receipt of the first incident report by any members of the IFFCG, respective agencies will immediately deploy their RRTs to the incident site. The RRTs will size up the incident and initiate first response to suppress and contain the fire. Based on the outcome, the RRTs will jointly submit the fire incident report to the IFFCG stating whether the fire is contained or if additional back up is required. The IFFCG will deploy additional back up teams on standby in case of larger fires, which coordination and fire suppression till the fire is suppressed and contained. Figure 1 provides a diagrammatic illustration of the flow of decision- making, on ground suppression action and communication.

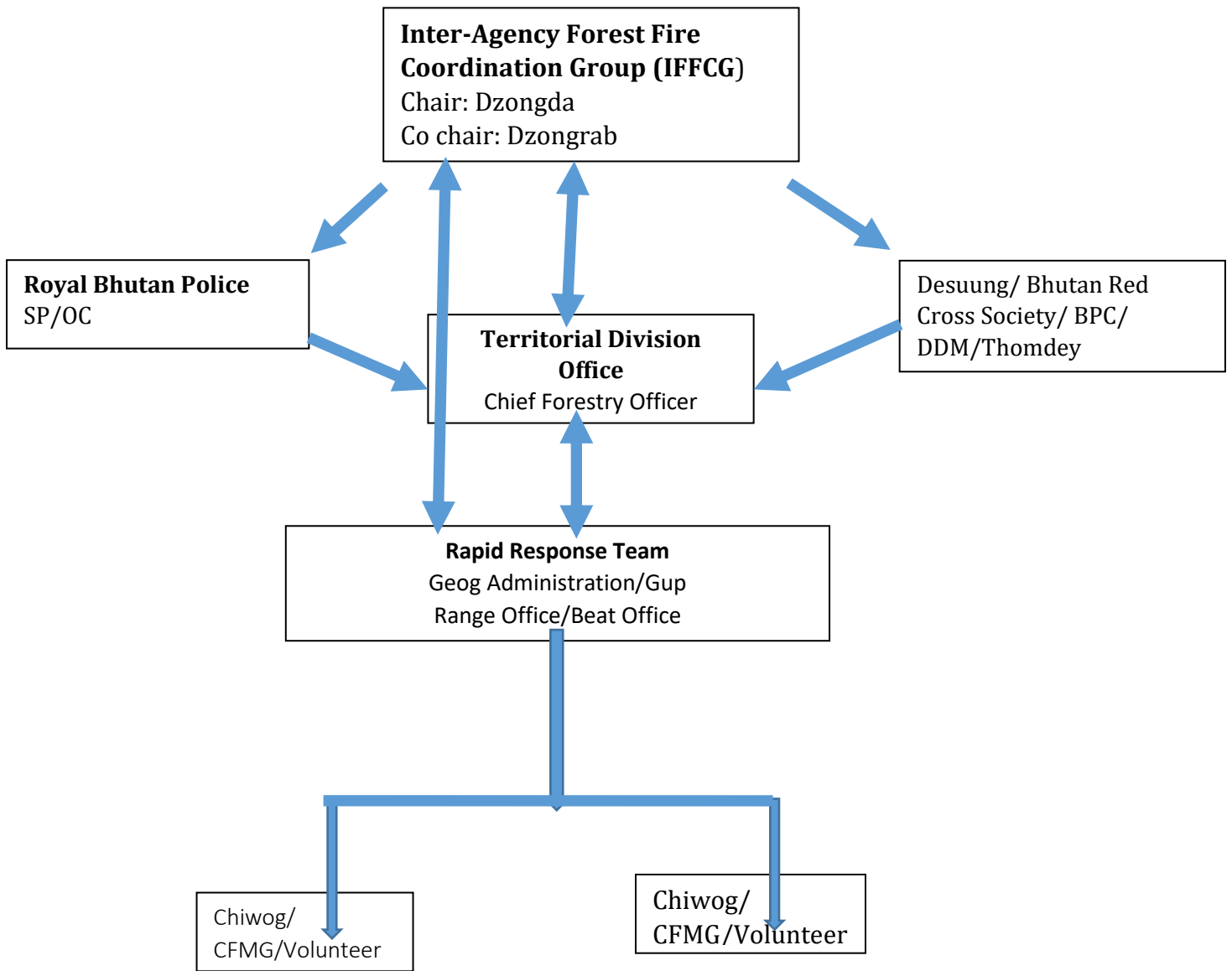


Figure 1: Incident coordination system during forest fire

3.3 Roles and Responsibilities of IFFCG

- As soon as the fire incident is reported, the IFFCG will coordinate and plan response with other focals.
- 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.
- IFFCG members from Dzongkhag Administration will coordinate medical support from General hospital and make the medical team available at the incident site.
- Arrangement for transportation of the fire fighters and deployment will be done by IFFCG from their respective agencies.
- The DoFPS RRT will investigate and find out the main cause of forest fire and report back to the IFFCG.
- On large incident the IFFCG from DoFPS will take the lead roles in planning and coordinating the next steps for fire suppression

3.4 Roles and Responsibilities of RRTs

- The RRTs 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.

3.5 Roles and Responsibilities of Backup Teams

- The backup teams will get ready as soon as the RRT is dispatched 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 RRTs 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 RRT and backup teams should be adequately equipped with PPE and firefighting equipment, listed in Table 3, Table 4 and Table 5 respectively

Table 3 Individual Personal Protective Equipment

Sl no	Type of equipment	Dzongkhag	RBP	DoFPS	Desung	Red cross society	Geog
1	Fire mask	200	200	100	300	100	200
2	Fire glove	200	200	100	300	100	200
3	Safety goggle	-					
4	Whistle	-					
5	Torch						
6	Safety helmet	-					
7	Water bottle						
8	Patang						
9	Safety rope (100m)						

Table 4 Equipment for RRT

Sl no	Name of equipment	Quantity (No)
1	Shovel	2
2	Flapper	10
3	Rake	2
4	Spade	2
5	Mc leod	5
6	Water pump bag	5
7	Drip torch and fuel	1
8	Water bottle	30
9	Whistle	30
10	Small bag	30
11	Portable water pump	1
12	Collapsible tank	1
13	Safety rope (100 m)	1

Table 6 Group Equipment

Sl no	Type of equipment	Dzongkhag	RBP	DoFPS	Desung	Red cross society	Geog
1	Communication hand set	10	10	10	10	10	
2	Rake	40	40	10	30	10	
3	Shovel	20	20	10	30	10	
4	Pulaski	20	20	10	30	10	
5	Flapper	20	20	10	30		
6	Power chain saw	2	2	1	0	0	
7	Water back pump	100	100	100	100		
8	Mc leod	20	20	10	30		
9	Portable water pump	2	2	2	2	1	1
10	Collapsible tank	2	2	2	2		2
11	Drone (UAV)	0	0	1	0	0	0
12	Safety ropes (100m)	1	1	1	1	1	1

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 of IFFCG shall immediately meet together to plan and deploy fire fighters at an agreed location. All IFFCG members should use the common call sign as shown in Table 5 with frequency and develop online forum (Telegram). All IFFCG members will be responsible for coordinating communication requirements for their respective agencies.

Table 5 Call signals for IFFCG Members

Sl. no	Agency	Focal (Position)	Handset call sign
1	Dzongkhag Administration	Dzongdag Dzongrab	Lotus Alpha 1
2	RBP	Superintend	Alpha 2
3	DoFPS	CFO	Alpha 3
4	Dzongkhag Disaster Management	DT Secretary	Alpha 4
5	De-suung	De-suung Gojay	Alpha 5
6	Bhutan Red Cross Society	Coordinator	Alpha 6
7	TMB (BPC)	Manager	Alpha 7
8	Thomdey	Thuemi	Alpha 8
9	CF Networking Group	Chairperson	Alpha 9

10	Geog Administration	Gup Sergithang	Golf 1
		Gup Tsirang Teo	Golf 2
		Gup Tsholingkhar	Golf 3
		Gup Rangthangling	Golf 4
		Gup Gosarling	Golf 5
		Gup Kikorthang	Golf 6
		Gup Semjong	Golf 7
		Gup Patshaling	Golf 8
		Gup Mendrelgang	Golf 9
		Gup Barshong	Golf 10
		Gup Phuentsenchhu	Golf 11
		Gup Dunglagang	Golf 12

4.2 Communication Protocol

To ensure timely and effective communication amongst IFFCG members and with the RRTs and fire fighters on the forest fire incidence, all IFFCG members must use radio handsets or mobile phones for information flow.

4.3 Budget provision for forest fire management:

Forest Fire is one of the components of DDM. The IFFCG Chairperson in collaboration with Territorial Division Office, Tsirang will seek budget approval from DoFPS for procurement of forest firefighting tools, equipment and training.

4.4 Suppression Coordination on Large Fires

The IFFCG will initiate incident suppression planning including: rotation of fire fighters, calling off of fire fighters during the night, additional logistic team organization, gathering weather forecast from National Center for Hydrology and Meteorology by DDM. When helicopter service is required by IFFCG, chairman of IFFCG will inform Department of Disaster Management (DDM) for helicopter service. The DoFPS designated team leaders will use GPS and provide coordinates/directions to the helicopter pilot for dropping water on the incident site. When fire incidents are at inaccessible areas, helicopter services should be availed to airlift and deploy fire fighters to the incident site based on the decision taken by the IFFCG.

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 the IFFCG.

5. Post Fire Assessment and Rehabilitation

The DoFPS 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 in practice. Such post fire status report will be shared with stakeholders through the IFFCG.