

Standard Operating Procedure for Forest Fire Fighting in Bumthang



Interagency Forest Fire Coordinating Group (IFFCG) December 2019, Bumthang

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 Bumthang.

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.

Inter -agency firefighters, such as Royal Bhutan Police (RBP), Dzongkhag & Regional volunteers, Desuung and local communities all contribute to fight forest fires. The response to forest fire incidence in Bumthang 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 designated Officers –in-Charge down through the entire operational task force.

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 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 first 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

For 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 new 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 SOP's, 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 firefighting. Any contradictory inefficiencies and issues in working by an 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 fire fighting. For Bumthang, the members will be from the Department of Forests and Park Services (DoFPS), Royal Bhutan Police, Bumthang Dzongkhag Administration, Gups from four Gewogs, Selected Regional Heads, Desuung, DDMO and Royal Bhutan Army (RBA). These members are the officials who will lead coordination role in providing response to forest fire incidents in and around Bumthang. 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)
1	Dzongkhag Adm	Dasho Dzongdag DDMO
2	RBP	Dasho SP Dasho OC
3	DoFPS	3 CFO's Range Officer (s)
4	RBA	Dasho SP (RBP)
5	Desuung	Coordinator Cluster Coordinators
6	Geog	4 Gups 4 Mangmis'
7	Throm	Thuemi
8	TTI Chumig	Principal VP

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

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

-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 (Forest Division, PNP and WCNP, Bumthang) 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 DoFPS Bumthang will train members from stakeholder agencies and communities' to carryout prescribed burn techniques based on technical burn plans prepared by DoFPS for identified fire prone areas in and around Bumthang.

1.3 Rapid Response Team (RRT)

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 and around Bumthang

-The RRT's will consists of 20-30 member teams from Dzongkhag, RBP, DoFPS and Regional Offices. 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 as 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 Bumthang Dzongkhag and RBP

The construction of fireline will be coordinated by the IFFCG and implemented with personnel from Dzongkhag, RBP, DoFPS, Desuung. Regional Heads and Geog administrations

Specific responsibilities of the IFFCG

1. Agency members shall facilitate procurement of PPF and firefighting gear for their respective agencies before onset of fire season and distribute to the RRT's and other fire fighters as necessary.
2. Agency members shall ensure transportation and logistics for their members.
3. Agency shall ensure that their RRT's readiness during the forest fire season.
4. DoFPS members shall coordinate conduct of firefighting and prescribed burn training and awareness

5. The DDMC/IFFCG 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 gives a diagrammatic illustration of the flow of decision- making, on – ground suppression action and communication.

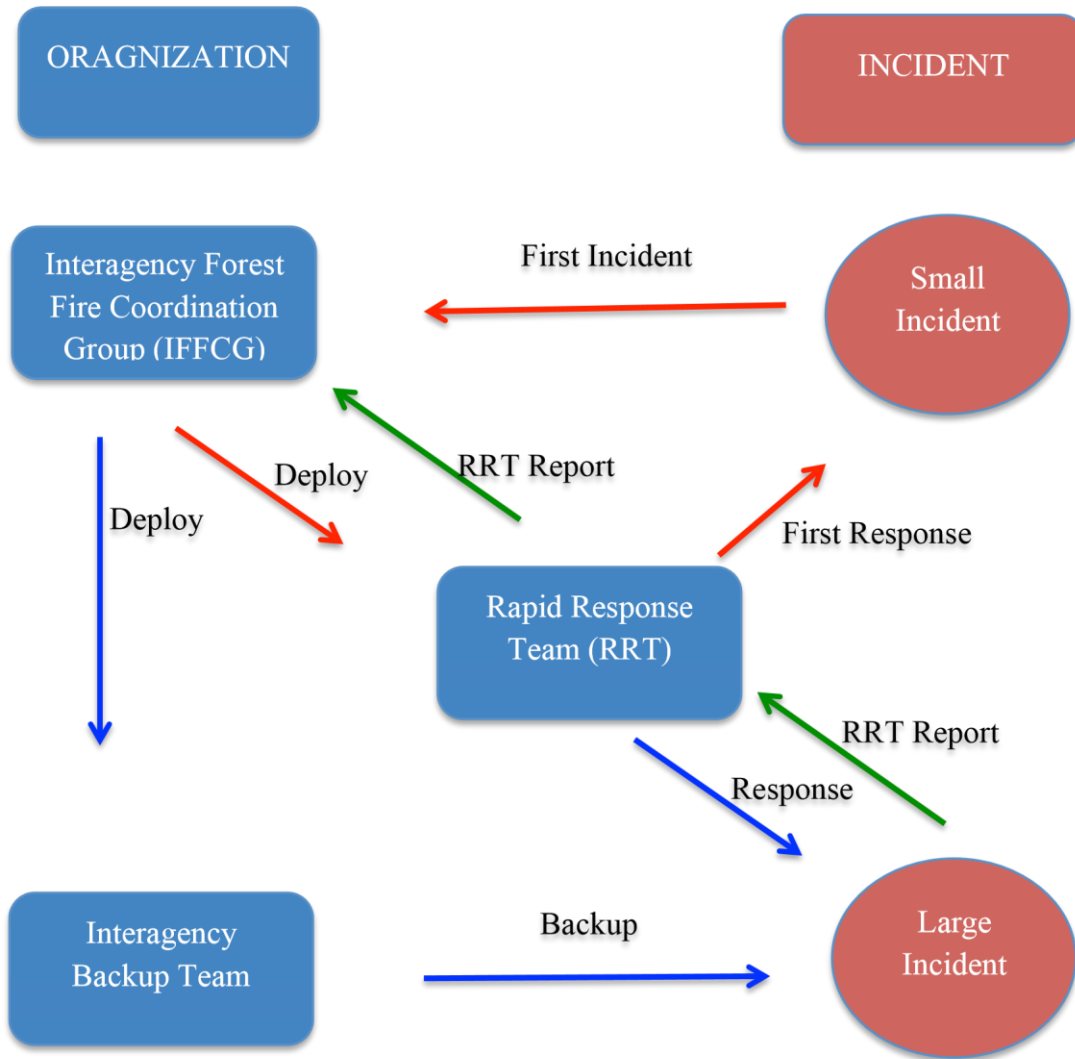


Figure 1: Incident coordination system during forest fires

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

The IFFCG members from DoFPS will coordinate medical support from Dzongkhag 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 DoFPS RRT will investigate and determine 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 backup teams should be adequately equipped with PPE and firefighting equipment with PPE and firefighting equipment, listed in table 3 and 4.

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 an 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, teleligran).

All IFFCG members will be responsible for coordinating all communication 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 incidence, all IFFCG members must use radio handsets or mobile phones for information flow.

4.3 Logistic Coordination at incident site:

Forest Fire is one of the component of DDMC and IFFCG in collaboration with DoFPS will seek clarification on the allocation of budget for forest fire

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, etc.), etc.

When the use of helicopter service is considered necessary by the IFFCG, Bumthang Dzongkhag will coordinate with DDM for availing and approval of the 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 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 and practice. Such post fire status report will be shared with stakeholders through the IFFCG.

New Additional Amendment from the Coordination meeting on IFFCG held on 20/12/2019.

Date: 20th December 2019
Venue: Conference hall, Division Headquarter
Participants: List attached separately

Background

Based on the Command of His Majesty The King in February 2017 to strengthen inter-agency coordination and ensure that the forest fire fighters are adequately and appropriately dressed and equipped while on firefighting duty, a series of meetings were carried out among agencies to redress issues, strengthen coordination and to enhance effective first response. Similarly, Bumthang dzongkhag coordinated by Divisional Forest Office, Bumthang conducted coordination meeting to discuss and customize the Standard Operating Procedures (SOP) of forest fire incidences on 20th December 2019 in conference hall of DFO, Batpalathang. The meeting also aimed at identifying relevant agencies in formation and formalize Inter-agency Forest Fire Coordination Group and identify clear mandates/responsibilities of the group. The meeting was chaired by Dasho Dzungdag, Bumthang dzongkhag.

Welcome address by CFO

Pankey Dukpa, Chief Forestry Officer of Bumthang Division welcomed all the participants for the meeting. During his opening address, following are some of the points that he emphasized for better coordination of forest fire incidences in Bumthang dzongkhag.

- The forest fire impacts on its coverages, biodiversity, people's life and private properties.
- Effective mobilization of human resources and efficient mobilization of financial resources should be the concern from all agencies.
- Create public awareness to curve fire incidences and

Opening remarks by Dasho Dzongdag

Dasho Dzongdag chaired the meeting and following are some of his key notes;

- The lessons learnt from the forest fire incidences of 2018 was that there was poor coordination among the agencies and formation of IFFCG is timely for better coordination to prevent and respond to the forest fire incidences.
- Divisional Forest Office need to initiate forest fire zoning to indicate the areas with higher risks of forest incidences so that we keep vigilant. The zoning result will enable the LFFCG to create more public awareness before the onset of fire season.
- There is no overlap between DDMCP and IFFCG

Issues, discussions and resolutions

Following are the issues, discussions made and resolutions of the meeting;

Sl.#.	Discussion points	Discussions	Decisions
1	Incorporation of IFFCG in Dzongkhag Disaster Management Committee Plan (DDMCP)	<ul style="list-style-type: none"> • There is no overlap of mandates/activities between IFFCG and DDMCP clarified by DDO. DDMCP consists of all the disasters. 	Incorporate activities and mandates of IFFCG in DDMCP and chain of command will remain unchanged. During the forest fires, CFO will lead to combat and respond to fire incidences.
2	Forest fire component in Dzongkhag Disaster Management Committee (DDMC)	<ul style="list-style-type: none"> • Forest fire is one of the component of DDMC • Expenditure during forest firefighting will be reimbursed by finance Ministry. 	<ul style="list-style-type: none"> • CFO will correspond with the department and seek clarification on the allocation of budget for forest fire.
3	Identification of forest fire line by tagging the tourist biking and trekking trails	<ul style="list-style-type: none"> • Sometimes fire line doesn't provide means to control in the extreme conditions such as steep terrain and cliffy areas. 	<ul style="list-style-type: none"> • Construct fire line around important Monasteries, institutions and major human settlements. • Propose to Tourism Council of Bhutan (TCB) for approval of budget • Connect biking trails to the existing trails • Construct minimum of 5 – 10 meters width depending on the terrain and site conditions.
4	Back-up team	<ul style="list-style-type: none"> • At times of prolonged fire, back-up teams are required 	Back-up team consisting minimum of 15 people from Gewog will be deputed during such situations. Preferably, persons who owns vehicle and physically strong/energetic to be deputed as back-up teams members.

5	Transportation	<ul style="list-style-type: none"> The pool vehicles from the respective agencies will be arranged. The list of pool vehicles is attached in annexure II. 	It was decided that fuel cost will be borne by concerned agencies and fuel cost claims to Dzongkhag Disaster Management Office will not be entertained.
6	Coordination and communication	<ul style="list-style-type: none"> Current practice lacks prompt coordination during the incidences of forest fire. Communications through mobile phones and walkie-talkie sets by different agencies and firefighters. 	<ul style="list-style-type: none"> IFFCG shall depute RRT and fire fighters. The contact numbers of concerned agencies will be shared to ease information. Only information related to forest fire will be shared in the group. Only Head and Officiating will be invited in WeChat applications group. Guidelines will be developed by DDMO as Admin of the group.
7	Handset and frequencies	<ul style="list-style-type: none"> Desuup, RBP, RBA, Forestry and other agencies who uses sets communicate through different frequencies approved by Bhutan Infocomm and Media Authority (BICMA). There is a need to explore to synchronize all in common frequency during forest fire incidences 	<ul style="list-style-type: none"> CFO to explore the possibility with the Department and BICMA Thimphu and report Dasho Dzongkhag and other agencies. If possible, all the sets will be synchronized and communication will be easier.
8	Forest fire line	<ul style="list-style-type: none"> Instructions to develop fire lines around significant religious structures and monuments in Bumthang was conveyed by Dzongkhag administration. There is requirement to standardize the technical specification of fireline. 	5-10 meters width to be constructed depending on the terrain and site conditions.
9	Development of SOPs of IFFCG	<ul style="list-style-type: none"> The SOP of Thimphu dzongkhag was shared to provide as guideline to develop SOPs in Bumthang dzongkhag. 	Mr. Karma Dorji, SFES Head of Bumthang Forest Division will develop the SOPs of Bumthang IFFCG based on the decisions of the meeting. The final version of the SOP to distribute to all agencies for references and implementations.

Annexure I: Agencies of IFFCG

Sl.#	Agency
1	Dzongkhag Administration

2	Bumthang DFO, Wangchuck Centennial National Park, NRDCL, UWICER
3	RBP & RBA
4	Dessup and volunteers
5	TTI, Chhumig
6	Chamkhar Thromdey
7	Wood-based Industries (WBIs)
8	Taxi Association of Bumthang
9	Gewog administration (Ura, Tang, Chummig and Chokor)
10	National Horse Breeding Center, Bumthang
11	Department of Road, PWD Bumthang Branch Office
12	Dratshang
13	Brown Swiss and Horse/Sheep Farm
14	Center for Machinery Units
15	Domestic Airport, Batpalathang

Annexure II: Transportations

Sl.#.	Agency	Type
1	Dzongkhag Administration	2 Hilux, DCM and Bolero
2	BPC	1 DCM, 1 Bolero
3	RBP	1 DCM, 2 Hilux, 1 Tanker
4	DoFPS	4 Hilux, 1 DCM, 1 Bolero
5	Gups	4 Bolero
6	Schools	4 buses
7	TTI	1 bus & 1 Hilux, 1 DCM
8	CMU	1 Hilux, Heavy Vehicles
9	Sheep Farm	1 Bolero
10	Airport	Fire brigade

Annexure III: Equipment

The following quantities of equipment should be procured/mobilized by the concerned agencies and make available at times of forest fire incidences.

Sl.#	Tools/equipment	Quantity	Unit
1	Handsets	Concerned agencies	
2	Rake	2	Numbers
3	Spade	2	Numbers
4	Water Bag Pump	2	Numbers
5	Water bottle	Individual	
6	Torch	Individual	
7	Whistle	2	Numbers
8	Fire mask	Individual	
9	Patang	Individual	
10	Small bag	Individual	

