Fire Control Framework and Step Wise Drill Manual

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Acronyms

CBO	Community based organization
CSO	Community support organization
DDMC	District disaster management committee
DPRP	District Preparedness and Response Plan
DRR	Disaster risk reduction
DRRM	Disaster risk reduction and management
EWS	Early warning system
FNCCI	Federation of Nepalese Chambers of Commerce and Industry
LDCRP	Local Disasters and Climate Resilient Plan
LDMC	Local disaster management committee
LEOC	Local emergency operation center
LPG	Liquid petroleum gas
MoHA	Ministry of Home Affairs
NNBC	Nepal National Building Code
NRCS	Nepal Red Cross Society
O&M	Operation and maintenance
PPE	Protective personal equipment
SAR	Search and rescue
SME	Small and medium enterprises
SOP	Standard operating procedure
VHF	Very high frequency

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The Fire Control Framework and Step Wise Drill Manual

1. The context

In Nepal, fire is a recurrent disaster, one that takes a heavy toll in terms of lives and properties. When people lose their houses, their main assets, and the valuable property within, they often fall into poverty. It is in urban areas that fires have the most potential to become highly destructive. In the context of Nepal, the core city areas of fast-growing urban centers where passage roads are narrow, buildings are old and fitted with wooden joists, and placed in close proximity, the impact of a fire can be unimaginable. Such buildings are vulnerable, as fire easily leaps from one house to other, spreading rapidly, and damaging entire settlements. Some of the devastating fire incidents in the past are presented in Box-1.

2. Rationale of the fire control framework and fire drills

In Nepal, fires are responsible for causing heavy loss and damage in both rural and urban contexts. Data from the Ministry of Home Affairs, MoHA (1971- 2018) revealed that in the last 50 or so years there have been a total of 12,694 fire incidents that have killed 1,755 and injured 2,176 individuals, affected 265,962 families, and damaged 90,044 houses. In 2018 alone, 87 people were killed and 342 injured in 2,478 fires incidents. In addition, 1,857 houses were destroyed and 291 damaged, causing a financial loss of around 3.96 billion. In 2020, a total of 57 people were killed and 318 injured from 2,129 fire-related incidents. The estimated property loss associated with climate-induced disasters was approximately NPR 6.84 billion, and about 94% of that loss can be attributed to fire incidents (Gautam, 2020). In general, fire breaks out due to technological, human, lightning, and agricultural phenomena.

Box-1: List of devastating fire in the past

- 1971: Singha Darbar, Kathmandu
- 1984: Bhirkuti paper factory in Nawalparasi
- 2001: Bhutanese camps of Jhapa
- 2008: Myanglum Tehrathum
- 2009: Ramechhap
- 2012: South of Golbazar, Siraha
- 2017: Yeti Fabric, Sallaghari, Bhaktapur
- 2017: Super Gas Factory Ltd, Birgunj, Parsa
- 2019: Subisu CableNet Pvt Ltd., Kathmandu
- 2019: Victory Lounge, Kathmandu
- 2019: Manakamana Cotton Factory, Bhaktapur
- 2020: Inaruwa, Sunsari
- 2020: Phungling, Taplejung
- 2020: Bhagatpur Village, Bardiya
- 2020: Ujjwal Fuel Station in Gwarko, Lalitpur
- 2020: Asmita Cotton Industry, Baglung
- 2020: Rodikot Village, Humla

Source: Gautam (2021)

- *Technological/industrial fire:* are a result of gas leaks and explosions of gas cylinders and kerosene stoves; short-circuiting of electric heaters, irons, TVs, and other electrical appliances and faulty wiring; the collision of electric wires during high-velocity wind storms, fluctuations in voltage, and low-strung electric poles; and explosions of solar panel batteries.
- *Human-induced fire:* are the result of children's easy access to matches, smoking, burning mosquito coils, using candles and oil lamps during load shedding, theft of electricity, feeding cooking stoves with rice husks, preparing animal feed on outdoor stoves, and family disputes.
- *Forest fire:* are expanded when carelessness of passer-by, smokers and picnickers. Illiteracy and ignorance are the root problem leading to fire. In some areas, people living near forests deliberately start fires to promote the growth of fresh shoots of trees which is used as fodder for livestock. Most of the forest fires are linked with deliberate burning while making land for farming and collecting non-timber forest products.

- *Agriculture fire:* are emerged while using of mechanical threshers and burning straw for manure are agricultural activities that can result in fires (UNDP, 2011)[1].

The "Firefighting Framework" and "Fire Drill Manual" are expected to enhance the capacity of stakeholders for effective firefighting services and quality response to reduce the damages from the fire out breaks.

2.1 Fire Control Framework

A fire control framework entails four components namely (i) policies, strategies, and enforcement; (ii) technology, tools and resources; (iii) education and knowledge management; and (iv) institutional arrangements and coordination. These components reinforce each other. The role of each of the component is instrumental in administering the overall fire management activities. At present no such framework is available at any of the three tiers of government. Since local governments lack such frameworks, the fire preparedness and response activities of the fire stations that lie in their jurisdiction are sub-par. Local governments also lack fire safety plans and none have a fire policy guideline. Because both policy provisions and fire safety plans are lacking, the condition of the equipment and its management in fire stations is poor.

2.2 Current gaps

Fire stations lack adequate tools and equipment for fire response. Limited capacity, skill, and knowledge among firefighters and the absence of fire safety, emergency and contingency plans further worsened the situation. The limited efficiency of fire responses was also the result of limited awareness about fire preparedness among the public and authorities. The absence of operation and maintenance (O&M) funds, the private sector's reluctance to utilize corporate social responsibility, the poor enforcement of fire safety codes, and limited resources and accountability of municipal authorities further undermine fire preparedness and response.

The inadequacy of managerial and technical capacities at fire stations also increases the risks and vulnerabilities of the most at-risk communities and their populations. Weak management of fire stations in the municipalities means that fire-fighting-related policy provisions are poorly translated into action. Limited capacity, tools, equipment, training, skills, ability to rescue fire victims, and poor support systems for extinguishing fires further pose the risk of fatal injuries fire-fighting squads themselves as well as poor performance in combating fires. Their poor performance also minimizes the scope of collaboration and receipt of assistance from other stakeholders, a fact that increases the complexity of responding to fire emergencies.

The absence of well-prepared fire safety plans keeps urban dwellers and people living in informal settlements at high risk of fires causing loss of life and damage to property. Municipal fire services are under-budgeted and cannot, therefore, run at their optimum performance capacity. As budgets are inadequate, most of the staff are not properly placed or paid, and machines and equipment are not properly maintained and are often out of order. Many physical assets currently at fire stations are seen as 'burdens' rather than 'assets'. Fire-fighting services may collapse if they are not backed up with finance and funding arrangements from the municipalities, the private sector, and humanitarian agencies. The municipal authority has the mind sets that invest in fire preparedness is useless. The economy of the municipality is

[1]A Needs and a Capacity Assessment of Fire Preparedness in the Municipalities of Nepal. UNDP. 2011. Report by Dhruba Gautam file:///C:/Users/Hp/Desktop/Downloads/UNDP_NP_CDRMP_Fire_preparedness_study_REPORT_20120214120934%20(2).pdf

threatened due to recurrent fires. In addition, children, women, and the disabled (i.e. the most-at-risk populations) face injury and death. The lives of rescuers and firefighting teams, too, are at risk as they lack adequate equipment, skills, and training.

Fire safety-related issues, concerns, and measures are not adequately addressed in policies. In particular, one underlying cause of fire risk lies in building designs and faulty electrification. Another problem policy fails to address is the lack of fire hydrant provisioning during city planning. For both these reasons, the number of fires is likely to rise as the population expands.

Box 2: Stakeholder in fire management

- Integrate management of security agencies (Nepal Police, Nepal Army, Nepal Armed Police and City Police) for fire responses and management.
- Encourage private sector viz. Federation of Nepalese Chambers of Commerce and Industry (FNCCI) district/municipal chapters, small and medium enterprises (SMEs), corporate houses in fire preparedness and response.
- Include humanitarian agencies/NGOs in fire preparedness and post-fire efforts like relief and recovery support.
- Involve CBOs, religious organizations, and clubs as volunteer mobilization to support the fire response.
- Involve media people in reporting, advocating and disseminating information on fire incidents and issues related to awareness raising, relief and recovery support
- Coordinate with neighboring local governments to mobilize

The role of various stakeholders viz. officials of local governments, staff at fire stations, security agencies, elected representatives, private sectors, humanitarian agencies, community-based organizations-CBOs and media is crucial during the fire response (refer Box-2).

The lack of proper fire control frameworks among local governments and the extremely weak technical, managerial, financial, and institutional capacities of fire stations have exacerbated the risks of fires.

2.3 Fire drills

Fire drills are not a common routine practice among authorities responsible to manage fire incidents. The Local governments do not organize or support fire drills among their regular activities. Some humanitarian agencies do organize fire drills accordingly to their inbuilt programs but those actions are not institutionally liked with fire stations or security agencies. These drills are more demonstrative rather than capacitating. As a result, the drills occur only on an event basis not a programmatic one despite the several benefits of the latter approach. Fire drills are multi-purposed initiatives, it, can help reduce disorderly behavior, confusion, panic and improve coordination among the relevant actors during the actual fire emergency. Fire drills are an important part of any fire safety procedure: they ensure that people understand what they need to do if there is a fire, they test how effective an evacuation plan is, and they help to improve any aspects of fire provisions that turn out to be ineffective. Fire drills protect lives by reinforcing the use of the quickest and safest evacuation route available. They ensure that when a real fire comes, people do not have to spend time looking for the closest exit. Fire drills train people to follow a step-wise process and build their capacities so much that they develop extra confidence about managing ie emergencies.

The fire drills in buildings (residential, multipurpose, school/college,) is to ensure that everyone knows how to exit safely as quickly as possible if a fire breaks out, the building is filled with smoke or carbon monoxide or other emergency occurs and to familiarize building occupants with the sound of the fire alarm. The process of familiarizing people with fire drill procedures is to increase the chances that they will remain safe and well during such emergency.

Furthermore, regular fire drills help to reinforce the correct procedures and remove uncertainty, analyze how the effectiveness of evacuation procedures and exit routes, improve on future strategies. Regular simulation exercise or training on Fire drills including emergency fire management, risk assessment, search and rescue, first aid, firefighting, evacuation, and crowd control will improve the efficiency of municipal staff, municipal police, and disaster focal persons with increased knowledge and understanding and provide additional ideas about how to reduce the risks of fire hazards.

2.4 Limitations

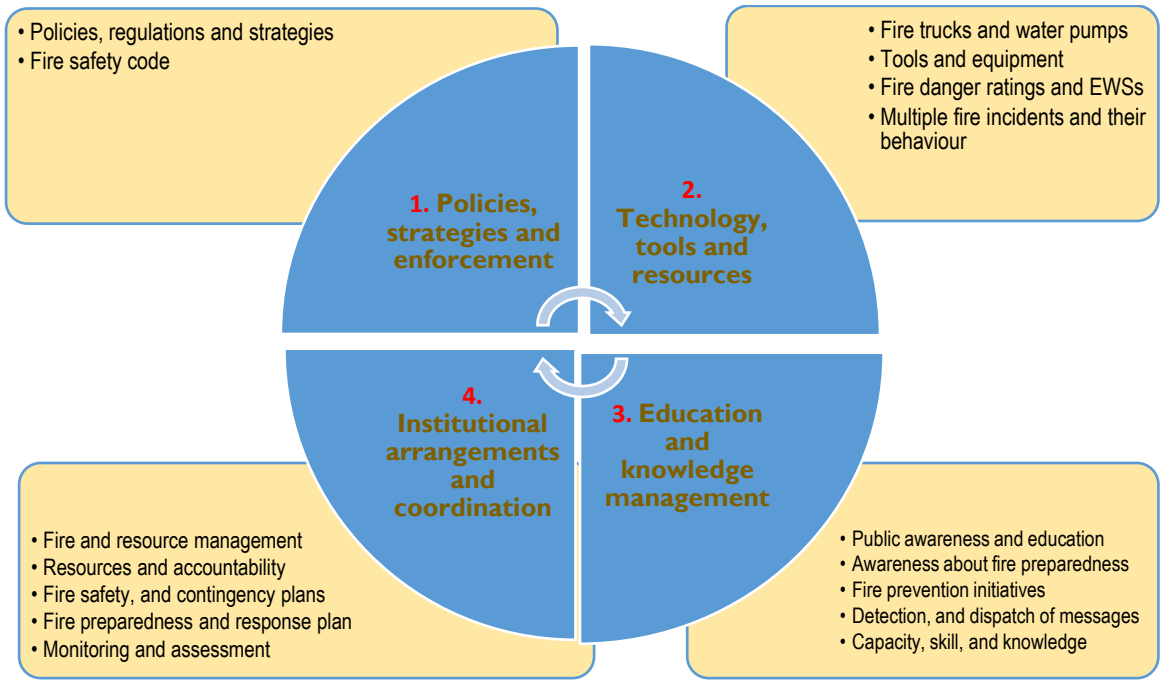
Large scale and specific nature of fire such as airport based fire as a result of plane crash or other causes are not within the scope of this 'framework' and 'manual'. To respond to airport based fire, the role of the Civil Aviation Authority of Nepal is prime, though it could take the support from local fire stations and security agencies.

A. Fire control framework

3. Comprehensive fire control framework

Fire control framework and fire drills support concerned stakeholders to formulate appropriate actions to reduce the impacts of fire hazards. A fire control framework has major four components: (i) policies, strategies, and enforcement, (ii) technology, tools and resources, (iii) education and knowledge management, (iv) institutional arrangements and coordination (Figure 1).

Figure 1: Fire control framework



3.1 Policies, strategies and enforcement

a. Policies, regulations and strategies

For effective fire control, there is a need for relevant policies, regulations, guidelines, and strategies as well as mechanisms for their proper enforcement. A policy framework can provide many avenues for formulating relevant regulations and guidelines. In principle, policy provisions for fire services as well as standard operating procedures (SOPs) are required at the federal, provincial, and local government levels to promote cost-sharing and regulate fire response. Mainstreaming fire-related issues in disaster risk reduction and management (DRRM) policies and plans, enforcing provisions spelled out in building codes, and adopting DRRM policies for fire safety are all instrumental steps for effective fire control.

Fire response is not efficient due to (i) delays in communication, (ii) slow fire trucks, (iii) speed breakers in unnecessary locations, (iv) other drivers' not giving way after hearing the horn or siren of a fire engine, and (v) unmanaged traffic. There also are no safety audits of LPG plants.

Key strategic actions for policy initiatives include the following:

- Review existing fire-related policies and legal and institutional frameworks and identify the current gaps in terms of technical, financial, managerial, and institutional aspects.
- Organize policy debate and discourse to collect policy issues among relevant stakeholders to identify key policy issues for developing and modifying comprehensive policies and legal and institutional frameworks
- Develop directives/mechanisms with clear roles and responsibilities in fire management among fire stations, local governments, the private sector, and other relevant actors for policy enforcement.
- Prepare SOPs to regulate fire responses Integrating SOPs for cost-sharing mechanism among those municipalities with and without fire stations. to regulate fire response trucks within and beyond their physical boundaries.
- Develop an SOP for fire management, and strictly enforce it in building codes, and other interlinking areas
- Mainstream fire-related issues in disaster risk reduction (DRR) policies and plans.
- Develop long-term visions, strategies, and guidelines at the municipal level to prepare for and respond to fire disasters.
- Educate and enforce the provisions of fire building codes and a minimum level of mandatory safety measures to be put in place in all buildings, based on their type and capacity.
- Make provision of fire alarms and other appurtenances as per Fire Safety Code of the Nepal National Building Code (NNBC 107:1994)
- Build the capacity of officials at every tier of government as based on the Fire Prevention and Protection Act (1997), the Local Self-Governance Act (1999), the Fire Brigade Operation and Management Guidelines (2010), and Local Government Operation Act (2018)
- Formulate large fire suppression strategies and tactics and apply them to all fire incidents in coordination with local fire stations.

b. Fire safety code

Fire safety code provides a set of requirements for all buildings in an area, both commercial, and industrial. Nepal National Building Code 107:1994 provisions fire types of construction and appliances, fire places and fire extinguishers. It also accommodates fire zones along with

provision of general requirements such as a proper access, wide doors, fire escape ways, and open space. Exit requirements and general requirements are provisioned. It also covers number of exits such as stairs, fire escapes, and exit doors. Features such as access to a building and lightning arresters/conductors are also provisioned.

In Nepal, the fire safety code is not enforced and building permits are issued even to buildings that do not comply with its terms. The code itself is deficient as it includes no stipulations about either the design or the building material of any given edifice in its grading categories. The code has not been integrated into municipal building bylaws, and no municipal institution is responsible for functions related to the fire code. Municipalities are not very serious about enforcing the fire safety code as they assumed that fire hazards are not recurrent in the same way that flooding, inundation, and waterborne diseases are. Very few organizations and institutions work in the area of fire preparedness and mitigation so there is little support from community support organizations (CSOs) and donors for the institutional development of the fire stations. As such institutional arrangements and coordination are still poor. DDMCs do not consider fires to be as significant as floods, landslides, or epidemics.

Key strategic actions for fire safety code Include the following:

- Develop Fire Safety Code and process of its regulation to ensure its implementation.
- Educate stakeholders including the general public on its provisions. through various campaign initiatives.
- Advocacy with the national/provincial and local governments and other relevant stakeholders to prioritize fire as a potential hazard by emphasizing the total loss and damage it incurs during periodic review-and-reflection meetings.
- Advocate for the mainstreaming fire code-related provisions in the national/provincial and local governments' building bylaws and the DDRM-related policy landscape.
- Carry out periodic tests of electricity lines and wires, transformers, and voltage guards to reduce the risk of electrical short circuits fires.

3.2 Technology, tools and resources

a. Fire trucks and water pumps

Fire trucks and water pumps are the heart of the fire sprinkler system. Fire trucks equipped with very large ladders namely (i) hydraulically operated (aerial) ladder, and (ii) full complement of ground ladders of various types and lengths could help in fire response effectively. Fire engine with water tank, water pump and complement of various types of hose (for both attack and supply) add the values in the fire response and overall fire management.

In Nepal's fire stations, the majority of fire trucks are more than 10-15 years old. As a result, they overheat and cease to function after two to three hours of continuous operation. Since the water pumps of these fire trucks do not function well, it is difficult for water spray to reach even heights as low as the second storey. The narrow roads which characterize inner-city areas also restrict the access of fire trucks, which are large and cumbersome. Not only are inner-city areas very vulnerable to fire hazards but the firefighting services in these areas are extremely poor. Water hydrant systems are barely functional. Roads are usually too narrow for fire trucks to pass and residential buildings are not protected from fires. Fire trucks are in minimal in number considering the number of households to be served and they are not assigned a particular geographical territory to cover. The efficiency of the water available is low because there are no provisions for periodic O&M. Water storage mechanisms

are ad hoc and there is no provision for mapping water to make sure it is readily available either.

Key strategic actions for fire trucks and water pumps include the following:

- Equip and manage fire stations/departments with fire trucks (big/small) accordingly with rural/urban access roads
- Equip fire stations/departments with water pumps, suction, and delivery hoses with outreach at least the third story and regularly maintain the level of efficiency.
- Periodically review and improve capacity of the water storage tanks in the fire stations. Map out and existing water-source (ponds, rivers, and small rivulets) where water can be fetched during an emergency, and install water pumps or boring to reduce the water fetching time. Install and map out fire water hydrants at strategic locations where the water hose is easily available to quickly respond and refill fire trucks.
- Periodically review and expand the capacity of fire stations/departments in terms of fire trucks to match the growing population and urbanization. International standards quote that, there must be at least one fire fighter for every 2,000 and one fire truck for 28,000 populations.
- Map traditional water ponds, water hydrants, and other sources, distances from strategic locations, accessibility to water resources, and road conditions to efficiently manage the response during emergencies.

b. Tools and equipment

Fire safety is a very important at work places and homes. It can easily be ensured by having fire-fighting equipment and proper fire protection. Fire-fighting equipment are indispensable to ensure maximum protection against fire. These equipment ensures safety of the fire fighters who risk their lives to save others. Some major fire-fighting equipment include fire extinguisher, fire alarms, firefighting blankets, fire sprinklers, fire hose, and firefighting truck. The basic tools and equipment is given in Box-3.

Box 3: Tools and equipment

- Personal Protective Equipment (PPE)
- Bunker gear
- SAR basic equipment
- CO_2 foam and power
- Fire extinguishers (of all ABC types)
- Fire proof and heat proof or flame shield
- Ambulance with paramedic crew in each fire station
- Forcible entry tools halogen
- Light portable pump
- SCBA set with breathing air compressors
- 32 feet ground ladder and 30 meter Arial ladder truck

Fire stations lack sufficient tools and equipment, including (protective personal equipment-PPE, search-and-rescue materials, first aid boxes, stretchers, spare parts, foam, extension ladders, and fire extinguishers, so they cannot perform at their potential. No fire stations have a large trunk or other appropriate storage mechanism to store tools safely. As a result, many tools are rusty and not workable. No fire station is well prepared to manage electrical fires because they lack foam and foam fire extinguishers. Personal safety materials like fireproof uniforms, helmets, boots and eye protection are also inadequate. Much of the available clothing has been damaged by rats and mildew because it was not stored properly. Since they lack essential tools and equipment, fire station staff cannot practice fire compartmentalization methods to control the spread of fires inside buildings. Likewise, since periodic tests of electricity lines and wires, transformers and voltage guards are not carried out, the number of electrical short circuit-induced fires is increasing. There are no ambulance services to work closely with fire trucks, and no provision

for equipping the existing emergency health facilities to manage large-scale fire emergencies. No special beds are available for burn cases.

Key strategic actions for tools and equipment:

- Equip fire stations/department personnel with personal safety gears like fireproof uniforms, helmets, boots and eye protection as well as the provision of both basic search and rescue (SAR) materials and orientation on its use and storage.
- Equip fire stations/departments with first aid stretchers to be kept in the fire engine/trucks; detachable water tender; stocks of sufficient delivery hose pipes.
- Stockpile adequate and essential spare parts for machinery equipment (bolts, crowns and excels and search and limited rescue tools like chainsaws, concrete cutters, crowbars, wire and abaca ropes, shouldering sticks, clippers, jacks, hammer pincers, and handsaws) and search-and-rescue materials to increase the efficiency and effectiveness of fire response.
- Manage essential tools and equipment at fire stations for their prompt use so that fire compartmentalization methods can be practiced to control the spread of fires inside buildings.
- Facilitate the storage of sufficient hydrogen gas, liquid fuel, and platinum chemical foams and the periodic replenishing first aid kits in fire stations for the use during industrial fires
- Manage additional generators and extension ladders and elevators for fire trucks to increase the efficiency of response in many high-rise buildings in the urban area.
- Install and manage fire extinguishers and check /replenish periodically.
- Coordinate and manage fire ambulance or ambulance services to work closely with fire department/stations, and upgrade its existing emergency health facilities to manage large-scale fire emergencies.
- Manage permanent staff based on number of fire trucks in a station for better motivation towards fire response. Link them with insurance scheme considering the risk job of fire-fighters.

c. Fire danger ratings and early warning systems

Fire danger ratings help to determine the scale of devastation and provide early warning of potential fires and the projected loss and damage associated with them. This mechanism is most suitable in the case of wildfires, particularly those that break out in Nepal's forests. Rating systems use basic daily weather data to calculate wildfire potential. By using forecasts, early warning can provide a good deal of lead time so that the public can act to save their lives and assets. Locally generated early warning information is very useful as it reflects local weather characteristics and vegetation conditions. If local communities are actively involved in collecting weather information and disseminating warnings, a sense of ownership is built and people feel a greater sense of responsibility to respond to fires. Early warning systems (EWS) can help people to manage fire danger in advance and provide enough lead time to fire managers and stakeholders to mitigate fire damage or even avoid a fire altogether.

Key strategic actions to promote ratings and nearly warning systems include the following:

- Develop a fire danger rating system with smart indicators based on land cover, vegetation and daily weather data.
- Facilitate the installation of a national or regional EWS, using existing, demonstrated science and technologies and based on a local fire danger rating system. As siren is not applicable for person with hearing disability, install appropriate tools suitable for them.

- Establish an information and communication network to quickly provide reliable early warning of fire dangers to local authorities and communities so that they can prepare for and respond to fire hazards.

d. Multiple fire incidents and their behavior

When multiple fires start simultaneously or when additional fires are discovered before the initial one is brought under control, it creates a very difficult and complicated situation. In such a situation, fire suppression resources may be depleted, requiring reallocated resources based on priorities and potential threats. Decisions need to be taken promptly, but are not taken up due to array of reasons of which lack of adequate information often become crucial. Forming an inclusive coordination committee compromising of relevant agencies and organizations beforehand helps in taking up quick decisions. This committee can facilitate the mapping of resources (human, financial, technical, tools and equipment) required to manage multiple fire incidents.

Key strategic actions for multiple fire incidents and their behavior the following:

- Form an inclusive coordination committee and define its terms of reference, including roles and responsibilities.
- Craft plans with defined indicators that cover resource- allocation and prioritization and other actions required during multiple incidents quickly.

3.3 Education and knowledge management

a. Public awareness and education

Awareness and educational activities are crucial for fire control and management. Inclusive awareness and education contributes to (i) detecting and preventing fires and (ii) working with fire fighters at fire stations to control unwanted fires using indigenous knowledge and skills. Both awareness and education are necessary for all age groups of people, schoolchildren to adolescents, youths and adults and person with multiple disabilities. School-based co- and extracurricular activities, media campaigns (print media, radio and television) and research, will boost the dissemination of information/messages related to fire prevention to a wider audience. Timely or early information can warn people about situations in advance and thereby lower the exposure and risk from fires. Building the capacity of local disaster management committees (LDMCs), local youths, youth club members, firefighters, and fire task forces through periodic simulations and drills will enable people to learn, and resolve the technical aspects of fire management. In addition, training, drills and simulations on emergency fire management activities benefits the audience and participant with increased awareness and better understanding of fire management.

Key strategic actions for fire-related public awareness and education the following:

- Assess and disseminate (suitable to local context) currently available educational materials.
- Develop age-, gender- and target group-specific fire awareness and educational materials and programs following a series of engagements with local people and persons with disabilities and their care takers.
- Acknowledge and consider the cultural and social norms of the communities targeted and people's indigenous knowledge and wisdom while preparing fire prevention-related education materials.
- Develop short videos, organize quiz competitions, run thematic debates and discussions, organize poster-making competitions, present thematic skits and plays, organize photography, essay and slogan writing competitions, and hold rallies on fire preparedness

and response. Make sure that materials are fit for even illiterate people and persons with disabilities by using a lot of pictures and limited text. Provision of caption in sign language targeted to persons with hearing disabilities.

- Support the designing of a curriculum of full-fledged and cascading training and train all fire fighters and other staff at fire stations.
- Organize training, drills, and simulations in topics such as emergency fire management, risk assessment, search and rescue, and first aid for rural municipality staff, police, and disaster focal persons to build their knowledge and skills.
- Provide basic tips on fire preparedness and response to community leaders, teachers, youths, and older people using orientations and review-and-reflection sessions.
- Design and implement programs targeted to person with disabilities and their care takers to raise awareness about fire preparedness. These may include orientations, folk songs, FM radio and television broadcasts, social media, street drama, and talk programs.
- Promote to increase the participation of the private sector, local clubs, and NGOs during fire responses in mobilizing people, managing water, providing first aid to injured persons, if any, and facilitating the recovery-stage management of relief and response materials and filing of insurance claims.
- Organize periodic coordination and interaction meetings among fire brigade teams, the Nepal Armed Police and the Nepal Army, Scouts, the Nepal Red Cross Society (NRCS), the FNCCI and the NGO Federation to share their efforts in fire preparedness and mitigation, emerging challenges and ways forward in a coordinated fashion. Support municipalities in the preparation of fire-response, contingency, fire safety and emergency plans for each fire-prone ward.
- Disseminate telephone number of the fire station (101) through electronic and print media as much as possible so that people will use the right number and thereby ensure a swifter response.
- Establish mechanism for exchange of information among fire station, security forces and other critical services (ambulances, hospitals) for quick and systematic fire response by managing very high frequency (VHF) radio set.
- Use local technology and indigenous knowledge as well as local practices during fire response and fire mitigation measures.

b. Awareness about fire preparedness

The mobilization of the mass media, both print and electronic and other campaigns, is very important for fire preparedness activities. Messages can and should be spread through television, radio, street drama, videos, folk songs, posters, pamphlets, and hoarding and other information boards.

Key strategic actions for awareness about fire preparedness include the following:

- Develop, regulate and conduct an audit of the safety of LPG plants with clear indicators and provisions.
- Aware to improve communication to prioritize the free movement of emergency response vehicles and enforce regulation to penalize obstruction
- Facilitate to regulate the removal of speed breakers in unnecessarily locations, low-clearance bridges and culverts, and low-lying electricity wires.
- Promote the regular maintenance of fire alarms and extinguishers installed in public buildings like hospitals, malls, public spaces and cinema halls.

c. Fire prevention initiatives

Fire prevention is one of the most cost-effective mitigation programs that can be adopted to reduce costs, save resources from damage, reduce the loss of life and damage to assets, and equip firefighters with new skills in and knowledge about suppressing the fires. Human and financial resources as well as their effective coordination help to contribute to fire prevention.

Key strategic actions for fire prevention include the following:

- Develop a thematic fire prevention plan targeting to specific groups in coordination with local governments.
- Set up IMS to collect data on the frequency of fires and their causes and impacts to value add in establishing an effective fire prevention program with periodic update and review
- Support the fire station management plans with adequate budgetary provisions. In addition, promote and coordinate with other agencies, both government and private, to contribute funds for fire stations O&M.

d. Fire detection, alerts and dispatch of messages

Fire detection, is an important part of effective fire management and can be accomplished through satellite imagery, fire observation towers, aerial surveillance, installation of fire detectors, lightning detection systems, and monitoring and reporting of fires using technical indicators and people's science. When signs of fires are detected, messages about the fire, with details about its location, size and burning conditions, immediately channeled to local fire stations. Dispatch centers, which are equipped to operate with backup electricity sources, receive information about the ignition and locations of fires, alert fire suppression staff and dispatch them to individual fires. Dispatchers provide regular communications on the fire situation and receive and dispatch orders from the 'fire incident commander' to supply additional and backup resources.

Pubic communication is crucial through which up-to-date information about the fire status Local media – radio, television and the press – as well as traditional systems of information dissemination need to be mobilized in a fire emergency communications plan.

Key strategic actions for fire detection and alerts and the dispatch of messages for fire suppression include the following:

- Promote the use a robust fire detection system that includes an appropriate combination of remote sensing, water mapping, and land and aerial routes.
- Develop a fire emergency communications plan to report on fires in local languages viz. braille language targeted to blinds.
- Train, equip, and support staffs involved in fire response based on local requirements.
- Develop dispatch and communications system/mechanisms to determine the appropriate response any reported fire and appropriate information dispatch to responders, volunteers, and other actors involved in the fire response.

e. Capacity, skill, and knowledge

Staff member's capacity, skill, and knowledge is a high value asset for any organization and crucial to life saving engagement's. Their capacity defines the ability to reduce the loss and damages to life and properties. Periodic or refresher training or run drills, simulations and training promote knowledge building and enhancement of skills and capacities. Fire station personnel need to be provided opportunities to upgrade their specific knowledge and skills

on fire risk management, threat mapping, analysis and dissemination of information about wind flow, and installation of fire detectors are all part of a strong fire early warning system

Key strategic actions for capacity, skill, and knowledge among firefighters include the following:

- Administer periodic capacity needs assessment to identify gaps in capacity and design accordingly.
- Promote and regulate periodic fire drills involving all concerned stakeholders for better real time response.
- Promote, regulate and monitor fire risk and threat mapping under the local fire stations involving all relevant stakeholders.
- Organize periodic review-and-reflection sessions with fire station staff to share, plan approaches to improvise past gaps.
- Include mechanisms to douse fires by building the capacities of fire fighters, alerting rescue operations, and using a variety of fire attack and suppression methods for effective fire preparedness.

3.4 Institutional arrangements and coordination

a. Fire and resource management

For effective fire management, abundant resources are required. A fire management plan considers fire prevention and fire safety whereas a resource management plan addresses (i) resource allocation, (ii) resource prioritization, (iii) resource projection, and (iv) community engagement. Fire and resource management planning help to protect lives and assets by reducing loss and damage. The role of the private sector is crucial for the resource management, as pointed out in the Fire Brigade Operation and Management Guideline (2010). Meaningful coordination with the private sector, civil society organizations and humanitarian agencies, and so forth would add value to resource management planning.

Key strategic actions in fire and resource management include the following:

- Assess the fire and resource management initiatives carried out by variety of agencies in the past and document good practices, major learning and gaps.
- Analysis those practices, learning and gaps further to identify issues that need to be addressed for proper planning.
- Craft fire and resource management plans which comprise (i) potential fire effects and fire regimes, (ii) infrequent but potentially damaging events, and (iii) actions that increase or decrease risks and hazards affecting fire behavior, fire damage and benefits, and impacts on the safety of firefighters and other staff at fire stations. Assessment of the climate, weather forecasts, warning mechanisms and their effect on fire behavior and suppression effectiveness, and map-making involving local communities and relevant actors is instrumental during the planning process.
- Coordinate with the FNCCI, corporate houses to contribute resources as called for in the Fire Brigade Operation and Management Guideline (2010).
- Facilitate municipalities in leveraging financial resources to implement District Preparedness and Response Plans (DPRPs) as well as Local Disasters and Climate Resilient Plans (LDCRPs) through the induction of private sector, civil society and humanitarian agencies based on the spirit of Sendai Framework for DRR's priority.

b. Resources and accountability

Activities related to fire risk management are incorporated into the annual and periodic plans of municipalities. These activities need to be prioritized and adequately backed up with finance allocation. Municipal authorities should be accounted for its operations. Public awareness plays a crucial role in crucial role starting from planning, monitoring and completions phases of the plans as it directly concerns their safety and security issues.

Key strategic actions for resources and accountability of municipal authorities include the following:

- Formulate and prioritize fire-related activities with the wider community participation during the seven steps of the planning process.
- Adopt and regulate understanding to provision certain percentage of the total municipality budget for fire preparedness and response.
- Organize review-and-reflection sessions on fire preparedness and response every six months, or at least once a year, inviting the government, non-government, and private sectors.
- Support the formation of fire control teams and local youth groups that periodically engage in fire preparedness efforts and fire management planning.
- Improve existing emergency information-sharing mechanisms among the fire station, LDMC/municipality, district disaster management committees (DDMC), security forces and other relevant authorities by provisioning a three-digit dedicated hotline number and placing an alert mechanism for prompt communication and action.
- Digitize fire incidents into the local emergency operation center-LEOC database or other mechanisms to adequately maintain data on fire-related loss and damage by enhancing functional coordination between the LEOC and fire stations and other relevant stakeholder.
- Strengthen inter-agency coordination among fire stations, drinking water offices, municipal police and other security agencies and Nepal Electricity Authority for effective fire response.
- Build bottom up linkage among *Tole* Lane Organizations, community groups and fire stations for effective joint fire-fighting initiatives.

c. Fire safety, emergency and contingency plans

In the present context, Nepal has various fire-related policies encrypted as National Fire Safety Code (1994), the Fire Prevention and Protection Act (1997), the Local Self-Governance Act (1999), and the Fire Brigade Operation and Management Guidelines (2010), and the recent DRRM policy landscape (2015-2021). These policies need to be localized and municipal officials need to be educated about the provisions in these policies. It is essential that the government, private-sector and other relevant agencies need to adhere to policy provisions for fire preparedness and management to fulfil their roles and responsibilities. Municipality need to adopt fire safety, emergency or contingency plan as part of its fire preparedness activities.

Fire management planning, preparedness and monitoring are the three key pillars of any fire response plan These should be the base for municipality SOPs to regulate fire management within and beyond the municipal area.

Key strategic actions for fire safety, emergency and contingency plans include the following:

- Engage municipal authorities during the formulation of (i) fire safety, emergency and contingency plans; and (ii) fire management planning, preparedness and monitoring.
- Formulate SOPs with defined roles and responsibilities, and cost-sharing mechanism to regulate fire management within and beyond municipal areas.
- Identify the most critical fire danger areas and map out evacuation routes from fire-prone areas towards safer areas using participatory assessment

d. Fire preparedness and response plan

Fire preparedness comprises the detection of and response to fires. It includes the training and equipment needed before a fire ever breaks out. A fire preparedness plan can be very effective if it is (i) based on fire and resource management planning, (ii) takes into account year-to-year variations in funding and resources, weather and human activities, (iii) includes proper capacity building of staff (with provisions for periodic refresher training and review-and-reflection sessions), and (iv) includes staff with technical facilities and capacities. Fire preparedness and response policies and strategies can provide an enabling environment to increase fire response capacities. Along with sensitizing municipal authorities, these plans need to provide for (i) demarcating fire zones, (ii) installing lightning device and fire extinguishers in key public locations and educate people how to operate fire extinguishers, and (iii) developing a special protocol on fire management for risky areas.

Key strategic actions for fire preparedness and response plan include the following:

- Craft fire preparedness and response plans that ensure safety considerations both for firefighters and the public and are based on predicted fire risks and human and financial resources.
- Arrange equipment for fire safety and PPE (helmets, gloves, fire-resistant clothing and safety boots) for fire-suppression initiatives.
- Prepare fire preparedness and response policies/strategies to increase fire response capacities by provisioning fire insurance schemes for fire fighters to ensure the transfer of risk.
- Sensitize municipal authorities to develop fire preparedness and response plans, fire-related standard operating procedures, and fire-risk mappings to increase the effectiveness of fire preparedness and response activities.
- Demarcate fire zones, installation of lightning device, and stationing of fire extinguishers in key public locations to mitigation the fire risk.
- Develop a special protocol on fire management for risky areas namely gas depots and fuel stations; shopping malls, theatres, cinema halls and other places of public gatherings; and informal settlements (dwellers and squatter). Petrol pumps and shops that sell liquid petroleum gas (LPG) in residential areas have further increased the risk of fires because they lack even the most basic of fire safety equipment because fire in one petrol pump can create destruction in around 1 km diameter.
- Develop fire preparedness plan which includes fire risk and threat mapping, the analysis and dissemination of information about wind flow, and the installation of fire detectors and extinguishers.
- Develop fire response plans by involving (i) warning call and notification procedures, (ii) the alert at the incident site, (iii) plan activation and debriefing, and (iv) analysis and deactivation.

e. Monitoring and assessment

Monitoring and assessment are important activities. Monitoring the effects of both fires and suppression activities is crucial to achieve a balance between preventing fires and protecting resources. Cost/benefit assessments are useful in assessing the effectiveness of various types of resources. Effective monitoring and assessment of prevention programs can reduce the occurrence of specifically identified types of fires and the costs of suppression.

Key strategic actions for monitoring and assessment include the following:

- Develop and implement a comprehensive plan for monitoring and assessing all aspects of the fire management program.
- Document near-miss incidents, and review lessons learned to reduce the risk to firefighters, fire managers and the public.
- Use information and data from fire prevention programs to develop a monitoring system that measures the effectiveness of fire prevention efforts.
- Monitor the ecological effects of fires and suppression methods in cooperation with universities, other research organizations and local communities.

4. Fire types and their mitigation measures

4.1 Technological/Industrial fire

Major causes

Frequencies and magnitude of industrial fires are increasing recently. Some of the key causes of industries fires include (i) unmanaged welding and drilling works, (ii) poor electrical wiring, (iii) extensive and incessant use of heavy machines, (iv) continuous use of manufacturing/heavy vehicles, (v) improper management of gasses and flammable liquids, and (vi) over-heated industrial equipment. Hot works like welding and drilling that involves sparks disperse and ignite any flammable items. Electrical hazards occur with exposed wiring, and when overloaded outlets or circuits and low capacity of extension cords are used. The friction of moving parts in heavy machines often causes fires.

Preventive measures

In order to prevent fire outbreak in industrial areas and safeguard the employees, the following structural and non-structural measures are suggested:

- Test and maintain heavy equipment on a periodic basis. Manage chillers where heavy equipment is run to prevent the fire.
- Clear areas where hot work like welding and drilling is doing.
- Install fire extinguisher suitable for industrial fires and organize orientations to the staff for their best use. Manage adequate fire extinguishers in all areas where the potential for fire exists, e.g., workshops, machine sheds, vehicles, tractors and fueling areas. Fix a mechanism for periodic replenishment of fire extinguishers.
- Prepare operation and maintenance plans of heavy vehicles and enforce such plans strictly.
- Set a provision to store and properly handle liquids and gasses to prevent fires and explosions.
- Manage personal protection equipment like fire-proof helmet, eyewear, headwear, gloves, foot-ware, and other relevant to be safe from fire.
- Run fire safety audits by identifying fire hazards, and manage corrective and preventive measures.

- Avoid the use of exposed wires and weak extension cords, prevent overloading electrical equipment or circuits, and develop a mechanism to unplug all equipment when not in use. Develop and follow a standard maintenance plan.
- Organize training and review/reflection sessions to inform the staff about equipment maintenance and safety
- Build the capacity of employees on integrated fire control management.
- Craft emergency action plan addressing fire risk assessment along with specific layout, probable hazards and risky areas. Organize orientations on mitigation measures for staff.

4.2 Human-induced fire

Major causes

Children's easy access to matches, smoking, burning mosquito coils, using candles and oil lamps during load shedding, theft of electricity, and family disputes are the major causes of human induced fire. Human induced fires are also propagated by armed conflict, civil unrest and terrorism.

Preventive measures

- Disseminate basic information about the importance of fire detectors and fire extinguishers through FM radio and television and a cost-benefit analysis provided to be convincing. Orient fire-fighters to the proper use of fire extinguishers.
- Map the ponds and wells and manage them well so they can be used in emergencies. Harvest rainwater and provide storage tanks as an alternative.
- Impart training, drills, and simulations in areas such as emergency fire management, risk assessment, search and rescue, first aid, fire-fighting, evacuation, and crowd control during the slack season of the summer monsoon season for municipal staff, municipal police, and disaster focal persons.
- Since communities are 'first responders,' provide basic tips on fire response to community leaders, teachers, youths, and elderly using street drama, drills and simulation exercises.
- Considering that proper communication is crucial for securing a timely response, increase awareness about 101 telephone number of fire station.
- Design and implement awareness-raising programs for fire preparedness that include training, orientation, and folk songs. Broadcast fire related awareness program along with need for and benefits of house insurance through FM radio and television.
- Mobilize NGOs to disseminate messages about fire safety measures like the proper handling of gas cylinders, the inspection and rehabilitation of electrical wiring system, and provisions for water, sand, buckets, and fire extinguishers by organizing series of orientations on fire prevention and extinguishment at the household and community level.
- Facilitate to prepare fire response contingency plan at each household and fire vulnerable area. Form response, fire safety and emergency plans and their proper execution.

4.3 Forest fire

Major causes

In Nepal, forest fires are quite common during the dry season (April to June). As per Forest Detection and Monitoring System of MoFE, from March 2020 to April 2021, a total of 5,626 forest fire incidents occurred. Forest fires can occur due to both natural and human-made causes. Lightning occurs due to natural causes. Fire is expanded when a source of fire like naked flame, cigarette or bidi, electric spark or any source of ignition comes into contact with

inflammable material. Carelessness of passer-by, smokers and picnickers may cause fire. Illiteracy and ignorance are the root problem leading to fire. In some areas, people living near forests deliberately start fires to promote the growth of fresh shoots of trees which is used as fodder for livestock. Most of the forest fires are linked with deliberate burning while making land for farming and collecting non-timber forest products. Forest fires have extensive impact on the ecosystem. Air pollution can rise to dangerous levels as a result of prolonged fire incidents. Fires can destroy thousands of trees, valuable medicinal herbs, wildlife and other forest products. To escape fire, wildlife migrates towards the edges of the forest, which often causes human-wildlife conflict. Forest fires burn down trees and animals, reduce food resources for wildlife, and can even alter wildlife habitats allowing the growth of invasive species.

Preventive measures

The following preventive measures are suggested to control the forest fires:

- Raise awareness and train community forest user group (CFUG) members and social networks to control/extinguish fires in their areas. Provide technical and financial resources to them for fire lines construction and conservation of ponds and their periodic maintenance.
- Mobilize youth groups in the fire control endeavors by providing training, distributing PPEs following an orientation on their proper usage, and provisioning incentives to those who prevent and control forest fire.
- Keep staff at the forest office and community forest groups alert during the dry season, involve them in situation analysis.
- Manage various firefighting tools, human resources and other required materials in forest divisional and sub-divisional office up to the CFUG level.
- Build the capacities of Nepal Army, Nepal Police and Armed Police Force on fire prevention and control mechanisms and mobilize them in coordination with the Chief District Officer as and when needed along with forest officials. Manage fly helicopters along with necessary materials (water and suitable foam) to douse the fires.
- Disseminate fire safety related motivational information and knowledge through jingles and message by mobilizing media (Radio, TV, etc.) during the dry season.
- Use satellite-assisted monitoring system that helps with site detection of fire, and their expansion in particular direction.
- Develop a long-term strategic plan for combating wildfire and implement it at the CFUG level provisioning strict rewards and punishments.
- Modify community forest operational plan to incorporate some useful provisions such as fire lines, proper monitoring and follow-up, and removal of combustibles firewood, yard waste, and vegetation that can fuel fires.
- Enforce forest related acts, laws, regulations and strategies strictly to manage forest fires that includes captive punishment and penalties against the crime of inducing forest fires.

4.4 Agriculture based fire

Major causes

Farmers in Nepal use fire to eliminate crop residue, weeds and waste and convert the forest to agriculture land. Fire provide an ash bed after burning which facilitates the growth of grasses as ash work as organic manure. People burn organic matters and agriculture residue to prepare their farm land for the next cultivation It is believed that burning straw, stalks, and husks kill harmful insects thereby increasing the farm yield. In fact, such fires destroy the

organic matters that make soil fertile, causing crop yields to decrease over time and increasing the need for synthetic fertilizers. Livestock grazer, poacher, hunters, and non-timber forest products (NTFPs) collectors are often responsible for agriculture based fire. Local people sometimes set fires on forests for agriculture and NTFPs collection. Negligence in handling incense sticks during worshipping, throwing burning cigarette stubs, preparing meals for livestock in the cowshed and abandoning the cooking spot without dousing fire and the practice of shifting cultivation *(Khoriya Phadani)* spread fire from agriculture land to forest and human settlements, and vice versa.

Preventive measures

The following preventive measures are suggested to control the agriculture based fires:

- Stop cooking in the open space during the windy days and keep water and other firefighting tools ready to douse the fire.
- Take care of fire while cooking and preparing meals for the livestock.
- Repair and maintain electrical wiring periodically.
- Run a series of awareness raising campaigns against myths like burning of crop residue kills harmful insects, and increases crop yield.
- Organize study tours; field demonstrations; produce and disseminate IEC materials in local language on the negative impacts of burning and distribute widely with orientations.
- Craft policy and strategic planning support to governments, and farmer associations that provide open burning alternatives with incentives to farmers.
- Build the capacity of farmers networks for the exchange of information on alternative farming practices.
- Engage stakeholders, especially local communities in fire management planning to understand the range of causes and their role in managing fire risk.

B. Fire Drill Manual

1. Background

A fire drill is an activity in which participants systematically carry out the steps they need to take in the event of a real fire, thereby preparing themselves to handle that eventuality without panicking. If a fire breaks out, people need to evacuate quickly to a safer place. For optimal safety, every house and public building, whether a school, hospital, cinema hall, or government office, should have a fire evacuation procedure and conduct regular fire drills. These drills are imaginary replication of real time and provide knowledge about what to do and what not to do for safety.

Fire drills are conducted not only to prepare for fires but also to train people on the various technicalities involved during the real time situation, like evacuation process, fire extinction and other protective measures. Drills are based on the "seven P's" (proper prior planning and preparation prevents poor performance). In order to achieve good results during a drill, hours of rigorous planning beforehand need to carried so that all involved have the common understanding on their roles and responsibility.

Fire drills are a great example of the principle "hope for the best; prepare for the worst." A drill is a way to practice safety-related measures using participatory methods. Practicing fire drills helps ensure that individuals acquire the necessary knowledge they need to ensure safety of themselves and others.

Fire drills can be used to test the efficacy of fire management and evacuation plans. It is good to involve firefighters from the local fire station, local government officials, the private sector (including insurance companies) and local health institutions during fire drills in order for them to understand the real time scenario. Thus it is very essential to conduct review and reflection and learn after each drill to evaluate its effectiveness, identifying its strengths as well as areas for improvement so that future drills and real time actions can be designed for improved effectiveness.

2. Objectives of fire drills

The main objective of the fire drill is to demonstrate means and ways to secure everyone out of the incident area and reduce the possible damages. The specific objectives of fire drills include the following:

- Provide the opportunity to understand and familiarize fire emergency procedures in a safe, simulated environment,
- Educate people about how to react to an unforeseen emergency situation and determine their understandings to be carry out during emergency engagements,
- Provide personnel involved with opportunities to review and improvise for better execution during real time action.
- Impart life-saving and rescue techniques to be replicated during emergencies operations,
- Test the efficacy of a fire evacuation plan and improve it so that it becomes doable.

3. Frequency of fire drills

How often drills are carried out depends upon both the actual requirements as laid out in the applicable fire code and the rate of recurrence of fire hazards. But, ideally, fire drills need to be conducted at least every six months, if not, once a year. They should involve all relevant actors. Each person should be made fully aware of his or her own responsibilities and those of the people around them. If the layout of a building is changed, fire evacuation plans should also be changed accordingly.

4. Types of fire drills

Fire drills are largely classified into two types:
i. announced, and
ii. unannounced.

When people expect a drill, it is known as an announced drill and its objectives are to ensure everyone has read and understood the procedures, test how everyone reacts to a specific hazard (like a predetermined blocked exit route), and determine people's ability to locate and operate fire extinguishers.

Figure 2 Fire action

Unannounced drills are a good way to test people's ability to react to a hazardous situation they weren't expecting. Its objectives include to (a) ensure everyone in a building's premises can clearly hear the alarms, (b) discover if people know which exit routes to take, (c) determine whether special target groups such as children, persons with disabilities and senior citizens know what steps to take, person with hearing disability, and (d) find out how long it takes to get everyone out of a building.

5. Step-wise guideline for a fire drill

The steps of a fire safety drill are broadly categorized into three sections: before, during and after a fire drill.

5.1 Before a fire drill

a. Establish a fire safety committee

As part of preparedness, form a fire safety committee at department/office, and community level. The size of the committee is between 7 and 11 members. The key role of these committees is to set do's and don'ts before, during and after the fire. These committees are responsible for taking a roll call in the assembly area to ensure that every person from their department/office or communities has gotten out of the building in the event of an evacuation. Form different task force and define roles and responsibilities to contribute in fire drill (Box-4)

Box-4: Roles and responsibilities of different task force

Fire alarming task force

- *Alert for 'safe exit' in case of emergency through warning signs with the support of different colors of flags, alarm bells, etc.*
- *Practice the warning signs, flash light, including waving of flags or ringing alarm bells, etc. in a regular basis.*
- *Monitor and update on the potential hazard and inform the authorities in the periodic manner.*
- *Maintain contact with all the other task force members and with external stakeholders and keep them informed about the latest situation especially the fire services.*

Evacuation task force

- *Familiar with all exit and keep all people informed about their nearest exits and also check the exit routes clear of any obstacles in the regular manner.*
- *Prepare and provide assistance support plan to the children, persons with disabilities and senior citizen for safe evacuation, if needed.*
- *Evacuate all in an orderly manner and practice the drill regularly and ensure that the emergency assembly area is safe and accessible to persons with disabilities, pregnant women and lactating mothers.*
- *Provide support to Fire In-charge to take roll call and report to authority and the 'search & rescue team'.*

Search and rescue task force

- *Collect the details on the number of people present in building during the drill.*
- *Facilitate to search and rescue by physically, visually and vocally checking every room in the building if anyone missing and carrying the victim to the 'first-aid team' in case of injury.*

Fire-fighting task force

- *Familiar with the use of all the existing fire-fighting systems/extinguishers available and ensure that all the equipment are in functional conditions.*
- *Confirm existence of fire and control it, if possible.*
- *Look for conditions that may cause further development of the fire and seek assistance from relevant maintenance staffs for removal of such conditions.*
- *Ensure that electric main switches are turned off and the fire don't spread much until the firefighter of fire station control and douse off the fire completely.*

First aid task force

- *Maintain first-aid kits up-to-date and replenish it from time to time.*
- *Administer first aid and record all cases and treatments during the incident.*
- *Refer to the nearest medical facility center/hospital, etc., if necessary.*

b. Select a fire in-charge and fire wardens

Select a fire in-charge and fire wardens who are competent and trustworthy and have a thorough technical knowledge of fire safety so that there will be no gaps even if some fall ill, are on vacation or leave the job. The fire safety committee will nominate these people and fix their roles and responsibilities.

c. Craft roles and responsibilities

Craft clear roles and responsibilities of fire safety committee and its five thematic task force underlining their specific roles as members of the committee/task force. Provide orientation to the member so that a basic common understanding is developed within and amongst them. Advance roles and responsibilities help to systematize the fire drill process.

d. Communicate with local fire stations' in-charges

Schedule a series of meetings with fire stations to discuss best practices regarding fire procedures and evacuation routes. These meetings will help formulate and consolidate drill plans based on past learning.

e. Educate people

Craft policies and procedures for fire drills in consultation with experts/practitioners Share it with the people who will be involved in the drill. Ensure that every person receives fire drill policies and procedures-related information at the time of his or her recruitment.

f. Impart basic fire safety training

Basic fire safety training needs to be provided to all committee/task force members at the time of their recruitment and followed up by refreshers. This is important since everyone participating or conducting should have basic understanding on basic fire safety. Basic fire safety training should incorporate health and safety protocols, information on various types of fires and its mitigation measures.

This knowledge will help promote good understanding among member/participants. The success of a fire drill lies in being able to build and reinforce the capacity of people.

g. Formulate a fire escape emergency plan

Formulate fire escape routes in consultation with experts/practitioners. It can be primarily sketched down by drawing a map of the building and identify two ways out of every room in it. Mark all the doors and windows situated in the building. mark locations where highly flammable materials are stored.

Identify an open space and mark it as the assembly point in the plan. Also list out the emergency numbers of fire stations, the police, ambulance services, the nearest hospitals and other relevant actors. The emergency plan should include evacuation routes and fire protection equipment including fire alarms. Once evacuation routes are fixed, potentially hazardous conditions and elements should be removed. Routes where there could be obstacles like toppled cabinets, broken glass, fallen trees, or cut electrical wires should be avoided as they may hinder safe evacuation. Evacuation routes should also avoid combustible or hazardous chemicals storage to ensure safe passage. areas of should also be avoided.

h. Modify fire drills based on scenarios

Drills should be conducted with various adverse scenarios, because real time situation are unpredictable and unstable. An example here is during an actual emergency, evacuation/exit routes may get blocked or obstructed. As a result, escaping people may not be able to continue with the evacuation route. Drill should envision these scenarios to better prepare people for the worst case and forcing people to take visualize alternate routes. This process will help to ensure that people know both their own evacuation route as well as alternate routes in the case of a real emergency.

i. Communicate about evacuation routes

After the development of evacuation routes and post-evacuation maps of the building, it should be informed and distributed to each person in the building before conducting the first drill. Make sure people understand their routes as well as alternative routes in case exits are blocked. Ensure the alternative provision for those people who cannot understand the message properly for their safe evacuation. Clarifying evacuation routes in advance of a drill helps people function effectively during the drill.

j. Craft do's and don'ts and other rules to follow

All participants of the drill need to understand the various Do's and Do Not's of the exercise. For an example, once the fire alarm rings, each person has to escape using a defined evacuation route. No one should take the time to finish any unfinished work; all must move out immediately. No one should dawdle or use a lift or escalator during the evacuation. In order to eliminate the possibility of confusion, craft some rules in the form of do's and don'ts and educate people. Develop special provisions (do's and don'ts and other rules to follow) targeted to persons with disabilities.

k. Update the records of people

Properly record the number of people in the building at the time a fire drill is conducted so that roll call can be effectively taken at the assembly point.

l. Clear the evaluation route

Ensure that all proposed evacuation routes are clear to facilitate safe evacuation. This is because in real time fire break out, time spent is crucial in evacuating the building and reaching the assembly point. The time taken also depends upon the number of stories people have to travel to reach the assembly point. Thus evacuation routes need to be kept obstacle free all the time. During a drill, these factors need to be demonstrated

m. Ensure regular fire safety checks

All public buildings need to have regular fire safety checks. All equipment should be kept functional and exit routes and doors should always be unobstructed and clearly marked or signposted. Building alarm system needs to be frequently checked and tested.

These are very important for real time preparedness and drill. Dysfunction of these can happen for a number of reasons and need to be kept updated. Ensure that everything is in order and functional before attempting a drill.

n. Test smoke alarms

Smoke alarms and alarms suitable for persons with hearing disabilities play a crucial part in alerting fire incidents. These accessories need to be regularly checked and maintained to respond efficiently. When fire breaks out the alarms alert the residents in time to get to safety. Ensure these alarms are in best fit locations like one alarm on every staircase (ionization and photoelectric alarms) for good performance. All smoke alarms should be interconnected so that if one alarm operates, they all go off at once. Such simultaneity gives precious lead time to people and helps them to safety.

o. Ensure all advance preparation

The success of a fire drill and efficient real time action depends on advance preparation. Steps will differ depending on the scale, layout, and complexity and nature of building premises as well as

number of people working in the building. Fire drills and training help prepare people to respond quickly, calmly, and safely.

Issues corresponding to vulnerable groups including persons with disabilities should be very much incorporated into preparedness and evacuation plans, as well as reported or flagged to fire in-charge or fire wardens. Fire drills are only effective if learning from the past is used to design each successive drill. Since fire drills are very important, it is critical that every person knows emergency exit to use and where the allocated assembly point is and who is in charge of conducting the roll call of people after gathering at the assembly point. There is a need to pay attention to the needs of children, disabled (physically and mentally) and senior citizen especially during an emergency. Since persons with disabilities (person may not be able to evacuate without assistance, specific arrangements are therefore necessary to ensure that they are assisted during evacuation.

p. Manage fire safety equipment before drills

For safety purpose, fire detection and warning systems should be in place. Different types of firefighting equipment as well as fire detectors, depending on the type of building, must be kept in functional condition. It is best to install equipment properly and tested it before attempting to train people. Ensure that fire alarm systems are working through regular checks and ensure that fire exit signs are in appropriate places.

q. Define roles and responsibilities of key stakeholders and manage materials

Define roles and responsibilities of relevant stakeholders viz. (i) fire safety officer, (ii) security (core fire squad), (iii) observer, (iv) security assistance, and (v) employees reports to assembly point in a participatory approach and equip them with suitable skills and knowledge. There is a need to manage basic materials (refer below) for the purpose of demonstration.

- Fire pit (iron *karai*/vessel)
- Fire extinguishers different sizes
- Bucket (20 liters' capacity)
- Loud speaker
- Cautionary tape
- Helmet, mask and globes for each person
- One set first aid kit
- Blanket
- Bed sheet
- LPG cylinder with hose and regulator
- Petrol (5 liters)

r. Rehearse before a fire drill

Before conducting a fire drill, it is best to hold rehearsals among the key team members on chart paper or through of a power point presentation. The fire drill in-charge, in coordination with fire wardens and thematic task forces, can present a step-wise process to other people to increase clarity. Holding a brief question-and-answer session after the presentation could help to remove many confusions. Special provisions are also required for persons with disabilities.

s. Appoint "silent observers"

Select a few people who are not part of any committee or task force to act as neutral or silent observers. They should have defined terms of reference. Some of their key tasks include assessing (i) the mobility of people (slow/fast, chattering/quiet), (ii) the use of cell phones when moving, (iii) unhelpful behavior such as grabbing bags even after having heard the alarm, (iv) difficulties for persons with disabilities such as hard-to-open doors or slippery stairs, and (v) whether people use the defined exit door.

5.2 During the fire drills

a. Carry out the drill as per the plan

Pull an installed smoke alarm (or create your own fire alarm if there is no smoke alarm in the building) so that everyone knows what the alarm sounds like. Also simulate the smells of burning so that signal, too, is clear. Then follow each step as shared on chart paper or by PowerPoint presentation.

b. Completely stop what you are doing

When you hear the alarm or smell smoke, you must stop anything you are doing. Do not finish any incomplete task and do not gather your things. Respond to the alarm immediately. Leave the room and proceed towards the assembly point along the evacuation route.

Make sure there is no fire near a door before you open it. Watch the door for signs of smoke, then open it a crack and peek out. If your clothes catch on fire, "stop, drop and roll" on the floor until the fire is extinguished. Special provisions are required for persons with disabilities as it is difficult for them to stop, drop and roll.

c. Start moving out from the building

Locate where the nearest exit is and move toward it using the prescribed route for evacuating the building. If you don't know where the nearest exit is, look for exit signs as you move down the hallways. If you are in a room with many other people, try to be as orderly as possible as you leave. Line up to exit the room. To avoid panic and stampede, avoid running. If it is possible, learn the route to the nearest fire exit before a fire drill happens. It's always a good idea to check that route whenever you are in a new building, especially one in which you will spend a good deal of time. Hotels, for instance, are required to have fire exit routes posts on the back of every hotel room door. Under no circumstances should you use an elevator in an emergency evacuation.

d. Walk along the evacuation route

After the smoke alarm goes off, start off on the evacuation route. Check every closed door before going through it, as you would in a real fire. In a real fire, you must check doors to see how hot they are. Look for smoke coming out from under the door, and place your hand near the door to see if it is radiating heat. If you see

neither of these signs, lightly touch the door handle to see if it is hot before grabbing it to open it. In a real fire, if you find any of these signs, you must go another route. If it feels cool, it's safe to open the door a little and peek out. If there is no smoke, it is safe to go through the door and proceed to the assembly point outside. If the space around a door feels warm, it may mean that fire behind the door. In such a condition, take another route if you can. Otherwise, you should open the door after wrapping your hand in cloth and, because smoke rises, adopt the approach "get low and go". In this case, you should bend down or crawl on your hands and knees to the nearest exit. The air will be less smoky and easier to breathe near the floor. Because children and older adults often sleep through the sound of a smoke alarm, they will need help getting to safety in a real fire emergency. In such a situation, assign an adult to help every member of the family who needs it (this is particularly applicable for drills in private houses).

e. Stay calm and quiet

Do not panic when you hear a fire alarm. It is important to be quiet and calm throughout the entire fire drill, not just when it starts. Everyone should walk quietly and calmly and avoid running as running could cause people to bump into each other or fall over and can result in overcrowded routes and exits. Running causes chaos. You are more likely to trip when you are running, and it takes much longer for all to get out if people shove and jostle each other. You should only run if fire is quite literally next to you. Furthermore, remaining calm and quiet enables people to hear the instructions of fire wardens and the fire in-charge. For example, if a fire warden tells everyone to take a different route, they have to follow that instruction. Do not push, run, talk or go back during an evacuation.

f. Treat every drill as if it were a real fire

Though you may think a fire drill is just for practice, you should always behave as if it were a real fire. You have to take drills seriously so that you can learn the proper procedure. Then, when an actual fire happens, you won't panic and will be able to manage. In fact, unlikely as it is, something could happen to cause a real emergency when you think a drill has been scheduled.

g. Close the door and leave the light on

If you are the last person in a room, close the door behind you without locking it. When you close a door, it helps slow the progress of a fire because there will not be as much oxygen to feed the fire. Closing doors also reduces the amounts of smoke and heat that can enter other rooms. Do not turn the lights off as you exit a room. Leaving the lights on helps firefighters see better. To prevent an electric fire from injuring firefighters, keep the lights on.

h. Take the stairways

Use the designated routes during a fire drill. Do not use elevators; instead, use stairways. During a real fire, firefighters use elevators to help fight the fire. Besides, elevators can be dangerous during a fire. In addition, stairways are usually pressurized, meaning they are not as smoky as other areas. For safety, everyone should descend

stairways in single file. Two lines, one to either side of a stairway, are permissible on wide staircases. As persons with disabilities cannot follow stairways properly, special alternative provisions are required for them.

i. Watch for smoke signs

Sometimes, the people conducting a drill will put up smoke signs in certain hallways to simulate what happens in a real fire. If there is a smoke sign, it is better to find an alternative route out of the building. If that is the only way out, you should practice crawling low. Smoke rises, so getting down low will make it easier for you to breathe.

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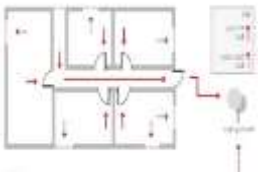
j. Clear the sidewalks

Make sure to leave sidewalks clear for firefighters to do their work. If too many people crowd the surrounding sidewalks, firefighters cannot get through. Be sure to listen for people in authority giving directions. The drill in-charge will take a head count, so he or she will direct everyone to get to the assembly point as fast as possible. Being able to hear instructions makes it important to stay quiet.

k. Wait for the all-clear signal

Do not assume that because the fire alarm has stopped, you can re-enter the building. Wait until a fire warden or the in-charge tells you it is safe to go back inside. Once you hear that, you can resume normal activities.



l. Find a window or other way to get out

If a fire is rapidly expanding in a locked room, try to find a window or other way to get out. If necessary, break the window and remove the jagged edges of glass before crawling through. If you cannot find an escape route, make as much noise as you can. If there is an alternate door, proceed through that only after testing to see if there is fire on the other side. If you are stuck inside a room, open a window and start screaming for help. Your cries or flash light or mirror will get the attention of a firefighter.

m. Move to a safe distance

If there really is a fire, the building could eventually collapse. Thus, even during a drill you should move a safe distance away from the building so that there will be no further danger.

n. Make observations, record time and the drill process

Fire drills happen infrequently, so it is important to observe the process carefully so that you can assess its good aspects and note areas that need improvement. Such observations serve as learning that can increase the effectiveness of future drill designs. Record the

time it takes for a building to be evacuated and for everyone to congregate at the fire assembly point. Try to track how quickly different individuals are able to exit and meet at the assembly point. If the process of safe evacuation takes too long, investigate ways to speed up the process while at the same time still discouraging rushing so that they can be used in the next drill. Soliciting feedback from the participants will likely provide useful insights. It is good to keep records of all fire drills and the people involved in them to incorporate in fire safety procedures and apply to future learning. Records serve as evidence that a change is needed and as a knowledge product for others.

o. Roll call

Once everyone reaches the assembly point, people should line up as instructed by the in-charge or a fire warden so a roll call can be taken. At the assembly point, a roll call must be taken to determine whether or not anyone is still in the building. If anyone is missing, it is crucial that a responsible person/task force members find out the reasons for his or her absence, which may include not having been able to hear the alarm, having panicked, or having gotten lost. The in-charge should make a note of these reasons and resolve the underlying issues as soon as possible. While the roll call is being taken, a designated fire warden should call the local fire stations. They should be told the exact address (street, house number and contact telephone number) where the fire has broken out and the sources and nature of the fire. After having escape, a burning building, no one should ever go back inside for any reason. Only trained firefighters with technical skills should go inside a burning building.

p. Offer thanks to everyone

Do not worry if the drill is not performed as per the plan. Areas of improvement in the form of learning will always exist. Learning should be utilized while designing the drill for the next time. The fire drill in-charge should thank everyone who took part for their active participation. If possible, a drill should be repeated with variations like pretending a door feels warm or that smoke can be seen in the hallway when they peek through a door opened a crack. Escape plans should be posted in locations that everyone can see. Evacuation plans should also be shared with visitors and guests for safety purposes. Even though practicing a fire evacuation plan can be lifesaving, some people might not take the exercise as seriously as they should. Put an extra effort into motivating such people in order to improve their preparedness and efficiency during fire drill. Following a successful fire drill (one with no "casualties" and in which everyone meets the targeted time for escaping), offer thanks for the wonderful jobs.

q. Steps in using a fire extinguisher

Step 1: Identify the type or classification of fire

Fire experts identify the different types of fires using a five-letter naming system: Type A, Type B, Type C, Type D, and Type K (Table 1 for details). The type of fire extinguisher needed depends on the type of fire that is burning. To successfully extinguish a fire, the

right type of extinguisher must be used. Fire ball could also be used.

Box-4: Fire safety checklist after a fire drill

- Was the fire alarm heard throughout a building and its premises?
- Did the fire drill in-charge and fire warden perform their responsibilities as laid out in the plan?
- Could the fire escape routes handle the number of people who used them?
- How did people react?
- Did anyone need special assistance due to their specific health, person with disabilities or other issues?

Table 1: Type of fire and extinguishers

Type	Fire involving
Type A	Wood, paper, cloth, rubber, and many plastics.
Type B	Flammable liquids and gases including gasoline, solvents, propane, and paints.
Type C	Energized electrical equipment, including fuse boxes, wiring, control panels, computers, photo-copiers, machines, and appliances (anything plugged into electricity).
Type D	Metals, including combustible powders, shavings, or flakes of metals such as magnesium, titanium, potassium, and sodium.
Type K	Cooking oils and fats often used in commercial kitchens.

Step 2: Get the right type of fire extinguisher

Once you know the type of fire, check to see if you have the appropriate type of fire extinguisher to douse the fire. The label on the fire extinguisher will tell you what type of fire (or class of fire) the fire extinguisher can safely put out. A fire extinguisher with an "A" label can extinguish Type A fires and so forth.

Step 3: The PASS method for using a fire extinguisher

Once you know the type of fire and have selected an appropriate fire extinguisher, you need to use the extinguisher to put the fire out. Not everyone knows how to use an extinguisher, so only those experienced in their use should handle them. In a crisis, however, in which no one is informed, there is a simple, four-step method one can follow to use a fire extinguisher properly. As shown below, you can recall it by remember the acronym "PASS."

P-PULL the pin
Many fire extinguishers have a pin near the handle at the top like the one shown in the image. Begin by removing that pin. In some cases, instead of a pin, there is been a lock latch that you will have to release or a puncture lever that you will have to press. Because these steps can differ, learn how the fire extinguishers at your workplace or in your home operate BEFORE you have a fire.

A-AIM the nozzle, horn, or hose
Aim the nozzle, horn, or hose of the fire extinguisher at the base of the fire (this means the bottom, where the stuff that is burning is located). A common mistake is to aim into the flames. This won't douse the fire.

S-SQUEEZE the handle
Squeeze the handle of the fire extinguisher. This will cause the fire extinguisher to begin working.

S-SWEEP from side to side at the base of the fire
Use a sweeping motion from side to side to cover the base of the fire.

Continue extinguishing the fire until the fire is completely out. After the fire appears to be out, watch the area in case the fire breaks out again, and repeat the use of the extinguisher if necessary.

r. Ensure that a well-stocked first aid kit is available

A well-stocked first aid kit is a handy thing to have. To be prepared for fire emergencies, keep a first aid kit at the ready. While preparing the kit, make sure it has all the items needed, including medications, emergency phone numbers, and other items your healthcare provider may suggest. Replenish the kit regularly. Make sure flashlight batteries work. Check expiration dates and replace any used or out-of-date contents. The American Red Cross suggests that a first aid kit for a family of four should include the list of materials as shown in table 2.

Table 2: List of materials in the first aid kit

• 2 absorbent compress dressings (5 x 9 inches) • 25 adhesive bandages (assorted sizes) • 1 adhesive cloth tape (10-yards x 1 inch) • 5 antibiotic ointment packets (approximately 1 gram) • 5 antiseptic wipe packets • 2 packets of aspirin (81 mg each) • 1 blanket (space blanket) • 1 breathing barrier (with one-way valve) • 1 instant cold compress • 2 pair of non-latex gloves (size: large)	• 2 hydrocortisone ointment packets (approximately 1 gram each) • Scissors • 1 roller bandage (3 inches wide) • 1 roller bandage (4 inches wide) • 5 sterile gauze pads (3 x 3 inches) • 5 sterile gauze pads (4 x 4 inches) • Oral thermometer (non-mercury/non-glass) • 2 triangular bandages • Tweezers • First aid instruction booklet • Other kits suitable for person with disabilities

5.3 After a fire drill

a. Fire drill evaluation

After the roll call, the neutral observers should conduct a debriefing session in the presence of everyone who was involved during the drill to share overall strengths and areas needing improvement. The observer should draft a note that identifies those steps that went perfectly well and those that went only fairly well. After every drill, the key task is to identify good aspects (success factors) and areas of improvements (learning) that can be incorporated in future designs.

The evaluation should be based on the following set of questions.

- Did the fire alarm activate properly as called for in the evacuation plan?
- Did everyone hear the alarm of smoke alarm of drum beat or flash light regardless of where they were in the building or on the premises?
- Did any voice or other type of communication system used (for example, hand mike) operate properly and were instructions audible to all?
- Did people close the doors and windows before evacuating?
- Was equipment properly shutdown as per the plan?
- Did everyone participate in the drill?
- Did people carry out their emergency duties properly?
- Did people follow the assigned evacuation routes?
- Were corridors and stairwells clear and unobstructed before the drill?
- Did people who need assistance during evacuation receive that assistance?
- Did people go directly to the assembly area after evacuating the building?
- How quickly was the drill actually carried out?
- Did all people evacuate within the estimated time frame?
- Did everyone know where to assemble after evacuating from the building?
- Were the fire wardens effective in guiding people during the evacuation?
- Did the drill in-charge or fire wardens responsible for roll call carry out that task efficiently?
- Were there any difficulties with particular routes?
- Were appropriate alternative routes available?
- Did all equipment, including alarms, sprinklers, fire doors, and fire extinguishers work effectively?

b. Actions to resume normal processes

Following the evaluation, ensure that fire alarm system is back to normal operating conditions, that the (imaginary) fire is extinguished, and that the (imaginary) burnt area is cleared. Then declare the individuals that they can re-enter. Re-evaluate any concerns that arose during the fire drill and discuss them with senior management for further action. Prepare a fire drill report and a future fire safety plan that addressed all concerns that arose in order to ensure continual improvement.

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ANNEX

Annex 1: Fire Control Framework

Fire control component	Strategy	Activities	Responsibility
1. Policies, Strategies and Enforcement	• Policies, regulations and strategies • Fire safety code	**Policies, regulations and strategies** • Review existing fire-related policies/ legal/ institutional frameworks • Prepare SOPs to regulate fire responses • Mainstreaming of fire-related issues in DRR policies and plans • Educate and enforce the provisions of fire building codes • Capacity of officials at every tier of government **Fire safety code** • Develop Fire Safety Code and process of its regulation • Educate stakeholders including the general public on its provisions • Advocacy with the national/provincial and local governments and other relevant stakeholders to prioritize fire as a potential hazard • Advocate for the mainstreaming fire code-related provisions in the national/provincial and local governments bylaws and policy.	National/Provincial and Local Governments National/Provincial and Local Governments and NGO's
2. Technology, Tools and Resources	• Manage Fire trucks and water pumps • Manage and update Tools and equipment • Monitor Fire danger ratings and EWSs • Monitor Multiple fire incidents and their behavior	**Manage Fire trucks and water pumps** • Equip and manage fire stations/departments with fire trucks • Equip fire stations/departments with water pumps, suction. • Periodically re review and expand the capacity of fire stations • Map traditional water ponds, water hydrants and other sources **Manage and update Tools and equipment** • Equip fire stations/department personnel with personal safety gears. • Stockpile adequate and essential spare parts for machinery equipment. • Facilitate the storage of to respond to industrial fires • Coordinate and manage fire ambulance or ambulance services. **Monitor Fire danger ratings and EWSs** • Develop a fire danger rating system with smart indicators. • Facilitate the installation of a national or regional EWS, • Establish an information and communication network. **Monitor Multiple fire incidents and their behavior** • Form a coordination committee with defined terms of reference.	National/Provincial and Local Governments/Private Sector

		• Craft plans with defined indicators that cover resource- allocation and prioritization	
3. Education and Knowledge Management	• Awareness about fire preparedness • Fire prevention initiatives • Detection, and dispatch of messages • Capacity, skill, and knowledge	**Public awareness and education** • Develop age-, gender- and target group-specific fire awareness and educational materials • Acknowledge and consider the cultural and social norms of the communities targeted • Develop short videos, organize quiz competitions, run thematic debates and discussions, • Support the designing of a curriculum of full-fledged training. • Organize training, drills, and simulations on fire emergency fire management., • Design and implement programs to raise awareness about fire preparedness. • Promote to increase the participation of the private sector, local clubs, and NGOs in fire responses. • Organize periodic coordination and interaction meetings among fire brigade teams, security agencies, FNCCI, etc. • Support municipalities in the preparation of fire-response and contingency plans. • Disseminate telephone number of the fire station (101) through electronic and print media. • Establish mechanism for exchange of information among fire station, security forces and other critical services **Awareness about fire preparedness** • Conduct an audit of the safety of with clear indicators and provisions. • Aware to improve communication to prioritize the free movement of emergency response vehicles • Facilitate to regulate the removal of speed breakers in unnecessarily locations • Promote the regular maintenance of fire alarms and extinguishers. **Fire prevention initiatives** • Develop a comprehensive fire prevention plan • Set up IMS to collect data on the demography of fires • Manage and motivation of permanent staff. • Support the fire station management plans with adequate budget **Detection, and dispatch of messages** • Promote the use a robust fire detection system • Develop a fire emergency communications plan • Train, equip, and support staffs involved in fire response • Develop dispatch and communications system/mechanisms • Formulate large fire suppression strategies and tactics • Use local technology and indigenous knowledge **Capacity, skill, and knowledge**	National/Provincial and Local Governments/Private Sector/NGO

		• Administer periodic capacity needs assessment and design accordingly. • Promote and regulate periodic fire drills. • Promote, regulate and monitor fire risk and threat mapping. • Organize periodic review-and-reflection with fire station staff.	
4. Institutional arrangements and Coordination	• Fire and resource management • Resources and accountability • Fire safety, and contingency plans • Fire preparedness and response plan • Monitoring and assessment	**Fire and resource management** • Assess, analyze and review the fire and resource management initiatives • Craft fire and resource management plans • Coordinate with the FNCCI, corporate houses to contribute resources • Facilitate municipalities in leveraging financial resources. **Resources and accountability** • Formulate and prioritize fire-related activities. • Adopt and regulate dedicated percentage of municipality budget • Organize review-and-reflection on fire preparedness and response. • Support the formation of fire control teams and local youth groups. • Improve existing emergency information-sharing mechanisms. • Digitize fire incidents into the local emergency operation center database • Strengthen inter-agency coordination • Build bottom up linkage among *Tole* Lane Organizations, community groups and fire stations **Fire safety, and contingency plans** • Engage municipal authorities during the formulation of fire safety, emergency and contingency plans • Formulate SOPs with defined roles and responsibilities • Identify the most critical fire danger areas and map **Fire preparedness and response plan** • Craft fire preparedness and response plans • Arrange equipment for fire safety and PPE. • Prepare fire preparedness and response policies/strategies • Sensitize municipal authorities to develop fire preparedness and response plans • Demarcate fire zones, installation of lightning device, and stationing of fire extinguishers. • Develop a special protocol on fire management for risky areas • Develop fire preparedness plan which includes fire risk and threat mapping. • Develop fire response plans incorporating (i) warning call and notification procedures, (ii) the alert at the incident site, (iii) plan activation and debriefing, and (iv) analysis and deactivation.	National/Provincial and Local Governments/Private Sector

		Monitoring and assessment • Develop and implement a comprehensive monitoring plan • Document near-miss incidents, and review lessons learned • Use information and data from fire prevention programs • Monitor the ecological effects of fires and suppression methods	

Annex 2: Stepwise Fire Drill Framework

Before a Fire Incident	During a Fire Incident	After a Fire Incident
1. Establish a fire safety committee and task force • Fire alarming task force • Evacuation task force • Search and rescue task force • Fire-fighting task force • First aid task force	1. Carry out the drill as per the plan	• Fire drill evaluation
2. Select a fire in-charge and fire wardens	2. Completely stop what you are doing	• Actions to resume normal processes
3. Craft roles and responsibilities	3. Start moving out from the building	
4. Communicate with local fire stations' in-charges	4. Walk along the evacuation route	
5. Educate people	5. Stay calm and quiet	
6. Impart basic fire safety training	6. Treat every drill as if it were a real fire	
7. Formulate a fire escape emergency plan	7. Close the door and leave the light on	
8. Modify fire drills based on scenarios	8. Take the stairways	
9. Communicate about evacuation routes	9. Watch for smoke signs	
10. Craft do's and don'ts and other rules to follow	10. Clear the sidewalks	
11. Update the records of people	11. Wait for the all-clear signal	
12. Clear the evaluation route	12. Find a window or other way to get out	
13. Ensure regular fire safety checks	13. Move to a safe distance	
14. Test smoke alarms	14. Make observations, record time and the drill process	
15. Ensure all advance preparation	15. Roll call	
16. Arrange fire safety equipment before drills	16. Offer thanks to everyone	

17. Define roles and responsibilities of stakeholders and manage basic materials	17. Steps in using a fire extinguisher
	• Identify the type or classification of fire
	• Get the right type of fire extinguisher
	• The PASS method for using a fire extinguisher
	  • P-PULL the pin
	  • A-AIM the nozzle, horn, or hose	

	• S-SQUEEZE the handle • S-SWEEP from side to side at the base of the fire	
18. Rehearse before a fire drill		
19. Appoint "silent observers"	18. Ensure that a well-stocked first aid kit is available	